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# Task sharing in mental health service provision: Developing a model for clinical associates in South Africa

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## Declaration: Authorship

I, Saiendhra Vasudevan Moodley, declare that the thesis "Task sharing in mental health service provision: Developing a model for clinical associates in South Africa" which I hereby submit for the degree Doctor of Philosophy (Public Health) at the University of Pretoria is my own work and has not previously been submitted by me to any tertiary institution.

Signature:  Date: 4 December 2023

# Dedication

To my late parents Rubasoundrie and Vasudevan Moodley for their love and support, all their sacrifices in ensuring that I received the best education possible, and being my two biggest cheerleaders over the years. And to my sister, Priyashini for taking on the responsibility of caring for them in their final years, I will forever be grateful. To my late uncle, Dayananthan Moodley for the interest in my work and being a constant source of encouragement. Finally, to Professor Emeritus Maila John Matjila who not only gave me my grounding in public health but more importantly provided me and many others with an example of excellence, professionalism, integrity, and decency to aspire to.

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# Publications and conference presentations

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# Executive Summary

**Background:** The epidemiological evidence suggests that mental illness is a significant public health concern globally and in South Africa (SA). There is a shortage of the human resources needed to deliver mental health services in SA with an urban-rural maldistribution of the available mental health workforce. Given the mental health workforce shortages, task shifting and task sharing approaches have been implemented in many countries in order to deliver mental health services. Clinical associates are possibly an under-utilised resource in mental health task sharing approaches in SA. Their potential role in mental health service provision particularly in underserved areas in SA needs to be explored.

**Aim:** To develop a model of task sharing in mental health in South Africa focussed on clinical associates

**Methods and results by objective**

***Objective 1: To describe the mental health content of the three clinical associate training programmes in South Africa***

A collective case study approach was utilised involving the three universities offering undergraduate clinical associate degrees viz. Walter Sisulu University, the University of Pretoria and the University of Witwatersrand. In-depth interviews using videoconferencing were conducted with individuals involved in each programme and documents such as study guides and timetables were reviewed. Thematic analysis of interview and document-sourced data was conducted with similarities and differences between the programmes described.

We found that mental health was included in the curricula and assessments of all three programmes. Virtually all mental health teaching and training occurs in the final year of the three-year degree which was considered a missed opportunity for earlier learning in other rotations. Disorders covered were fairly similar at the three universities including uncommon disorders that clinical associates are unlikely to encounter or would not be required to manage. The approach to facility-based training was different at the three universities with one adopting a practical approach at a hospital with a mental health unit, the second a more theoretical approach with limited practical exposure, and third not have a universal approach as there was considerable variation between facilities. There was support from participants for a role for

clinical associates in mental health particularly at primary health care facilities and district hospitals. The most frequently identified role for clinical associates was in providing immediate care to mental health patients presenting in emergency settings. It was felt they need additional training in mental health in the form of short courses and a clinical specialisation.

***Objective 2. To determine knowledge, attitudes and practices of clinical associates with respect to management of mental illness***

A cross-sectional study of clinical associates based in South Africa was conducted. The questionnaire incorporated the 16-item Mental Illness Clinicians' Attitudes scale version 4 (MICA-4) as well as questions related to knowledge, confidence, practices, and interest in mental health service provision and further training. The questionnaire underwent expert validation followed by cognitive interviews prior to finalisation. The link to an electronic informed consent document and the questionnaire was distributed by the Professional Association of Clinical Associates in South Africa, e-mailed to two alumni databases, and sent to clinical associates we could reach on social media.

The vast majority of participants (98.1%) indicated they had training on management of patients with mental illness during their clinical associate undergraduate degrees and 91.9% indicated they had a mental health rotation. Most participants rated their knowledge of various mental disorders that are considered important in the SA context as 'good' or 'excellent' with the only exception being attention-deficit hyperactivity disorder (29.5%). Only 50.3% of participants felt 'quite confident' or 'very confident' taking a mental health history and even fewer (43.2%) in carrying out a mental health examination. The mean MICA-4 score recorded was 37.55 (SD 7.33) which is at the lower end of the scale indicating less stigmatising attitudes. There was considerable interest in mental health work (83.8%) and in a specialisation in mental health (66.5%).

***Objective 3. To describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates***

Focus group interviews of medical doctors and nurses involved in mental health service provision, and health managers were conducted in four districts of South Africa. The districts were selected on the basis of already employing clinical associates and there was one district from each of Eastern Cape, KwaZulu Natal, Mpumalanga, and North West provinces. The number of participants in each focus group ranged from 6-8 and there were 29 participants in

total. Four themes emerged from the focus group discussions viz. 'mental illness is not going away', 'the health system cannot cope with mental illness', 'clinical associates could be part of the remedy' and 'specialised clinical associates could help mend the mental health system'. The participants felt that the performance of clinical associates in other disciplines suggests their potential usefulness in mental health but there are barriers and constraints that needed to be addressed.

***Objective 4: To identify the key elements of a mental health task sharing model for clinical associates***

The Delphi method was utilised to reach consensus on the key elements of a model for mental health training and service provision. The Delphi panel consisted of family physicians and psychiatrists from the public and private sectors in South Africa. The Delphi survey was administered electronically and consisted of three rounds. The questionnaire consists primarily of scales of 1 to 9 with consensus based on proportion 70% of participants rating 1,2,3 or 7,8,9. Items reaching consensus were not included in subsequent rounds.

Consensus was reached on training on the management of six categories of disorders in the undergraduate curriculum viz. depressive disorders, anxiety disorders, substance-related and addictive disorders, trauma and stressor related disorders, bipolar and related disorders, and schizophrenia spectrum and other psychotic disorders. An additional three disorder categories reaching consensus at postgraduate levels viz. medication-induced movement disorders and other adverse effects of medication, neurodevelopmental disorders, and neurocognitive disorders. The panel reached consensus on primary health care clinics, community health centres and district hospitals as appropriate work settings for clinical associates with undergraduate mental health training to provide mental health services with GP practices and secondary hospitals added for those with a postgraduate qualification in mental health. The panel reached consensus on 10 of the 21 tasks provided that could be performed based on undergraduate training and 20 of the same 21 provided tasks for those with a postgraduate qualification in mental health.

**Conclusion**

Undergraduate training in mental health needs to be strengthened through early exposure, ensuring a minimum of four weeks of mental health training, focusing on common and high burden conditions, and placement in settings that would ensure practical exposure to mental

health patients. Mental health short courses should be provided to close the gaps for those already qualified. The universities with undergraduate clinical associate programmes should consider offering advanced training (Honours or a postgraduate diploma) in mental health. Consideration should be given to including clinical associates in the definition of 'mental health practitioner' in the Mental Health Care Act, 2002 and to reviewing the scope of practice of clinical associates to allow clinical associates with appropriate training to prescribe psychiatric medication.

**Keywords:** clinical associates, task sharing, mental health, mental illness, psychiatry, curriculum, training, Delphi method, clinician attitudes, health workforce

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# Acronyms and abbreviations

| | |
|---|---|
| ACT | Assertive community treatment |
| ADHD | Attention-deficit hyperactivity disorder |
| BCMP | Bachelor of Clinical Medical Practice |
| BMCP | Bachelor of Medicine in Clinical Practice |
| CES-D | Centre for Epidemiological Studies Depression scale |
| CHC | Community health centre |
| CI | Confidence interval |
| COPC | Community-orientated primary care |
| COVID-19 | Coronavirus disease 2019 |
| DALYs | Disability-adjusted life-years |
| GP | General practitioner |
| HIV | Human Immunodeficiency Virus |
| HPCSA | Health Professions Council of South Africa |
| ILO | International Labour Organisation |
| KAP | Knowledge, attitudes, and practices |
| mhGAP | World Health Organization Mental Health Gap Action Program |
| MICA-4 | Mental Illness Clinicians' Attitudes scale version 4 |
| PACASA | Professional Association of Clinical Associates in South Africa |
| PGDip | Postgraduate diploma |
| PHC | Primary health care |
| SA | South Africa |
| TDF | Theoretical Domains Framework |
| UK | United Kingdom |
| UP | University of Pretoria |
| USA | United States of America |
| WHO | World Health Organization |
| Wits | University of Witwatersrand |
| WSU | Walter Sisulu University |
| YLDs | Years lived with disability |

# CHAPTER 1: INTRODUCTION

## 1. Background and rationale for the study

The health workforce is one of the six building blocks of a health system together with stewardship, financing, service delivery, access to essential medicines and health information systems.[1,2] Health workers have been described as the "*backbone of strong, resilient health systems*".[3] The Kampala Declaration in 2008 recognised the global health workforce crisis with a global deficit of more than four million health workers needed to provide essential care.[4] This deficit has increased since then, as global supply of health workers is outstripped by demand.[3] It is estimated that the needs-based deficit using a threshold of 3.45 health professionals (medical doctors and nurses) per 1 000 will be over ten million health professionals in 2030.[5] Sub-Saharan Africa alone is projected to have a needs-based gap of approximately 3.75 million health professionals in 2030.[5]

The global health workforce crisis resulting from supply deficits is exacerbated by distribution deficiencies between and within countries.[6,7] The World Health Organization (WHO)[8] reported in 2013 that 83 countries (44.6%) did not meet the critical threshold of 22.8 skilled health professionals per 10 000 population and 100 countries (53.8%) were below the International Labour Organisation (ILO) threshold of 34.5 skilled health professionals per 10 000 population. At that stage, 31 (57%) of the 54 countries which fell below both the skilled health professional to population ratio critical threshold (22.8 per 10 000).[8] For most countries, spatial imbalances in the distribution of their health workforce, particularly urban-rural maldistribution, poses a challenge.[7,8]

According to the WHO[9], South Africa has 9.1 medical doctors, and 35.2 nurses and midwives per 10 000 population. Though this exceeds the ILO threshold for skilled health professionals, imbalances exist with respect to the distribution of these health professionals between the public and private sectors as well as rural and urban areas.[10] Within the public sector, there are substantial differences in the density of health professionals when comparing between provinces.[11] The density of medical specialists in the public sector, for example, ranges from 0.13 per 10 000 uninsured population in Limpopo to 2.50 per 10 000 uninsured population in the Western Cape.[11]

A number of strategies have been employed to address the global health workforce crisis. The WHO Global Code of Practice on the International Recruitment of Health Personnel sought to address issues of migration of health professionals from lower-income to higher-income countries.[8] A number of interventions have also been utilised to address the inequitable distribution of health professionals within countries including financial and non-financial incentives, providing opportunities for professional development, increasing the residency period, and rural attachments during training.[8] Over the last 25 years, South Africa has adopted various strategies to address its health workforce challenges including compulsory community service for medical doctors, recruitment of Cuban doctors, training of medical students in Cuba, and financial incentives (e.g. the introduction of occupational specific dispensation).[12]

One of the strategies to address the health workforce crisis is task shifting and task sharing. Task shifting or task sharing refers to "*the rational redistribution of tasks among health workforce teams*".[13] By moving appropriate tasks to health workers who have fewer qualifications and have undergone shorter training, more efficient use can be made of the health workforce.[13] The initial focus of task shifting approaches was in the area of HIV care. A systematic review by Callaghan *et al.*[14] found it to be an effective strategy to address health workforce shortages in HIV treatment and care in Africa. They concluded that this approach is able to offer more patients cost-effective care that is of high quality than a traditional physician-centred model.[14] Task shifting and task sharing approaches have been increasingly used for non-communicable diseases.[15,16,17] For example, a systematic review and meta-analysis reported that task-sharing approaches are effective in reducing blood pressure in adults living in low- and middle-income countries.[17]

Despite growing evidence of the disease burden due to mental illness[18-20], mental health remains a neglected public health concern. Mental disorders result in substantial health system costs, lost worker productivity and caregiver burden to relatives.[21] At an individual level, there is impaired functioning, stigma, and human rights violations in certain cases.[21] There is evidence of severe shortages of the health workforce required for mental health in many low- and middle-income countries.[21,22] This shortage has necessitated the use of task shifting and task sharing approaches in mental health (as has been seen with HIV, maternal and child health, and other non-communicable diseases) involving non-specialist health workers in many countries.[15,22,23-26]

Many task shifting and task sharing approaches involve mid-level health workers. Mid-level health workers are a group of cadres that undergo a shorter period of training than medical doctors but will carry out some of the diagnostic and treatment functions usually performed by doctors.[27,28,29,30] This group of cadres includes non-physician clinicians (e.g. physician assistants, clinical officers and medical assistants), surgical technicians, midwives and some types of nurses (e.g. clinical nurse specialists and nurse practitioners).[28,29] Lassi et al.[28] found no difference in effectiveness of care when comparing mid-level health workers to those with higher qualifications in a systematic review and meta-analysis.

Training of a mid-level health worker cadre falling within the non-physician clinician category (mid-level medical worker) began in South Africa at Walter Sisulu University (WSU) in 2008 and the University of Pretoria (UP) and University of Witwatersrand (Wits) in 2009.[31] Named clinical associates and working under the supervision of a medical doctor, the first cohort of this cadre entered the South African health system in 2011.[31,32] Annually, there are approximately 70 to 140 clinical associate graduates from the three universities offering the degree.[33] There were 1 797 clinical associates registered with the Health Professionals Council of South Africa in 2022,[34] the majority of whom work in the public sector.[33] There is evidence from the University of Pretoria that the majority of their clinical associate students intend working in rural areas.[35] Clinical associates have been successfully utilised in SA in task sharing approaches such as performing surgical voluntary male medical circumcision.[36] However, a role for clinical associates in mental health task sharing is unexplored. The successful utilisation of clinical associates in mental health service provision in underserved areas could potentially address the shortage of specialist mental health practitioners, reduce the psychiatric workloads of non-specialist medical doctors, and improve the quality of mental health care.

## 2. The core research problem and its significance

The role of clinical associates in the provision of mental health service is ill defined. Their scope of practice, however, includes taking an history, performing an examination, performing diagnostic procedures, formulating a diagnosis, developing a management plan and performing specified procedures under supervision of a medical doctor.[32] This list of 'procedures' includes "Mental health examination", "Mental Health History", "Mini Mental State (MMS) examination" and "Counselling - family /mental health".[32] It is not clear the extent to which

clinical associates in South Africa have been trained in the area of mental health in order to deliver mental health services effectively.

There is evidence of high prevalence rates and a high disease burden due to mental illness in South Africa.[37-41] Access to mental health services in the public sector (and in rural areas particularly) in South Africa is a concern.[42-44] While the use of lay health workers (such as community health workers) without professional qualifications in underserved settings offers obvious benefits in rapidly expanding mental health service delivery, there are potentially limitations in the mental health services they can deliver due to their limited training. In addition to nurses and non-specialist medical doctors, clinical associates offer a further option of a clinically trained health professional that can be utilised in mental health service provision in underserved areas.

There is a lack of data on the mental health services that clinical associates in South Africa provide with their only documented role being their involvement in a substance abuse programme in Tshwane.[33] Clinical associates appear to be a potential underutilised resource in mental health services in SA, unlike similar cadres in some other countries.[45-48] While the differences in training and scope of practice of these cadres should be borne in mind, it does suggest a role in mental health that merits attention for clinical associates in South Africa.

## 3. Problem Statement

The available evidence suggests that South Africa has a high prevalence of mental disorders and these are a significant contributor to its disease burden. South Africa has a shortage of specialist mental health professionals with a public-private sector and urban-rural maldistribution. Task sharing approaches are critical to ensure mental health service provision in underserved areas. Clinical associates are possibly an under-utilised resource in mental health task sharing approaches in SA. Their potential role in mental health service provision particularly in underserved areas in SA needs to be explored.

## 4. Aim and Objectives

### 4.1. Aim

To develop a model of task sharing in mental health in South Africa for clinical associates.

### 4.2. Objectives

1. To describe the mental health content of the three clinical associate training programmes in South Africa;
2. To determine the knowledge, attitudes and practices of clinical associates with respect to the management of mental illness;
3. To describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates; and
4. To identify the key elements of a mental health task sharing model for clinical associates.

**5. Theoretical Framework**

The Theoretical Domains Framework (TDF) was developed by Michie *et al.*[49] It has been used extensively in implementation research in healthcare settings.[50,51] The TDF was synthesised from a total of 128 theoretical constructs from 33 theories that a team comprising behavioural scientists and implementation researchers identified as being the most relevant to address implementation questions.[51] The refined TDF proposed by Cane *et al.*[50] contains 14 domains and a total of 84 component constructs. These 14 domains have been mapped according to Behaviour Change Wheel's COM-B components of capability, opportunity and motivation as follows:

a) Capability: (1) Knowledge, (2) Skills, (3) Behavioural Regulation, (4) Memory, Attention and Decision Processes
b) Opportunities: (5) Environmental Context and Resources, (6) Social Influences
c) Motivation: (7) Social/Professional Role and Identity, (8) Beliefs about Capabilities, (9) Beliefs about Consequences, (10) Optimism, (11) Reinforcement, (12) Intentions, (13) Goals, (14) Emotions.[50]

The TDF assesses comprehensively the possible influences on behaviour thus making it a very useful theoretical basis for intervention development.[50,51] Each domain is clearly specified by component constructs e.g. the "Beliefs about Capabilities" domain includes component constructs such as self-confidence, perceived competence, self-esteem, self-efficacy, empowerment and professional confidence.[50] The TDF can be applied by either quantitative or qualitative data collection.[50]

The choice of the TDF for this study is based on its wide coverage of potential reasons underlying implementation problems.[51] The TDF domains are relevant to task sharing research

and has been used by Feiring and Lie[52] in task shifting research focussing on doctors and nurses. Potential issues and barriers to successful implementation of a task sharing model can be identified and addressed using the TDF.[52] The framework allows for both individual and contextual factors to be taken into account.[50] Crucial issues for the task sharing such as knowledge, skills and professional role are part of the TDF.[50] Both the training and health services context can be explored using the framework. Importantly for this research, the TDF can be used to progress from investigation to design of an intervention.[51]

## 6. Methodology

An overview of the methods is presented in this section. Additional details of the methodology are presented in the relevant chapters as part of the manuscripts. The study consisted of three phases with Phase 1 linked to Objective 1, Phase 2 linked to Objectives 2 and 3, and Phase 3 linked to Objective 4:

### Phase 1: Review of Clinical Associate (BCMP/BMCP) Curricula Content

A collective case study approach was used to explore curricula content. Creswell and Poth[53] describe case study research as a qualitative approach that explores one or more contemporary, real life bounded systems (case or cases) over time through in-depth data collection utilising multiple data sources. A collective case study is one in which multiple cases are selected to illustrate the issue or show different perspectives.[53] This was a multisite study involving the three universities offering clinical associate training (Bachelor of Clinical Medical Practice (BCMP) or Bachelor of Medical Clinical Practice (BMCP) degrees). The study consisted of in-depth interviews using an interview guide (Appendix I) with individuals involved in each programme such as BCMP/BMCP academic co-ordinators, individuals responsible for mental health teaching, the 2020 final-year class representatives, the BCMP/BMCP site co-ordinators, and clinicians providing mental health training. The interviews were conducted using videoconferencing with cameras switched off. The participants were asked to choose the videoconferencing platform (Microsoft Teams or Zoom) they preferred to balance the power differential between interviewer and interviewee.[54]

Data were also obtained from reviewing relevant documents including study guides, timetables, and lecture slides. The in-depth interviews combined with the document review provided data on the time allocated to formal mental health teaching in the curriculum, mental disorders covered in formal lectures, presence and duration of the practical training, training on the

relevant procedures (skills) listed in the clinical associates' scope of practice[32], and type of assessments and their respective weightings for the mental health component of the curriculum. The in-depth interviews also provided data on the perceptions of the adequacy of mental health training in the curriculum, perceptions of mental health services that clinical associates are competent to provide based on their current training, the views on current and future roles of clinical associates in mental health service provision, and views on a mental health specialisation for clinical associates. The variables measured in this phase address the knowledge and procedural knowledge constructs (Knowledge domain) and the skills, skills development, competence and skills assessment constructs (Skills domain) of the Theoretical Domains Framework.[50]

The in-depth interviews were professionally transcribed. Codes were allocated using Atlas.ti to significant statements in the transcribed in-depth interviews and to significant information in the documents obtained .[55] Data analysis used the approach outlined by Creswell and Poth[53] for case study research. Categorical aggregation was utilised to establish themes and direct interpretation (drawing meaning from a single instance) was employed.[53] Cross-case theme analysis was done to identify similarities and differences between the programmes.[53]

**Phase 2: Assessing the readiness for clinical associate task sharing in mental health**

This phase utilised a mixed-methods approach consisting of two methodological components viz. a cross-sectional knowledge, attitudes and practice (KAP) survey involving clinical associates as well as a focus group discussions with key stakeholders. Understanding clinical associates' mental health knowledge, attitudes and practices, provides an indication of how ready they are to take on mental health tasks while the key stakeholders provide insight into their attitudes and willingness towards mental health task sharing involving clinical associates and health system readiness for this. The variables measured in this phase address the following domains and constructs of the Theoretical Domains Framework[50]:

- Knowledge: knowledge
- Social/professional role and identity: professional identity, professional role, professional boundaries, professional confidence
- Beliefs about capabilities: self-confidence, perceived competence, empowerment, professional confidence

- Environmental context and resources: organisational culture/climate, barriers and facilitators
- Social influences: social support, power, intergroup conflict

**Phase 2a: KAP Survey**

This was a national survey of clinical associates. The study population for the KAP survey was all clinical associates based in South Africa. The exclusion criteria were clinical associates qualified for less than six months, those who had emigrated from South Africa, and those who were pursuing, or had already qualified, with other professional degrees (e.g. a medical degree). The measurement tool for the KAP survey was an electronic questionnaire using Qualtrics software. The questionnaire (Appendix K) consisted of demographic characteristics, BCMP/BMCP degree details, details of their mental health training, current mental health knowledge and confidence, attitudes towards mental illness, current practices, and interest in mental health service provision. The questionnaire incorporated the 16-item Mental Illness Clinicians' Attitudes version 4 scale (MICA-4).[56] The knowledge, confidence, practice and interest items that used scales were validated for representativeness, clarity and relevance.[57] A group of six experts (three family physicians and three psychiatrists) were identified and were provided with a content validation form to complete.[57] This step was followed by individual cognitive interviews with five clinical associates to ensure that the respondents interpret the items as intended by the researcher.[57]

The link to an electronic informed consent document and questionnaire was distributed by the Professional Association of Clinical Associates in South Africa, e-mailed to two alumni databases, and sent to clinical associates we could reach on social media. As an incentive, gift vouchers to the value of R1 000 each were awarded to five randomly selected respondents. An end of survey redirect was used for completion of contact information for the incentive ensuring that the contact information was not linked to the anonymous KAP survey questionnaire.[58] The data was imported into Stata version 17 (Statacorp; http://www.stata.com) for analysis. Proportions were calculated for the demographic variables and for each of the knowledge, confidence, practice and interest items that use scales. Scores were calculated for MICA-4 and bivariate and multivariate linear regression was used to determine factors associated with MICA-4 scores. Participants were categorised into those who are confident to perform mental health tasks and those who are not. Bivariate logistic regression followed by

multivariate logistic regression was used to determine the factors associated with confidence in performing mental health tasks. A similar process was used to determine the factors associated with interest in a specialisation in psychiatry and the factors associated with interest in providing mental health services.

**Phase 2b: Focus group discussions**

The focus group discussions took place in place in four districts (one each from Eastern Cape, KwaZulu Natal, Mpumalanga and North West provinces) where clinical associates are already employed. Focus group participants were individuals involved in health services management and clinicians (nurses and medical doctors) involved in mental health service provision in the selected districts. Participants were selected from a district hospital that already employ clinical associates and from clinics and community health centres (CHCs) that offer mental health services. The focus group discussions in each district comprised 6 to 8 participants.[59] An interview guide (Appendix L) was developed and test interviews were conducted with a manager and a clinician who were not part of the study to explore the language and clarity of the questions prior to the focus group discussions.[60] Focus group questions related to the participants' perceived need for task sharing in mental health in their districts and their views on whether clinical associates have a role to play in mental health task sharing.

The focus group discussions took place in a boardroom of the selected hospital in each district except in one district where a private conferencing venue was felt to be more convenient for most of the participants. The researcher acted as the focus-group facilitator and there was an observer present at each of the discussions. The focus group discussions were recorded using two audio recording devices placed in different locations.[53] A professional transcription service was used and transcripts were sent to focus group participants for member checking. The transcripts were then imported into Atlas.ti version 23 for analysis. The analysis process began by reading through the text, memoing emergent ideas, and forming initial codes.[53] The codes were then grouped into categories.[53] Subthemes and themes were then generated.

**Phase 3: Identifying the key elements of the task sharing model**

This phase of the study utilised the Delphi method to reach consensus on training items and mental health tasks to include in the task sharing model. Participants in the Delphi panel were psychiatrists and family physicians drawn from the both the public and private sectors of South Africa's health system**.** The participants were selected to ensure differing levels of experience

as well as representation of different provinces. The target numbers of participants were 10 family physicians and 10 psychiatrists. The items for the Delphi survey were developed based on the literature review as well as the results from Phase 1 and Phase 2 of the study. The questionnaire (Appendix M) for the Delphi consisted primarily of a nine-point scales. The training questions related to the levels of care at which mental health training of clinical associates should occur, the mental illnesses they should be able to recognise and manage based on Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)[61] categories, and the health professionals and teaching modalities that should be utilised in training. The service provision component comprised the levels of care at which mental health task sharing should occur as well as the mental health tasks that could be performed by clinical associates. The questions were asked for both undergraduate and postgraduate training.

The Delphi survey was administered electronically using Qualtrics software and consisted of three rounds. The questionnaire was updated after each round. It was decided prior to the commencing the Delphi survey that it would consist of a maximum of three rounds and would only be terminated earlier if consensus was reached on all items. Iqbal and Pipon-Young[62] have noted that multiple rounds impact enthusiasm and response rates. Participants were given approximately two weeks to submit their responses in each round with a reminders being sent out. Following the first round, an updated questionnaire was constructed and sent out to the panellists to complete (second round). Questions on which consensus were reached were not included in the questionnaire in subsequent rounds. The median panel response and the participant's own response from the previous round was provided for each question included in the subsequent rounds. The participants were then aware of how they responded compared to the rest of the panel before revisiting the question.[63,64] Data were analysed using the in-built Qualtrics functionality for proportions and imported into Stata version 17 (Statacorp; http://www.stata.com) to determine the median panel response for each item. Consensus was based on proportion within a range (unrestricted) approach viz. 70% of participants rating an item 1,2,3 or 7,8,9.[65]

**7. Layout of the thesis**

The thesis consists of six chapters that follow this chapter (see Table 1). Chapter 2 is a review of the pertinent literature and this is followed by four chapters (Chapters 3 to 6) that address each of the four objectives. Chapter 7 consists of a synthesis of the findings, the presentation

of the task sharing model, policy implications of the model, recommendations for future research, and a conclusion.

**Table 1. Layout of thesis by chapter**

| Chapter | Chapter Description | Publication/Manuscript | Manuscript Status |
|---|---|---|---|
| 2 | Literature Review | | |
| 3 | Publications addressing Objective 1: To describe the mental health content of the three clinical associate training programmes in South Africa | Moodley SV, Wolvaardt J, Grobler C. Enabling mental health task-sharing: a collective case study of undergraduate clinical associate training programmes in South Africa. BMC Med Educ. 2022 Oct 28; 22(1): 745. https://doi.org/10.1186/s12909-022-03806-9 | Published |
| | | Moodley SV, Wolvaardt J, Grobler C. Mental health task-sharing in South Africa – a role for clinical associates? BMC Health Serv Res. 2022 Oct 8; 22(1): 1242. https://doi.org/10.1186/s12913-022-08638-3 | Published |
| 4 | Publications and manuscript addressing Objective 2: To determine knowledge, attitudes and practices of clinical associates with respect to management of mental illness | Moodley SV, Wolvaardt J, Grobler C. Strengthening a mental illness management questionnaire for clinical associates through expert validation and cognitive interviews. S Afr J Psychiatr. 2023 Feb 28; 29:3. **(Scientific Letter)** https://doi.org/10.4102/sajpsychiatry.v29i0.1985 | Published |
| | | Moodley SV, Wolvaardt J, Grobler C. Knowledge, confidence, and practices of clinical associates in the management of mental illness. S Afr J Psychiatr. 2023 Oct 26; 29:2074. https://doi.org/10.4102/sajpsychiatry.v29i0.2074 | Published |
| | | Moodley SV, Wolvaardt J, Grobler C. Mental illness attitudes, service provision interest, and further training preferences of clinical associates. Accepted by South African Family Practice (in press). | Accepted by South African Family Practice (in press). |
| 5 | Manuscript addressing Objective 3: To describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates | Moodley SV, Wolvaardt J, Grobler C. Views of mental health service provision in South Africa and the potential role of clinical associates. | Intention to submit to the International Journal of Mental Health Systems. |
| 6 | Manuscript addressing Objective 4: To identify the key elements of a mental health task sharing model for clinical associates | Moodley SV, Wolvaardt J, Grobler C. Developing a model for mental health training and service provision for clinical associates in South Africa: A Delphi survey of family physicians and psychiatrists | Intention to submit to BMC Medical Education. |
| 7 | Discussion and conclusion | | |

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# CHAPTER 2: LITERATURE REVIEW

The previous chapter outlined the human resources for health issues that has necessitated task sharing in a number of areas including mental health, provided a rationale for clinical associates as an option to provide mental health services particularly in underserved areas, and identified the lack of information on their training in mental health and their current utilisation in mental health service provision as gaps. The objectives of the study were presented as well as an overview of the study methodology.

In Chapter 2, a review of the relevant literature is presented. The epidemiology of mental illness both globally and in South Africa is described. It is important to understand the epidemiology of mental illness as this informs the relative importance of the different disorders in training and task sharing. The supply and distribution challenges of the available global and local human resources for mental health are explored. An understanding of these challenges provides insight into underserved settings (e.g. rural areas) where task sharing may be necessary. A number of task sharing initiatives in mental health involving different cadres of health workers are then considered. Finally, the literature on the training and utilisation of cadres similar to clinical associates in the provision of mental health services is presented.

**Mental Illness Epidemiology**

It was estimated that in 2019 that 970 million worldwide were living with a mental disorder.[1] This estimate is substantially higher if alcohol use disorders, drug use disorders and dementia are taken into account.[1] A meta-analysis by Steel *et al.*[2] of studies conducted between 1980 and 2013 found a pooled lifetime prevalence of common mental disorders of 29.2% (95% confidence interval (CI): 25.9–32.6%) and a pooled 12-month prevalence of common mental disorders of 17.6% (95% CI: 16.3–18.9%).[2] Common mental disorders in this systematic review comprised anxiety, mood and substance use disorders.[2] Anxiety disorders were the most common with a pooled lifetime prevalence of 12.9% (95% CI: 11.3–14.7%) and a pooled 12-month prevalence of 6.7% (95% CI 6.0–7.6%).[2] The pooled lifetime and 12-month prevalence of mood disorders was 9.6% (95% CI 8.5–10.7%) and 5.4% (95% CI: 4.9–6.0%) respectively. Substance use disorders had an estimated lifetime prevalence of 10.7% (95% CI: 9.2–12.4%) and a pooled 12-month prevalence of 3.8% (95% CI: 3.4–4.3%).[2] A systematic review and meta-analysis of the incidence of adult-onset psychotic disorders of studies published between 2002 and 2017 reported a pooled incidence of 26.6 per 100 000 person-years (95% CI: 22.0–31.7 per 100 000 person-years).[3]

Mental illness is a significant contributor to the global burden of disease.[4,5] Globally, the proportion of global disability-adjusted life-years (DALYs) attributed to mental illness rose from 3.1% in 1990 to 4.9% in 2019.[5] In 2016, depressive disorders accounted for the most DALYs followed by anxiety disorders, drug-use disorders and alcohol-use disorders.[4] Schizophrenia contributed significantly to the DALYs due to the mental and substance use disorders despite its relatively low prevalence compared to other mental dosorders.[4] The Global Burden of Disease Study 2017 found that depressive disorders, anxiety disorders, drug use disorders and schizophrenia were all part of the twenty leading causes of years lived with disability (YLDs) for males and females.[6] Depressive disorders, anxiety disorders and schizophrenia were ranked amongst the 20 leading causes of YLDs and 50 leading causes of DALYs in 2019.[5]

While epidemiological data for mental illness in South Africa is limited, the available data suggests that mental illness is a substantial problem in South Africa. The last population-based survey that assessed multiple disorders was done almost 20 years ago.[7,8] The South African Stress and Health Study was conducted between 2002 and 2004 using a nationally representative sample of South African adults.[7,9] It reported a lifetime prevalence of 30.3% of

having any of the psychiatric disorders that were included in the study and a 12-month prevalence of 16.5%.[8] The most common broad class of disorders were anxiety disorders with a lifetime prevalence of 15.8%.[8] Substance use disorders had a lifetime prevalence of 13.3% while mood disorders had a lifetime prevalence of 9.8%.[8] A similar pattern was seen with the 12-month prevalence where anxiety disorders (8.1%) were the most common followed by substance use (5.8%) and mood disorders (4.5%). Alcohol abuse (11.4%) had the highest lifetime prevalence and major depressive disorder (4.9%) had the highest 12-month prevalence of the individual disorders assessed.[8] An important limitation of this study was that assessments were not done for a number of psychiatric disorders suggesting that the overall lifetime prevalence and 12-month prevalence of mental disorders in this study underestimate the actual prevalence of mental disorders in the population.[8,10]

The other nationally representative mental health data comes from the National Income Dynamics Study (NIDS).[11] The NIDS includes an assessment for depression using the 10-item Centre for Epidemiological Studies Depression (CES-D) scale which assesses depressive symptoms over the previous week.[11] The proportion of participants who screened positive for depression in the fifth wave of the National Income Dynamics Study (NIDS) – Coronavirus Rapid Mobile Survey (CRAM) conducted in 2021 was 29%.[12] Mungai and Bayat[11] reported that in the fourth wave of the NIDS (2014-2015) that 26.05% of adult participants were found to have significant depressive symptoms. The proportion of participants experiencing significant depressive symptoms for the three previous waves of the NIDS were 24.43% (2012), 22.31% (2010-2011) and 33.15% (2008).[11] There is a dearth of nationally representative data for severe mental disorders.

A number of studies conducted in healthcare settings in South Africa, using different screening instruments, point to the extent of mental illness in South Africa. A study amongst individuals presenting for HIV testing at five sites in the Western Cape reported 19.8% of participants with alcohol use disorder, 14.2% with major depressive disorder, 5.0% with generalised anxiety disorder, and 4.9% with post-traumatic stress disorder.[13] A prevalence of 22% was found for major depressive episode and 23% for any anxiety disorder among women attending their first antenatal visit at a clinic in a low resource setting in Cape Town.[14,15] Studies in Tshwane, Gauteng reported a prevalence of depression of 53.8% among those attending an antiretroviral clinic[16] and a prevalence of depression of 46.2% among primary health care clinic patients.[17]

Mokhele *et al.*[18] reported that a quarter of women (25.0%) screened positive for postpartum depression at midwife obstetric units in Gauteng.

Mental health research in contexts in South Africa outside of healthcare settings also suggests a high prevalence of mental disorders. A study amongst first-year university students at the University of Cape Town and the University of Stellenbosch found a lifetime prevalence of common mental disorders of 38.5% and 12-month prevalence of 31.5%.[19] The lifetime prevalence for major depressive disorder was 24.7% while generalised anxiety disorder had a lifetime prevalence of 22.6%.[19] Generalised anxiety disorder (20.8%) had a higher 12-month prevalence than major depressive disorder (13.6%).[19] Bantjes *et al.*[20] found that 30% of participants had CES-D scores indicative of depression in a study of young men living in impoverished areas of the Western Cape. In addition, 6% of their participants had displayed non-fatal suicidal behaviour in the prior month.[20]

The epidemiological evidence suggests that mental illness is a significant public health concern globally and in South Africa. The contribution of mental illness to the disease burden may grow over the next decade. The WHO projections in 2004 indicated that unipolar depressive disorders would move from the third leading contributor to disease burden (4.3% of total DALYs) in that year to the leading contributor to disease burden in 2030 (6.2% of total DALYs).[21] The impact of the COVID-19 pandemic also has to be taken into account where the pandemic and social distancing measures resulted in stress, loneliness, and a reduction in social interactions which are known to increase the risk of mental illness.[22]

**Human Resources for Mental Health**

Given the global burden of disease due to mental health, there is a global shortage of the health workforce needed to provide essential mental health services.[23] The World Health Organization (WHO)[24] estimated there was a shortage of 1.18 million mental health workers (psychiatrists, psychiatric nurses, general nurses in mental health settings and psychosocial care providers) in low- and middle-income countries in 2005 and projected that the shortage would increase substantially in the subsequent decade. These shortages are seen as a significant barrier preventing low- and middle- income countries improving their mental health service delivery.[25,24] Bruckner *et al.*[26] confirmed the mental health workforce shortages in low- and middle income countries, finding that there were insufficient mental health professionals to provide essential interventions in all the low-income countries and the majority of middle-

income countries that they included in their study. There are vast disparities when comparing the median number of mental health workers per 100 000 population between low-income and high-income countries and between the WHO African Region and the WHO European Region.[27] The median number of psychiatrists per 100 000 population in 2017 was 0.1 for low-income countries, 0.5 for lower-middle-income countries, 2.1 for upper-middle-income countries and 12.7 for high-income countries.[27] The global median was 1.3 psychiatrists per 100 000 population.[27]

According to the WHO[28], there were 1.52 psychiatrists per 100 000 population in South Africa in 2017. No data was provided for cadres of mental health workers other than psychiatrists.[28] Though the psychiatrists to population ratio in South Africa is above the global median of 1.3 psychiatrists per 100 000 population,[27] it fell far short of the target of 3.0 per 100 000 population recommended by the South African Society of Psychiatrists.[29] Wishnia *et al.*[29] reported that in 2019, 70% of psychiatrists in South Africa were practising in South Africa's private sector with only 30% serving the substantially larger population utilising the public sector.[29] There were 0.38 psychiatrists per 100 000 population in South Africa's public sector compared to 4.98 per 100 000 population in the private sector in 2019.[29] Wishnia *et al.*[29] project that psychiatry will be one of the specialties in South Africa with an extremely large deficit of specialists per 100 000 population by 2040 when compared to the target taking burden of disease into account.[29]

There is an urban-rural maldistribution of the mental health workforce in South Africa in addition to the inequitable distribution between the public and private sectors. An overwhelming majority of psychiatrists practise in the urban areas of Gauteng and the Western Cape with these provinces having 2.6 psychiatrists per 100 000 population and 5.0 psychiatrists per 100 000 population respectively.[30] Only seven psychiatrists were found to be employed in 160 facilities (district hospitals, community health centres, primary care clinics) in a situation analysis involving rural primary healthcare settings equating to 0.03 psychiatrists per 100 000 population.[31] De Kock *et al.*[32] reported that mental health nurses were only employed at 62 (38.7%) of the 160 public rural primary healthcare facilities included in their study. A total of 116 mental health nurses were serving a population of over 17 million equating to 0.68 mental health nurses per 100 000 population.[32] The shortages of mental health professionals in rural areas is a global phenomenon and is not limited to low- and middle-income countries but is also found in high-income countries such as the United States of America (USA).[33,34]

**Task Shifting and Task Sharing Approaches in Mental Health**

Given the mental health workforce shortages, task shifting and task sharing approaches have been implemented globally in order to deliver mental health services. Different non-specialist health cadres have been used to deliver mental health services including medical officers, nurses, and lay health workers.[23,35-37] These workers have been involved in mental health task sharing in various settings including clinics, community outreach services and halfway homes and the tasks performed have differed depending on their level of training.[23,37] The tasks have included prevention, detection, and aspects of treatment of mental illness.[23,37] There is some evidence that there is a benefit regarding the use of primary-level workers in interventions for adults affected by common mental disorders, perinatal depression, post-traumatic stress, and substance use.[37]

The delivery of mental health services by non-specialist medical doctors is a well-established practice in a number of countries. A study among primary care physicians in one state in the USA found that, on average, mental health patients made up 30.3% of their caseloads.[38] The most common conditions treated by them were depression and anxiety with antidepressants being the psychiatric medication most commonly prescribed.[38] A shortage of psychiatrists in Sri Lanka resulted in the establishment of a three-month psychiatry training course for medical officers.[23] They are then designated as 'medical officers (mental health)' and stationed at district general hospitals, base hospitals and divisional hospitals.[39] They deliver a diverse range of mental health services including outpatient care, outreach services, and community- and school-based mental health promotion.[39] A study in Argentina found comparable outcomes at eight weeks among patients treated for major depression with Sertraline by psychiatrists and those treated by primary care physicians using the same medication.[40]

Non-specialist nurses have also been used in a number of countries to deliver mental health services. Depression case management provided by practice nurses in general practitioner settings in England consisting of medication management, behavioural activation, symptom assessment and non-responder identification, led to clinical improvement in patients and patient satisfaction with the service.[41] A cluster randomised trial in the USA found that depression care management consisting of goal setting, education, medication management, symptom assessment, and care co-ordination could be successfully integrated into the routine practice of nurses doing home visits to clients aged 65 and older.[42] However, clinical benefit

was limited to those with moderate to severe depression rather than mild depression.[42] A task-sharing intervention in Ethiopia has shown that primary health care nurses can play an important role in the diagnosis and management of patients with severe mental illness.[43]

Lay health workers such as community health workers have increasingly become the focus of task shifting and task sharing approaches in mental health. They have assisted with detection of mental health problems, caregiver support, and monitoring adherence to psychiatric treatment.[23] A systematic review by Matumba *et al.*[44] assessing the role of lay community health workers in the provision of mental health services in low- and middle-income countries found some evidence for their effectiveness in mental disorder prevention programmes but the quality of the evidence was weak. Their role could potentially include psychosocial and psychological interventions.[44] Studies conducted in southern Africa suggests that lay health workers could play a valuable role in mental health service delivery.[45,46,47,48] A cluster randomised trial in Zimbabwe found improved symptoms at six months in patients with common mental disorders who received individual problem-solving therapy delivered by lay health workers compared to the control group.[47] A South African study assessing a group-based interpersonal therapy intervention delivered by lay HIV counsellors found a significantly greater reduction in depression scores (using the Patient Health Questionnaire-9) among the intervention group.[46] Community health workers have also been involved in mental health work in a high-income country like the USA with roles in stress management, substance abuse, harm reduction and education about depression.[33]

The acceptability and feasibility of task sharing approaches in mental health involving non-specialist health workers have been explored in some studies undertaken in low- and middle-income countries.[49] A systematic review by Padmanathan *et al.*[49] found that patients were generally satisfied with services although their needs were not always met. Acceptability in some studies was linked to mental health services being delivered by a task sharing workforce originating from the community they were serving.[49] Feasibility issues included a lack of infrastructure and funding, workload, and a lack of self-perceived competency.[49] Padmanathan *et al.*[49] highlight the need for clear policies on training and supervision as well as reimbursement, working conditions, management and accountability. The use of non-specialist health workers in mental health service provision has been found to be acceptable and feasible by stakeholders in a multi-country study that included South Africa on condition that they had adequate training, ongoing supportive supervision, and adequate compensation.[50]

While task shifting and task sharing approaches do not obviate the need for mental health specialists, it allows for the roles of mental health specialists such as psychiatrists to change to make more efficient use of health workforce resources available in low- and middle-income countries.[23,51] It allows mental health specialists to focus clinically on complex psychiatric cases while non-specialists manage less complex patients.[23] Mental health specialists roles in task shifting and task sharing approaches include training of non-specialist health workers, ongoing supervision and support, and quality assurance.[51]

**Mid-level Medical Workers and Mental Health Service Provision**

Several countries have established mid-level medical worker programmes to address shortages of health workers and medical doctors in particular.[52] These programmes have been established in high-income countries as well as middle- and low-income countries.[52] The physician assistant programme in the USA has existed since the 1960s and similar cadres are found in Australia, Canada, Netherlands and the United Kingdom.[53] Training of mid-level medical workers goes back much further in sub-Saharan Africa with clinical officers being trained in Kenya since 1928.[54] Mid-level medical workers are integral to the primary health care systems in east Africa with at least 10 000 of them trained in Kenya, Tanzania and Uganda.[52] In southern Africa, this cadre exists in Angola, Malawi, Mozambique, Zambia, Zimbabwe and South Africa.[55,56] In Africa, mid-level medical workers are referred to by different names including clinical officers, clinical associates, medical assistants, health officers, *téchnicos de cirugia* and *téchnicos de medicina*.[54]

The involvement of mid-level medical workers in the provision of mental health services varies between countries that have this cadre. A description of training and roles in six countries selected on the basis of availability of literature is given below:

- Canada (physician assistants)

  Physician assistant training in Canada originated in the Canadian military with the programme being formally accredited in 2004 and the first civilian programme launched in 2008.[53] There are currently four accredited training programmes.[57] Three of these are Bachelors' degrees while one is a Master's degree.[57] The duration of training is 24 months.[53] Psychiatry and behavioural science is included in their competency profile but there is no indication of the amount of mental health training they should receive.[58] Physician assistants are expected to be able to recognise, diagnose and treat anxiety,

depression, eating disorders, and adjustment reaction as well as conduct a suicide assessment based on their competency profile.[58]

There are approximately 650 certified physician assistants in Canada.[59] The delivery of mental health services by physician assistants in Canada is less common than in the USA which McCutchen *et al.*[60] attribute to the smaller numbers of civilian physician assistants in Canada and their relatively recent introduction. McCutchen *et al.*[60] conducted exploratory research to assess the effect of including a physician assistant in an assertive community treatment (ACT) team in Ontario. ACT is a comprehensive, individualised, locally-based model of service delivery that is used in countries such as Canada and the USA to provide treatment to individuals who have severe and persistent mental illnesses through a multidisciplinary team.[60,61] The physician assistant's role in the Ontario-based ACT team included intake psychiatric assessments, physical examinations, and following up both medical and psychiatric complaints.[60] The qualitative analysis found the model improved access to preventative health services, primary care, and access to psychiatric care as well as improving quality of referral processes and psychiatric care.[60]

- Ethiopia (health officers)

  The training of health officers commenced in Ethiopia in 1954 but was discontinued in 1976/77.[62] This decision was reversed following a change in government in 1991 and training recommenced.[62] Health officers in Ethiopia receive four years of training in order to provide clinical as well as public health services at health centres and rural hospitals.[63] The extent to which mental health is covered in the curriculum is unclear though it is likely to be limited given that the provision of mental health services until recently have not been a priority in Ethiopia.[64] Ayano *et al.*[64] found that the majority of primary health care workers in their study had poor knowledge of depression, psychosis and alcohol use disorder and a majority had unfavourable attitudes towards psychosis and alcohol use disorder prior to a training intervention.[64] Just under half of participants (46.81%) in the study were health officers.[64]

  The number of health officers in Ethiopia grew from 484 in 1994 to 1606 in 2009 and since then several thousands more have been trained.[65] Ethiopia's National Mental Health Strategy 2012/2013 – 2015/16 mandated the integration of mental health service provision into primary care.[66,67] According to the strategy, health officers, general practitioners and

nurses have an important role in mental health service delivery.[67] This includes screening for mental illness, diagnosing mental illness, prescribing psychotropic medication, providing psychoeducation, providing psychosocial interventions, monitoring patients with mental illness, and referring complex cases to a higher level of care.[67] Service provision is aligned to WHO's Mental Health Gap Action Program (mhGAP) guidelines adapted for Ethiopia.[67]

A study in Sodo district in Ethiopia involving primary care workers, including health officers, assessed referrals of possible severe mental illness, making a diagnosis, and initiating treatment using the WHO mhGAP Intervention Guide.[43] The vast majority (94.9%) of those diagnosed with severe mental illness by primary care workers were confirmed as having a severe mental illness.[43] There were no deviations from the recommended medication dose limits but less than 30% of patients received minimally adequate treatment.[43]There were statistically significant improvements in symptom severity and disability.[43]

- Kenya (clinical officers)

  There are 47 institutions in Kenya with clinical officer training programmes.[68] Clinical officers complete either a three-year diploma programme or a four-year degree programme.[68,69] The focus of these programmes is primary care and community health with clinical exposure taking place by the second year.[69] A situational analysis of clinical officers and nurses working at primary care level in Kenya found they had a limited amount of training in mental health.[70]

  There are over 10 000 practising clinical officers in Kenya.[69] Those working in primary care assess, diagnosis and treat patients with psychosis with complex cases being referred to a higher level of care depending on the availability of transport and facilities.[70] Jenkins *et al.*[70] noted that patients with common mental disorders are rarely diagnosed by primary care clinical staff (clinical officers and nurses) and those who are diagnosed are usually not managed appropriately. However, the potential for clinical officers to be effectively involved in mental health service delivery has been shown in a pilot study in Makueni County, Kenya.[71] Forty clinical officers and nurses were trained on the WHO mhGAP Intervention Guide that addresses priority mental health conditions viz. depression, psychotic disorders, substance use disorders, dementia, suicide and epilepsy.[71] The tasks

performed by the clinical officers (and nurses) were psychoeducation and prescribing of psychotropic medication.[71] The study found it was feasible for clinical officers (and nurses) to implement the WHO mhGAP Intervention Guide and the clinical, disability and quality of life outcomes suggested they could do so effectively.[71]

- Malawi (medical assistants/clinical officers)

  Medical assistants training consists of a two-year certificate training programme.[72] It is not clear how much of training these cadres receive in mental health during their initial training. A pre-training survey of non-specialist health workers which included nurses and medical assistants working in primary care and district hospitals found just 12% had received previous training in mental health.[73] That study found that mhGAP based training (adapted for Malawi) for these workers is feasible and acceptable and improved knowledge, confidence and case detection rates.[73]

  Clinical officers in Malawi complete a three-year diploma followed by a one-year internship.[72] A two-year Bachelor of Science in Clinical Medicine (Mental Health) degree is offered in Malawi.[73] A clinical officer who completes this degree is then able to practise as a specialist psychiatric clinical officer and 10 to 15 clinical officers complete this programme every second year.[73] Psychiatric clinical officers form part of District Mental Health Teams based at district hospitals.[73]

- USA (physician assistants)

  The USA had 250 physician training programmes countrywide in 2019.[74] These programmes have historically been at Bachelors or Masters level but currently Masters level programmes predominate.[53,74] The programme duration ranges from 24 to 36 months with the average programme being 112 weeks long.[53,74] Didactic education takes place in the first year with clinical training in the remaining period of one year or more.[75] Training in psychiatry varies widely between programmes from a small amount of didactic teaching with clinical training limited to primary care to programmes with comprehensive didactic teaching and clinical training.[75] Physician assistants can specialise in psychiatry in the USA through a residency/fellowship of a year and/or obtaining a Certificate of Added Qualification (CAQ) in psychiatry.[75] The latter is done through psychiatry experience,

continuing professional development, physician attestation, and passing a national specialty exam.[76]

The USA had just under 140 000 certified physician assistants at the end of 2019 which equates to 42 physician assistants per 100 000.[74] Only 1.6% of physician assistants in clinical practice identified psychiatry as the practice area of their principal clinical position in 2019.[74] The responsibilities of physician assistants who work in psychiatry in the USA include mental health screening and evaluation, performing the initial psychiatric assessment and diagnosis, providing education and brief counselling, psychiatric medication management including initiating and changing medication, providing psychotherapy, managing substance detoxification and rehabilitation, and the management of psychiatric emergencies.[75] They work in outpatient as well as inpatient settings.[76]

- United Kingdom (physician associates)

  Physician associate training in the United Kingdom (UK) is undertaken through a postgraduate diploma or Master's course aimed at developing clinical competencies and reasoning to provide patient care at primary and secondary levels.[77,78] There are 37 approved training programmes in the UK.[78] The training takes place over a minimum of 90 weeks and is evenly split with approximately 1 600 hours of theory and approximately 1 600 hours of clinical practice.[77] The curriculum requires a minimum of only 90 hours in psychiatry as part of their training.[77] The training in mental health involves problem-based learning, the use of role-play scenarios, and mental health consultations during general practice placements.[79]

  There were approximately 1 000 physician associates working in the UK in 2018 with a further 1 200 being trained in UK institutions at the time.[77] By the end of 2020, the total number of physician associate graduates in the UK is estimated to be 2 800 with that total increasing to an estimated 5 900 at the end of 2023.[80] A call has been made by the Royal College of Psychiatrists that 10% of new physician associates should be employed in the area of mental health.[77] There is currently a very small number of physician associates working in mental health settings in the UK.[77,81] The number is estimated to be approximately 30.[81]

The roles and responsibilities of physician associates working in mental health settings in the UK include taking medical and psychiatric histories, conducting mental state examinations, performing psychiatric and medical assessments, formulating differential diagnoses, discussing diagnoses with supervising psychiatrist or multidisciplinary team, recommending appropriate management under the supervision of a psychiatrist, and conducting diagnostic and therapeutic procedures.[81] In addition, they carry out psychiatric observations, monitor for side effects of medication, participate in ward rounds and multi-disciplinary team meetings, manage referrals and discharge processes, educate and counsel patients and families, liaise with other services, participate in clinical audit and quality improvement projects and assist with administrative duties (e.g. writing letters, completing legal paperwork etc).[81] Physician associates in the UK are not permitted to prescribe medication.[77]

Gill *et al.*[79] describe the roles played by physician associates at Birmingham and Solihull Mental Health NHS Foundation Trust which at the time was the only mental health trust in the UK employing physician associates. The physician associates in this trust are allocated to work in liaison psychiatry, forensic psychiatry and community mental health teams with the physician associate roles differing depending on the setting.[79] The physician associate working in forensic psychiatry is responsible for monitoring and management of the physical health of patients, conducting mental state examinations, and participating in initial psychiatric assessments under consultant supervision.[79] The physician associates working in liaison psychiatry are responsible for taking detailed psychiatric histories and obtaining collateral histories for new referrals as well as reviewing their medical notes.[79] Once they formulate a diagnosis, the case is discussed with the multidisciplinary team and a management plan is devised.[79] Their role includes participating in handover meetings and liaising with general practitioners and community mental health teams.[79] Physician associates working in liaison psychiatry see patients with a wide range of diagnoses including depressive disorders, psychotic disorders, substance abuse, delirium, and dementia.[79] The responsibilities of physician associates working in community mental health teams are initial psychiatric assessments, physical examinations, and working in outpatient clinics.[79]

The decision to employ physician associates at Birmingham and Solihull Mental Health NHS Foundation Trust was in response to health workforce challenges related to

recruitment of psychiatric trainees and limited training posts.[79] Gill *et al.*[79] note a number of benefits of employing physician associates in mental health settings in the UK based on the experience within this Trust. They can take on a number of the responsibilities of junior doctors thereby addressing health workforce constraints.[79] In addition, they stay in posts for longer periods than junior doctors ensuring continuity of care and work well within multidisciplinary teams complementing the roles of nurse practitioners and junior doctors.[79]

The available information on task-sharing involving mid-level medical workers tends to be descriptive. There is very limited information on their effectiveness in delivering mental interventions which is a knowledge gap. Additionally, there is a dearth of descriptive information regarding the training in mental health for clinical associates in South Africa, as well as their roles (if any) in mental health service provision.

**Specialist mental health mid-level workers**

In addition to mental health services being task-shifted to non-specialist health workers, there are a few examples of countries who have trained mid-level workers specialised in mental health. Mozambique has trained a cadre of mid-level workers called psychiatric technicians who are trained over a period of 30 months.[82] Tasks such as pharmacological and psychosocial interventions are shifted to them from psychiatrists and clinical psychologists.[82] They work in outpatient units, community-based inpatient units, and in psychiatric hospitals.[82] Psychiatric clinical officers in Uganda have a similar scope of work as psychiatrists but their work is more community-oriented.[83] Psychiatric clinical officers were originally general clinical officers or nurses who have had two years of additional training in psychiatry.[84] The increase in numbers of psychiatric clinical officers in Uganda has allowed for the expansion of specialised mental health services to district hospitals where psychiatric clinical officers are responsible for psychiatric services.[83] In Zambia, medical assistants who have had three years of training in general medicine can become psychiatry clinical officers after completing a year of psychiatry training.[85] There is a lack of research on the effectiveness of these specialised cadres in mental health service provision.

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# CHAPTER 3: PUBLICATIONS ADDRESSING OBJECTIVE 1

Chapter 2 summarised the literature on the mental health disease burden both globally and locally. Chapter 2 also described the shortage and maldistribution of the mental health workforce in a number of countries including South Africa, and various mental health task sharing initiatives involving different cadres of health workers in order to address this shortage. The training and utilisation of mid-level medical worker cadres globally in the provision of mental health services was explored. The gap surrounding the training and utilisation of clinical associates in mental health in South Africa was identified.

Chapter 3 addresses the first objective of the thesis which is to describe the mental health content of the three clinical associate training programmes in South Africa. Chapter 3 consists of two publications. Both publications are based on in-depth interviews with those involved in the three training programmes.

Chapter 3A is the first publication in the chapter and is a review of the curriculum based on the in-depth interviews and a document review. It consists of an exploration of the timing and duration of mental health in the curriculum, the mental disorders covered, the competencies and skills covered, the extent of practical training, and the assessments conducted. Gaps and deficiencies are identified. The paper *Enabling mental health task-sharing: a collective case study of undergraduate clinical associate training programmes in South Africa* was published in BMC Medical Education on 28 October 2022.

Chapter 3B is the second publication in the chapter. The roles that clinical associates could play in mental health service delivery based on their training were explored as part of the in-depth interviews with the individuals involved in the training programmes. In addition, the views of participants on advanced training in mental health were elicited. The paper *Mental health task sharing in South Africa – a role for clinical associates?* was published in BMC Health Services Research on 8 October 2022.

**CHAPTER 3A**

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RESEARCH Open Access

# Enabling mental health task-sharing: a collective case study of undergraduate clinical associate training programmes in South Africa

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**Abstract**

**Background** There is a shortage of the human resources needed to deliver mental health services which is likely to be exacerbated by COVID-19. Due to mental health workforce shortages, task-shifting and task-sharing approaches have been implemented in a number of countries. Clinical associates, a mid-level cadre working under the supervision of medical practitioners, could play a role in delivering mental health services but it is not clear if they are adequately prepared. This study explored the mental health curriculum content of the undergraduate clinical associate training programmes in South Africa and the views of key informants of the adequacy of training in mental health.

**Methods** A qualitative collective case study approach was utilised for this multisite study at the three universities in South Africa offering clinical associate degrees. The study consisted of in-depth interviews utilising videoconferencing of individuals involved in each programme and a document review. Thematic analysis of the data was conducted.

**Results** Nineteen interviews were conducted. Mental health formed part of the curriculum in all three programmes with the bulk of the training taking place in the final year of the three-year degree. Facility-based training ranged from two weeks to four weeks with one university only using hospitals with mental health units while two universities used hospitals at which the students were based for the year regardless of potential mental health exposure they would receive. The list of curricula inclusions extended to seldom-seen conditions. The quality of training and supervision appeared site-dependant and only one university set minimum experiential targets.

**Conclusion** There is a basis on which to build the competencies and skills regarding mental health in this cadre. A training model that integrates mental health early in the undergraduate curriculum, focuses on common conditions and those with high disease burden, includes time in a mental health unit, provides facility-based trainers with detailed guidance to improve standardisation, and includes specific experiential targets that are monitored will enhance the potential utility of this cadre.

**Keywords** Clinical associates, Task-sharing, Mental health, Psychiatry, Curriculum, Training, Assessment

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## Background

Mental and addictive disorders affect a substantial proportion of the world's population and are major contributors to the global burden of disease [1]. It was estimated that a total of 162.5 million disability adjusted life years (DALYs) were due to mental and addictive disorders which is 6.8% of the total DALYs in 2016 [1]. In sub-Saharan Africa there was a 113.9% increase in total DALYs lost between 1990 and 2017 due to mental disorders [2]. Psychiatric epidemiological data for South Africa (SA) is limited, but the available data suggests that mental illness is a significant problem. The most recent nationally representative mental health data comes from the National Income Dynamics Study (NIDS) which only screens for depression [3]. In the fourth wave of the NIDS (2014–2015), 26% of adult participants were found to have significant depressive symptoms [3]. Suicide data provides an indication of mental illness burden [4, 5] and SA's crude suicide mortality rate in 2016 was 11.6 per 100 000 population - higher than the global average of 10.6 per 100 000 population [6]. COVID-19 is likely to result in a rise in mental illness in SA as the pandemic and social distancing measures have resulted in stress, loneliness, and a reduction in social interactions which are known to increase the risk of mental illness [7].

There is a worldwide shortage of the human resources needed to deliver essential mental health interventions [8], and this shortage is a critical barrier preventing low- and middle- income countries from improving their mental health services [9, 10]. According to the World Health Organization [11], SA had 1.52 psychiatrists per 100 000 population in 2017. While this is above the global median, it falls short of the South African Society of Psychiatrists recommended target of 3.0 per 100 000 population [12]. It was reported that in 2019, 70% of psychiatrists in SA were servicing the small private sector [12]. As with the health workforce in general in SA, there is an urban-rural maldistribution of mental health human resources [13, 14].

Task shifting and task sharing approaches have been implemented in many countries in order to address mental health workforce shortages. More efficient use can be made of the health workforce by moving appropriate tasks to health workers who have fewer qualifications and have undergone shorter training [15]. The types of non-specialist health workers who deliver mental health services elsewhere include medical officers, nurses, and lay health workers [8, 16]. These workers have contributed to mental health services in various settings including clinics, community outreach services and halfway homes [8, 16]. The mental health tasks performed by these non-specialist health workers differ and depend on their level of training [8, 16]. These tasks include prevention, detection, and treatment of mental disorders [8, 16]. In a Cochrane systematic review assessing primary-level worker interventions in mental health, the authors found that there may be potential benefit to the use of primary-level workers in treatment of some adult mental disorders including depression and anxiety, depression related to pregnancy and childbirth, mental disorders in humanitarian settings, and severe mental disorders such as schizophrenia but further evidence is needed [17].

South Africa has extensive experience of using of task shifting and task sharing approaches in addressing its HIV epidemic including the use of nurses to initiate anti-retroviral therapy and lay health workers to deliver a number of health promotion interventions [18, 19]. Over the last decade, task sharing approaches have been increasingly explored as an option to deliver mental health services in South Africa [20]. Examples of these approaches include registered counsellors providing problem-solving therapy in the treatment of antenatal common mental disorders [21], a group-based Interpersonal Therapy intervention for depression delivered by lay HIV counsellors [22], and mental health counselling to patients with chronic disease(s) which was delivered by community health workers. [23] A study in five countries (including South Africa) found that the use of non-specialist health workers in mental health service delivery was perceived as acceptable and feasible by stakeholders if certain conditions are met including adequate training, the provision of ongoing supportive supervision, and adequate compensation.[24].

Clinical associates are a potential option to expand mental health services in South Africa. Clinical associates are mid-level health workers in the non-physician clinician category trained through a three-year Bachelor of Medicine in Clinical Practice (BMCP) degree at Walter Sisulu University and the Bachelor of Clinical Medical Practice (BCMP) degree at the University of Pretoria and University of Witwatersrand [25]. The first cohort of clinical associates entered the SA health system in 2011 [25]. The focus of clinical associate training in South Africa is the diagnosis and management of common medical conditions with the training preparing them to deliver services at district hospitals and at primary care level [26]. Their curricula use problem-based learning in the clinical context to apply their basic health sciences knowledge [26]. Similar cadres are found elsewhere in Africa (e.g. community health officers and community health extension workers in Nigeria, and clinical officers in Kenya and Uganda) though there is variation in the types of institutions doing the training and the quality of training [27]. South African clinical associates may have a greater depth of theoretical health sciences training as they complete a university degree. In general, this cadre of health worker in Africa provides diagnosis and treatment at primary healthcare facilities (clinics and health centres)

and district hospital outpatient departments [27]. They are frontline health professionals who are the interface between patients and higher level care.

The available evidence suggests that SA has a high prevalence of mental disorders and these are a significant contributor to the disease burden and the COVID-19 pandemic is likely to exacerbate this. South Africa has a shortage of specialist mental health professionals with public-private sector and urban-rural maldistribution. Task sharing approaches are critical to ensure mental health service provision in underserved areas. The role of clinical associates in mental health service provision is currently ill defined and they are possibly an under-utilised resource in mental health task sharing approaches. While mental health does form part of their scope of practice [28], the extent or utility of the training is not clear. This study explored the mental health curriculum content of the undergraduate clinical associate training programmes in SA and the views of key informants of the adequacy of training in mental health.

## Methods

### Study design

A collective case study approach was utilised. According to Creswell and Poth[29], case study research is a qualitative approach that explores one or more contemporary, real-life bounded case or cases over time through in-depth data collection utilising multiple data sources. A collective case study is one in which multiple cases show different perspectives [29].

### Study setting

All the universities offering clinical associate degrees: Walter Sisulu University, the University of Pretoria and the University of Witwatersrand.

### Study population and sampling

Each of the clinical associate training programmes was considered a 'case'. In-depth interviews were conducted with individuals involved in each programme. Purposive sampling was utilised. Participants were selected on the basis of being able to provide information on the mental health content of each programme. A BCMP academic co-ordinator from each university assisted in identifying the relevant individuals. For each programme, the following individuals were considered for inclusion:

- BCMP/BMCP academic co-ordinators.
- The individual(s) responsible for mental health teaching.
- The 2020 final year class representative.
- BCMP/BMCP site-based co-ordinators/supervisors at selected rotation sites.
- The clinicians providing mental health training at selected rotation sites.

### Measurement tools and data collection

Data were obtained from a combination of documents (such as study guides) and key informant in-depth interviews. BCMP/BMCP co-ordinators at the three universities were asked to provide the relevant documents. Interviews were conducted using videoconferencing. Participants were informed how data would be used/stored, and how privacy would be protected in line with Blackstone's guidance [30]. The interview included questions on the aspects of mental health covered in the curriculum, the formal teaching in mental health, the practical training provided in mental health, and participant views on the adequacy of the mental health component of the curriculum and any gaps in the teaching. Interviews were audio recorded and hand-written notes were taken. The documents were reviewed to obtain data on the psychiatric disorders covered in the curriculum, training in the relevant procedures (skills) listed in the clinical associates scope of practice[28], training (if any) on mental health screening tools, and the types of assessments (oral/clinical/written) and their respective weightings for psychiatry component of the curriculum.

### Data management and analysis

The interviews were professionally transcribed and the documents and transcriptions were imported to Atlas.ti software. Codes were allocated to significant statements in the transcribed in-depth interviews and to significant information in the documents obtained [31] Data analysis used the approach outlined by Creswell and Poth [29] for case study research. The generated codes were then aggregated into categories and utilised to generate themes [29]. Direct interpretation (drawing meaning from a single instance) was employed [29]. Cross-case theme analysis was done to identify similarities and differences between the programmes and naturalistic generalisations related to what was learnt from the cases were developed[29].

### Processes to ensure quality of research

Frambach et al. [32] outlines various techniques that can be used in qualitative research to address the quality criteria of credibility, transferability, dependability and confirmability. Techniques used in this study were data triangulation (in-depth interviews of staff and students together with document review), iterative data analysis, peer debriefing, and maintaining an audit trail.

## Results

### Participants

A total of 19 interviews were conducted across the three universities offering the Bachelor of Clinical Medical Practice/Bachelor of Medicine in Clinical Practice(BCMP/BMCP) degree between 25 March

**Table 1** Interviews conducted and documents reviewed

| | University A | University B | University C |
|---|---|---|---|
| **Interviews conducted** | | | |
| BCMP/BMCP Academic coordinators | 4 | 1 | 2 |
| Individuals responsible for mental health teaching at university | 1 | | 1 |
| BCMP/BMCP training site-based co-ordinator/supervisor | | 4 | 3 |
| Clinician providing mental health training at training sites | 1 | | |
| 2020 final year class representative | 1 | 1 | 1 |
| Total interviews | 6* | 6 | 7 |
| **Documents reviewed** | | | |
| Study guides (or similar) | 1 | 2 | 4 |
| Rotation guide | 1 | | |
| Preceptor manual | 1 | | |
| Lecture slides | 1 | | |
| Logbook | | 1 | |
| Total documents | 4 | 3 | 4 |

* One of the BCMP/BMCP academic co-ordinators was responsible for mental health teaching

2021 and 29 July 2021. For each programme, a mixture of university-based and facility-based personnel were interviewed as well as the class representative of the previous (2020) graduating class. Eleven documents were reviewed. The number of interviews conducted and documents reviewed for each programme are shown in Table 1. In order to maintain confidentiality, the universities have not been named when presenting results but have been randomly designated as A, B or C.

### Timing of mental health in the curriculum

#### *University A*

In Year 1 some generic skills considered useful in mental health such as biopsychosocial assessment, communication and counselling are introduced. The mini-mental state exam is covered in their neurology block. In Year 2, they build on their counselling skills to include bereavement, grief and loss as well as substance use and have possible interaction with mental health patients during rotations e.g. emergency department and internal medicine. The formal mental health component of the curriculum takes place in Year 3 and includes both university-based teaching and facility-based practical training which has its drawbacks: *"I think that we integrate it a little bit too late, personally, because our students do start interacting with mental health patients already in the first year."* (P10).

#### *University B*

At University B, there is no formal teaching related to mental health in Years 1 and 2. "*They will meet patients on the wards and in the casualty. But it is not one of the things that we teach them*" (P11). The view was that students would generally not be interested in mental health before the module which is in the third year:

> *"You can teach someone, it doesn't mean that people are going to learn that thing. So, they don't learn to do it per se until they come to this module in which they have to do it, or they have to know, or they can't pass the module…we don't touch this topic until year three, they're like, okay, I don't need this now." (P15).*

#### *University C*

University C introduces students to some aspects of mental health history taking, the mini-mental state examination, and the psychosocial (three-stage) assessment in Year 1. Communication skills and basic medical psychology are also included. Neurology is a theme (Year 2) where a few relevant aspects of psychiatry are touched on. Again, the bulk of mental health is included in Year 3. The lack of integration of into the earlier years comes at a cost:

> *"…as a student you don't do psych in first and second year. All of a sudden you're doing psych in the final year, so you get surprised of all of the list of conditions that you have of psych, and you don't know, you've never been exposed to any of them, you've never focused on any of them. So you don't know which one is important and which one is of serious concern, which one is of emergency or what." (P19)*

There was strong support that students should be formally introduced to some aspects of the mental health curriculum earlier in their programme. An earlier start would allow them to take advantage of the mental health learning opportunities in the wards and emergency departments and to integrate knowledge better. However, this would also need a change of mindset from students as noted by one interviewee: *"I do think sometimes students compartmentalise too much and they lose opportunities to learn, even though it's not immediately relevant in terms of an upcoming exam"* (P17).

### Mental disorders included in the curriculum

The mental disorders that are included in the curriculum were extracted from the documents received (Table 2). The lists of disorders are fairly similar with all three lists including the common mental disorders viz. depressive disorders, anxiety disorders, and substance-related disorders. Schizophrenia is also included in all three curricula. An interviewee from University C raised a concern regarding the scope: *"…it's basically the whole mental*

**Table 2** Conditions that form part of the curriculum as indicated in course, module and/or rotation guides

| University A | University B | University C |
|---|---|---|
| Alcoholism | Acute substance intoxication | Attention-deficit hyperactivity disorder |
| Anorexia nervosa | Acute substance withdrawal | Alcoholism |
| Attention-Deficit/Hyperactivity Disorder | Alcoholism | Alzheimer's |
| Autistic Disorder | Anxiety | Bipolar mood disorder (Type I and II) |
| Bereavement | Bipolar disorder | Conduct disorder |
| Bipolar disorder | Children's behavioral disorder | Delirium |
| Bulimia nervosa | Delirium | Dementia |
| Conduct disorders | Dementia | Depression |
| Delusional disorder | Depression, acute | Family violence |
| Dependency, alcohol | Depression, chronic | Gender dysphoria |
| Dependency, drug | Drug addictions | Gender identity disorder |
| Domestic violence | Family violence | Generalized anxiety disorder |
| Dysthymic disorder | Mental health disorders related to female gender | Major depression disorder, chronic |
| Generalized anxiety disorder | Mental retardation | Mental retardation |
| Major depressive disorder | Psychiatric disorders in HIV | Obsessive compulsive disorder |
| Malingering | Psychosis, acute | Organic brain damage |
| Mental retardation | Psychosis, toxic | Personality disorders |
| Panic attack disorder | Schizophrenia and other chronic psychotic disorders | Phobias |
| Personality disorder | Substance abuse | Post-traumatic stress disorder |
| Phobias | Suicidal behavior | Psychosis, acute |
| Post-traumatic stress disorder | | Psychosis, toxic |
| Psychoses, drug induced | | Schizophrenia spectrum disorders, chronic |
| Schizophrenia | | Substance abuse |
| Suicidal thoughts | | Suicidal behaviour |
| Suicide attempt | | |
| Withdrawal, alcohol | | |
| Withdrawal, drug | | |

***health book in there, all the topics, all the diseases, all the conditions are there, it's just like how do you squeeze them in into short time?"*** (P18).

Based on the interviews it is apparent that practical exposure to patients with these conditions varies significantly by site. It ranges from district hospitals without a psychiatric unit and exposure to only a limited number of these conditions/presentations (e.g. acute psychosis, suicidal behaviour) to those at a tertiary hospital with a broad range of the disorders.

### Competencies and skills

The mental health (and related) competencies and skills planned for by each university were reviewed using both the documents and the interview data (Table 3). Based on this examination, all three universities include learning opportunities for all the elements of the mental health assessment. Universities A and C use electronic logbooks where students need to record patients seen and procedures done but do not specify minimum numbers. University B uses a manual logbook with minimum requirements e.g. "sedate five aggressive patients".

### University-based teaching

#### *University A*

There is theoretical block at the start of Year 3 on campus that includes one week of mental health which consists of formal lectures, videos and case-based learning. The teaching is currently done by one of the BCMP/BMCP co-ordinators who is a clinical associate. Psychiatrists from the local academic hospital only give input on the teaching material. Lectures given include mental health ethics and pharmacology of psychiatric drugs. A case-based approach is used to teach mental disorders with the theory being discussed before a case discussion. Extensive use is made of videos including a psychiatric interview:

> *"…. so pre-Covid, in a classroom setting, we would watch the video together, I'd stop the video and then we would go through the mental status exam together, so that students could fully consult with that patient in the video as though they were doing it in real life. And then we'd diagnose the patient together, assess then according to DSM criteria, and then discuss the management around that patient … and that condition as a whole." (P03)*

Due to the COVID-19 pandemic, contact teaching was limited. Students were given the videos to view on their own. Synchronous online sessions were held to discuss each of the conditions. On campus skills teaching was permitted and students attended a simulated ward session which included a simulated mental health patient that they had to assess and manage.

#### *University B*

There is a didactic period at the start of third year on campus in which seven themes are covered including mental health. Due to COVID-19 and political instability on campus, all mental health teaching shifted to the health facilities where students were based. Prior to that, it was unclear how much mental health content was taught during the didactic period, but one interviewee

**Table 3** Competencies and skills covered as per documents reviewed and interviews conducted

| | University A | | University B | | University C | |
|---|---|---|---|---|---|---|
| | Documents | Interviews | Documents | Interviews | Documents | Interviews |
| **Competencies** | | | | | | |
| Mental health history | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mental status examination | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mini-mental state examination | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Physical examination | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Relevant bedside and laboratory investigations | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Psychosocial or three-stage assessment | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Diagnosis | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Pharmacological management | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Counselling | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Suicide risk assessment* | X | X | X | X | X | X |
| Mental Health Care Act | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 72-hour observation | X | ✓ | X | ✓ | X | ✓ |
| Referral | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Restraint | ✓ | ✓ | X | ✓ | X | X |
| Sedation | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| Mental health promotion | ✓ | ✓ | ✓ | X | ✓ | X |
| **Skills** | | | | | | |
| Communication | ✓ | ✓ | X | X | ✓ | ✓ |
| Information gathering (research) | X | X | ✓ | ✓ | ✓ | X |
| Patient notes and letters | ✓ | X | X | X | ✓ | ✓ |
| Teamwork | ✓ | ✓ | X | X | ✓ | X |

* suicide risk assessment is included here as it was mentioned by a couple of participants as being important but there was no evidence that it was being covered

estimated 20 hours (done by the family physicians, medical officers, and clinical associates).

#### *University C*

A foundation week covering multiple clinical discipline in Year 3 includes a two-hour introductory lecture on mental health. They also receive a lecture in their third year on substance use and harm reduction. The mental health lecture is given by a psychiatrist based at the local academic hospital and was presented in a synchronous online format during the pandemic. The lecture includes an approach to mental health assessment, classification system, some interviewing skills and an overview of some common mental disorders. There was some concern expressed that this was not adequate: "*I'm slightly biased here because I think that it's a very superficial overview that we give. And given the scope of mental health problems, you know, it's probably not enough.*" (P06).

### Facility-based teaching and practical training

#### *University A*

There is a two-week mental health rotation in Year 3 to a psychiatric unit. Two of these units are in district hospitals, one is a regional hospital and the fourth is an academic hospital. The model used by University A is different from Universities B and C where the students have their mental health module at whichever hospital they are based for the year. One of the interviewees outline the rationale for University A's different approach: "*...we're looking to place our students in a location where there is a department, there is a consultant, where there is opportunity for students to really be engaged and learn.*" (P13).

The two-week mental health rotation at University A is shorter than the other specialties (generally four weeks), which was considered sub-optimal:

> *"Never enough. Never, ever enough. I know every time I tell the preceptors it's two weeks, they're like that's not nearly enough to do a psych rotation ... But two weeks to grasp psychiatry and to grasp mental health, is definitely not enough time." (P10)*

Each facility has a university-employed site facilitator who co-ordinates rotations but hospital-employed preceptors supervise and train the students. The preceptors are either psychiatric consultants or medical officers working in psychiatry unit. The students' activities vary depending on the facility but generally consist of assessing mental health patients (in the wards, outpatient departments and/or emergency departments), attending patient rounds, and presenting patients to their preceptors. There is a preceptor manual provided by the university but it seems preceptors are left to their own devices to some extent as the training is:

> *"...very site dependent, which becomes very difficult*

*to get students to get to the same objectives because in the clinical setting there are some MOs (medical officers) who really love teaching and involve the clinical associate students in the ward round, in consultations, and students become quite comfortable with psych. Versus a hospital like (the academic hospital), they get a little bit lost and there's medical students, there's registrars, there's interns, so the ward round doesn't become as beneficial for them unless there's something who's a bit more inclusive in their teaching." (P03)*

#### *University B*

Based on the documents, University B has a three-week facility-based mental health module in Year 3. However, interviewee responses varied as to whether the module at the facility was actually three or four weeks. This uncertainty was possibly due to time for the didactic campus-based component (which had not taken place in recent years) being added to time spent at the facility. There was a general concern whether this was sufficient:

*"...my main concern is that we spend only one month in these topics, only one time in three years, and one month. So it's like, when the students go over these topics, or over this module, they don't really go back again...it's not like pneumonia they can keep seeing pneumonia every day, right? and studying through three years, and TB they study TB through the three years and several times." (P15)*

The students do their mental health rotation at the hospital that they are based at. University B uses three district hospital and one regional hospital for training. Only the latter has a mental health unit. To maintain consistency, students are not placed in that mental health unit but follow a similar programme to students placed at facilities without a mental health unit. The rationale is that *"their scope of practice may not necessarily need them to be on the mental health unit..."* (P14). Despite attempts to standardise training at different sites, one interviewee did concede that *"...the amount of exposure they will have to patients who need mental health services varies by hospital site."* (P11).

There are academic staff ("tutor-lecturers") appointed by the university at each of the training facilities. These are either medical officers or clinical associates who are responsible for training across the specialties. Teaching consists of problem-based learning (PBL) and topic presentations. Students clerk patients with a mental health presentation, and present to the tutor-lecturer and class as part of PBL. The differential diagnoses, psychosocial assessment, and management plan is then discussed and learning needs identified. A standard list is used for the topic presentations. The student representative expressed some misgivings about the presentations:

*"...the whole thing of we present certain topics, this is also a bit of a problem sometimes, because we ourselves do the research, and it's the first time we're encountering this topic thoroughly, so you do your own research and everything...it doesn't make it as effective as if maybe we had the lecture first." (P09)*

The amount of practical mental health training appears to be limited. The students may or may not opportunistically encounter mental health patients in the emergency and outpatient departments and one participant acknowledged *"...it is possible for some students to go through the year, or to go through the course, without really handling mental health patients."* (P11).

#### *University C*

Students at University C have a four-week mental health rotation in Year 3. The rotation is split into two weeks in the wards, one week in the emergency department and one week in the outpatients' department at the hospital they are based. Fifteen (or in some years more) hospitals are utilised for training and range from district to tertiary levels and may or may not have a dedicated mental health unit. Some students spend a week in a community-based substance use programme instead of the outpatients' department.

At each facility, there is an identified family medicine practitioner who is responsible for ensuring training but in practice students are often *"... siphoned off to somebody else who may or may be not be interested really in the training of clinical associates"* (P04). At some facilities, a psychiatrist or mental health nurse may be present to assist during the mental health rotation though it is generally medical officers. The students are expected to sit in on patient rounds and psychiatric interviews that are being done by the doctors as well as clerk and present mental health patients. The module guide indicates that students are required to have a "mental health longitudinal patient" with a chronic mental illness who they follow up for several months including doing a home visit. This aspect did not feature strongly in the interviews, so it is not clear how well this is implemented.

A key concern raised by interviewees was the variability in mental health training at the different sites and there was particular concern about students placed at rural facilities:

*"So, it varies a lot with respect to what they ultimately get exposed to during that four weeks...it really depends upon where they've been placed. And the majority of it, I think it varies, I mean, incredibly."* (P04).

**Table 4** Key features of mental health training in the three programmes

| Programme | Formal lectures on campus (pre-COVID) | Facility-based teaching and training | | | Assessments |
|---|---|---|---|---|---|
| | | Duration | Site | Approach | |
| University A | 1 dedicated week | 2 weeks | Hospital with a mental health unit | Practical | Patient report, ethics reflective journal (optional), preceptor observation of a clinical assessment, preceptor evaluation of overall performance, test consisting of multiple-choice questions (MCQ) and case-based questions |
| University B | 20 h | 3 weeks | Hospital where they are based for the year | Theoretical with limited (coincidental) practical exposure | Patient-orientated medical record, topic presentations, problem-based learning discussions, test consisting of MCQ and MEQ |
| University C | 3 h | 4 weeks | Hospital where they are based for the year | Considerable variation between facilities | Patient report and presentation, assessments related to the longitudinal patient, a test, a skills assessment |

*"My own view, from the programme perspective, I think programme looks great, the way it's structured. But in practice I don't think they have enough support once they go off into the rural facilities."* (P18).

The class representative stressed the importance of student agency in maximizing the benefit of the mental health and other rotations *"You have to, as an individual in (BCMP/BMCP), you have to be knowledge-driven, you need to, out of your own will look for patients that will give you the proper exposure you're looking for"* (P05). She noted that doctors are then more likely to assist students with this attitude.

### Assessment

The assessments specifically for mental health at the three universities are shown in Table 4 along with other key features of the three programmes. At University A, mental health is also included in objective structured clinical examinations (OSCE). There are three OSCEs in the third-year and each usually have a mental health station e.g. a consultation with a simulated psychiatric patient. At the end of the third-year, the students at all three universities have a Clinical Associate National Examination (CANE) which includes mental health (blueprinted as 11% of the mark allocation of the written papers). The CANE consists of an Multiple Choice Question (MCQ) paper and a Modified Essay Question (MEQ) paper. All universities have independent (but similar) final OSCE exams. University A has a 12–14 station OSCE which usually has a mental health station. University B confirmed that a mental health station was included in their final OSCE the previous year. The final OSCE at University C usually includes at least one mental health station. There was some concern regarding assessments and examinations in general at University C as it was felt there was a lack of alignment between clinical practice and what they are assessed on. There was some acknowledgement of the missed opportunity of bedside assessment and the need for workplace-based assessments: *"I think we've been talking about workplace assessment, I think those are good…those are perhaps one of the ways forward."* (P17).

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#### *University C*

### Training adequacy and competency to provide mental health services

#### *University A*

Besides issues linked to starting mental health training at a late stage of the programme and duration of the mental health rotation, other gaps noted by interviewees included inadequate theoretical component, a lack of exposure to child psychiatry and personality disorders, counselling at a *"very surface level"* (P10), and limited training on the substances that could be abused. There were differing views on whether the training as a whole was adequate and whether graduates are likely to be competent to deliver mental health services: *"So I don't think it's adequately covered. I think the clinical associates can add a lot of value to a mental health department and I think our curriculum doesn't fully allow for them to see that, but it also doesn't allow for us to fully go into the theory."* (P03).

***University B***

The identified gaps in training included training related to childhood behavioural disorders, and dementia. There were differing views on whether mood disorders were a gap or not. One interviewee thought that students would struggle to manage mental health patients in the wards as they do not receive that exposure during their mental health training. There were differing views on training adequacy and competency to practice:

*"I believe it's adequately covered, because they are prepared to do what is required in their scope of practice in terms of the 72-hour assessment, and then they refer the patients to the specialist. So we are actually covering well, that's my view."* (P14).

*"I will say that they can do emergency management, but even that one, at the time of graduation and going out there, they are not very comfortable with that yet. They're not."* (P11).

***University C***

The lack of emphasis on mental health teaching, minimal formal teaching and inadequate guidance as to the areas to focus on were identified as gaps at University C. One of the interviewees noted that *"… right now I think the message that we're sending to our students based upon the way we teach the programme is that mental health is not that important, and it's only important for four weeks out of your entire education."* (P04) This sentiment was echoed by one of the site facilitators: *"So the exposure and opportunities are also playing the part there, but also the university itself doesn't place enough emphasis or guide in terms of that."* (P19).

Concerns were raised that students may not be exposed to mental health patients at some hospitals beyond the immediate management in emergency departments. It was noted that *"…a lot of their mental health knowledge, I think comes from them reading about it as opposed to actually experiencing those patients."* (P04) A concern was raised about their diagnostic ability:

> *"So, for instance, they may not necessarily be able to identify that somebody, say, has got a general anxiety disorder, or sometimes to some extent, even just depression. It's very difficult for them to be able to pick up those nuances at the very beginning. And my view is that there ends up being a lot of misdiagnoses from them because they're not trained adequately to do that." (P04)*

There were varying responses on whether training adequately prepared clinical associates from this institution with respect to mental health with some reliance on reputation rather than evidence: *"I definitely think that if we passed the final OSCEs and the final exam papers, I feel like we all definitely have the necessary knowledge, because* (University C's) *assignments were not easy. So if we got through I feel like we should trust the university and their level of assessment to tell us that we are competent."* (P05).

While others reflected on the future utility of their graduates: *"If they are expected to manage patients on their own as, you know, quasi-medical practitioners, then I think a lot more work should go into training them to do it effectively."* (P06).

## Discussion

The interviews and documents confirmed that mental health is a component of all three curricula. In all three programmes, virtually all mental health teaching and training occurs in the final year of the three-year degree. This design feature was considered a missed opportunity for earlier learning in other rotations. There was almost universal support for integrating mental health earlier in the curriculum. Given that individuals with chronic physical illness are at high risk for depression and anxiety and individuals with serious mental illness are at high risk for a number of chronic physical conditions [33], it would be ideal to integrate mental health as early as the first year. This educational strategy would help in preparing clinical associates to provide holistic care from an early stage in their training. As frontline health professionals, it would assist them to detect the contribution of mental health to a range of presentations and conditions and enable them to manage these co-morbidities. While there may be limitations as to how mental health content can be feasibly included in the earlier years, it may be possible to introduce them to mental health history taking, the mental status examination as well as the common mental disorders.

There is clearly a gap at University C with only two formal lectures on mental health compared to University A who has a week of formal teaching on campus and University B who has an extended period of facility-based formal teaching. The lack of formal teaching at University C might explain why an interviewee pointed out the lack of guidance as an issue as the students need to determine what is important on their own. While two lectures are clearly insufficient, some argument can be made to rationalise the conditions that are included in the curricula at all three universities. The utility of including uncommon disorders that clinical associates are unlikely to encounter or would not be required to manage is questionable. Rather, burden of disease data and prevalence data provide guidance. Results from the Global Burden of Disease Study 2017 suggest that depressive disorders, anxiety disorders, substance use disorders and schizophrenia form the prime inclusions as the mental illnesses that rank within the twenty leading causes of years with

disability for males and females [34]. South African prevalence data suggest anxiety, mood, and substance use disorders are disorders that health workers are likely to encounter [35].

With respect to facility-based training for mental health, each university uses a different approach. The approach adopted by University A ensures students get practical exposure to a mental health unit and thus guarantees a wider variety of mental disorders. University B uses a more theoretical approach to their psychiatric block with very limited practical exposure which is usually coincidental. University C uses a number of sites with considerable variation in training depending on where a student is placed and distinct lack of standardisation compared to Universities A and B. As acknowledged by the interviewees at University A, the two-week mental health rotation is short (but guaranteed) but ideally needs to extended. Universities B and C allocate more time to mental health but most of the practical learning is by chance. Spending at least some of the time (e.g. two weeks) allocated to mental health in a hospital with a mental health unit would guarantee opportunities to learn.

Clinical associates' scope of practice includes taking a history, performing an examination, performing diagnostic procedures, formulating a diagnosis, developing a management plan and performing specified procedures under supervision [28]. The list of procedures includes "Mental health examination", "Mental Health History", "Mini Mental State (MMS) examination" and "Counselling - family /mental health"[28]. All three universities include these in their curricula but the concern is the authentic application of these in practice. There is no indication in the literature reviewed on what an ideal split between mental health theory and practice would be for this cadre. It was notable that no evidence was found of suicide risk assessment being covered given South Africa's high suicide rate [6]. In comparison, Canada includes suicide assessment in the competency profile of their physician assistants [36]. While all three universities utilise procedure or log books, only one has set specific experiential targets. Setting specific targets for mental health would ensure adequate practical exposure and help identify facilities where the opportunities to learn are too limited or where supervision is inadequate.

It is not clear how well the mental health training of South African clinical associates compares to equivalent cadres in other countries as information is not readily available. Though psychiatry is included in the competency profile of Canadian physician assistants, there is no indication of the duration of the mental health training they should receive [36]. Similarly, it is not clear how much mental health training Ethiopian health officers receive, but it is likely to be limited given that mental health services have not been a priority until recently [37]. A situational analysis of clinical officers (and nurses) working in primary care in Kenya found they had only a small amount of basic training in mental health [38]. A survey of non-specialist health workers in Malawi which included medical assistants found just 12% had received training in mental health [39]. Training in psychiatry varies widely between American physician programmes with some programmes offering comprehensive didactic teaching and clinical training while others offer only a small amount of didactic teaching with limited clinical opportunities in primary care settings [40]. The United Kingdom physician associate curriculum requires a minimum of only 90 hours in psychiatry out of 3 200 hours of teaching [41]. It is not clear how much of this is practical though their training does involve problem-based learning sessions, role-play scenarios and mental health consultations during general practice clinical placements [42].

While task sharing in mental health in South Africa has tended to focus on counselling interventions delivered by community health workers or lay health workers, the clinical training and background of clinical associates offers different possibilities at district hospitals and at primary care level. These include assessment and diagnosis, referral to higher levels of care when indicated, management of co-morbid mental and physical illness, and the prescribing of pharmacological treatment in addition to counselling interventions. There is evidence to support the involvement of primary health professionals in the collaborative care of adults with common mental disorders as well as primary health professional-led or collaborative care of adults with severe mental disorders and training should, therefore, be strengthened with respect to depression, anxiety and schizophrenia in order to allow clinical associates to deliver evidence-based interventions at primary level [17]. Improving clinical associates' ability to detect and treat depression would also be critical in suicide prevention [43, 44]. All three universities offer some basic counselling training. Strengthening this component of their training may not only enable clinical associates to provide evidence-based counselling interventions such as problem solving for depression [45, 46] or motivational interviewing for substance use [47] themselves but may also enable them to supervise lay counsellors.

Qualified clinical associates may only be able to play a limited role in mental health service provision currently given the training gaps identified. However, strengthening of the mental health component of the three undergraduate programmes could see that role broadened for future graduates. Clinical associates who have already graduated may benefit from short courses to close some of the gaps. An advanced qualification such as Honours

degree and/or a clinical specialisation for clinical associates in mental health should be considered given the concerning high prevalence of mental health disorders. The researchers intend to conduct further research to inform a conceptual framework for the provision of mental health services by clinical associates.

### Limitations

We purposively sampled participants from the three programmes to provide us with a comprehensive overview of their mental health training programme. However, we did not include participants from each of the training sites and there may be discrepancies between individual training sites and our global findings for the programme e.g. certain competencies that were covered in a particular programme may not have been covered at a particular site. All three programmes had been impacted by COVID-19. While we tried to elicit a description of the programmes pre-COVID-19 and during COVID-19, this was not possible with all participants. The document review was limited by what was submitted by BCMP/BMCP co-ordinators.

## Conclusion

The mental health training received by clinical associate students in SA varied between the three training programmes as well as within programmes with a number of areas identified for potential improvement. We recommend a model that integrates mental health as early as possible in the curriculum to maximise learning opportunities, focuses on common conditions and those that that contribute substantially to disease burden, includes compulsory rotations in mental health units, provides facility-based trainers with detailed guidance to standardise teaching across training sites, and includes specific experiential targets for the number of mental health procedures that are monitored using paper or electronic logbooks. Strengthened undergraduate clinical associate training programmes in mental health will provide the potential for their utilisation in task-sharing approaches in mental health services in SA.

### Abbreviations

| | |
|---|---|
| BCMP | Bachelor of Clinical Medical Practice. |
| BMCP | Bachelor of Medicine in Clinical Practice. |
| DALYs | Disability-adjusted life years. |
| NIDS | National Income Dynamics Survey. |
| SA | South Africa. |
| WHO | World Health Organization. |

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### Author contributions

SVM conceptualised the research. SVM developed the methods (including the interview guide) with input from JW and CG. SVM conducted the in-depth interviews. SVM analysed the data with guidance from JW. SVM wrote the first draft of the paper with subsequent input from JW and CG. All authors reviewed the manuscript.

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### Data availability

The dataset generated and analysed for this study are not publicly available in order to protect the confidentiality of the participants but are available from the corresponding author on reasonable request.

## Declarations

### Ethics approval and consent to participate

The study was approved by the University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). The study was conducted in accordance with all relevant university and national guidance on ethical research. A leaflet and informed consent document was e-mailed to the potential participants. Written informed consent was obtained prior to the in-depth interviews. Participants' names and university names were masked in order to ensure confidentiality.

### Consent for publication

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

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## Publisher's note

**CHAPTER 3B**

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RESEARCH ARTICLE Open Access

# Mental health task-sharing in South Africa – a role for clinical associates?

Saiendhra Vasudevan Moodley*, Jacqueline Wolvaardt and Christoffel Grobler

**Abstract**

**Background:** South Africa (SA) lacks the specialised workforce needed to provide mental health services particularly in the public sector and in rural areas. Mid-level medical workers offer a potential option for mental health task-sharing in countries where they exist, including SA. The objectives of the study were to explore the roles that SA's mid-level medical worker cadre (clinical associates) could play in mental health service delivery, and to explore views on advanced training in mental health for this cadre.

**Methods:** This was an explorative, qualitative study involving key informants linked to the three clinical associate training programmes in SA. A total of 19 in-depth interviews were conducted with university-based academic staff, facility-based trainers, and student representatives. The interviews were audio-recorded and professionally transcribed. Thematic analysis was conducted with the aid of Atlas.ti software. Themes and subthemes were identified.

**Results:** The first theme identified was 'there is a place for them at the table'. Participants felt that there was a definite role for clinical associates in mental health service provision. The levels of care thought most appropriate were primary health care facilities and district hospitals. The most frequently identified role for clinical associates was in providing immediate care and stabilising mental health patients presenting in emergency settings. Other potential settings included inpatient wards, outpatients' departments, and in communities (e.g. home visits). The second theme identified was 'earning a seat at the table'. There was virtually unanimous support for additional training and in particular a postgraduate clinical specialisation in mental health. Participants felt a clinical specialisation in mental health would strengthen the health system by addressing workforce shortages as well as access and equity issues. They also held the view it would strengthen the profession by creating a career path and providing more employment opportunities for clinical associates.

**Conclusions:** There was broad support for a role for clinical associates in mental health service delivery in SA as well as for the establishing a clinical specialisation in mental health for clinical associates. Clinical associates with advanced training in mental health could potentially play an important role in rural settings to alleviate the shortage of specialist mental health practitioners.

**Keywords:** Mental health, Task-sharing, Clinical associates, South Africa, Health workforce

## Background

There is evidence of severe shortages of the health workforce required for mental health in many low- and middle-income countries [1, 2]. Bruckner et al.[1] found that all low-income countries and the majority of middle-income countries in their sample did not have sufficient mental health professionals to provide a core set of interventions. The disparities in the distribution of the global

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mental health workforce is highlighted by the World Health Organization (WHO) African Region having a median number of 1.6 mental health workers per 100 000 population in 2020 compared to the WHO European Region which had a median of 44.8 per 100 000 population [3].

In 2017, South Africa (SA) had 1.52 psychiatrists per 100 000 population compared to a median number of psychiatrists per 100 000 population of 2.1 for upper-middle-income countries and 12.7 for high-income countries [4, 5]. There is a lack of data for other cadres of mental health workers. Wishnia et al.[6] project that psychiatry will be one of the specialties in SA with an extremely large deficit of specialists per 100 000 population by 2040 when compared to the SA's National Department of Health target adjusted for epidemiology. There are also substantial disparities in the distribution of mental health workers between the private and public sectors of SA as well as urban and rural areas. In 2019, there were 0.38 psychiatrists per 100 000 population in SA's public sector that serves the majority of its population compared to 4.98 per 100 000 population in the private sector [6]. In a situation analysis involving 160 public rural primary healthcare facilities (including district hospitals) in SA, only seven psychiatrists were employed in these settings (0.03 psychiatrists per 100 000 population) [7]. De Kock et al.[8] found that only 62 (38.7%) of 160 public rural primary healthcare facilities employed mental health nurses. A population of over 17 million was being served by a total of 116 mental nurses (0.68 mental health nurses per 100 000 population) [8].

The shortage of specialist mental health workers has necessitated the use of task shifting and task sharing approaches in many countries [2, 9, 10]. A shortage of psychiatrists prompted Sri Lanka to create a three-month psychiatry training course for medical officers who are then stationed at primary and secondary levels [2, 11]. Studies have shown that the use of non-specialist nurses to deliver mental health services can be beneficial [12–14]. An audit of depression case management by practice nurses in general practitioner settings in England found both clinical improvement in patients and patient satisfaction with the service [12]. The practice nurse intervention involved medication management, behavioural activation, symptom assessment and non-responder identification [12]. Clinical benefit was demonstrated for moderate to severe depression (but not for mild depression) in a cluster randomised trial in the United States of America (USA) where depression care management consisting of goal setting, education, medication management, symptom assessment, and care co-ordination was integrated into the routine practice of nurses doing home visits to Medicare patients 65 years and older [13]. There is evidence from a task-sharing intervention in Ethiopia that primary health care nurses can play an important role in the diagnosis and treatment of patients with severe mental illness [14]. Research from southern Africa suggests that lay health workers could play an important and effective role in mental health service delivery [15–18].

A number of countries have initiated mid-level medical workers programmes to address health workforce shortages [19]. Physician assistants have been trained in the USA and similar cadres are found in Australia, Canada, Netherlands and the United Kingdom [20]. Training of mid-level medical workers in sub-Saharan Africa started with clinical officers being trained in Kenya [21]. South Africa began training of mid-level medical workers named clinical associates with the first cohort entering the South African health system in 2011 [22]. Clinical associates complete a three-year undergraduate Bachelor of Clinical Medical Practice or Bachelor of Medical Clinical Practice degree [22]. Training takes place mainly at district hospitals and consists of case-based learning and early exposure to clinical work [22]. The scope of practice of clinical associates includes taking an history, performing an examination, performing diagnostic procedures, formulating a diagnosis, developing a management plan and performing specified procedures under supervision [23].

The degree of involvement of mid-level medical workers in the delivery of mental health services varies between countries where these cadres exist. While the undergraduate training programmes for clinical associates in SA does include mental health, there is no evidence to suggest they are widely used to deliver mental health services. The objectives of the study were to explore the roles clinical associates in SA could play in mental health service delivery, and to explore views on advanced training (including a clinical specialisation) for this cadre in mental health.

## Methods

### Study design

We used an explorative, qualitative approach comprising in-depth interviews. The in-depth interviews consisted of two components. The first component addressed the mental content of the clinical associate training programmes and those results are reported elsewhere [24] while the second component explored participants' views on clinical associate roles and advanced training related to mental health.

### Study setting

This was a multisite study involving the three universities offering clinical associate undergraduate degrees in SA.

### Study participants

The study involved key informants linked to the three clinical associate training programmes. The key informants were university-based academic staff, facility-based trainers, and student representatives who were selected using purposive sampling. The target was to include a minimum of five individuals linked to each of the three programmes regardless of data saturation.

### Data collection

Participants were invited to participate in the in-depth interviews via e-mail and appointments for interviews with each participant were made once they agreed to participate. Blackstone [25] highlights the importance of sharing information to balance the power differential between interviewer and interviewee. In this study, the interviewer shared some details about his background, the reasons behind his interest in the topic, and gave the participants a clear idea of the intent of the research including sharing the rationale and research questions with them.

In-depth interviews were conducted using an interview guide that was developed for this study (supplementary file 1). The questions related to mental health in the curriculum, participant views on clinical associate roles in mental health service provision, and participant views on advanced training. Interviews were conducted using videoconferencing but were audio recorded only. Participants were given the option of using either Microsoft Teams or Zoom. Hand-written notes were also taken during the interview. Only the researcher conducting the interview and the participant were present during each of the interviews. The duration of interviews ranged from 28 to 58 min (including the first part of the interview which dealt with the curriculum). The recordings were transcribed professionally.

### Data analysis

An inductive data analysis approach based on constructivist grounded theory was utilised. ATLAS.ti software was used to aid the analysis. Colaizzi's seven-step method for data analysis was used to guide the analysis process [26]. The first author read through the transcribed interviews, identified significant statements (which were coded), and formulated meanings [26]. The codes were then aggregated into categories [27] and clustered into themes [26]. The codes, categories and themes were reviewed and confirmed by the second author.

## Results

Of those that responded to the e-mail invitations that were sent out, 19 individuals agreed to participate while three individuals declined (one citing time constraints and two felt they were not appropriate based on their roles). In-depth interviews were conducted between 25 March 2021 and 29 July 2021 with all 19 individuals who agreed to participate. No repeat interviews were conducted.

All three universities were represented with seven participants from one university and six participants from the remaining two universities. The professional categories of the interviewees were clinical associates or foreign-trained equivalent ($n=11$), family physicians ($n=4$), medical officers ($n=3$) and psychiatrists ($n=1$). Three of the clinical associates were student representatives from the previous graduating class at each university. The sample consisted of 11 females and eight males.

The themes and subthemes that emerged from the in-depth interviews are shown in Table 1. The participants felt there was role for clinical associates in mental health and identified the settings and mental health tasks where they could play a role indicating 'there is a place for them at the table'. However, their current training may not be adequate to fulfil their potential role in mental health and advanced training through a clinical specialisation and short courses could assist them in 'earning a seat at the table'.

### Theme 1: There is a place for them at the table

#### *Subtheme: Support for a clinical associate role in mental health*

Participants could envisage potential roles and a range of potential health "tasks" for clinical associates in mental health predominately in the settings in which they currently work. There was widespread support amongst the participants for the utilisation of clinical associates in the provision of mental health services as they already have basic mental health training, consultation and communication skills. One participant noted that allowance was made for this in the Regulations[23] by allowing a supervising medical practitioner to delegate any task to a

**Table 1** Themes and Subthemes

| Themes | Subthemes |
|---|---|
| There is a place for them at the table | Support for a clinical associate role in mental health |
| | Appropriate settings to render mental health services |
| | Potential mental health "tasks" |
| Earning a seat at the table | The need for a clinical specialisation in mental health |
| | The need for short courses in mental health |

clinical associate who has the requisite training and experience. Participants expressed the view that clinical associates would add value in mental health service delivery:

> *"...they are very relatable to a majority of people that are struggling with mental health issues.... And putting clinical associates at the front of these conversations and seeing these patients, is definitely a good thing. So, I don't have a limit to where I think their role is. I think they could fit in anywhere in the South African landscape for mental health, anywhere where the help is needed." (clinical associate 07)*

#### *Subtheme: Appropriate settings to render mental health services*

Participants envisaged the most appropriate settings for clinical associates to render mental health services as primary health care (PHC) facilities and district hospitals. The reasoning for district hospitals was that *"clinical associates have been trained in district hospitals, a foundation, a starting place for them is there"* (clinical associate 08) and that this is a reflection of the original intention: *"...we viewed clinical associates right from the time of inception, we viewed them as district hospital and down to PHC."* (medical officer 01) Their existing training in mental health was viewed as a barrier to providing mental health services at other levels: *"I feel like those topics, those conditions are adequate for us to manage, especially specifically at the places that we are allocated, so which is mainly district hospitals and the primary healthcare system."* (clinical associate 06).

Provision of mental health services at community level was mentioned as an issue that needed to be addressed. The potential value of involving clinical associates at this level was noted:

> *"...one of the advantages is, clinical associates can write prescriptions and so at the community health centre level, depending on who's staffing it, clinical associates could write prescriptions and then those patients could remain in the community and receive their medicines, as opposed to having to go to the district hospital or tertiary hospital." (clinical associate 09)*

A few of the participants felt that clinical associates could play a role at regional, tertiary and even specialised psychiatric hospitals as well as in the private sector:

> *"...the medical world is open to them given that they have the right training, given that they have the right supervision, given that they have the right mentorship to be trained up, and I don't think there should be any limit to the location of where clinical associates could be placed or worked or that level of patient to work with. You know, if there's a need for a clinician to help in mental health in the private area, if there's a need to help at a tertiary hospital, if there's a need at the district hospital, or at the CHC, that would be great." (clinical associate 09)*

#### *Subtheme: Potential mental health "tasks"*

The most frequently identified role for clinical associates was in providing immediate care to mental health patients presenting in emergency settings. Specific examples provided by participants included the initial management and stabilisation of violent, psychotic and suicidal patients:

> *"I feel I would be competent to do emergency mental health. Like if I'm in casualty and I have a violent patient or I have a patient with a suicidal attempt, or I have a patient that's hallucinating or confused or they have alcohol or drug abuse kind of problems, I would be able to help them mostly." (clinical associate 04)*

However, some participants expressed some misgivings regarding their readiness to take on such a role:

> *"...the immediate acute care... is quite a difficult and a specialised field. So, on the one hand you would like as many people to be competent in doing that, on the other hand it's not as simple as it seems. And so, I'm not sure if they are the right cadre to do that. And I think it will largely depend on what their role would be in terms of their scope of practice and their job descriptions." (psychiatrist 01)*

Inpatient management of mental health patients was limited to a rudimentary level based on their current training. A potential role for inpatient care was to care for those who have been assessed rather than doing the initial assessment themselves. The possibility to play an expanded role in inpatient care was largely dependent on further training: *"And with those basic skills and a little bit more training for mental health, I think that incorporating a clinical associate in a psychiatry ward...it's a given."* (clinical associate 07) One role that they could perform after a period of supervision was the 72-h observation of patients admitted under South Africa's Mental Health Care Act, 2002 as *"they can grow into that role quite easily, but their initial six months would need some supervision and input."* (family physician 01).

Participants easily envisaged that clinical associates had a role to play in outpatient settings including outpatient departments at hospitals, community health centres,

clinics, and in private practices. The roles included taking a history and doing the mental status examination, performing a suicide risk assessment, prescribing medication such as antidepressants and anxiolytics, providing supportive counselling, and following up patients. A participant noted that *"psychiatric medications should maybe be a topic to be discussed and explored with psychiatrists and the mental healthcare service, which ones would be appropriate for clinical associates to adjust and to initiate."* (family physician 01) Clinical associates could play a role in counselling patients with depressive, anxiety and substance use disorders. There was hesitancy around clinical associates role in diagnosing and initiating treatment in contrast to the level of confidence regarding their role in managing further care:

> *"I think for the diagnosing purposes...they should refer patient for diagnosis. Once the patient is diagnosed with the selected treatment they can manage based on guidance from the specialist, you know, like a down referral. They are able to follow the script; they are able to follow the advice. But when it comes to diagnosis and prescribing a treatment for the first time, I wouldn't be so sure." (medical officer 03)*

As part of the move towards community-orientated primary care in SA, it was also suggested that clinical associates could do mental health home visits which could include both initial assessment and follow up. The latter would include assessing adherence to medication. A few participants suggested that clinical associates could also be utilised in mental health promotion activities e.g. *"engaging in some sort of community work when it comes to mental health campaigns, or just to get information out there to families, communities, and just South Africa as a whole."* (clinical associate 01) It was suggested they play a role in school mental health. Screening for alcohol and drug abuse as well as screening patients with chronic medical conditions for mental health issues were suggested as other roles they could play.

### Theme 2: Earning a seat at the table

#### *Subtheme: The need for a clinical specialisation in mental health*

While participants clearly felt there was a role from clinical associates in providing mental health services, they felt that there was a need for advanced training in the form of a clinical specialisation in mental health or short courses in mental health. There was substantive support for a clinical specialisation in mental health for clinical associates in the form of an Honours degree or postgraduate diploma:

> *"I definitely think it's something worthwhile initiating. There's a need and clinical associates would be appropriate to learn and provide that service, definitely. So I'm very supportive of getting such a course going and getting clinical associates the appropriate regulatory approval to actually function as mental healthcare providers..." (family physician 01)*

In fact, mental health should be prioritised when considering possible future specialisation offerings and the current burden of disease:

> *"Now there are a number of disciplines I would think about for specialisation, and psychiatry is one of the key ones. Like there are about four disciplines I would think about. And psychiatry, because of the mental health burden in South Africa, psychiatry is an area that we really need to channel clinical associates into." (medical officer 01)*

The reasons provided for the need for a clinical specialisation could be grouped into three categories namely strengthening the health system, strengthening the profession, and individual reasons.

Equitable access to mental health services was provided as a rationale for a specialisation in mental health by a few participants. It was felt that this could lead to an expansion of mental health services to underserved setting particularly rural areas.The burden that the current situation places on patients was noted:

> *"...why should a patient who has a mental healthcare issue, that uses (a rural district) Hospital, for all of their other issues, why should they have to go to a different facility just because they have a mental health illness? It's difficult for the patients, and therefore our hospitals should be able to ensure that they have adequate human resources for them." (clinical associate 03)*

The significant impact that a clinical specialisation could have in strengthening mental health services offered by district hospitals was highlighted:

> *"...it would really help because that would actually initiate creating maybe units for psychiatric patients within the district hospitals. Especially if there's someone who is going to be devoted into actually managing that, overseeing that section of that hospital." (clinical associate 06)*

A number of participants voiced concern regarding the lack of a career path and postgraduate opportunities for clinical associates. This has led to much frustration with many clinical associates because they realise after a short period that there no avenues for them to progress. The lack of opportunities leads to many of them opting

to pursue a medical degree. A specialisation will create opportunities and make them a more valued member of the health workforce.It was suggested that a specialisation would give them additional employment opportunities specifically at specialised psychiatric hospitals. A specialisation would allow "*the clinical associate to continue their personal growth, to improve the category, to improve the salary, to even the perception of the people around them.*" (family physician 03) It would also "*contribute to them having a niche, having a more solid identity within the system. So, it would contribute to using the clinical associates more.*" (medical officer 01).

The thought was that a specialisation in mental health would give clinical associates, who are interested in mental health, an avenue to pursue this further:

> *"...when they are brand new students and they come on the programme, there are some that are really passionate about mental health. But I think that passion ends up being sort of put to the side because there is just not the room for them to grow that interest..." (clinical associate 03)*

#### *Subtheme: The need for short courses in mental health*

Participants suggested that short courses in mental health may help close some gaps particularly as the duration of training in mental health is limited at undergraduate level:

> *"..no one knows everything after an undergrad, but where there's continuous learning, or they get these opportunities to really get more information, it helps them become more competent and confident and then it's going to increase basically the quality of their practice." (clinical associate 01)*

Participants cited evidence regarding the effectiveness of short courses to galvanise service provision – for example the role of clinical associates in circumcisions after completion of a short course – that could be applied to mental health. Short courses may also increase the confidence of the employer:

> *" ... maybe a few short courses...and you could present these certificates to your manager, they'd feel more comfortable, clinical associates, seeing mental healthcare patients in the institution." (clinical associate 08)*

The caution was that short courses do not usually include a clinical component with patient interaction which impacts its utility:

> *"You've got to be out there. You've got to be seeing patients...our greatest opportunity is during the undergraduate years. " (family physician 04)*

## Discussion

Our study explored the potential role for clinical associates in South Africa in mental health service provision and the need for advanced training. We found that 'there is a place for them at the table' as there was clear support for a role for clinical associates in the provision of mental health services. The appropriate settings to render mental health services were felt to be at primary care and district levels. There is some evidence that similar cadres already play such a role in similar settings in other countries in Africa. Clinical officers in Kenya working in primary care assess, diagnose and treat patients with psychosis and refer complex cases [28]. Malawian clinical officers who have undergone further specialist training in psychiatry form part of District Mental Health Teams based at district hospitals [29]. According to Ethiopia's National Mental Health Strategy, health officers have an important role to play in mental health service provision at health centres together with general practitioners and nurses [30].

Potential mental health 'tasks' were identified that could be carried out by clinical associates. Their potential role in emergency mental health was highlighted and a broader role encompassing inpatient and outpatient care was considered possible provided that there was appropriate training, experience and supervision. The physician assistant programme in the USA may provide an indication of potential areas for mental health task-sharing. In 2019, 1.6% of physician assistants in clinical practice identified psychiatry as their principal clinical position [31]. They work in outpatient and inpatient settings [32] and their responsibilities include mental health screening, conducting the initial psychiatric assessment, diagnosis, psychiatric medication management, provision of education, counselling and psychotherapy, managing substance detoxification and rehabilitation, and managing psychiatric emergencies [33].

The evidence for effectiveness of similar mid-level medical worker cadres (such as physician assistants, clinical officers, physician associates) in providing mental health services in other countries is limited due to the lack of research in this area. McCutchen et al. [34] found that including a physician assistant in an assertive community treatment team improved access to preventative health services and primary care, access to psychiatric care, quality of psychiatric care, and referral processes. A study in Ethiopia evaluated an intervention in which trained primary care workers (health officers and nurses) assessed referrals of possible severe mental illness, made a diagnosis, and initiated treatment using the WHO

mhGAP Intervention Guide [14]. The primary care workers adhered to recommended medication dose limits in all cases but only 29.8% of patients received minimally adequate treatment [14]. The intervention resulted in statistically significant improvements in symptom severity and disability [12]. A study in Kenya found it was feasible for clinical officers (and nurses) to implement the WHO mhGAP Intervention Guide and they can do so effectively as demonstrated by clinical, disability and quality of life outcomes [35].

The wider use of clinical associates in mental health service delivery could have a number of benefits including addressing health workforce shortages in underserved areas. The majority of clinical associates work in the public sector in SA [36]. There is evidence from the University of Pretoria across nine cohorts of clinical associate students that the majority of their clinical associate students intend working in rural areas [37]. Based on the experience within one Trust in the UK, Gill et al.[38] highlight a number of potential benefits of employing the UK's mid-level medical worker cadre (physician associates) in mental health settings including addressing health workforce constraints as they can take on many of the responsibilities of junior doctors, ensuring continuity of care as they stay in posts longer then junior doctors, and their ability to work well within multidisciplinary teams.

We explored the support and rationale for advanced training in mental health to be offered to clinical associates. Advanced clinical training in mental health in the form of an Honour's degree or postgraduate diploma was widely and enthusiastically supported. Such specialised mental health training already exists for similar cadres in a few African countries. In Malawi for example, clinical officers can pursue a two-year Bachelor of Science in Clinical Medicine (Mental Health) degree after their initial three-year diploma and one year of internship [29, 39]. A clinical officer who completes this programme is able to practise as a specialist psychiatric clinical officer [29]. Participants felt that there was also a place for short courses in mental health for clinical associates who might not necessarily want to pursue a specialisation in mental health. A clinical specialisation or short courses in mental health provides a means of strengthening their potential role in mental health service provision and thereby 'earning a seat at the table'.

An Honours degree for clinical associates already exists for one discipline in SA viz. emergency medicine and mental health is a clear contender for the next discipline based on the prevalence of common mental disorders in South Africa, the burden of disease due to mental disorders, and the impact of COVID-19 on mental health [40–43]. Critically, clinical associates specialised in mental health could help address access and equity issues related to the maldistribution of specialist mental health practitioners between urban and rural areas, and public and private sectors [6–8]. A specialisation in mental health could also address the parallel need for a career path for clinical associates. Based on a study at the University of Pretoria, more than 80% of clinical associates planned on further studies after their undergraduate degree with substantial interest in pursuing a clinical specialisation or a medical degree [37]. The current limited opportunities to study further will encourage some to pursue medicine.

Given the findings of this study, future mental health workforce policy in South Africa needs to consider the utilisation of clinical associates in the delivery of mental health services. In districts that already employ clinical associates, additional in-service training should be offered to allow for mental health task sharing. The three universities offering clinical associate training programmes should consider the introduction of an advanced qualification in mental health for clinical associates. This should be done in consultation with SA's National Department of Health to ensure appropriate posts are created. There are a number of possibilities for future research. We did not attempt to look in any detail at a potential model for advanced training in mental health which should be the subject of future research. Clinical associates should be included in research focussing on the effectiveness of mental health task sharing interventions.

### Limitations

This was an exploratory study of the views of participants involved in clinical associate training programmes in the country. The views of other stakeholders such as government were not elicited. Participants in this study are likely to be more favourably disposed than health workers in general to a role for clinical associates in mental health and a clinical specialisation given their professional backgrounds and their desire to create opportunities for clinical associates. As no pilot study was conducted, the initial interviews were used to guide prompts in the subsequent interviews. Participants were not as optimally involved post interview as they could have been as transcripts were not returned them for corrections and comments and they were not asked to provide feedback on the findings [44]. However, the manuscript preprint was shared with them as soon as it become available online.

## Conclusion

There was broad support for a role for clinical associates in mental health service delivery in SA particularly at primary and district levels and an expressed need that they need additional training in the form of short courses or a

clinical specialisation in mental health. The clinical specialisation was deemed to have an additional benefit in terms of career progression for clinical associates. Future opportunities for advanced training in mental health for clinical associates could potentially alleviate the shortage of specialist mental health practitioners in rural settings, reduce the psychiatric workloads of non-specialist medical practitioners, and improve the quality of mental health care.

**Abbreviations**
SA: South Africa; UK: United Kingdom; USA: United States of America; WHO: World Health Organization.

## Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-022-08638-3.

**Additional file 1.** Interview Guide for In-depth Interviews.

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**Authors' contributions**
SVM conceptualised the study and developed the study methodology. JW and CG provided input on the methodology. SVM conducted the interviews, coded and analysed the data. LW reviewed the analysis. The manuscript was written by SVM with JW and CG making contributions. All the authors read and approved the final manuscript.

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**Availability of data and materials**
The dataset used and analysed for this study are available from the corresponding author on reasonable request.

## Declarations

**Ethics approval and consent to participate**
Approval for the study was obtained from the University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). An information leaflet and informed consent document was e-mailed to potential participants, who provided written informed consent. Participants' names were masked using a numerical code following data collection in order to maintain confidentiality.

**Consent for publication**
Not applicable.

**Competing interests**
The authors declare that they have no competing interests.

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## Publisher's Note

# CHAPTER 4: PUBLICATIONS ADDRESSING OBJECTIVE 2

In Chapter 3, the mental health curricula in the three undergraduate clinical associate training programmes were explored as was a potential role for clinical associates in mental health task sharing from the perspective of those involved in training. Gaps such as the lack of formal teaching at one university, and practical learning happening by chance at two of the universities were identified. Participants felt that clinical associates did have a role in mental health particularly at primary care and district level based on their undergraduate training. However, advanced training in mental health was deemed necessary to fully realise their potential.

Chapter 4 addresses the second objective of the thesis which was to determine the knowledge, attitudes, and practices of clinical associates with respect to the management of mental illness. An understanding of their knowledge, confidence, attitudes, and practices with respect to the assessment and management of mental illness provides insight into their readiness to take on mental health task sharing. It is also a reflection of the strength and weaknesses of undergraduate training in mental health. This chapter consists of three publications in total.

Chapter 4A is a the first publication in the chapter and is a scientific letter outlining the expert validation and cognitive interview process that was used in finalising the questionnaire for the survey. The scientific letter *Strengthening a mental illness management questionnaire for clinical associates through expert validation and cognitive interviews* was published in the South African Journal of Psychiatry on 28 February 2023.

Chapter 4B is the second publication of the chapter and focuses on the knowledge, confidence, and practices components of the survey questionnaire. The research paper *Knowledge, confidence and practices of clinical associates in the management of mental illness* was published in the South African Journal of Psychiatry on 26 October 2023.

Chapter 4C is the third publication of the chapter and focuses on the attitudes component of the survey questionnaire which incorporated the validated Mental Illness Clinician's Attitudes scale version 4. In addition, the interest of clinical associates in the provision of mental health services and interest in a potential specialisation in mental health was explored. The research paper *Mental illness attitudes, service provision interest, and further training preferences of clinical associates* has been accepted by South African Family Practice and is in press.

**CHAPTER 4A**

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AOSIS

Page 1 of 3 Scientific Letter

# Strengthening a mental illness management questionnaire for clinical associates through expert validation and cognitive interviews

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## Background

The supply and distribution of specialist mental health professionals is a significant barrier to providing access to mental health services in South Africa (SA).[1,2] Clinical associates are a clinically trained cadre that could be utilised in mental health service provision in underserved areas. There is a lack of data on clinical associates' training in mental health, their knowledge and confidence to manage mental health conditions, attitudes towards mental illness, and the mental health services that they currently provide in SA. The authors developed a questionnaire to assist us to obtain this information. With the exception of the attitudes component of the questionnaire, which used the validated 16-item Mental Illness Clinicians' Attitudes version 4 scale (MICA v4),[3] the questions were developed by the authors. Expert validation and cognitive interview processes were used in the final stages of development of the questionnaire. The purpose of this scientific letter is to outline the expert validation and cognitive interview processes followed and to reflect on their value in developing a mental illness management questionnaire for clinical associates.

## Expert validation

### Process

A group of experts (three family physicians and three psychiatrists) were identified and invited to complete a content validation form via e-mail.[4] The three family physicians were selected from two university family medicine departments involved in clinical associate undergraduate training. The three psychiatrists were selected from the public sector at three different levels of care. One of the psychiatrists was involved in a clinical associate undergraduate training programme. They were provided with an executive summary of the research project protocol and the scope of practice regulations of clinical associates.[5] The knowledge, confidence, practice and interest items that used scales were included in the content validation form. The MICA v4 items were not included. The relevant items requiring expert validation were provided in shaded blocks on the validation form. The experts were asked not to answer any questions but rather consider the construct the authors were hoping to measure and rate the question for representativeness, clarity and relevance.[4] All six experts returned their content validation forms. The quantitative data were aggregated from the six content validation forms and the qualitative responses of the experts were extracted. The responses were then reviewed by the authors with changes being made to the questionnaire where necessary.

### Outcomes

#### Knowledge items

In this section, clinical associates were expected to self-assess their knowledge of mental health conditions and presentations they are likely to encounter in practice. The experts were split as to the clarity of the question 'Please rate your knowledge of the following:…' with the conditions and presentations listed thereafter. Two experts indicated it was 'somewhat clear', two experts indicated it was 'quite clear' and two experts indicated it was 'very clear'. To address this, an introductory statement to the question was added. All the experts thought the conditions and presentations included (schizophrenia, bipolar 1 disorder, substance use disorders, depressive disorders, anxiety disorders, post-traumatic stress disorder and suicide risk) were 'quite

relevant' or 'highly relevant'. The experts suggested a variety of conditions to be added to adequately address the construct including epilepsy, dementia, intellectual disability, personality disorders, acute stress disorder, adjustment disorder, neurocognitive disorders, attention-deficit hyperactivity disorder (ADHD) and other disorders of childhood. One expert raised the issue that patient presentation with the signs and symptoms of mental illness (prior to a diagnosis being made) had not been covered and another expert felt additional psychiatric emergencies needed to be included. As a result of the expert validation process, three additional conditions viz. acute stress disorder, ADHD and dementia were added. Dementia and ADHD were added as they were each mentioned by two experts. Acute stress disorder was only mentioned by one expert but the expert made a convincing case for its inclusion viz. that it is 'very common and needs a firm handling by the generalist in communities, given the rates of exposure to trauma and violence encountered'. In addition, a separate question was included for mental health presentations with the aggressive patient and confused patient added to suicide risk.

Confidence items: This section required clinical associates to rate their confidence in performing six tasks (mental health history, mental health examination, mini-mental state examination [MMSE], physical examination, counselling a patient and counselling a patient's family) for four specified conditions or presentations (suspected depression, suspected substance abuse, suspected schizophrenia and suicide risk). All the experts felt that the four conditions and presentations and five of the six tasks were 'quite relevant' or 'highly relevant'. Two of the experts felt doing a MMSE was only 'somewhat relevant' with one expert noting that there may not be value in doing an MMSE on all patients. One expert suggested that the tasks should be listed independent of the suspected conditions as the clinical associate would need to differentiate prospectively based on their assessment. Some experts observed that certain common presentations (e.g. the aggressive patient) and tasks that clinical associates would be expected to perform, (e.g. ordering relevant investigations, sedating patients, completing forms for 72-h observation, and prescribing treatment) had been omitted. As a result of expert feedback, this section was restructured into three separate parts viz. confidence to carry out different aspects of an assessment for a person presenting with (undifferentiated) mental health symptoms, confidence in managing certain specified mental health presentations (suicide risk, a confused patient, an aggressive patient, and a patient suspected to be exposed to traumatic events) and confidence to prescribe treatment and provide counselling for specified conditions and presentations.

Practice items: This section asked clinical associates to indicate whether their current work involved performing specified tasks for four conditions or presentations (suspected depression, suspected substance abuse, suspected schizophrenia and suicide risk) with the responses being 'never', 'sometimes' and 'often'. An expert suggested defining 'sometimes' and 'often' on the questionnaire would help and this change was made. The ordering of relevant investigations as one of the specified tasks was once again observed as omission as was sedation of an aggressive or violent patient and subsequently these tasks were included in the questionnaire. Doing a MMSE was removed as a task for all the specified conditions and presentations and included separately as 'assessing the cognitive functioning of a patient with confusion using a suitable cognitive screening test (e.g. Mini-Mental State Exam)'.

Interest items: This section required clinical associates to indicate their interest in receiving further training as well as working in mental health. The issues noticed by the experts in this section were relatively minor. One of the experts suggested separating the training and work-related questions as they were measuring two different constructs and this change to the questionnaire was made. The omission of a postgraduate diploma as an example of advanced training in mental health was observed by one of the experts and was corrected.

## Cognitive interviews

### Process

Once the questionnaire had been updated following the expert validation process, cognitive interviews were conducted on an individual basis with qualified clinical associates involved in patient care to ensure that respondents interpret items as intended by the researchers.[4] Cognitive interviews are useful as they allow one to assess how potential participants interpret questionnaire items and whether this interpretation aligns with what the researcher intended with each item.[4] The cognitive interviews used a hybrid model consisting of the 'think-aloud' approach and some verbal probing.[6] The initial plan was to interview 10 clinical associates but data saturation was reached after five interviews and no further interviews were conducted. The interviewer made notes on a blank questionnaire as the interviewee thought aloud for each question and responded to verbal probes. The interviews were audio-recorded in the event that any responses were missed, and the interviewer needed to refer back to the recording. The MICA v4 items[3] did form part of the cognitive interview to flag any items that potentially could be misinterpreted by clinical associates but not with the intention to make any changes to the validated MICA v4 instrument.

### Outcomes

With respect to the socio-demographic characteristics and training sections of the questionnaire, a question regarding 'current employment status' was found to be unclear, missing some important categories (such as employed by an academic institution or self-employed) and did not account for clinical associates who may have had multiple employers. Changes were made to the questionnaire to address these issues. A question on work setting was also modified, with tertiary and

central hospitals aggregated into a single category as interviewees were not clear on the difference between these two levels. In addition, 'academic institution' and 'unemployed' were added as categories for this question. In terms of items related to their training, the question 'how long have you been practising as a clinical associate?' was changed to 'how long has it been since you qualified as a clinical associate?' as it was pointed out by one of the interviewees that clinical associates may not necessarily have been practising as clinical associates in a clinical setting after qualifying.

With respect to the confidence and practice items, the task of 'prescribing treatment' to a patient needed to be clarified and this was changed to 'prescribing pharmacological treatment' in the final version of the questionnaire. With respect to the confidence items related to managing mental health presentations, one of the interviews picked up that the incorrect Likert scale (very poor-excellent rather than not at all confident-very confident) was being used, which was corrected in the final questionnaire. For the practice items, the term 'current job' was changed to 'current work' to account for clinical associates who may have more than one job.

Two of the MICA v4 items[3] 'People with a severe mental illness are dangerous more often than not' and 'Health/social care staff know more about the lives of people treated for a mental illness than do family members or friends' were flagged as the wording was found to be confusing.

## Conclusion

The expert validation process resulted in several significant changes and the restructuring of parts of the questionnaire. The cognitive interview process resulted in clarification of some items and changes in the options that could be selected for a few questions. A straightforward and relatively quick expert validation and cognitive interview process led to significant improvements in a survey questionnaire to determine the knowledge, confidence, practices and interest related to the management of mental illness.

## Acknowledgements

The authors would like to thank the members of the expert validation panel as well as the clinical associates who participated in the cognitive interviews. This article forms part of the study 'Task sharing in mental health service provision: Developing a model for clinical associates in South Africa'.

### Competing interests

The authors have declared that no competing interest exists.

### Authors' contributions

S.V.M. developed the expert validation tool with input from J.W. and C.G. S.V.M. conducted the cognitive interviews. S.V.M. wrote the first draft of the manuscript with contributions thereafter from J.W. and C.G.

### Ethical considerations

This work formed part of a study 'Task sharing in mental health service provision: Developing a model for clinical associates in South Africa', which has ethics approval from the Faculty of Health Sciences Research Ethics Committee, University of Pretoria (778/2020). Informed consent was obtained from the cognitive interview participants.

### Funding information

S.V.M. has funding from the University of Pretoria – University Capacity Development Programme.

### Data availability

The data are available upon reasonable request from the corresponding author, S.V.M.

### Disclaimer

The views expressed in the submitted article are those of the authors and not an official position of their institution.

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**CHAPTER 4B**

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Page 1 of 10 Original Research

# Knowledge, confidence, and practices of clinical associates in the management of mental illness

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**Background:** Additional human resources are needed to provide mental health services in underserved areas in South Africa (SA). Clinical associates, the mid-level medical worker cadre in SA, could potentially be used to deliver these services.

**Aim:** The study explored the self-reported knowledge, confidence, and current practices of clinical associates related to mental health assessment and management.

**Setting:** South Africa.

**Methods:** A cross-sectional study was conducted. The link to the electronic questionnaire was distributed to clinical associates via databases and social media. Data were analysed with Stata v17.

**Results:** Of the 209 participants, 205 (98.1%) indicated they had training on management of patients with mental illness during their undergraduate degree and 192 (91.9%) had a mental health rotation. Few (10.7%) had any additional mental health training. Most participants rated their knowledge of priority mental disorders as 'good' or 'excellent'. Only 43.2% of the participants felt quite or very confident to perform a mental health examination. Participants who felt quite or very confident to manage patients presenting with suicide risk, aggression, and confusion were 44.9%, 46.9% and 53.1%, respectively. Factors associated with a confidence score of 75% and higher were male gendered, working in Gauteng or Northern Cape provinces, and in a rural area. The majority of participants were already involved in mental health assessment and management in their current work.

**Conclusion:** Clinical associates have a contribution to make in mental health service provision, but this may need to be supplemented by additional practical training.

**Contribution:** Potential gaps in training have been identified.

**Keywords:** clinical associates; knowledge; confidence; practices; South Africa; mental health mental illness.

## Background

Globally, the supply of health workers is outstripped by demand.[1] The global health workforce crisis resulting from supply deficits is exacerbated by distribution deficiencies between, and within, countries.[2,3] Task shifting and task sharing approaches involving mid-level medical workers have been one of the strategies used to address the shortage of medical doctors. These health workers undergo a shorter period of training than medical doctors but carry out some of the diagnostic and treatment functions usually performed by doctors.[4,5,6,7] The South Africa government took a decision to develop a mid-level medical worker cadre – the clinical associate – to address shortages of skilled health professionals at the district level and specifically in rural areas.[8] Training of this cadre is done at three universities that graduate approximately 70 to 140 clinical associates annually.[8,9] Students are placed in district hospitals early in the programme – with an integration of case-based learning and clinical involvement.[8] There are currently 1797 clinical associates registered with the Health Professionals Council of South Africa (HPCSA).[10] There is promising early evidence of them potentially addressing health workforce shortages in the public sector and rural areas.[9,11]

Clinical associates could potentially be utilised to deliver mental health services in underserved areas. The inequitable distribution of the specialist mental health workforce in South Africa is well documented.[12,13,14,15] Approximately 20% of psychiatrists work full time in the public sector which serves the majority of the population.[15] Five provinces in South Africa (Eastern Cape, Limpopo,

Mpumalanga, North West, and Northern Cape) have less than 1.0 psychiatrist per 100 000 population compared to Gauteng and the Western Cape which has 2.6 psychiatrists and 5.0 psychiatrists per 100 000 population. respectively.[15] Access to specialist mental health nurses in rural primary health care (PHC) facilities is also a challenge with one study reporting a ratio of 0.68 mental health nurses per 100 000 population.[13] Given that non-specialist medical doctors and nurses are also in short supply in many of these areas, the use of clinical associates in mental health task sharing needs to be considered.

The scope of practice of clinical associates includes taking mental health history, performing a mental health examination, and mental health counselling.[16] Participants in a recent study conducted among university- and facility-based staff involved in clinical associate training as well as clinical associate student representatives expressed support for a role for this cadre in providing mental health services.[17] Potential roles for them were the immediate care of mental health patients in emergency settings, provision of basic inpatient care, follow up of patients in outpatient settings, and home visits.[17] Similar cadres have been used to varying degrees to deliver mental services in several countries including Kenya, Malawi, the United Kingdom, and the United States of America (USA).[18,19,20,21,22,23]

A study involving all three universities offering the degree confirmed that mental health forms part of the training in all three programmes.[24] The training ranges from two to four weeks in the final year of study with a mix of theoretical and practical components varying between the programmes.[24] The authors concluded that there may be limitations in the roles clinical associates could play in mental health based on the training gaps identified.[24] What is not known is the readiness of clinical associates to take on mental health task sharing and their level of current involvement in providing mental health services. In this study, we explored clinical associates' knowledge, confidence, and current practices related to mental health assessment and management. In addition, we determined the demographic, training, and employment factors associated with participants' confidence to perform a mental health assessment and manage patients with mental illness.

# Research methods and design

## Study design

A cross-sectional study utilising an electronic questionnaire was conducted between 01 December 2021 and 31 July 2022.

## Study population and sampling

The study population were clinical associates based in South Africa. In order to be included in the study, they needed to have been qualified for a minimum of 6 months at the time of the survey. Clinical associates who had emigrated from South Africa, had subsequently qualified with a medical degree or who were pursuing a medical degree at the time of the survey were excluded. The survey did not involve sampling as all clinical associates who could be reached were requested to participate.

## Measurement tools

An electronic questionnaire was developed using Qualtrics software. The questionnaire included sections on self-assessed mental health knowledge, confidence to carry out various aspects of a mental health assessment, and their current involvement in mental health work. The knowledge, confidence, practice, and interest items that used scales underwent expert validation for representativeness, clarity, and relevance.[25] This process was followed by individual cognitive interviews with five clinical associates to ensure respondents interpret items as intended by the researcher.[25] Detail on the expert validation and cognitive interview processes followed has been detailed by Moodley et al[26] previously.

## Data collection

The Professional Association of Clinical Associates in South Africa (PACASA) assisted with distributing the survey information and link to the Qualtrics questionnaire using their available platforms including social media. In addition, two of the three universities distributed the survey information and the questionnaire link to their alumni. Potential participants who clicked on the link had to complete five questions related to the inclusion criteria. If they met the criteria, they were then provided with a participant information leaflet and needed to provide electronic informed consent prior to the first question. In order to improve the response rate, incentives were offered in the form of five gift vouchers to the value of R1000.00 each awarded to five randomly-selected respondents. The available functionality in Qualtrics was utilised to prevent individuals from completing the survey more than once. As the survey was anonymous, an end-of-survey redirect was used for completion of contact information for the incentives ensuring that the contact information was not linked to the questionnaire.[27]

## Data management and analysis

The data were downloaded from Qualtrics and stored on a password-protected computer with a backup stored in a password-secured Cloud account. The data were imported into Stata version 17 (Statacorp; http://www.stata.com) for analysis. Proportions were calculated for the demographic variables and for each of the knowledge, confidence, and practice items that used scales. Each knowledge item was scored from 0 to 4, as was each confidence item. A knowledge score for each participant was calculated by adding the scores of the 12 knowledge items and a confidence score was calculated by adding the scores of the 27 confidence items. Categories were created for the knowledge and confidence scores based on the scoring equivalent of 75% or more, 50% – 74%, 25% – 49% and 0% – 24%. Scoring 81 or more out of a possible 108 was, therefore, regarded as a high confidence score. Participants were categorised as either having a high confidence score or

not, which was our main outcome measure. A bivariate analysis of high confidence score and sociodemographic, employment, and training variables was conducted. Variables with $p < 0.25$ were included in our initial multivariate logistic regression model. A manual backwards stepwise elimination process was used to arrive at a final model.

### Ethical considerations

The study had ethical approval from the University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). Informed consent was obtained from all participants.

## Results

A total of 216 individuals who met the inclusion criteria consented to participate in the study. Of these, two individuals provided no responses and five individuals provided only some demographic information and no other responses. These seven individuals were dropped from the analysis. A total of 209 participants were, therefore, included in the analysis. Using the HPCSA register of clinical associates as a proxy, this represents approximately 11.6% (209/1797) of clinical associates in the country.[10]

### Demographic and employment characteristics

Just under half of participants (49.8%) were aged between 25 and 29 years (Table 1). The majority of participants (72.1%) were female. Almost half of participants (49.5%) indicated that they currently worked in Gauteng province. Most participants (57.7%) indicated that they worked in an urban area. Roughly one-third of participants (34.6%) were employed by a provincial department of health, while 28.8% were employed by a private health facility or private medical practice. The most common work settings of the participants were district hospitals (26.0%), private general practice (17.8%), and academic institutions (13.0%).

### Training characteristics

Fewer participants had completed their Bachelor of Medicine in Clinical Practice (BMCP) degree at Walter Sisulu University (WSU) (South Africa) (13.9%) than Bachelor of Clinical Medical Practice (BCMP) degrees at University of Pretoria (43.1%) or University of the Witwatersrand (43.1%) (Table 2). Only two participants (1.0%) indicated they had not received training on assessing patients with mental illness during their BCMP or BMCP degree and four participants (1.9%) indicated they had not received training on managing patients with mental illness. Most participants (91.9%) confirmed they had a mental health rotation during their degree. Just over one-tenth of the participants (10.7%, 22/206) indicated they had received additional mental health-related training after completing their degree.

### Mental health knowledge

The participants' self-assessment of their knowledge of various mental disorders that are considered important in the South African context are shown in Table 3. Approximately 70% of the participants rated their knowledge of substance use disorders (69.7%) and depressive disorders (70.2%) as good or excellent, while only 50.5% rated their knowledge of dementia as good or excellent, and even fewer rated their knowledge of attention-deficit hyperactivity disorder (ADHD) (29.5%) as good or excellent. With respect to their knowledge of the management of common mental health presentations, most participants rated their knowledge of the confused patient (66.3%), suicide risk (59.0%), and the aggressive patient (55.6%) as good or excellent.

Of the 188 participants who answered all 12 knowledge questions, the knowledge score ranged from 9 to 48. The median score was 31, and the mean was 31.26 (s.d. = 7.47). Three participants (1.6%) scored less than 12. Twenty participants (10.6%) scored between 12 and 23. The majority of participants ($n$ = 113, 60.1%) scored between 24 and 35.

**TABLE 1:** Demographic and employment characteristics of participants.

| Characteristic ($N$) | Categories | $n$ | % |
|---|---|---|---|
| Age ($N$ = 209) | 20–24 years | 46 | 22.0 |
| | 25–29 years | 104 | 49.8 |
| | 30–34 years | 45 | 21.5 |
| | 35–39 years | 13 | 6.2 |
| | 40 years and older | 1 | 0.5 |
| Gender ($N$ = 208) | Female | 150 | 72.1 |
| | Male | 56 | 26.9 |
| | Prefer not to say | 2 | 1.0 |
| Province of current work ($N$ = 208) | Eastern Cape | 22 | 10.6 |
| | Free State | 9 | 4.3 |
| | Gauteng | 103 | 49.5 |
| | KwaZulu Natal | 16 | 7.7 |
| | Limpopo | 19 | 9.1 |
| | Mpumalanga | 17 | 8.2 |
| | Northern Cape | 7 | 3.4 |
| | North West | 14 | 6.7 |
| | Western Cape | 1 | 0.5 |
| Municipality of current work ($N$ = 193) | District | 102 | 52.8 |
| | Metropolitan | 91 | 47.2 |
| Area of current work ($N$ = 208) | Rural | 88 | 42.3 |
| | Urban | 120 | 57.7 |
| Current employer ($N$ = 208) | Provincial Department of Health | 72 | 34.6 |
| | Private health facility and/or private medical practice | 60 | 28.8 |
| | Non-governmental organisation | 22 | 10.6 |
| | Academic institution | 40 | 19.2 |
| | Self-employed | 1 | 0.5 |
| | Unemployed | 8 | 3.8 |
| | Other | 5 | 2.4 |
| Work setting ($N$ = 208) | Primary health care clinic | 22 | 10.6 |
| | Community health centre | 14 | 6.7 |
| | District hospital | 54 | 26.0 |
| | Regional hospital | 3 | 1.4 |
| | Tertiary or central hospital | 6 | 2.9 |
| | Private general practice | 37 | 17.8 |
| | Private specialist practice | 6 | 2.9 |
| | Private hospital | 14 | 6.7 |
| | Academic institution | 27 | 13.0 |
| | Unemployed | 9 | 4.3 |
| | Other | 16 | 7.7 |

Over a quarter of participants ($n$ = 52, 27.7%) scored 36 and higher.

## Confidence in mental health assessment and management

With respect to conducting a mental health assessment on individuals presenting with mental health symptoms, there was some variation in confidence in conducting the different components of the assessment (Table 4).

**TABLE 2:** Characteristics of participants' undergraduate clinical associate training.

| Characteristic ($N$) | Categories | $n$ | % |
|---|---|---|---|
| University ($N$ = 209) | University of Pretoria | 90 | 43.1 |
| | University of Witwatersrand | 90 | 43.1 |
| | Walter Sisulu University | 29 | 13.9 |
| | Other | 0 | 0.0 |
| Length of time since qualifying ($N$ = 209) | Less than 3 years | 46 | 22.0 |
| | Between 3 and 6 years | 96 | 45.9 |
| | More than 6 years | 67 | 32.1 |
| Received training on assessment of patients with mental illness ($N$ = 208) | Yes | 206 | 99.0 |
| | No | 2 | 1.0 |
| Received training on management of patients with mental illness ($N$ = 209) | Yes | 205 | 98.1 |
| | No | 4 | 1.9 |
| Mental health rotation formed part of the degree ($N$ = 209) | Yes | 192 | 91.9 |
| | No | 17 | 8.1 |
| Length of mental health rotation ($N$ = 204) | No rotation | 17 | 8.3 |
| | 1–2 weeks | 29 | 14.2 |
| | 3–4 weeks | 100 | 49.0 |
| | 5–6 weeks | 38 | 18.6 |
| | 7–8 weeks | 10 | 4.9 |
| | More than 8 weeks | 10 | 4.9 |
| Site of mental health rotation ($N$ = 205) | No rotation | 17 | 8.3 |
| | Primary health care clinic only | 2 | 1.0 |
| | Community health centre only | 0 | 0.0 |
| | District hospital only | 79 | 38.5 |
| | Regional hospital only | 55 | 26.8 |
| | Tertiary or central hospital only | 28 | 13.7 |
| | Specialised psychiatric hospital only | 5 | 2.4 |
| | Other | 0 | 0.0 |
| | Combination of two or more of the above sites | 19 | 9.3 |

Approximately half of participants (50.3%) felt quite or very confident taking a mental health history, but only 43.2% of the participants felt quite or very confident in carrying out a mental health examination. A greater proportion of participants were quite or very confident doing a physical examination (59.1%) and ordering relevant investigations (61.2%).

More participants felt quite or very confident managing patients presenting with confusion (53.1%) than patients presenting with suicide risk (44.9%) or aggression (46.9%). The participants were also asked to rate their confidence in carrying out mental health management tasks for specific conditions. Less than half of participants were quite or very confident to prescribe pharmacological treatment for all of the conditions listed. More than half of participants (51.5%) were quite or very confident to provide counselling to a patient with depressive disorder.

While 47.4% of the participants were quite or very confident sedating an aggressive or violent patient, only 27.7% of the participants were quite or very confident managing serious adverse events from emergency psychiatric medication. Only 41.6% of the participants were quite or very confident completing the relevant forms for 72 h observation of a mental health patient.

A total of 169 participants answered all 27 confidence questions. The median score was 64 (range 0–108). The mean score was 62.18 with a s.d. of 21.89. Just over one-fifth of participants ($n$ = 34, 20.1%) scored 81 and higher with just under half of participants ($n$ = 84, 49.7%) scoring between 54 and 80. Fewer participant ($n$ = 39, 23.1%) scored 27 to 53 with only 12 participants (7.1%) scoring between 0 and 26. There was high correlation between confidence score and knowledge score (Figure 1) with a correlation co-efficient of 0.76.

With respect to demographic, employment, and training characteristics associated with a high confidence score (defined as a minimum of 81/108 i.e., 75% and higher),

**TABLE 3:** Participants' self-assessment of their knowledge of mental health conditions and presentations.

| Item | Very poor | | Poor | | Fair | | Good | | Excellent | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $n$ | % | $n$ | % | $n$ | % | $n$ | % | $n$ | % |
| **Knowledge of mental health conditions** | | | | | | | | | | |
| Depressive disorders ($N$ = 198) | 3 | 1.5 | 5 | 2.5 | 51 | 25.8 | 95 | 48.0 | 44 | 22.2 |
| Substance use disorders ($N$ = 201) | 0 | 0.0 | 6 | 3.0 | 55 | 27.4 | 100 | 49.8 | 40 | 19.9 |
| Anxiety disorders ($N$ = 200) | 1 | 0.5 | 12 | 6.0 | 58 | 29.0 | 97 | 48.5 | 32 | 16.0 |
| Post-traumatic stress disorder ($N$ = 201) | 6 | 3.0 | 11 | 5.5 | 66 | 32.8 | 87 | 43.3 | 31 | 15.4 |
| Schizophrenia ($N$ = 198) | 4 | 2.0 | 14 | 7.1 | 78 | 39.4 | 72 | 36.4 | 30 | 15.2 |
| Dementia ($N$ = 202) | 5 | 2.5 | 21 | 10.4 | 74 | 36.6 | 78 | 38.6 | 24 | 11.9 |
| Acute-stress disorder ($N$ = 199) | 5 | 2.5 | 19 | 9.5 | 69 | 34.7 | 86 | 43.2 | 20 | 10.1 |
| Bipolar disorders ($N$ = 202) | 2 | 1.0 | 13 | 6.4 | 80 | 39.6 | 90 | 44.6 | 17 | 8.4 |
| Attention-deficit hyperactivity disorder ($N$ = 200) | 10 | 5.0 | 36 | 18.0 | 95 | 47.5 | 51 | 25.5 | 8 | 4.0 |
| **Knowledge of management of mental health presentations** | | | | | | | | | | |
| Aggressive patient ($N$ = 196) | 4 | 2.0 | 13 | 6.6 | 70 | 35.7 | 77 | 39.3 | 32 | 16.3 |
| Confused patient ($N$ = 199) | 4 | 2.0 | 11 | 5.5 | 52 | 26.1 | 103 | 51.8 | 29 | 14.6 |
| Suicide risk ($N$ = 200) | 2 | 1.0 | 14 | 7.0 | 66 | 33.0 | 90 | 45.0 | 28 | 14.0 |

**TABLE 4:** Participants' confidence in mental health assessment and management.

| Item | Not at all confident | | Slightly confident | | Moderately confident | | Quite confident | | Very confident | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % |
| **Assessment of an individual presenting with mental health symptoms** | | | | | | | | | | |
| Taking a mental health history ($N$ = 199) | 4 | 2.0 | 19 | 9.5 | 76 | 38.2 | 73 | 36.7 | 27 | 13.6 |
| Doing a mental health examination ($N$ = 199) | 6 | 3.0 | 30 | 15.1 | 77 | 38.7 | 56 | 28.1 | 30 | 15.1 |
| Assessing cognitive functioning using a suitable cognitive screening test ($N$ = 198) | 7 | 3.5 | 30 | 15.2 | 60 | 30.3 | 54 | 27.3 | 47 | 23.7 |
| Doing a physical examination ($N$ = 198) | 5 | 2.5 | 18 | 9.1 | 58 | 29.3 | 63 | 31.8 | 54 | 27.3 |
| Ordering relevant investigations ($N$ = 196) | 7 | 3.6 | 17 | 8.7 | 52 | 26.5 | 65 | 33.2 | 55 | 28.1 |
| **Management of mental health presentations** | | | | | | | | | | |
| Confused patient ($N$ = 194) | 9 | 4.6 | 25 | 12.9 | 57 | 29.4 | 75 | 38.7 | 28 | 14.4 |
| Aggressive patient ($N$ = 194) | 10 | 5.2 | 29 | 14.9 | 64 | 33.0 | 64 | 33.0 | 27 | 13.9 |
| Suicide risk ($N$ = 196) | 8 | 4.1 | 30 | 15.3 | 70 | 35.7 | 63 | 32.1 | 25 | 12.8 |
| Patient suspected to be exposed to traumatic event(s) ($N$ = 194) | 13 | 6.7 | 26 | 13.4 | 71 | 36.6 | 60 | 30.9 | 24 | 12.4 |
| **Prescribing pharmacological treatment for:** | | | | | | | | | | |
| A depressive disorder ($N$ = 193) | 12 | 6.2 | 33 | 17.1 | 59 | 30.6 | 68 | 35.2 | 21 | 10.9 |
| An anxiety disorder ($N$ = 193) | 12 | 6.2 | 35 | 18.1 | 64 | 33.2 | 56 | 29.0 | 26 | 13.5 |
| A substance use disorder ($N$ = 193) | 22 | 11.4 | 32 | 16.6 | 72 | 37.3 | 36 | 18.7 | 31 | 16.1 |
| Schizophrenia ($N$ = 191) | 29 | 15.2 | 30 | 15.7 | 65 | 34.0 | 44 | 23.0 | 23 | 12.0 |
| **Providing counselling to a patient with:** | | | | | | | | | | |
| A depressive disorder ($N$ = 194) | 6 | 3.1 | 27 | 13.9 | 61 | 31.4 | 62 | 32.0 | 38 | 19.6 |
| An anxiety disorder ($N$ = 193) | 10 | 5.2 | 26 | 13.5 | 64 | 33.2 | 61 | 31.6 | 32 | 16.6 |
| A substance use disorder ($N$ = 194) | 7 | 3.6 | 25 | 12.9 | 66 | 34.0 | 57 | 29.4 | 39 | 20.1 |
| Schizophrenia ($N$ = 193) | 29 | 15.0 | 39 | 20.2 | 70 | 36.3 | 34 | 17.6 | 21 | 10.9 |
| Suicide risk ($N$ = 191) | 10 | 5.2 | 26 | 13.6 | 62 | 32.5 | 62 | 32.5 | 31 | 16.2 |
| **Provide counselling to the family of a patient with:** | | | | | | | | | | |
| A depressive disorder ($N$ = 194) | 7 | 3.6 | 29 | 14.9 | 62 | 32.0 | 63 | 32.5 | 33 | 17.0 |
| An anxiety disorder ($N$ = 192) | 12 | 6.3 | 23 | 12.0 | 66 | 34.4 | 64 | 33.3 | 27 | 14.1 |
| A substance use disorder ($N$ = 192) | 5 | 2.6 | 29 | 15.1 | 49 | 25.5 | 73 | 38.0 | 36 | 18.8 |
| Schizophrenia ($N$ = 191) | 15 | 7.9 | 38 | 19.9 | 62 | 32.5 | 53 | 27.7 | 23 | 12.0 |
| Suicide risk ($N$ = 190) | 9 | 4.7 | 26 | 13.7 | 58 | 30.5 | 67 | 35.3 | 30 | 15.8 |
| **Other** | | | | | | | | | | |
| Sedating a patient who is aggressive or violent ($N$ = 194) | 15 | 7.7 | 25 | 12.9 | 62 | 32.0 | 47 | 24.2 | 45 | 23.2 |
| Completion of the relevant forms for 72-h observation of a mental health patient ($N$ = 190) | 29 | 15.3 | 34 | 17.9 | 48 | 25.3 | 42 | 22.1 | 37 | 19.5 |
| Managing common side effects from psychiatric medication ($N$ = 191) | 22 | 11.5 | 34 | 17.8 | 67 | 35.1 | 51 | 26.7 | 17 | 8.9 |
| Managing serious adverse events from emergency psychiatric medication ($N$ = 191) | 37 | 19.4 | 39 | 20.4 | 62 | 32.5 | 41 | 21.5 | 12 | 6.3 |

bivariate analysis identified a number of variables with a $p < 0.25$ to include in the multivariate model. These were age, gender, province of current work, area of current work, current employer, work setting, university, length of mental health rotation, and site of mental health rotation. Following logistic regression, the variables found to be significantly associated with a high confidence score were gender, province of current work, and area of current work (Table 5). Being male, working in Gauteng province and Northern Cape province, and working in a rural area significantly increased the odds of a high confidence score.

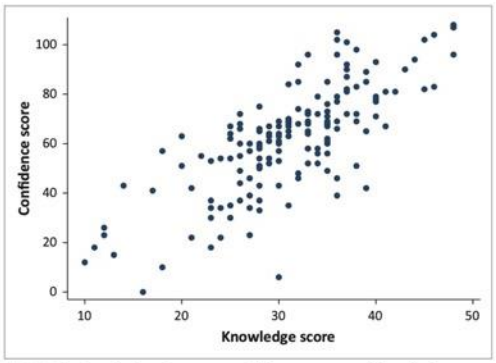


**FIGURE 1:** Correlation between confidence score and knowledge score ($N$ = 161).

## Current practices

The current work of most participants (Table 6) included taking a mental health history and doing a mental health examination with 35.6% of the participants indicating that their current work 'often' involved taking a mental health history from patients suspected of a substance use disorder and 34.1% indicating that their current work 'often' involved doing a mental health examination on patients suspected of a substance use disorder. The majority of participants provide counselling to patients with mental illness as part of their

**TABLE 5:** Multivariate model of characteristics associated with a high confidence score.

| Characteristic | Odds ratio | 95% Confidence interval | *p*-value |
|---|---|---|---|
| **Gender** | | | |
| Male | 3.45 | 1.49–7.97 | 0.004 |
| **Province of current work** | | | |
| Gauteng | 3.99 | 1.02–15.68 | 0.047 |
| Northern Cape | 17.82 | 2.06–154.23 | 0.009 |
| **Area of current work** | | | |
| Rural | 4.64 | 1.25–17.29 | 0.022 |

current work with 31.5% indicating they 'often' provide counselling to patients with depression. More than one-fifth of the participants indicated they 'often' prescribed medication for depressive disorders (27.8%), anxiety disorders (24.6%), substance use disorders (25.7%) and suicide risk (21.3%). Current work included 'often' sedating aggressive or violent patients for 19.9% of participants. Current work did not involve completing the relevant forms for 72 h observation of a mental health patient for 61.6% of the participants.

**TABLE 6:** Mental health asssessment and management as part of current work of participants.

| Item | Never | | Sometimes (four times or less per month) | | Often (five times or more per month) | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| **Taking a mental history from patients suspected of having:** | | | | | | |
| A depressive disorder ($N$ = 174) | 42 | 24.1 | 81 | 46.6 | 51 | 29.3 |
| An anxiety disorder ($N$ = 173) | 48 | 27.7 | 83 | 48.0 | 42 | 24.3 |
| A substance use disorder ($N$ = 174) | 44 | 25.3 | 68 | 39.1 | 62 | 35.6 |
| Schizophrenia ($N$ = 173) | 71 | 41.0 | 66 | 38.2 | 36 | 20.8 |
| Suicidal risk ($N$ = 171) | 51 | 29.8 | 74 | 43.3 | 46 | 26.9 |
| **Doing a mental health examination on patients suspected of having:** | | | | | | |
| A depressive disorder ($N$ = 173) | 45 | 26.0 | 79 | 45.7 | 49 | 28.3 |
| An anxiety disorder ($N$ = 173) | 48 | 27.7 | 83 | 48.0 | 42 | 24.3 |
| A substance use disorder ($N$ = 173) | 47 | 27.2 | 67 | 38.7 | 59 | 34.1 |
| Schizophrenia ($N$ = 174) | 77 | 44.3 | 61 | 35.1 | 36 | 20.7 |
| Suicidal risk ($N$ = 171) | 54 | 31.6 | 67 | 39.2 | 50 | 29.2 |
| **Doing a physical examination on patients suspected of having:** | | | | | | |
| A depressive disorder ($N$ = 173) | 50 | 28.9 | 71 | 41.0 | 52 | 30.1 |
| An anxiety disorder ($N$ = 172) | 47 | 27.3 | 81 | 47.1 | 44 | 25.6 |
| A substance use disorder ($N$ = 173) | 49 | 28.3 | 64 | 37.0 | 60 | 34.7 |
| Schizophrenia ($N$ = 174) | 70 | 40.2 | 66 | 37.9 | 38 | 21.8 |
| Suicidal risk ($N$ = 169) | 49 | 29.0 | 68 | 40.2 | 52 | 30.8 |
| **Ordering special investigations in patients suspected of having:** | | | | | | |
| A depressive disorder ($N$ = 173) | 68 | 39.3 | 62 | 35.8 | 43 | 24.9 |
| An anxiety disorder ($N$ = 170) | 72 | 42.4 | 64 | 37.6 | 34 | 20.0 |
| A substance use disorder ($N$ = 170) | 62 | 36.5 | 60 | 35.3 | 48 | 28.2 |
| Schizophrenia ($N$ = 173) | 83 | 48.0 | 53 | 30.6 | 37 | 21.4 |
| Suicidal risk ($N$ = 169) | 71 | 42.0 | 59 | 34.9 | 39 | 23.1 |
| **Providing counselling to patients with:** | | | | | | |
| A depressive disorder ($N$ = 168) | 44 | 26.2 | 71 | 42.3 | 53 | 31.5 |
| An anxiety disorder ($N$ = 169) | 42 | 24.9 | 83 | 49.1 | 44 | 26.0 |
| A substance use disorder ($N$ = 166) | 42 | 25.3 | 72 | 43.4 | 52 | 31.3 |
| Schizophrenia ($N$ = 168) | 68 | 40.5 | 63 | 37.5 | 37 | 22.0 |
| Suicidal risk ($N$ = 167) | 50 | 29.9 | 67 | 40.1 | 50 | 29.9 |
| **Providing counselling to the families of patients with:** | | | | | | |
| A depressive disorder ($N$ = 168) | 59 | 35.1 | 75 | 44.6 | 34 | 20.2 |
| An anxiety disorder ($N$ = 168) | 62 | 36.9 | 78 | 46.4 | 28 | 16.7 |
| A substance use disorder ($N$ = 168) | 56 | 33.3 | 73 | 43.5 | 39 | 23.2 |
| Schizophrenia ($N$ = 167) | 78 | 46.7 | 58 | 34.7 | 31 | 18.6 |
| Suicidal risk ($N$ = 165) | 61 | 37.0 | 67 | 40.6 | 37 | 22.4 |
| **Prescribing pharmacological treatment to patients with:** | | | | | | |
| A depressive disorder ($N$ = 169) | 68 | 40.2 | 54 | 32.0 | 47 | 27.8 |
| An anxiety disorder ($N$ = 167) | 60 | 35.9 | 66 | 39.5 | 41 | 24.6 |
| A substance use disorder ($N$ = 167) | 76 | 45.5 | 48 | 28.7 | 43 | 25.7 |
| Schizophrenia ($N$ = 166) | 88 | 53.0 | 47 | 28.3 | 31 | 18.7 |
| Suicidal risk ($N$ = 164) | 76 | 46.3 | 53 | 32.3 | 35 | 21.3 |
| **Other** | | | | | | |
| Assessing the cognitive functioning of a patient with confusion using a suitable cognitive screening test ($N$ = 165) | 51 | 30.9 | 66 | 40.0 | 48 | 29.1 |
| Sedating an aggressive or violent patient ($N$ = 166) | 77 | 46.4 | 56 | 33.7 | 33 | 19.9 |
| Completing the relevant forms for 72-h observation of a mental health patient ($N$ = 164) | 101 | 61.6 | 36 | 22.0 | 27 | 16.5 |

## Discussion

In this study, we explored the readiness of clinical associates to take on mental health task sharing by determining clinical associates' knowledge, confidence, and current practices related to mental health assessment and management. The study confirmed previous findings that mental health forms part of the curriculum of all three undergraduate programmes[24] with virtually all of the participants in our study indicating they had received some training in mental health assessment and management as part of their undergraduate training. Seventeen participants indicated that they did not have a mental health rotation even though all three universities include this in their curricula.[24] It is possible that these students were based at facilities where there was no mental health training even though the rotation existed on paper.

Most clinical associates indicated 'good' or 'excellent' knowledge of all the listed mental illnesses with the exception of ADHD. Deficiencies in ADHD knowledge in this study confirms previous findings of gaps with respect to training in childhood disorders that had been highlighted at two of the universities.[24] The high levels of knowledge with respect to substance use disorder may in part be related to one of the universities having a focus on this and including an option to spend a week of their mental health rotation at a community-based substance use programme.[24] The findings with regard to the high levels of knowledge of depression contrast with studies among non-specialist health professionals in Africa that report limited knowledge of depression.[28,29] A study amongst PHC workers in South Africa and Zambia found moderate mental health literacy,[30] while a study amongst non-specialist medical practitioners in the public and private sector in South Africa found adequate knowledge of mental illness.[31] The use of a self-rating tool in the study may have meant that participants could have overestimated their knowledge.

While there was a strong correlation between the confidence score and knowledge scores, self-rated knowledge scores did not necessarily translate into confidence with mental health assessment and management. Almost 88% of the participants had a self-rated knowledge score of 50% or more, while approximately 70% of the participants had a confidence score of 50% or more. This finding concurs with a previous finding that most of the undergraduate practical training in mental health at two of the universities is by chance, thereby limiting their opportunity to apply their knowledge.[24] Unsurprisingly, participants were more confident doing a physical examination and ordering relevant investigations which they would usually do in the normal course of their work rather than the mental health specific aspects of the assessment. They also appeared to be more confident managing confused patients which is more likely to be a medical diagnosis than aggression or suicide risk. Suicide risk assessment has previously been noted as a possible gap in their training.[24]

The number of participants with high levels of confidence in prescribing pharmacological treatment was relatively low. This could be potentially related to scope of practice as clinical associates are only permitted to prescribe medicines (under supervision of a medical practitioner) up to Schedule 4.[16] Psychoactive medicines such as anti-depressants and sedatives are Schedule 5.[32] Although all three universities include pharmacological management in their mental health curriculum, it is not clear how much of attention is given to the topic as there is only evidence of one university having a dedicated lecture.[24] Managing side effects and adverse events from psychotropic medication also appeared to be a gap for many participants. With respect to depressive, anxiety and substance use disorders, it appeared that a greater number of participants had higher levels of confidence to provide counselling rather than prescribing pharmacological treatment. Given that clinical associates are likely to encounter aggressive or violent patients in emergency settings, it is worrying that less than half of participants had high levels of confidence to sedate such patients.

The authors found that a high confidence score was associated with gender. Males had significantly higher odds of a score of 75% (81/108) and higher in our multivariate model. A systematic review that explored the confidence gap between male and female medical students, residents, and faculty found that male self-reported scores in a number of areas including knowledge, skills, and procedural confidence were higher than females in 24 of 31 studies.[33] In the remaining studies, there were no gender differences in five studies with only two studies finding higher scores among females than males.[33] Vajapey et al.[33] concluded that female health professionals perceive deficiencies with respect to their abilities more frequently than male counterparts, even though there is no difference in clinical performance. Gavinski et al.[34] note that self-reported confidence does not necessarily mean a higher level of competence. Our findings suggest that the gender differences in confidence seen in medical and other health professionals may also be applicable to clinical associates.

High confidence scores were also associated with province of work. It is not clear why working in Gauteng province or the Northern Cape province would increase the odds of a high confidence score particularly as these provinces are very different. Gauteng province is South Africa's economic hub with a high population density and the Northern Cape province is South Africa's largest province by surface area with a low population density.[35] The authors also found that working in a rural area significantly increased the odds of a high confidence score. This finding appears contradictory as Gauteng province, which was also associated with high confidence scores, is predominately an urban province. It should be noted that the finding with respect to Gauteng province was borderline significant with a $p$-value of 0.047 and a lower limit of the 95% confidence interval of 1.02. Lower confidence scores in urban areas other than Gauteng province could have resulted in the apparently contradictory findings. A potential explanation for higher confidence scores among clinical associates working in rural areas could be a greater opportunity for them to be involved in mental health

assessment and management because of health workforce shortages in these areas.[36]

Findings indicate that a majority of participants are already doing work related to mental health assessment and management. This finding is not surprising taking into account the work settings of the participants and the high prevalence of mental illness in South Africa.[37,38] A study amongst a similar cadre viz., physician assistants in the USA found they see and evaluate patients with mental illness on a regular basis with 62% of physician assistants doing so at least weekly.[23] A large number of participants in our study indicated they were prescribing pharmacological treatment for mental illness. This reported practice is despite their scope of practice limiting them to prescribing no higher than Schedule 4 medication.[16]

The overall findings suggest that clinical associates generally have good self-assessed knowledge of mental health conditions and have opportunities to assess and manage mental health patients; but there appears to be a confidence 'deficit' in performing some key mental health tasks. As an example, 70.2% participants indicated their knowledge of depressive disorders was good or excellent and more than 70.0% of the participants indicated their work 'sometimes' or 'often' involved taking a mental history and doing a mental health examination in patients suspected of having a depressive disorder. However, the proportion of participants that felt quite or very confident in taking a mental health history or carrying out a mental health examination were only 50.3% and 43.2%, respectively. While 73.8% of the participants indicated their work sometimes or often involved providing counselling to patients with a depressive disorder, the proportion of participants who indicated they were quite or very confident performing this task was only 51.5%. While 59.8% of participant indicated that their current work sometimes or often involved prescribed pharmacological treatment to patients with a depressive disorder, only 46.1% of the participants indicated they were quite or very confident to pharmacological treatment to a patient with a depressive disorder. These confidence 'deficits' were also present to varying extents for anxiety disorders, substance use disorders, schizophrenia and suicide risk and suggest specific areas that need to be addressed in training.

In addition to strengthening training, changes in national policy may be required to use clinical associates more effectively in providing mental health services. The *Mental Health Care Act, 2002* predates the development of this cadre and, therefore, does not mention clinical associates in their definition of 'mental health practitioner' which currently includes psychiatrists, medical doctors, nurses, psychologists, occupational therapists, and social workers.[39] An amendment to the Act to include clinical associates should be considered particularly as one of the two mental health practitioners who needs to examine mental health care users during the application for involuntary care needs to be qualified to perform a physical examination and one of the two mental health practitioners responsible for 72 h observation of involuntary patients must be a medical practitioner.[39] The formalisation of clinical associates as mental health practitioners could, therefore, reduce the clinical and administrative workload of medical doctors with respect to mental health patients. A further change in policy to be considered relates to the prescription of Schedule 5 medication by clinical associates. The current limitation could be eased based on additional training for example, a prescribing course for psychiatric medication.

### Limitations

We were reliant on PACASA and university alumni databases to reach potential participants. These may have been incomplete and/or lacked up to date contact information. We did not have access to a WSU alumni database and as a result clinical associates from WSU were underrepresented in our study. It is not clear how many clinical associates in total were reached and it is, therefore, not possible to calculate a response rate. We did, however, offer incentives, send out reminders and extend the closing date of the survey to encourage as many clinical associates to participate as possible. It is possible that the clinical associates who participated were those interested in mental health so generalisation to all clinical associates in South Africa should be done with caution. As our study relied on self-assessment of knowledge, this may have been overestimated by participants and the possibility of the Dunning-Kruger effect cannot be ruled out.[40]

## Conclusion

Clinical associates are currently involved in mental health assessment and management. Their self-assessed knowledge of mental illness was generally good. Based on their confidence scores, there appeared to be some gaps with respect to practically performing aspects of mental health assessment and management. There is an urgent need to provide additional training to close the gaps that exist among those clinical associates already involved in mental health care as well as strengthen undergraduate training in mental health. Consideration needs to be given to amending the *Mental Health Care Act, 2002* to include clinical associates in the definition of 'mental health practitioner' and formally allowing clinical associates with appropriate training to prescribe psychiatric medication.

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### Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

## Authors' contributions

S.V.M. conceptualised the study, and developed the methodology with inputs from J.W. and C.G. S.V.M. analysed the data and wrote the first draft of the manuscript. The manuscript was reviewed by J.W. and C.G. who made further inputs.

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## Data availability

The data are available on reasonable request from the corresponding author S.V.M.

## Disclaimer

The views expressed in the submitted article are those of the authors and not an official position of their institution, and the publisher.

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**CHAPTER 4C**

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AOSIS

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# Mental illness attitudes, service provision interest and further training preferences of clinical associates

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**Background:** Non-specialist health professionals are required to provide mental health services given the burden of disease due to mental illness. The study aimed to explore the attitudes of clinical associates towards those with mental illness as well as their interest in mental health work and additional mental health training.

**Methods:** A cross-sectional study design was utilised. The study population consisted of clinical associates based in South Africa. An electronic questionnaire was developed that incorporated the 16-item Mental Illness Clinicians' Attitudes version 4 scale (MICA-4), which is scored out of 96 with higher scores indicating more stigmatising attitudes. Multivariate linear regression was used to determine factors associated with the MICA-4 score.

**Results:** The mean MICA-4 score for the 166 participants who completed all 16 questions was 37.55 (standard deviation 7.33). In multivariate analysis, the factors associated with significantly lower MICA-4 scores were in the 25- to 29-year-old age category and indicating that a mental health rotation formed part of the undergraduate degree. More than 80% of the participants (140/167, 83.8%) indicated an interest in mental health work. Two-thirds of the participants (111/167, 66.5%) indicated an interest in a specialisation in mental health.

**Conclusion:** The mean MICA-4 score recorded for clinical associates indicates low stigma levels towards those with mental illness. Additionally, there is significant interest in working and training in mental health.

**Contribution:** Training programmes should take note of the contribution of a mental health rotation to a positive attitude to mental health patients. Clinical associates' attitudes towards mental illness together with their interest in working and training in mental health suggest that they could be more widely utilised in mental health service provision.

**Keywords:** mental illness; mental health; clinical associates; clinician attitudes; MICA-4.

## Introduction

The epidemiological evidence indicates alarming levels of mental illness in South Africa. Nationally-representative data is limited with the last population-based survey that assessed multiple disorders being conducted almost 20 years ago.[1,2] It found that the lifetime prevalence of having any of the psychiatric disorders included in the study was 30.3%, and the 12-month prevalence was 16.5%.[2] More recent national data on depression from the National Income Dynamics Study – Coronavirus Rapid Mobile Survey reported that 29% of the respondents screened positive for depression during the period April 2021 to May 2021 with approximately 5% of the respondents screening positive for severe depressive symptoms.[3] More than half of the respondents (52%) in that survey had been affected by significant levels of depressive symptoms during the course of the coronavirus disease 2019 (COVID-19) pandemic.[3]

Studies focussing on healthcare settings in South Africa provide an indication of the scale of the problem even prior to the COVID-19 pandemic. Kagee et al.[4] used the Structured Interview Schedule for the Diagnostic and Statistical Manual of Mental Disorders (Research Version) in a study among individuals presenting for HIV testing at five sites in the Western Cape and reported a 19.8% prevalence of alcohol use disorder and a 14.2% prevalence of major depressive disorder.[4] The prevalence of generalised anxiety disorder and post-traumatic stress disorder (PTSD) was 5.0% and 4.9%, respectively.[4] A study at an antiretroviral clinic in a tertiary hospital in Tshwane, Gauteng, found a 53.8% prevalence of depression using the 20-item Centre for Epidemiological Study Depression Scale.[5] Using the Patient Health Questionnaire-9 screening instrument, 46.2%

of the participants screened positive for depression in a study conducted at a primary health care (PHC) clinic in Tshwane.[6] In Cape Town, the Mini-International Neuropsychiatric Interview (MINI Plus) was used among recruited women attending their first antenatal visit at a clinic in a low-resource setting.[7,8] A 22% prevalence for major depressive episode and a 23% prevalence of any anxiety disorder was found.[7,8] The 10-item Centre for Epidemiological Study Depression Scale was used by Mokhele et al.[9] to assess postpartum depression at midwife obstetric units in Gauteng and they reported that a quarter of women had a positive result for postpartum depression.

Non-specialist health professionals in many countries have been required to provide mental health services given the burden of disease due to mental health coupled with mental health workforce shortages.[10,11,12] Negative and stigmatising attitudes of health professionals are likely to lead to suboptimal care of mental health patients.[13,14] A systematic review by Vistorte et al.[15] found that primary care physicians have stigmatising attitudes towards mental health patients. This finding appeared to be common among doctors who were older and more experienced.[15] Their attitudes were particularly negative towards patients with schizophrenia compared to those with depression.[15] In contrast, a recent study among non-specialist medical doctors in South Africa found that the majority of participants had a positive attitude towards mental illness.[16] A study among PHC nurses in Addis Ababa, Ethiopia, found that 48.2% of the participants had a negative attitude towards individuals with severe mental disorders, which was associated with less than 5 years' experience and a lack of mental health training and knowledge.[17]

The scope of practice of clinical associates (South Africa's mid-level medical worker cadre) includes aspects of mental health assessment and management.[18] There is evidence that they do receive some training on mental health in their undergraduate degree.[19] Though all three universities have their mental health block in the final year of study, the duration of training varies with respect to formal lectures on campus (3 hours to 1 week) and facility-based teaching and training (2–4 weeks) as well as the extent of clinical exposure to mental health patients.[19] It has been found that the current work of a majority of clinical associates surveyed by Moodley et al.[20] involved in taking a mental health history, conducting a mental health examination and providing counselling to mental health patients.[20] The clinical associate cadre is a relatively new addition to non-specialists providing mental health services in South Africa, and there is potential for them to play a bigger role.[21] The attitudes of clinical associates towards mental illness may affect the quality of patient care and could also inform their wider utilisation in mental health services. The objectives of the study were to explore the attitudes of clinical associates towards mental illness, their interest in mental health work at different levels of care and their interest in short courses and a postgraduate qualification (specialisation) in mental health. We also assessed the factors associated with mental illness attitudes, interest in mental health work and interest in specialisation in mental health.

# Methods

## Study design

A cross-sectional study design consisting of both descriptive and analytical components was utilised.

## Study population and sampling

The study population consisted of clinical associates based in South Africa. Clinical associates qualified for less than 6 months, those that had emigrated from South Africa or those that were pursuing or had completed a medical degree were excluded from participating in the study. There was no sampling as we invited all clinical associates who were reached to participate in the study.

## Measurement tools

An electronic questionnaire was developed using the Qualtrics platform. It consisted of sections related to demographic characteristics, details of undergraduate training, mental illness attitudes, interest in mental health work and interest in further training in mental health. The questionnaire incorporated the 16-item Mental Illness Clinicians' Attitudes scale version 4 (MICA-4).[22] The scale is used to assess attitudes of health professionals or students in any health discipline towards mental illness and was derived from MICA version 2, which was aimed at medical students.[22,23] The scale has been reported as having good internal consistency with Cronbach's α of 0.72, acceptable convergent validity, good face validity and good acceptability.[22] MICA-4 uses a 6-point Likert scale and the item scores (with most items being reversed scored) are added to give an overall score that ranges between 16 and 96.[22] Higher scores suggest negative and stigmatising attitudes towards mental illness.[22] The authors used an expert validation panel and cognitive interviews with five clinical associates to ensure the questions related to interest in providing mental health services and further training in mental health were appropriate.[24] The expert validation panel consisted of three family physicians familiar with clinical associate training and three psychiatrists.[24] The changes made as a result of expert validation were relatively minor with the interest in providing mental health services and interest in further training being divided into separate sections and a postgraduate diploma being added as an example of specialisation.[24]

## Data collection

Information regarding the survey and a link to the electronic questionnaire was distributed by the Professional Association of Clinical Associates in South Africa (PACASA) and two of the three universities that train clinical associates at undergraduate level. Social media was also used to reach additional clinical associates. After clicking on the link and confirming they met the inclusion criteria, potential participants were provided with a participant information leaflet and asked to provide

electronic informed consent if they wished to participate. An incentive was offered with five participants being randomly selected to receive a R1000 gift voucher. We used the available Qualtrics functionality to prevent participants from completing the survey more than once and we ensured that the participants' identity and contact information were not linked to the questionnaire by using an end-of-survey redirect.[25]

### Data analysis

Stata version 17 (Statacorp; http://www.stata.com) was used for data analysis. The authors calculated proportions for the demographic, employment, training and interest variables. They scored each of the MICA-4 variables from 1 to 6 with items being reverse scored where appropriate and calculated a MICA-4 score by adding these together. A mean, median and other summary statistics were calculated for the MICA-4 score. Bivariate linear regression was conducted for MICA-4 scores and demographic, employment and training variables. Variables with a $p < 0.25$ were then included in an initial multivariate linear regression model with manual backwards stepwise elimination being used to arrive at the final multivariate linear regression model. The three variables related to interest in working in mental health were aggregated to a single variable 'interest in mental health work'. Bivariate logistic regression was conducted for this variable with MICA-4 scores and demographic, employment and training characteristics as the independent variables. Variables with a $p < 0.25$ were then included in an initial multivariate logistic regression model with manual backwards stepwise elimination being used to arrive at the final multivariate logistic regression model. A similar analysis process was followed for interest in pursuing a specialisation in mental health.

### Ethical considerations

The study was approved by the University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). An electronic informed consent document was provided to participants followed by an option to opt out or to continue with the survey.

## Results

### Mental Illness Clinicians' Attitudes scale version 4 scores

Of the 216 individuals who provided consent to participate in the survey, 166 completed all questions of the MICA-4. The mean MICA-4 score was 37.55 (standard deviation [s.d.]: 7.33). The median score was 37 with a range of 22 to 61. The mean and median MICA-4 scores for various demographic and employment characteristics are shown in Table 1. Participants 25 years and older had a lower (less stigmatising) mean MICA-4 score than those 20 to 24 years of age. With respect to province of current work, participants from the Free State and Northern Cape had the lowest mean MICA-4 scores of 33.25 (s.d.: 9.21) and 34.71 (s.d. 8.88), respectively. Participants working in district municipalities had a higher (more stigmatising) mean MICA score (38.69) than those working in metropolitan municipalities (36.41) as did those working in rural areas (38.46) compared to those working in urban areas (36.94). In bivariate linear regression (Table 1), the MICA-4 score was found to be significantly associated with age and province of current work. Clinical associates aged 25 to 29 years (coefficient −3.16, 95% confidence interval [CI]: −6.03; −0.28, $p = 0.032$) had significantly lower MICA-4 scores than those aged 20 to 24 years. Those currently working in Free State province (coefficient −6.68, 95% CI: −13.02; −0.35, $p = 0.039$) had significantly lower MICA scores than those working in Eastern Cape province.

Participants who completed their Bachelor of Medicine in Clinical Practice (BMCP) degrees at Walter Sisulu University had a higher (more stigmatising) MICA-4 mean score (41.19) than those that had completed their Bachelor of Clinical Medical Practice (BCMP) degrees at the University of Pretoria (37.24) and University of the Witwatersrand (36.84) (Table 2). The mean MICA-4 score for those who indicated they had a mental health rotation during their degree was 37.10 (s.d.: 7.05) compared to 43.33 (s.d.: 8.66) for those who indicated they did not. There appeared to be a trend of mean MICA-4 scores decreasing with length of the rotation. In bivariate linear regression, the MICA-4 score was found to be significantly associated with university, having a mental health rotation, length of mental health rotation and the site of the mental health rotation. Clinical associates who completed their BMCP degree at Walter Sisulu University (co-efficient 3.96, 95% CI: 0.39; 7.52, $p = 0.030$) had significantly higher MICA-4 scores than those who graduated from the University of Pretoria. Those who had indicated that they had a mental health rotation (co-efficient −6.23, 95% CI: −10.47; −1.99, $p = 0.004$) had significantly lower MICA-4 scored than those who indicated they had not. MICA-4 scores were significantly lower with a rotation length of 3–4 weeks (co-efficient −6.12, 95% CI: −10.51; −1.72, $p = 0.07$), 5–6 weeks (co-efficient −6.78, 95% CI: −11.63; −1.94, $p = 0.006$) and 7–8 weeks (co-efficient −9.46, 95% CI: −15.96; −2.96, $p = 0.005$) using no rotation as a reference. Mental Illness Clinicians' Attitudes scale version 4 scores were also significantly lower with a rotation at a district hospital (co-efficient −6.40, 95% CI: −10.84; −1.96, $p = 0.005$), regional hospital (co-efficient −7.57, 95% CI: −12.13; −3.00, $p = 0.001$) and specialised psychiatric hospital (co-efficient −8.83, 95% CI: −16.98; −0.68, $p = 0.034$) using no rotation as a reference.

The variables included in the initial multivariate linear regression model based on $p < 0.25$ were age, province of current work, municipality of current work, area of current work, current employer, current work setting, university, rotation in mental health, rotation length and rotation site. The final multivariate linear regression model is shown in Table 3. Clinical associates that were 25- to 29-years-old had significantly lower MICA-4 scores than those of other ages as did those who had indicated they had a mental health rotation during their clinical associate degree compared to those that indicated they had not. Those who selected 'other' as their current employer had significantly higher MICA-4 scores than the other options listed.

**TABLE 1:** Clinical associates' demographic and employment characteristics and Mental Illness Clinicians' Attitudes scale version 4 scores.

| Characteristic | Frequency | | Median | Range | Mean | s.d. | Bivariate linear regression | | |
|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | | | | | Co-efficient | 95% CI | *p* |
| **Age (*N* = 166)** | | | | | | | | | |
| 20–24 years | 36 | 21.7 | 39.0 | 23–58 | 39.78 | 8.69 | Ref | - | - |
| 25–29 years | 82 | 49.4 | 36.5 | 24–55 | 36.62 | 6.36 | -3.16 | -6.03; -0.28 | 0.032 |
| 30–34 years | 39 | 23.5 | 38.0 | 24–61 | 37.69 | 7.82 | -2.09 | -5.41; 1.24 | 0.217 |
| ≥ 35 years | 9 | 5.4 | 37.0 | 22–44 | 36.56 | 6.77 | -3.22 | -8.59; 2.14 | 0.237 |
| **Gender (*N* = 166)** | | | | | | | | | |
| Female | 118 | 71.1 | 37.0 | 23–61 | 37.90 | 7.44 | Ref | - | - |
| Male | 46 | 27.7 | 38.0 | 22–53 | 36.57 | 7.15 | -1.33 | -3.85; 1.19 | 0.298 |
| Prefer not to say | 2 | 1.2 | 40.0 | 38–42 | 40.00 | 2.83 | 2.10 | -8.24; 12.44 | 0.689 |
| **Province of current work (*N* = 166)** | | | | | | | | | |
| Eastern Cape | 15 | 9.0 | 38.0 | 25–57 | 39.93 | 9.57 | Ref | - | - |
| Free State | 8 | 4.8 | 33.5 | 23–53 | 33.25 | 9.21 | -6.68 | -13.02; -0.35 | 0.039 |
| Gauteng | 85 | 51.2 | 37.0 | 22–61 | 37.12 | 6.93 | -2.82 | -6.87; 1.24 | 0.172 |
| KwaZulu-Natal | 12 | 7.2 | 40.0 | 31–53 | 39.17 | 5.77 | -0.77 | -6.37; 4.84 | 0.787 |
| Limpopo | 14 | 8.4 | 38.5 | 29–58 | 39.14 | 7.53 | -0.79 | -6.17; 4.59 | 0.772 |
| Mpumalanga | 14 | 8.4 | 37.5 | 28–49 | 37.00 | 5.26 | -2.93 | -8.31; 2.44 | 0.283 |
| Northern Cape | 7 | 4.2 | 33.0 | 24–47 | 34.71 | 8.88 | -5.22 | -11.85; 1.41 | 0.122 |
| North West | 10 | 6.0 | 41.0 | 26–52 | 39.30 | 8.14 | -0.63 | -6.54; 5.28 | 0.833 |
| Western Cape | 1 | 0.6 | 42.0 | - | 42.00 | - | 2.06 | -12.89; 17.02 | 0.785 |
| **Municipality of current work (*N* = 155)** | | | | | | | | | |
| Metropolitan | 74 | 47.7 | 36.0 | 24–55 | 36.41 | 6.56 | Ref | - | - |
| District | 81 | 52.3 | 39.0 | 22–61 | 38.69 | 8.05 | 2.29 | -0.06; 4.63 | 0.056 |
| **Area of current work (*N* = 166)** | | | | | | | | | |
| Urban | 99 | 59.6 | 37.0 | 22–61 | 36.94 | 7.14 | Ref | - | - |
| Rural | 67 | 40.4 | 38.0 | 23–58 | 38.46 | 7.57 | 1.52 | -0.76; 3.81 | 0.190 |
| **Current employer (*N* = 166)** | | | | | | | | | |
| Provincial Department of Health | 56 | 33.7 | 38.0 | 24–57 | 37.50 | 6.77 | Ref | - | - |
| Private health facility or private medical practice | 50 | 30.1 | 37.0 | 25–58 | 37.58 | 6.81 | 0.08 | -2.73; 2.89 | 0.955 |
| Non-governmental organisation | 15 | 9.0 | 42.0 | 22–53 | 39.27 | 9.53 | 1.77 | -2.43; 5.96 | 0.407 |
| Academic institution | 33 | 19.9 | 37.0 | 23–61 | 36.94 | 7.87 | -0.56 | -3.73; 2.60 | 0.727 |
| Self–employed | 1 | 0.6 | 26.0 | - | 26.00 | - | -11.5 | -26.05; 3.05 | 0.121 |
| Unemployed | 7 | 4.2 | 35.0 | 29–44 | 35.14 | 5.15 | -2.36 | -8.14; 3.43 | 0.422 |
| Other | 4 | 2.4 | 43.0 | 34–55 | 43.75 | 9.54 | 6.25 | -1.21; 13,71 | 0.100 |
| **Work setting (*N* = 165)** | | | | | | | | | |
| Primary health care clinic | 18 | 10.9 | 37.5 | 23–53 | 37.78 | 7.30 | Ref | - | - |
| Community health centre | 11 | 6.7 | 36.0 | 22–58 | 39.00 | 10.36 | 1.22 | -4.34; 6.78 | 0.665 |
| District hospital | 39 | 23.6 | 38.0 | 24–57 | 38.08 | 7.21 | 0.30 | -3.84; 4.44 | 0.887 |
| Regional hospital | 3 | 1.8 | 29.0 | 29–38 | 32.00 | 5.20 | -5.78 | -14.84; 3.29 | 0.210 |
| Tertiary or central hospital | 5 | 3.0 | 42.0 | 32–53 | 41.40 | 7.67 | 3.62 | -3.73; 10.97 | 0.332 |
| Private general practice | 30 | 18.2 | 37.5 | 24–55 | 37.83 | 8.02 | 0.56 | -4.28; 4.39 | 0.980 |
| Private specialist practice | 4 | 2.4 | 36.0 | 32–37 | 35.25 | 2.36 | -2.53 | -10.56; 5.51 | 0.535 |
| Private hospital | 13 | 7.9 | 35.0 | 25–41 | 35.00 | 4.81 | -2.78 | -8.07; 2.51 | 0.301 |
| Academic institution | 20 | 12.1 | 38.0 | 25–61 | 37.85 | 7.87 | 0.07 | -4.65; 4.79 | 0.976 |
| Unemployed | 8 | 4.9 | 35.0 | 29–44 | 34.88 | 5.49 | -2.90 | -9.08; 3.27 | 0.355 |
| Other | 14 | 8.5 | 40.0 | 26–48 | 38.86 | 6.62 | 1.08 | -4.10; 6.26 | 0.681 |

s.d., standard deviation; CI, confidence interval.

## Interest in working in mental health

The majority of participants were interested in working in mental health (Table 4). Three quarters of participants ($n$ = 125, 75.3%) were interested in doing mental health work (strongly agree/agree) at a PHC clinic. Fewer participants indicated they were interested in working in a 72-h observation unit in a district hospital ($n$ = 116, 69.9%) or in a specialised psychiatric hospital ($n$ = 109, 65.3%). A total of 140 participants (83.8%) indicated an interest in working in mental health in any of the options provided. In bivariate analysis, the only variable that was significantly associated with an interest in mental health work was the MICA-4 score (odds ratio [OR]: 0.93, 95% CI: 0.88–0.99, $p$ = 0.020). The other variables with $p < 0.25$ that were included in the initial multivariate model were province of current work, work setting, area of current work, length of time since qualifying, received training on assessment of patients with mental illness, length of mental health rotation and site of mental health rotation. Following stepwise elimination, only two variables remained in the final multivariate model, namely, MICA-4 score and province of current work. An increase in MICA-4 score (more stigmatising attitude) significantly reduced the odds of interest in mental health work (OR: 0.93, 95% CI: 0.88–0.99, $p$ = 0.029) as did working in North West province (OR: 0.16, 95% CI: 0.04–0.64, $p$ = 0.09).

**TABLE 2:** Clinical associates' training characteristics and Mental Illness Clinicians' Attitudes scale version 4 scores.

| Characteristic (*N*) | Frequency | | Median | Range | Mean | s.d. | Bivariate linear regression | | |
|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | | | | | Co-efficient | 95% CI | *p* |
| **University (*N* = 166)** | | | | | | | | | |
| University of Pretoria | 68 | 41.0 | 39.0 | 22–58 | 37.24 | 7.51 | Ref | - | - |
| University of the Witwatersrand | 77 | 46.4 | 36.0 | 23–55 | 36.84 | 6.22 | -0.39 | -2.76; 1.99 | 0.746 |
| Walter Sisulu University | 21 | 12.7 | 41.0 | 26–61 | 41.19 | 9.60 | 3.96 | 0.39; 7.52 | 0.030 |
| **Length of time since qualifying (*N* = 166)** | | | | | | | | | |
| Less than 3 years | 36 | 21.7 | 38.5 | 23–57 | 37.94 | 7.65 | Ref | - | - |
| Between 3 and 6 years | 81 | 48.8 | 37.0 | 25–58 | 37.11 | 6.87 | -0.83 | -3.74; 2.08 | 0.573 |
| More than 6 years | 49 | 29.5 | 37.0 | 22–61 | 38.00 | 7.92 | 0.06 | -3.14; 3.25 | 0.973 |
| **Received training on assessment of patients with mental illness (*N* = 166)** | | | | | | | | | |
| No | 2 | 1.2 | 41.5 | 41–42 | 41.50 | 0.71 | Ref | - | - |
| Yes | 164 | 98.8 | 37.0 | 22–61 | 37.51 | 7.36 | -3.99 | -14.30; 6.31 | 0.445 |
| **Received training on management of patients with mental illness (*N* = 166)** | | | | | | | | | |
| No | 3 | 1.8 | 41.0 | 27–42 | 36.67 | 8.39 | Ref | - | - |
| Yes | 163 | 98.2 | 37.0 | 22–61 | 37.57 | 7.34 | 0.90 | -7.55; 9.36 | 0.833 |
| **Mental health rotation formed part of the degree (*N* = 166)** | | | | | | | | | |
| No | 12 | 7.2 | 43.0 | 26–57 | 43.33 | 8.66 | Ref | - | - |
| Yes | 154 | 92.8 | 37.0 | 22–61 | 37.10 | 7.05 | -6.23 | -10.47; -1.99 | 0.004 |
| **Length of mental health rotation (*N* = 165)** | | | | | | | | | |
| No rotation | 12 | 7.3 | 43.0 | 26–57 | 43.33 | 8.66 | Ref | - | - |
| 1–2 weeks | 25 | 15.2 | 37.0 | 24–61 | 38.44 | 7.36 | -4.89 | -9.89; 0.11 | 0.055 |
| 3–4 weeks | 83 | 50.3 | 37.0 | 23–58 | 37.22 | 6.88 | -6.12 | -10.51; -1.72 | 0.007 |
| 5–6 weeks | 31 | 18.8 | 37.0 | 24–55 | 36.55 | 6.95 | -6.78 | -11.63; -1.94 | 0.006 |
| 7–8 weeks | 8 | 4.8 | 34.0 | 22–44 | 33.88 | 7.24 | -9.46 | -15.96; -2.96 | 0.005 |
| More than 8 weeks | 6 | 3.6 | 35.0 | 25–53 | 36.33 | 9.46 | -7.00 | -14.12; 0.12 | 0.054 |
| **Site of mental health rotation (*N* = 166)** | | | | | | | | | |
| No rotation | 12 | 7.2 | 43.0 | 26–57 | 43.33 | 8.66 | Ref | - | - |
| Primary health care clinic | 2 | 1.2 | 39.5 | 31–48 | 39.50 | 12.02 | -3.83 | -14.61; 6.95 | 0.484 |
| Community health centre | 0 | 0.0 | - | - | - | - | - | - | - |
| District hospital only | 64 | 38.6 | 37.0 | 23–61 | 36.94 | 6.77 | -6.40 | -10.84; -1.96 | 0.005 |
| Regional hospital only | 47 | 28.3 | 36.0 | 22–53 | 35.77 | 6.78 | -7.57 | -12.13; -3.00 | 0.001 |
| Tertiary or central hospital | 21 | 12.7 | 39.0 | 29–58 | 39.81 | 7.49 | -3.52 | -8.63; 1.58 | 0.175 |
| Specialised psychiatric hospital | 4 | 2.4 | 34.5 | 27–42 | 34.50 | 6.14 | -8.83 | -16.98; -0.68 | 0.034 |
| Combination of two or more of the above sites | 16 | 9.6 | 38.5 | 25–53 | 38.50 | 7.82 | -4.83 | -10.22; 0.56 | 0.078 |
| **Additional mental health training since qualifying (*N* = 166)** | | | | | | | | | |
| Yes | 19 | 11.4 | 38.0 | 23–53 | 37.00 | 7.48 | Ref | - | - |
| No | 147 | 88.6 | 37.0 | 22–61 | 37.63 | 7.33 | -0.62 | -4.16; 2.91 | 0.727 |

s.d., standard deviation; CI, confidence interval.

**TABLE 3:** Multivariate linear regression model of characteristics associated with the Mental Illness Clinicians' Attitudes scale version 4 scores.

| Characteristic | Co-efficient | 95% confidence interval | *p* |
|---|---|---|---|
| **Age** | | | |
| 25–29 years | -2.20 | -4.37, -0.03 | 0.047 |
| **Current employer** | | | |
| Other | 7.42 | 0.34, 14.49 | 0.040 |
| **Mental health rotation** | | | |
| Yes | -6.63 | -10.82, -2.45 | 0.002 |

## Interest in additional mental health training

Almost 90% of the participants ($n$ = 149, 89.2%) indicated an interest (agree/strongly agree) in mental health short courses (Table 4). Two-thirds of the participants ($n$ = 111, 66.5%) indicated an interest in pursuing a specialisation in mental health. In bivariate analysis, interest in pursuing a specialisation in mental health was significantly associated with work setting and university where they studied. Clinical associates working in a private general practice (OR: 0.11, 95% CI: 0.13–0.94, $p$ = 0.044), private hospitals (OR: 0.08, 95% CI: 0.01–0.78, $p$ = 0.029) and those who indicated 'other' (OR: 0.05, 95% CI: 0.01–049, $p$ = 0.010) had significantly lower odds of being interested in pursuing a specialisation in mental health than those working in a primary health care clinic. Clinical associates trained at the University of the Witwatersrand had significantly lower odds (OR: 0.37, 95% CI: 0.18–0.77, $p$ = 0.008) of interest in a specialisation in mental health than those trained at the University of Pretoria. The other variables with a $p < 0.25$ that were included in the initial multivariate model were MICA-4 score, gender, province of current work, municipality, area of current work, rotation as part of the degree, length of mental health rotation and site of mental health rotation. Following stepwise elimination, the only variable that remained significantly associated with an interest in pursuing a specialisation in mental health was the

**TABLE 4:** Clinical associates' interest in working in mental health and additional mental health training.

| Item | Strongly disagree | | Disagree | | Neither disagree nor agree | | Agree | | Strongly agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % | *n* | % | *n* | % |
| **Interest in working in mental health** | | | | | | | | | | |
| I would be interested in doing mental health work at a PHC clinic ($N$ = 166) | 9 | 5.4 | 10 | 6.0 | 22 | 13.3 | 48 | 28.9 | 77 | 46.4 |
| I would be interested in working in a 72-h psychiatric observation unit in a district hospital ($N$ = 166) | 9 | 5.4 | 17 | 10.2 | 24 | 14.5 | 49 | 29.5 | 67 | 40.4 |
| I would be interested in working in a specialised psychiatric hospital ($N$ = 167) | 15 | 9.0 | 16 | 9.6 | 27 | 16.2 | 50 | 29.9 | 59 | 35.3 |
| **Interest in additional mental health training** | | | | | | | | | | |
| I would be interested in receiving additional training in mental health in the form of short courses ($N$ = 167) | 13 | 7.8 | 1 | 0.6 | 4 | 2.4 | 30 | 18.0 | 119 | 71.3 |
| I would be interested in pursuing a specialisation in mental health (e.g. 1- or 2-year honours degree or postgraduate diploma) ($N$ = 167) | 14 | 8.4 | 11 | 6.6 | 31 | 18.6 | 27 | 16.2 | 84 | 50.3 |

PHC, primary health care.

university where the clinical associate degree was completed with clinical associates trained at the University of the Witwatersrand having lower odds of being interested in pursuing a specialisation in mental health (OR: 0.44, 95% CI: 0.23–0.85, $p$ = 0.015) than those trained elsewhere.

## Discussion

The study aimed to determine the attitudes of clinical associates in South Africa towards working with those with mental illness. We used the MICA-4 scale that has been widely used globally to determine health professionals' attitudes towards mental illness. Scored out of 96, a higher score indicates more stigmatising attitudes towards mental illness.[22] The mean MICA-4 score of 37.55 (s.d.: 7.33) for clinical associates in our study is one of the lower scores among international studies that have used this scale indicating generally positive, or less stigmatising, attitudes. Mean MICA-4 scores above 50 have been reported by Eissa et al.[26] among medical residents and house officers in Egypt with scores of 51.0 (s.d.: 8.7) and 51.28 (s.d.: 8.2), respectively.[26] Several studies have reported mean MICA-4 scores above 40. A study in Baroda, India, among non-psychiatric consultants and residents at a tertiary hospital reported a mean MICA-4 score of 46 (s.d.: 9).[27] Ghuloum et al.[28] reported a mean MICA-4 score per question of 2.87 for nurses and 2.55 for doctors in Qatar, which equates to overall scores of approximately 46 and 41, respectively. A study in Saudi Arabia among tertiary hospital doctors reported a mean overall MICA score of 45.75 (s.d.: 7.54).[29] An online survey among doctors in Poland found a mean MICA-score of 40.26 (s.d.: 8.93).[30] At the lower end of the spectrum, a study among primary care doctors in four Latin American countries (Brazil, Bolivia, Chile, Cuba) reported a mean MICA-4 score of 36.3 (s.d.: 8.3) with no significant differences between countries.[31] A similar mean MICA-4 score of 36.31 (s.d.: 7.60) was found among midwives in Ireland.[32]

The MICA-4 scale has also been used in studies in sub-Saharan Africa and in South Africa specifically. An extremely high mean MICA-4 score (67.70) was found in a study that included both clinical and non-clinical departments at a Nigerian university and teaching hospital.[33] A study among PHC nurses in Addis Ababa, Ethiopia, also found a high mean MICA-4 score of 58 relative to other studies.[17] A recent study among nurses working at PHC facilities in a metropolitan municipality in South Africa reported a mean MICA-4 score of 40.68 (s.d.: 9.70).[34] Unsurprisingly, Eksteen et al.[35] reported a low mean MICA-4 score of 32.7 among psychiatrists in South Africa. There is a lack of data on attitudes towards those with mental illness among mid-level medical workers (such as clinical associates, physician assistants, clinical officers, physician associates, etc.) and an absence of studies that have used the MICA-4 scale in these cadres. However, the mean MICA-4 score for clinical associates in our study compares well to other health professionals both in Africa and in globally.

With respect to demographic and employment characteristics, we found that MICA-4 scores were only significantly associated with the age category 25 to 29 years and 'other' employment. It is not clear why clinical associates in this age group would have lower MICA-4 scores than both their younger (20 to 24 years) and older colleagues (30 to 34 years). It should be noted that the mean MICA-4 score for all age categories was lower than the mean MICA-4 score for 20 to 24-year-olds. In other words, very young clinical associates seem to have more stigmatising attitudes towards mental illness than those in their mid-20s and older. This finding is in contrast to the study among nurses in South Africa, which found that MICA-4 scores increased with age.[34] Studies among doctors in Latin America and Saudi Arabia that considered age as an independent variable did not find any association with MICA-4 scores.[29,31] Clinical associates in the 'other' category were those not employed by the main employers of clinical associates in the country. Given the diverse nature of the 'other' employers, it is not possible to interpret this finding.

While clinical associates trained at Walter Sisulu University had higher MICA-4 scores than their counterparts trained at the University of Pretoria and University of the Witwatersrand, the mean score of 41.19 is still at the lower end of the spectrum. In addition, no association was found between MICA-4 scores and university on multivariate analysis. One possible

explanation for this could be that Walter Sisulu University participants in the current study included a disproportionate number of the clinical associates that indicated they did not have a mental health rotation as MICA-4 scores were significantly associated with whether participants indicated that a mental rotation had formed part of their undergraduate clinical associate degree. Those participants who indicated that a mental health rotation formed part of their training had significantly lower MICA-4 scores. The curricula of all three universities that offer clinical associate undergraduate degrees include a mental health rotation but at two of the universities the practical training in mental health has been previously been found to some extent to happen by chance.[19] It is possible that those who indicated they did not have a mental health rotation either did not have any contact with patients with mental health conditions in the rotation, that is, minimal exposure or could not recall the experience. There is some evidence that mental health exposure during training results in less stigmatising mental illness attitudes. A number of international studies that have measured medical students' attitudes towards mental illness before and after a psychiatry rotation have found improvement in attitudes following a rotation when compared to a baseline.[36,37,38,39] A study at Stellenbosch University using the Attitudes to Mental Illness Questionnaire found a significant improvement following the psychiatric rotation of fifth and sixth year medical students.[40] Using the Mental Illness Clinical Attitudes Version 2 scale (MICA-2), Eksteen et al.[35] reported a MICA-2 score of 43.9 in fifth year medical students prior to any psychiatry training compared to a mean score of 42.0 in sixth year medical students who had completed their psychiatry training.

There was substantial interest among study participants for additional training in mental health in the form of short courses. This finding may reflect both an interest in mental health as well as an acknowledgement of gaps in their undergraduate training. A number of gaps in the undergraduate mental health training of clinical associates have been identified in a study that explored the mental health curricula content of the three undergraduate programmes in South Africa.[19] The duration of mental health training at undergraduate level has also been raised as a reason why short courses may be necessary.[21] Short courses in mental health may also increase the confidence of employers in allowing more active involvement of clinical associates in the mental health service provision at their institutions.[21]

The interest in a specialisation in mental health in the current study was much higher than anticipated with almost two-thirds of the participants indicating they would be interested. While this may reflect a genuine interest in specialisation in mental health among a large proportion of clinical associates, there may be other explanations for this. It is possible the survey attracted clinical associates who had a pre-existing interest in mental health and the interest in the overall clinical associate population would be lower. The absence of career-pathing for clinical associates and the availability of only one Honours degree option in emergency medicine may have predisposed the participants to showing interest in any specialisation opportunity.[21] We found that clinical associates trained at the University of the Witwatersrand had significantly lower odds of being interested in pursuing a specialisation in mental health. The three training programmes have different approaches to mental health including types of sites used for training, duration of training and levels of practical exposure to mental health patients.[19] These approaches may have some influence on interest in pursuing a specialisation in mental health.[41] It is possible that adequate exposure to a discipline may actually create more certainty that an individual does not want to pursue it as a specialisation. More students from the University of the Witwatersrand may have been aware of an alternative opportunity, namely, the Honours degree in emergency medicine as it is only offered at that institution.[42] This knowledge may have influenced their interest in a mental health specialisation.

More than 80% of participants showed interest in working in mental health at various levels of the health system with mental health work at PHC clinics being the most popular option. Given that clinical associates are generally trained at district hospitals[43] and the majority of posts for them in the public sector are at district hospitals, this is an interesting finding as it suggests a desire to contribute at PHC facilities in mental health and perhaps more broadly. While working at specialised psychiatric hospitals was the least popular of the options provided, the interest was still considerable at 65.2%. An increase in the MICA-4 score significantly reduced the odds of interest in mental health work as did working in North West province. It is unsurprising that participants with more stigmatising attitudes towards mental illness were less likely to be interested in mental health work. It is not readily apparent why working in North West province in particular would be linked to less of an interest in mental health work. There may be local issues with respect to mental health service provision that impacts interest in wanting to work in the field.

## Limitations

The authors tried to reach as many clinical associates as possible through their professional organisation, alumni databases and social media. However, it is not clear how many were eventually reached and how representative they were of the clinical associate population in South Africa. Incentives were offered to encourage participation, but it is possible that a proportion of participants did so because of a pre-existing interest in mental health and would have more positive mental illness attitudes than those that chose not to resulting in selection bias. Nevertheless, the crude numbers alone in this study provide sufficient evidence for interest in mental health work and additional training to make these viable options. The questionnaire used in the study was relatively lengthy and therefore a number of the participants did not complete the questionnaire. The smaller than expected initial number of participants in the study exacerbated by this drop off did affect the statistical power with respect to the inferential statistics (linear and logistic regression). Despite this, the authors were able to find some significant associations.

## Conclusion

The mean MICA-4 score recorded for clinical associates in this study is among the lowest recorded among non-specialist health professionals indicating low mental illness stigma levels. Clinical associates' attitudes towards mental illness coupled with their interest in working and training in mental health suggests that they could be more widely utilised in mental health service provision. There appears to be willingness among clinical associates to attend short courses in mental health, which is an option to close the gaps that exist in undergraduate training. A postgraduate specialisation in mental health for clinical associates is likely to attract considerable interest should it be offered in the future.

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### Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

### Authors' contributions

The study was conceptualised by S.V.M. S.V.M. developed the study methodology with input from J.W. and C.G. The data were analysed by S.V.M. who prepared the first draft of the article. J.W. and C.G. reviewed the article and made additional inputs.

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### Data availability

Data are available on reasonable request from the corresponding author, S.V.M.

### Disclaimer

The views expressed in this article are those of the authors and not an official position of the University of Pretoria and the publisher.

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# CHAPTER 5: MANUSCRIPT ADDRESSING OBJECTIVE 3

Chapter 4 presented the findings regarding the knowledge, confidence, attitudes, and practices of clinical associates related to the assessment and management of mental illness. While there was good self-reported knowledge of mental disorders, there appeared to be confidence deficits in carrying out aspects of the mental health assessment such as taking a mental health history and carrying out a mental health examination. The majority of participants were already involved in mental assessment and management and showed low levels of stigma. There was also considerable interest in mental health-related work and advanced training in mental health.

Chapter 5 addresses the third objective of the thesis which was to describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates. The successful utilisation of clinical associates in mental health service provision requires health managers as well as medical doctors and nurses involved in mental health service delivery to see the need for task sharing in mental health and be supportive of the idea of the involvement of clinical associates. This chapter consists of a single manuscript *Views of mental health service provision in South Africa and the potential role of clinical associates* and the intention is to submit this manuscript to the International Journal of Mental Health Systems. The paper has formatted based on the author guidelines for this journal which can be found in Appendix G.

# Views of mental health service provision in South Africa and the potential role of clinical associates

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## Abstract

### Background

A constraint in South Africa's mental health system is the human resources required to provide services. Given the shortage of specialist mental health professionals, the use of non-specialists such as clinical associates in mental health task-sharing is essential. The study aimed to explore key stakeholders' views in four districts of South Africa on the scale of mental illness seen in their health services, their human resources challenges, and their attitudes towards mental health task-sharing involving clinical associates.

### Methods

An exploratory, qualitative study was conducted. Focus group discussions were conducted in one district in each of the four provinces where clinical associates were known to be employed. Focus group participants were purposively sampled to ensure that each focus group consisted of a combination of managers and healthcare professionals from hospital and primary health care levels. Audio recordings were transcribed, and thematic analysis was conducted.

### Results

A total of 29 individuals participated. Four themes emerged from the focus group discussion. The first theme to emerge was 'mental illness is not going away' with substance use, increasing numbers of younger patients, and high rates of relapse and readmission accounting for this. The second theme identified was 'the health system cannot cope with mental illness' as mental health had not been prioritised and this had resulted in a lack of mental health units and beds, deficiencies at primary health care level, and human resources for mental health challenges. The third theme was 'clinical associates could be part of the remedy' based on past experience in other disciplines but constraints such as their scope of practice would need to be addressed. The final theme identified was 'specialised clinical associates could help mend the mental health system' but this would require a review of employment policies and a clarification of their roles.

**Conclusions**

Mental health is a significant and expanding concern. Clinical associates could help alleviate human resource constraints in mental health with enhanced undergraduate and advanced training. However, overcoming structural barriers such as their scope of practice, regulatory issues, and the creation of posts will be crucial to realise their potential contribution.

**Key words:** mental health, mental illness, psychiatry, clinical associates, mental health workforce, task-sharing, focus groups

## Background

The mental health system in South Africa (SA) faces numerous challenges. Despite having mental health legislation and policy that is considered to be progressive and comprehensive, there has been a failure regarding implementation of this legislation and policy within SA's already overburdened health system [1, 2]. Challenges related to governance include the low prioritisation of mental health, the lack of managerial and planning capacity at provincial and district level, and weak intersectoral collaboration [1]. The vast majority of SA's population are uninsured and rely on SA's public healthcare sector for their health services including those for mental health [3]. Less than 5 % of SA's total health budget was spent on providing mental health services in the public sector in the 2016/17 financial year with wide disparities in per capita expenditure between the provinces [2]. Inpatient care accounted for 86% of mental healthcare expenditure in this period [2]. Modelling by Docrat *et al.*[2] suggests that a miniscule proportion of the uninsured population requiring mental healthcare actually received inpatient care (0.89%) or outpatient care (7.35%) in 2016/17. Significant mental health system challenges that have been identified include the lack of a dedicated mental health budget, infrastructure constraints, medication supply issues, and mental health workforce availability [1, 2].

A key constraint of SA's mental health system is the human resources required to provide mental health services. van Rensburg *et al.*[4] reported a ratio of 1.53 psychiatrists per 100 000 population in 2019, with the majority of psychiatrists concentrated in urban centres. Access to specialist mental health professionals in rural areas in SA is a challenge [4-6]. Substantial disparities exist in access to psychiatrists between the private and public sector with Docrat *et al.*[2] estimating that there were only 0.31 psychiatrists in the public sector per 100 000

uninsured population in 2018 [2]. This ratio is significantly lower than the target of 1.03 psychiatrists per 100 000 population for SA suggested by Bruckner *et al.*[7]. This ratio was 0.15 or less in five of the nine provinces with only 0.08 psychiatrists in the public sector per 100 000 uninsured population in Mpumalanga [2]. The ratio of psychologists in the public sector per 100 000 uninsured population was 0.97 in 2018 [2]. These ratios for public sector occupational therapists and public sector social workers were 1.53 and 1.83 per 100 000 uninsured population respectively [7]. In addition to the numbers of personnel available to deliver mental health services, other human resources challenges that have been identified including the creation of appropriate posts, inadequate pre-service training in mental health for non-specialists, a high workload and high turnover of staff, and resistance and negative attitudes of non-specialists to treat mental health patients [1].

Given the shortage of specialist mental health professionals, the use of non-specialists in mental health task-sharing is essential. In addition to medical officers and registered nurses, clinical associates could potentially be utilised to deliver mental health services. Clinical associates are a mid-level medical worker that complete a three-year undergraduate degree and this training is mainly district-hospital based with early clinical involvement [8]. The intention of the training is to prepare them to diagnose and manage common medical conditions at primary care and district hospital levels working under the supervision of a medical doctor [9]. The Regulations[10] governing their scope of practice includes tasks related to mental health and the three undergraduate training programmes in SA all have a mental component that includes two to four weeks of site-based training in their final year of study [11]. Interviews with academics and clinicians involved in their training and class representatives found strong support for role for clinical associates in delivering mental health care [12]. There is evidence that a number of clinical associates are already engaged in mental health-related work in SA[13] as are similar cadres in other parts of Africa and in the United States of America [14-17]. The broader use of clinical associates in mental health service provision in SA would depend (amongst other factors) on the perceived current need for their involvement in the mental health system and acceptability of mental health task-sharing involving clinical associates to managers and clinicians involved in mental health. The study aimed to explore health managers', medical doctors' and registered nurses' views in four districts of South Africa on the scale of mental illness in their health services, mental health human resources challenges faced, and their attitudes towards mental health task-sharing involving clinical associates.

## Methods

### Study Design

An exploratory, qualitative study was conducted.

### Study setting

Focus group discussions were conducted in four districts of SA (one per district) where clinical associates were known to be employed (Table 1).

**Table 1. Participating districts**

| Province | District | Focus group duration (minutes) |
|---|---|---|
| Eastern Cape | Sarah Baartman | 67:05 |
| KwaZulu Natal | eThekwini* | 89:50 |
| Mpumalanga | Gert Sibande | 58:17 |
| North West | Dr Kenneth Kuanda | 74:14 |

* a metropolitan municipality

### Study population and sampling

The study population were doctors and registered nurses involved in mental health service provision as well as health managers in the study sites. Participating health managers were those that were responsible for mental health at district (or subdistrict) level and managers of hospitals, community health centres (CHCs), or primary health care (PHC) clinics. Participating registered nurses and doctors were those treating mental health patients at hospitals where clinical associates were employed. Participating registered nurses and doctors from CHCs or PHC clinics were drawn from those that offer mental health services but were not required to have clinical associates on their staff establishment. Focus group participants were purposively sampled to ensure that each focus group consisted of a combination of managers and clinicians as well as participants from hospital level and PHC facilities. The number of participants comprised between 6 and 8 participants [18].

### Measurement tool

A focus group discussion guide with open-ended questions (and probes) was developed for this study. Focus group questions included the participants' perceptions of the scale of the mental health problem in their district, their views on whether there were sufficient human resources to address it, and their views on whether clinical associates have a role to play in mental health

task sharing. Test interviews were conducted prior to the focus groups with a clinician and hospital manager who were not part of the study to explore language and clarity of the questions [19].

**Data Collection**

Potential participants were identified with the assistance of a hospital manager and a manager, or clinician, from the district. They were contacted initially by e-mail or telephone (depending on what contact information was available) to brief them about the study. Further information including the informed consent document was e-mailed to those who indicated interest in participating. Most interviews were conducted in the boardrooms of the hospitals where the hospital-based participants worked. One of the focus groups was held in a private venue due to the long distance to the hospital for the non-hospital-based participants. Refreshments were provided prior to the start of each of focus group. The researcher acted as the focus-group facilitator and there was an observer present at each of the focus groups. The focus groups commenced with a review and signing of the informed consent document and the interviewer taking the participants through the processes to be followed e.g. referring to each other by their allocated numbers rather than names during the interview. The duration of each focus group is shown in Table 1. Focus groups were recorded using two audio recording devices placed in different locations [20].

**Data Management and Analysis**

The recordings were uploaded and stored on password-protected computer. Backup copies were stored in a password-protected cloud account. A professional transcription service was used to transcribe the focus group discussions. The transcripts were sent back to focus group participants for member checking. The transcripts were then imported into Atlas.ti version 23 for analysis. The analysis process began by reading through the text, memoing emergent ideas, and forming initial codes [20]. The codes were then grouped into categories [20]. Subthemes and themes were then generated.

**Processes to ensure quality of research**

Techniques used to ensure the trustworthiness of the data included the presence of an observer at each focus group, ‘thick description’, peer debriefing, member checking, iterative data analysis, and maintaining an audit trail [21].

## Results

### Participant characteristics

There was a total of 29 participants across all four focus groups. Just under of half of the participants (n=14, 48.3%) were between 40 and 49 years of age and just over half of participants (n=15, 51.7%) were female. The majority of participants were registered nurses (n=17, 58.6%) and 12 (41.4%) were medical doctors with three of these indicating they were medical specialists. A total of 13 participants (44.8%) had management roles with nine of these having purely managerial roles. The characteristics of the focus group participants are shown in Table 2. The districts have been randomly designated as A, B, C, or D to protect the confidentiality of participants.

**Table 2. Focus group participant characteristics**

| Characteristic | District A (N=6) | District B (N=8) | District C (N=7) | District D (N=8) | All (N=29) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| 20 – 29 years | 0 | 1 | 0 | 1 | 2 (6.9%) |
| 30 – 39 years | 0 | 1 | 1 | 1 | 3 (10.3%) |
| 40 – 49 years | 5 | 3 | 4 | 2 | 14 (48.3%) |
| 50 years and older | 1 | 3 | 2 | 4 | 10 (34.5%) |
| **Gender** | | | | | |
| Male | 5 | 3 | 3 | 3 | 14 (48.3%) |
| Female | 1 | 5 | 4 | 5 | 15 (51.7%) |
| **Professional Category** | | | | | |
| Medical Practitioner – Specialist | 1 | 0 | 1 | 1 | 3 (10.3%) |
| Medical Practitioner | 3 | 2 | 2 | 2 | 9 (31.0%) |
| Registered Nurse | 2 | 6 | 4 | 5 | 17 (58.6%) |
| **Current Position** | | | | | |
| Clinical | 3 | 4 | 4 | 5 | 16 (55.2%) |
| Management | 1 | 3 | 2 | 3 | 9 (31.0%) |
| Mixed role | 2 | 1 | 1 | 0 | 4 (13.8%) |
| **Work Setting** | | | | | |
| District office | 1 | 2 | 1 | 2 | 6 (20.7%) |
| Hospital | 2 | 3 | 1 | 3 | 9 (31.0%) |
| CHC/Clinic | 2 | 3 | 4 | 3 | 12 (41.4%) |
| Two or more of the above work settings | 1 | 0 | 1 | 0 | 2 (6.9%) |

### Themes and subthemes

Four themes with multiple subthemes emerged (Table 3).

**Table 3. Themes and subthemes**

| Themes | Subthemes |
|---|---|
| Mental illness is not going away | Mental illness is on the rise |
| | A surge of substance-related presentations |
| | A broad spectrum of disorders and presentations |
| | Patients are getting younger |
| | High rates of relapse and readmissions |
| | Social determinants as drivers of mental illness |
| The health system cannot cope with mental illness | Mental health is not prioritised |
| | A shortage of mental health units and beds |
| | Deficiencies at primary health care level |
| | Human resources for mental health constraints |
| Clinical associates could be part of the remedy | Clinical associates' current roles are limited in mental health |
| | Past experience of other disciplines suggests their potential usefulness |
| | Constraints and barriers in fulfilling a role in mental health |
| | Potential roles for clinical associates in mental health and the benefits in utilising them |
| Specialised clinical associates could help mend the mental health system | Specialisation will allow clinical associates to add value |
| | Specialisation necessitates review of employment and related policies |
| | Specialisation necessitates clarification of roles of specialist clinical associates |
| | Specialisation should be part of the career ladder |

### Theme 1. Mental illness is not going away

#### Subtheme 1.1. Mental illness is on the rise

Participants reported that mental illness was a substantial problem in all of their districts. One psychiatric nurse (District C) mentioned that she was seeing up to 120 mental health patients per day at her CHC. Patients in the District D reportedly spend time waiting in casualty for beds to become available due to the large number of mental health admissions. The numbers of mental health cases were on the rise in their districts, which may be partly due to increased awareness by the public on the one hand. On the other hand, even though the numbers are on the rise, only a small proportion of those with mental health issues are being identified: *"we are aware it is a huge problem but we are really only managing the tip of the iceberg."* (Medical doctor 2, District D)

**Subtheme 1.2. A surge of substance-related presentations**

The most common mental health presentations were substance-related with participants noting *"a surge in the substance-induced psychiatric disorders"* (Nurse 3, District C) and "*the soaring surge of drug addiction that is taking place in the townships*" (CHC-based manager 2, District C). Substance-related presentations included psychosis and aggression due to use of alcohol, cannabis and *nyaope*. The increased access to some substances due to some being "legalised" was mentioned as a possible reason for the rise in substance-related presentations. An apparent increase in substance-related presentations in females was a cause for concern.

**Subtheme 1.3. A broad spectrum of disorders and presentations**

Depression was a common presentation at PHC level, but patients with aggression, parasuicide, anxiety including generalised anxiety disorder, schizophrenia, bipolar disorder, and dementia were also seen. Identification was not always straightforward as "*in the clinics some of the people they hide behind physical diseases, they don't want to come out that they're having a mental challenge because of the stigma and discrimination*". (Nurse 1, District B) Many patients end up at hospital due to late presentation because of stigma or a lack of awareness. Participants were seeing patients with the same conditions such as depression, anxiety, schizophrenia, and bipolar disorder in the hospitals, with the notable addition of HIV-associated psychosis:

> "*And then in a hospital setting we are still seeing a large number of patients who present with RVD, HIV associated psychosis…psychosis being the first manifestation of retroviral disease, so they're actually diagnosed for the first time upon that presentation, which you know, it speaks to our screening processes for HIV as well. And those patients actually are quite difficult to treat because you have the psychosis and then you need the patient to have insight in order to start ARVs. So, it becomes a huge challenge for us in the hospital setting."* (Medical specialist 1, eThekwini)

**Subtheme 1.4. Patients are getting younger**

A concern raised was the increase in younger patients who present with mental health issues. Participants were seeing children present with attention deficit hyperactivity disorder, learning difficulties, behavioural disorders, depression, anxiety, and some that are suicidal. High levels of anxiety and depression were noted in the student population. These presentations sometimes included psychotic features and parasuicide. One participant (Medical doctor 2, District A) estimated that 80% of the mental health patients they were seeing at their hospital outpatients'

department were between the ages of 15 and 30 years. The increase in presentations amongst adolescents and young adults was attributed to substance use: "*So, most of the trend that is up and up is amongst youth who are using drugs and they are aggressive and you don't know whether it's psychosis, or it's just plain thuggery."* (Medical doctor 1, District A)

**Subtheme 1.5. High rates of relapse and readmissions**

The high rates of relapse among mental health patients and the need for readmission was a common experience. The reasons provided for this included patients defaulting treatment, the lack of rehabilitation facilities and beds for substance-related problems, and lack of appropriate social support. A few explanations were offered for the 'revolving door syndrome':

> "*…despite the patient requiring a higher level of care, they're not actually getting assessed and managed by a person that has any additional qualification. So, it contributes to that revolving door syndrome where not much has changed when the patient is discharged and then down referred to the CHC"* (Medical specialist 1, District C)

> *"…as a hospital we are doing this much, and then we are sending the same patient to the same environment that one was in. Meaning that we are just going round circle."* (Hospital-based manager, District D)

> "*…a revolving door that you come, you're seen, go back to the situation, there's no rehabilitation, there's nothing. And then it becomes a huge problem because we can't manage and we can't contain it because of that neglect."* (District-based manager, District D)

**Subtheme 1.6. Social determinants as drivers of mental illness**

The socioeconomic circumstances of individuals and communities was driving the high rates of mental illness. In particular, high unemployment in their districts was mentioned as the underlying reason for acute stress and substance use. It was also thought that unemployment was driving the youth to join gangs where they have to comply with the substance use norms of the group. The fragmentation and breakdown of community support structures was also playing a role in the increase in mental health issues particularly those related to substance use. Gender-based violence was linked to the increase in mental illness among women. The stress

of women being the main breadwinner in many families may also be contributing to the rise in mental illness in females:

> *"So, in fact, the cause of most of this cases to increase amongst women is that the women now are the ones who are breadwinners in their families. They are the ones who take responsibility of the kids and ensure that the children end up eating. Where the husband or their partners they don't care. They concentrate on alcohol and other stuff; they use their money there. And that women … have the stress of managing everything at the same time*" (District-based manager, District A)

**Theme 2. The health system cannot cope with mental illness**

**Subtheme 2.1. Mental health is not prioritised**

The lack of prioritisation of mental health by the authorities with respect to financial and human resources was highlighted by participants. It is still considered the "*step-child of health*" (Nurse 3, District B). One participant noted that their provincial budget for mental health was so meagre that they could not do the necessary training to upskill staff or hire specialised staff. The consequences of the lack of long-term lack of prioritisation and planning was noted: "*But because of the neglect from the health department itself, because we never seriously, you know, looked at mental health as a challenge and as a problem, and now we are reaping the fruits of that neglect…"* (District-based manager, District D)

The failure to implement the Mental Health Policy Framework For South Africa And Strategic Plan 2014-2020[22] was mentioned:

> *"…if you take a closer look at the framework, which is a national theme, to me it has failed and if that has failed, I mean, everything going downwards, because it talks about resources, it talks about capacitation, it talks about all those things."* (Nurse 3, District B)

**Subtheme 2.2. A shortage of mental health units and beds**

A lack of facilities to deal with mental health patients was raised as a concern. In one of the districts, there is only one designated mental health unit in the entire province and in two districts, there is such a shortage of inpatient beds, that mental health patients end up spending long periods in casualty*:*

*"…acute presentations that are being admitted for 72 hours in a hospital setting, where we frequently have a shortage of beds; and so patients have to often spend their 72 hours of observation in a casualty…which is not ideal"* (Medical specialist, District C)

The shortage of beds at tertiary level result in delays in referring patients requiring higher levels of specialised care, and families often do not want to accept patients back post-discharge which further exacerbates the shortage. The rise in adolescent presentations added a further challenge as "*we didn't really cater for that…we don't have beds for adolescents, then now you suffer because you must close one ward for one person for a long time.*" (District-based manager, District D) Given the high rates of substance-related presentations in all of the districts, the lack of rehabilitation facilities and beds is a major challenge:

*"…those who are willing maybe to go for rehab we're having challenges because the list is too long. They end up going back to the community. And if they are willing to quit, they usually relapse. And the cycle goes on and on and on"* (Medical specialist, District A)

**Subtheme 2.3. Deficiencies at primary health care level**

The system-wide dysfunction is obvious: "*If you look at the district system now of mental health, it is also in disarray. The whole mental health management in the primary health setting and in the health system is not functioning*." (CHC-based manager 2, District C) A shortage of psychiatrists has resulted in the lack of specialist outreach to CHCs. There is an absence of mental health specialist teams covering community services. The limited list of psychotropic medication that can be prescribed at PHC level and the stockouts hamper service delivery. Filling scripts for chronic mental health patients at PHC level was a challenge because of the lack of medical officers who are required to sign the prescriptions. Transferring patients, particularly those that are aggressive, from PHC level to hospitals is hampered due to the lack of appropriate means of transport. The lack of data being collected at PHC level with respect to mental health has a detrimental effect as the scale of the problem cannot be quantified.

The need for screening and early detection of mental health issues was acknowledged but there *"isn't sufficient effort to try and detect mental illness at the primary healthcare level"* (CHC-based manager 1, District C). One explanation was that there is little point to screen at PHC level if they cannot provide treatment or care. The lack of screening tools for child and adolescent patients is a gap.

The system dysfunction extends to the overlooked potential role of community health workers in community-based prevention and early detection of mental illness as the dominant approach is still curative and hospi-centric:

> *"Which then is compounded by the fact that the approach is very much a hospi-centric approach. In other words, we wait in hospital for people to be sick enough to get to somebody who has the level of skill required to make the correct diagnosis and then link them to care and put them on the correct treatment"* (CHC-based manager 1, District C)

**Subtheme 2.4. Human resources for mental health constraints**

The care and treatment of those with mental illness needs appropriately skilled personnel, who are in short supply: "*we end up seeing more people because of the shortage of human resources. Actually, I can say, the shortage of well-equipped personnel. Because they can be there, but then not well-equipped to assist in the problem at hand.*" (Nurse 1, District C) Concerns were raised regarding the ability of non-specialist health professionals to adequately address mental illness: "*we have nurses that are dealing with those, and you find that others are not even trained. They don't have the skill to do that."* (Hospital-based manager, District D) The ability of medical officers to manage mental health patients was called into question: *"So definitely our doctors lack adequate psychiatric knowledge and training to be able to be the first point of contact…"* (Medical specialist 1, District C) There was a lack of training opportunities for non-specialists. It was felt that nurses and medical officers needed ongoing refresher training in mental health and for medical officers to complete the Diploma in Mental Health. One of the training gaps identified among medical officers was on the documentation needed to be completed in terms of the Mental Health Act, 2002. In one district, the medical officers at PHC level are generally those doing their one year of compulsory community service which brings its own complications: "*every other day it's the community service doctors. They don't have any knowledge at all with regards to psych, so that leaves my colleague and myself with like 22 years of psych experience and advance psych training to assist them*". (Nurse 3, District C) One participant bemoaned the fact that 12 months is spent transferring skills to these doctors who then leave at the end of their community service.

The universal concern is the shortage of key members of the specialised mental health workforce with one district reporting that they do not have any psychiatrists while two others had access to a single psychiatrist only. The shortage of psychiatrists also meant there was a

lack of capacity in the districts to provide in-service training to non-specialists. Psychologists are also in short supply with the result that when the waiting time is too long for an appointment, patients never return. The shortage extends to the lack of specialised registered nurses and social workers which adds to the inefficiencies in the system. For example, a psychiatric nurse based at a CHC (Nurse 1, District C) described how they sometimes have to send patients home without being assessed and ask that that they come back the following day because they are so overwhelmed. The lack of multidisciplinary teams means that patients might only see a single practitioner who cannot address all the patient's needs: "*we don't have holistic teams…so maybe I might be prescribing but there's huge other issues, which I think we often at our level, and it sounds like every level, feel overwhelmed actually.*" (Medical doctor 2, District D)

**Theme 3. Clinical associates could be part of the remedy**

**Subtheme 3.1. Clinical associates' current roles are limited in mental health**

Although clinical associates are in a variety of settings in the different districts, none of these include mental health settings beyond outpatient departments and emergency departments. Those at PHC clinics may be seeing mental health patients as part of the general patient population but there was a concern that they may be missing a number of these patients. There was a reluctance to place clinical associates in a specialised mental health setting: "*So, for us, to be honest, in terms of mental health per se, we've shied away actually to put a clinical associate into that clinical discipline."* (Hospital-based manager, District B)

**Subtheme 3.2. Past experience of other disciplines suggests their potential usefulness**

Participants acknowledged the added value that clinical associates bring to the health system and were complimentary of the work that they do in other areas: "*very efficient when it comes to treating patients and also picking up diagnoses. I wouldn't say I've had any problems."* (Medical doctor 1, District D). Past experience of their added value was extended to their potential role in mental health: "*you know they are not the same but some of them have performed incredibly well and have shown that they can cope incredibly well in other situations. And I have no doubt that they could do the same here in psychiatry if they were to be given the adequate training"* (CHC-based manager 1, District C), and: "*my opinion is that they can work in any department as long as there's supervision. So, it's not only about mental health, even general medicine, if there's no supervision there will be mistakes."* (Medical Doctor 1, District A)

Retaining clinical associates in the public sector is a key success factor as experience counts:

> "*What happens when they land, I would say when they first come from the university, they are a little bit on shaky ground, so most of them they're still behind. But with time I think we've had others that have been with us for five/six years, you can say that actually these function, they're usually much better than most of the doctors actually that are there."* (Hospital-based manager 1, District B)

> *"Because like the rest of us, when you start working your training hasn't prepared you for everything and as long as you are able to learn…and also a huge thing in my personal experience is having a support of specialists or people that you can phone. So, it's the ability to recognise things and then to seek help when you're unable to manage it and learn from that."* (Medical doctor 2, Sarah Baartman)

**Subtheme 3.3. Constraints and barriers in fulfilling a role in mental health**

The limitation of their scope of practice restricts their potential usefulness in mental health: *"the issue of limitation in terms of their scope of practice. That's where we are encountering the problem."* (District-based manager 1, District B) It was noted that circumstances on the ground (e.g. shortage of medical officers) has dictated that some clinical associates *"have gone beyond their scope of practice."* (Hospital-based manager 1, District B) A significant limitation and cause of inefficiency is that unlike some nurse practitioners, clinical associates need their prescriptions to be countersigned by a medical doctor: "*they're just clipping their wings, the fact that they cannot prescribe."* (Clinic-based manager 1, District B) As one of the motivations for the creation of this cadre was to supplement the shortage of medical doctors in the public sector, a rational solution would be to amend the legislation: *"although the law says no dispensing, let the law be amended in such a way they do the dispensing course and then if they qualify then you allow them actually to dispense."* (Hospital-based manager 1, District B). The example and positive outcomes of registered nurses being allowed to prescribe and dispense medication at PHC level was thought to be similar enough to argue for the change in legislation. Another area of legislation that needs to be changed is the Mental Health Care Act, 2002[23] as mental health care users are "*supposed to be examined by the medical doctor. The Act doesn't … cater for clinical associates to examine the patient."* (District-based manager 1, District A)

The restriction of supervision for clinical associates poses a particular challenge at PHC level as there are many in PHC clinics without medical officers. The envisaged benefit of supplementing the shortage of medical doctors is hampered as *"sometimes* [it] *is more work, because now it's two people seeing the same person, versus one person seeing them."* (Medical specialist 1, District C). Busy medical officers have to supervise clinical associates in addition to managing patients, which is a risk of as clinical associates might not receive appropriate supervision leading to errors.

Currently, clinical associates are not equipped *"to conduct the proper mental health assessment. They would not even be able to give a provisional formulation of a diagnosis.*" (Nurse 3, District B) The few weeks of training in mental health in their undergraduate curriculum was viewed as inadequate on its own. While strengthening the undergraduate training programme was one option, it could also be addressed after they qualify through working in a supportive environment and additional training:

> "*…with the capacitation as we always do when people come…you are never ready for all the things. But when people come, we do take them through and there are courses that we send people to, then we can prepare them and refocus them so that they can manage and they will be able to manage, and with additional training and refocusing them upon mental health."* (District-based manager 1, District D)

The competencies required to manage mental health patients take years to develop as these patients tend to be complex and differences in diagnoses are often quite subtle. Potential incorrect and missed diagnoses by clinical associates could have medico-legal implications particularly with respect to complex cases such as suicidal patients and children. It was noted that children were particularly challenging to assess and diagnose with respect to mental health. In addition, there are those who apply for disability grants for mental health issues and whose assessment requires substantive competence. Given clinical associates are a relatively new health cadre in SA, their acceptance by mental health patients and their family members is a potential barrier: "*And from the public point of view, how receptive is the public going to be and how comfortable are they going to be that my ill relative or child is going to be assessed and diagnosed by clinical associates.*" (Medical specialist 1, District C)

**Subtheme 3.4. Potential roles for clinical associates in mental health and the benefits in utilising them**

Clinical associates could be a welcome addition to the multidisciplinary team despite their current shortcomings as they can assist in addressing the lack of mental health services:

> *"I think so we could allow them to focus on mental health and help us in that space, because as you can see, we are really suffering when it comes to mental health, and probably because the service, as I said, was never planned, was neglected. So now in refocusing on mental health, like we are primary healthcare reengineering, I'm sure we are mental health reengineering, so we could make a platform that includes a clinical associate especially in our district because we don't have the services at all. We are failing as far as mental health is concerned."* (District-based manager 1, District D)

The role definition at PHC level would be to screen, make an early diagnosis and manage patients who are referred back to PHC after specialist care. They would, therefore, have a role to play prior to referral, once the patient is down referred, and with the "linkages". It was noted that at PHC level, mental health patients are integrated into the general patient workload to avoid stigma so clinical associates should be able diagnose and manage a wide range of common physical and mental health conditions and presentations. At hospital level, they could be used in casualty to do the initial assessment of patients presenting with mental health issues as well as work in 72-hour observation units as many of the tasks may not require extensive mental health knowledge and skills: "*you fill the form, you have the blood to be taken, you manage, you rule out any general medical condition, and then you transfer if the patient need to be transferred, you see. I think in our institution that is feasible."* (Medical specialist 1, District A) Clinical associates could be involved in mental health outreach and education in communities as well as monitoring adherence to psychotropic medication as part of home visits.

The lessons learnt in scaling up treatment for HIV is analogous with the use of clinical associates in the provision of mental health services:

> *"So, we are never going to be able to create sufficient psychiatrists to be able to match the demand that we are facing at the moment... And I make this analogy deliberately that says that with ARV medication now the number of people that are on ARV medication is huge, and it is not because we've got sufficient specialists, it is because there was a transfer of skills to the nursing personnel to ensure that we are able to reach the large*

*numbers of people. If we agree that the number of mental health cases has increased then we do need to think beyond just training more specialists."* (CHC-based manager 1, District C)

**Theme 4. Specialised clinical associates could help mend the mental health system**

**Subtheme 4.1. Specialisation will allow clinical associates to add value**

Postgraduate training in mental health for clinical associates was viewed as a natural solution to address the complexities of mental health: "*It will help a lot if they have that mental health training of which to me it will be something like … a diploma. So, if they do have that capacitation, I think they will also assist us a lot."* (District-based manager 1, District B) Additional training would help to close gaps in their skills, reduce the chances of mistakes, increase confidence of supervisors in their abilities, and make them more useful. An additional year of training was proposed as one of the ways to ensure competence to work in mental health:

*"…how about they qualify, then maybe you plan an additional one year in psychiatry, then put them there, rather than sending them with only a four weeks training or exposure. How about they are clinical associates then they have additional one year, at least, maybe two…more of an assistant. And then after that they can be deployed to wherever to assist. I believe that one year can be better."* (Nurse 1, District C)

The creation of specialist clinical associates would address the reality of having medical officers without the appropriate training. These clinical associates would be more equipped than community service doctors who are currently expected to assess and initiate treatment for mental health patients at PHC level. Building on the lessons learnt in the HIV pandemic, clinical associates with advanced training in mental health could have a substantial impact:

*"We realised we didn't have enough medically trained people to be able to tackle the vast numbers of people that needed ARV medication. And training nurses, there's NIMART training with nurses, and trying to bring them in, I believe has made a massive impact to ensure that people are…after diagnosis, are linked to care, and are maintained on that."* (CHC-based manager 1, District C)

These clinical associates could potentially also add value to multidisciplinary teams where these exist. Not all participants agreed, as it might be more efficient to focus on the existing cadres rather than pursuing advanced training for clinical associates. One participant expressed

the view that additional training for clinical associates may still not be adequate given the complexity of mental health patients and could potentially give a false sense of security: "*And if we are going to be going to that safety net that this person's now had additional training so they should be confident to be on their own, we're going to miss these cases*." (Medical specialist 1, District C)

The benefit of providing a career path in mental health for clinical associates particularly for those with a stated interest in the field could lead to the creation of a sustainable mental health workforce:

> "*you've now completed your degree, you have a particular interest in psychiatry or mental health, then you would spend that requisite time required, and then you come out of there, and nobody would really want to do that unless they wanted to stay in that particular discipline for long enough."* (CHC-based manager 1, eThekwini)

**Subtheme 4.2. Specialisation necessitates review of employment and related policies**

The introduction of a specialisation for clinical associates would require a number of regulatory and operational adjustments. Their advanced qualification in mental health would need to be recognised by the Health Professions Council of South Africa and these specialised clinical associates would need to be included in the organograms of districts, and posts would need to be budgeted for. The scope of practice of such a specialised clinical associate would need to be clarified as:

> "*I will rather create that post for a medical officer that is going to prescribe, because remember even if they do the postgrad diploma they still need a medical officer to countersign their prescriptions. So, to me, to cut the costs I'd rather have the medical officer and the psychiatric nurse managing my services in primary healthcare because that is our focus now."* (District-based manager 1, District D)

The role of clinical associates is not clear in the proposed National Health Insurance (NHI) policy and if sufficient medical doctors would be contracted to provide PHC services, clinical associates might be "*redundant in primary healthcare, because you're going to have a doctor that is going to deal with all of that*". (District-based manager 1, District D)

**Subtheme 4.3. Specialisation necessitates clarification of roles of specialist clinical associates**

Specialist clinical associates could still have a role to play at PHC level. They could then refer where necessary to the secondary level for the treatment plan and the patient could then be referred back to the community. This strategy would reduce pressure on the secondary level: "*And then that of course would also help with the influx of patients coming from the community to the secondary level of care."* (Nurse 3, District B) They could also review treatment of mental health patients on periodic basis (three or six monthly) as there is usually a "crisis" when there are no medical officers around to do this: *"But if they are trained, they are skilled enough, they will be able just to assess the patient if ever there is a need to change medication they will be in that position in consultation with psychiatrists"* (District-based manager 1, District B). The limitations regarding prescribing would need to be addressed as they: *"would be more of value further that they're able to handle a patient up until the end where actually they dispense or refer as necessary"* (Hospital-based manager 1, District B).

There was not universal acceptance of the value of specialist clinical associates in mental health at PHC level:

> "*…we are mainstreaming mental care into the whole primary care setup to see that person in totality with everything and to fit in the society. We don't want to run mental health clinics in the PHC firstly to discriminate…we want them to believe you're normal as much as possible to be able to sit in the line with others. So, this model now of a clinical associate which cannot see and prescribe and do everything in totality is going to be a shortfall."* (District-based manager 2, District D)

It was felt that an "*all-rounder*" rather than a specialist is required at PHC level. There was a concern that mental health patients might be stigmatised "*when you are seen by that room"* (District-based manager 1, District D).

Their envisaged role at hospital level included screening and assessing patients in casualty, follow up of patients in outpatient departments and identifying contraindications and side effects related to medication if they were allowed to prescribe. There was one argument made for a potential role for them in specialised psychiatric units.

**Subtheme 4: Specialisation should be part of the career ladder**

The lack of career pathing for clinical associates had not gone unnoticed by participants: "*I'm of the opinion that I think we have done injustice by developing the clinical associate category of workers. Here I'm talking about in terms of the career path being I think they are stuck in limbo."* (Hospital-based manager 1, District B) Participants who had worked with clinical associates were aware of clinical associates' frustration regarding this lack of opportunities and the absence of career pathing. This resulted in a number of them wanting to leave the profession and study medicine, and specialisation would be a potential solution: "…*if there was a way to channel them to their area of interest and have some kind of career progression it might help, but at the moment it's a dead-end destination here and it does present a bit of a problem."* (CHC-based manager, District C)

## Discussion

Our study aimed to explore the views of health managers and clinicians in four districts of SA on the scale of mental illness in their districts and mental health presentations to health services, the challenges faced in providing services, and their attitudes towards mental health task sharing involving clinical associates.

The view expressed by participants that mental health is a substantial problem in their districts is not surprising as epidemiological data suggests high prevalence rates of mental illness in SA [24-26]. The magnitude of the problem is supported by studies that have screened for one or more mental health disorders in healthcare settings where large proportions of participants (20% or higher) have screened positive for at least one mental health disorder [27-32]. The high rates of substance-related presentations were seen in all four districts. Nationally representative data has found a lifetime and 12-month prevalence of substance use disorder in SA of 13.3% and 5.8% respectively [24]. Kagee *et al.*[29] found a prevalence for just alcohol use disorder of 19.8% amongst individuals presenting for HIV testing in the Western Cape. Substance use was linked to the increase in mental health presentations being seen in younger people which is confirmed by a meta-analysis of substance use among adolescents in sub-Saharan Africa which reported a prevalence of just under 37% for the use of any substance among South Africans [33]. High rates of substance use have been reported for secondary school learners and university students in SA [34, 35]. Depression was also a common presentation particularly at PHC facilities as one would expect based on studies that have

reported on depression in SA [24-30, 32]. Participants felt that unemployment was the underlying reason for the rise in mental health presentations they were seeing which is a valid argument as there is evidence for the link between unemployment and poor mental health [36-38]. SA has one of the highest unemployment rates in the world and was recorded at 32.9% in early 2023 [39].

The high rates of relapses and readmissions is a major contributor to the numbers of mental health patients having to be managed at hospital level in this study. This pattern is a common experience throughout the country with Docrat *et al.*[2] reporting an average overall readmission rate of 24.2% for mental health patients within three months of previous discharge. They estimated that for the 2016/17 financial year, this cost 112.6 million US Dollars and was responsible for 18.2% of total mental health expenditure [2]. We found deficiencies at PHC level in our study which may be contributing to the lack of continuity of care once patients are discharged. Sorsdahl *et al.*[3] have noted the importance of strengthening referral pathways when patients are discharged to primary care and community level to ensure continuity of care.

Although we were interested specifically in human resources for health challenges related to mental health, other mental health systems challenges emerged from the focus groups. Participants felt that mental health was seen to have been historically neglected in SA and is still not being prioritised. Despite progressive mental health legislation and policy in SA, this neglect of mental health is borne out by the relative lack of expenditure on mental health and the failure of policy implementation [2, 3]. Bird *et al.*[40] identified several reasons for the low priority given to mental health in SA viz. the prevalence and severity of the problem not being understood, lack of knowledge regarding appropriate interventions, socio-cultural beliefs on aetiology and treatment, a lack of funding, a lack of advocacy, and stigma. The lack of designated space or specialised units for 72-hour observation of mental health patients admitted under the Mental Health Care Act, 2002 has long been recognised as an issue[3, 41, 42] and our findings suggest that this is an ongoing problem with some patients having to spend their entire 72 hours of observation in casualty departments. The delays in transferring patients who require it to higher levels of care due to shortages of beds at referral facilities has also been previously documented [3]. The lack of rehabilitation facilities for substance use disorders was a major concern among our participants given the large number of patients being seen with substance-related issues. The lack of availability of beds for the growing number of adolescent patients found in our study provides evidence to support Sorsdahl *et al.*[3] that there is a

shortage of inpatient facilities for adolescents necessitating the use of adult wards. Given the increase in the number of child and adolescent patients with mental health issues, the lack of appropriate screening tools is a gap that needs to be addressed. The approach to mental health in SA remains a hospi-centric one which will not change as that is where the scare skilled health professionals are located. Mental health care at PHC level accounted for only 7.9% of the total cost of outpatient and inpatient mental health services in the 2016/17 financial year [2]. The lack of mental health data being collected at PHC level is also a barrier in advocating for more resources.

Predictably, mental health workforce shortages were a major challenge faced by all four districts particularly the lack of psychiatrists and psychologists. The ability of non-specialists such as generalist registered nurses and medical officers to manage mental health patients was questioned. When PHC facilities do have doctors, it is often community service medical officers with limited mental health training and experience who manage mental health patients, and when there are no doctors in these settings, there is no one to prescribe psychotropic medication [3]. Our study highlights the possible contribution of clinical associates to address some of the deficiencies in mental health service provision. Some of the envisaged roles have previously been suggested in research by Moodley *et al.*[12] including working in in emergency settings (casualty) and 72-hour observation units, assessing adherence to medication as part of home visits, and mental health promotion activities in communities [12]. In addition, there is a role for them in the co-ordination of care role at PHC level that includes doing the initial assessment, referring the patient for initial diagnosis and treatment and then managing the patient after the patient is down referred [12].

Clinical associates were not being utilised in mental health service provision in any of the districts in this study, and although they did not have first-hand knowledge of how they would perform in this discipline participants had positive views on how they could contribute based on their contribution in other settings. This finding is consistent with other studies which noted their levels of professionalism and skills, efficiencies in patient management such as reduced patient waiting times and increased patient satisfaction, reduced workload for medical doctors, and improved access to healthcare [43, 44].

Several legal and operational changes will have to be made for full utilisation of clinical associates in the provision of mental health services. The limitation in their scope of practice

particularly regarding supervision and prescribing needs revision. The requirement that prescriptions be countersigned by the supervising medical doctor has been previously flagged as a hindrance to providing greater efficiency [44]. A further complication with respect to using clinical associates (and registered nurses) in mental health service provision is that they are only permitted to prescribe up to Schedule 4 medications while psychoactive medicines (e.g. anti-depressants) are Schedule 5 [10, 45]. Concerns related to the supervision regimen have been raised previously, especially in the light of the shortage of doctors who have to supervise them [9, 43, 44]. Any changes to the supervision requirement would need to take any training deficiencies and medico-legal concerns into account [44, 46]. While the majority of participants were not familiar with the training programmes for clinical associates, there was a view that the current training on mental health was probably inadequate based on the time allocated to it. Moodley *et al.*[11] have made a number of recommendations to strengthen undergraduate mental health training including focusing on conditions they are likely to see in practice and dedicated time in a mental health unit. It has also been suggested that short courses in mental health be used to close the gaps for those that have already qualified and want to work in this field [12].

Advanced training for clinical associates in mental health (e.g. through a postgraduate diploma) was generally supported by participants. The reasons provided were similar to the findings by Moodley *et al.*[12] among those involved in clinical associate training programmes which broadly categorised the reasons for supporting such an option as those related to strengthening the health system (e.g. improving access to mental health services), strengthening the clinical associate profession (e.g. creating career pathing), and individual reasons (e.g. interest in the discipline). The training of clinical associates in mental health was compared with the training of registered nurses on antiretroviral therapy to address the HIV pandemic. Sorsdahl *et al.*[3] in reflecting on task-sharing in mental health mentions HIV as an example of how task-sharing has been successfully implemented in the South African context. The structural barriers that would need to be overcome to utilise clinical associates with advanced training (specialisation) in mental health include the recognition of the advanced qualification by the Health Professions Council of South Africa, changes in scope of practice (particularly regarding the need for supervision and prescription rights), changes in the Mental Health Care Act 2002[23], the creation of posts, and the funding of posts.

It was not clear in this study how the roles for those clinical associates with advanced training in mental health would differ sufficiently from those with undergraduate training only. This delineation would need to be clearly defined prior to developing any future postgraduate qualification in mental health.

### Limitations

The focus groups consisted of a mix of registered nurses, doctors, and managers at differing levels of seniority. It is possible that some participants may not have felt comfortable expressing themselves freely in the presence of senior colleagues particularly if they had differing views. While the districts selected all employed clinical associates, the numbers employed were generally small and they were mainly hospital-based which meant that some participants had not worked with clinical associates directly and were not able to speak from first-hand experience.

## Conclusions

South Africa's public health sector faces significant challenges in providing mental health services with human resources for mental health being a critical issue. There are both shortages of the specialised mental health workforce as well as non-specialists who are inadequately prepared to deliver mental health services. Clinical associates may have a potential role to play in addressing some of the human resource constraints in mental health with a strengthening of their undergraduate training and an advanced training offering in mental health such as a postgraduate diploma. In order to fully realise their potential in mental health service provision, structural barriers including their scope of practice, regulatory issues, and the creation and funding of posts will need to be addressed.

### Abbreviations

CHCs: community health centre; PHC: primary health care; SA: South Africa;

## Declarations

### Ethics approval and consent to participate

Ethical approval was obtained from University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). Authorisation was obtained from the relevant provincial departments of health to conduct the research in the selected districts. An information leaflet

and informed consent document was provided to the focus group participants by e-mail and the interviewer reviewed the document with the participants prior to the start of each focus group. In addition to the purpose of the study, participants were informed of the time needed for the focus group, their right to withdraw and the plans for using the results of the study [20]. Written informed consent was obtained from all participants. In order to maintain confidentiality, participants' were allocated numbers to use during focus group discussion (rather than names or designations) and names remained masked following data collection, analysis and reporting [20]. To protect the identities of participants, the districts have randomly been designated as A,B,C or D in the results section of this paper.

**Consent for publication**

Not applicable.

**Availability of data and materials**

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

**Competing interests**

The authors declare that they have no competing interests.

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**Authors contributions**

SVM conceptualised the study. SVM developed the study methodology including the interview guide with JW and CG providing input. SVM conducted the focus group discussions. SVM coded the data and conducted the thematic analysis. JW reviewed the codes, subthemes and themes. The first draft of the manuscript was written by SVM which was reviewed by JW and CG who provided further inputs. All the authors read and approved the final manuscript.

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# CHAPTER 6: MANUSCRIPT ADDRESSING OBJECTIVE 4

Chapter 5 presented the views of health managers, doctors, and nurses regarding the scale of mental illness in their districts and the mental health systems challenges that they face. Lastly, their attitudes towards mental health task sharing involving clinical associates were explored. There was an acknowledgement that mental health presentations were a major problem being faced by the health services. There were difficulties in dealing with this because of mental health system challenges particularly those related to human resources. Clinical associates could potentially assist to address the health workforce challenges and advanced training for clinical associates in mental health was worth considering. There was a lack of clarity of how the roles for clinical associates with a specialisation in mental health would differ from those who only completed the basic degree.

Chapter 6 addresses the fourth objective of the thesis which was to identify the key elements of a mental health task sharing model for clinical associates. The elements relate to training at both an undergraduate and postgraduate level with respect to content, training sites, and teaching modalities as well the mental health tasks clinical associates should be able to perform based on each level of training. The elements identified in this chapter are integrated into the task sharing model that is presented in Chapter 7. Chapter 6 consists of a single manuscript *Developing a model for mental health training and service provision for clinical associates in South Africa: A Delphi survey of family physicians and psychiatrists* and the intention is to submit this manuscript to BMC Medical Education. The paper has formatted based on the author guidelines for this journal which can be found in Appendix H.

# Developing a model for mental health training and service provision for clinical associates in South Africa: A Delphi survey of family physicians and psychiatrists

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## Abstract

### Background

Clinical associates are a health professional cadre that could be utilised in mental health task sharing in South Africa but this is training dependent. The objectives of the study were to identify the potential content, training sites, and teaching modalities for undergraduate and potential postgraduate clinical associate training in mental health and to identify the tasks that they should perform based on this training.

### Methods

We utilised the Delphi method to reach consensus on the items with the panel consisting of psychiatrists and family physicians. The Round 1 questionnaire of the Delphi survey was developed based on a literature review and the results from earlier phases of the overall study. The survey was administered electronically and consisted of three rounds. Following the first and second rounds, an updated questionnaire was constructed omitting the items on which consensus was reached. The questionnaire consisted primarily of nine-point scales with consensus based on 70% of participants rating 1,2,3 or 7,8,9.

### Results

There were 26 participants in the first round with this number falling to 23 in later rounds. There was strong consensus on a training attachment to a mental health clinic at a community health centre (CHC) at undergraduate (96.2%) and postgraduate level (100%). Consensus was reached on the importance of training on the management of six categories of disorders at undergraduate level and nine categories of disorders at postgraduate level. Clerking patients as a teaching modality reached 100% consensus at both undergraduate and postgraduate level. PHC clinics, CHCs and district hospitals reached consensus as appropriate settings for clinical associates to provide mental health services. In addition, general practitioner practices and

secondary hospitals reached consensus for those with postgraduate training. Consensus was reached on ten of the 21 listed tasks that could be performed based on undergraduate training and 20 of the 21 tasks based on a postgraduate qualification in mental health.

**Conclusions**

The Delphi panel's recommendations provide a clear roadmap for enhancing mental health curricula for clinical associates enabling their utilisation in mental health service provision. A future postgraduate mental health qualification for clinical associates would allow for expanded task sharing.

**Keywords**

Mental health, mental illness, psychiatry, clinical associates, task sharing, Delphi method, Delphi panel, curriculum, training

## Background

Clinical associates, the mid-level medical worker cadre in South Africa, are a potential option in mental health task sharing. This task sharing could help address the high levels of mental illness in South Africa[1, 2] by supplementing the current mental health workforce and addressing the inequitable distribution of the workforce [3-9]. Clinical associates' undergraduate training in mental health determines the extent to which they could be used in mental health service provision. The mental health training within the three undergraduate clinical associate programmes named either the Bachelor of Clinical Medical Practice (BCMP) or the Bachelor of Medicine in Clinical Practice (BMCP) has been reviewed by Moodley *et al.*[10].Almost all of the mental health training in the three programmes takes place in the third year of the degree, but the allocated time and experiential learning differs between the programmes [10]. The time spent on formal lectures ranges from a few hours to a week and placement at a health facility from two to four weeks [10]. All three programmes attempt to teach a long list of disorders, even those that are uncommon and are unlikely to be seen or managed by clinical associates [10]. The amount of practical exposure differs between programmes with one programme placing their students in a dedicated mental health unit thus ensuring adequate clinical exposure, limited practical exposure in the second programme, and considerable variation in the third programme depending on the site the students are placed [10]. Moodley *et al.*[10] recommended that mental health training in the undergraduate

programmes could be improved by earlier integration in the curricula, focusing on common conditions, rotations to mental health units in all three programmes, providing detailed guidance to facility-based trainers, and including specific experiential targets for the students [10].

Although there is evidence of mid-level medical workers being involved mental health service provision in Africa [11-13], it is not clear how much training these cadres receive in mental health during their training programmes. In the United States of America (USA), there is substantial variation in mental health training between the different physician assistant programmes [14]. The mental health training that Canadian physician assistants undergo is also not well documented but based on their competency profile, they are expected to be able to recognise, diagnose and treat anxiety, depression, eating disorders, and adjustment reactions (e.g. grief) as well as conduct a suicide assessment [15]. The physician associate programmes in the United Kingdom (UK) are only required to include a minimum of 90 hours of psychiatry [16], which includes problem-based learning sessions and mental health consultations as part of general practice clinical placements [17].

It has been suggested that advanced training or a specialisation in mental health through a postgraduate qualification (such as an Honours degree or diploma) should be a serious consideration for clinical associates as it would increase their utility in mental health service delivery [18]. Specialised clinical associates could help address the inequitable access to specialist mental health professionals and mental health services in rural areas while addressing the lack of career pathing, employment opportunities and postgraduate options that are a cause of frustration among clinical associates [18]. Advanced training would also give clinical associates with a specific interest in mental health an opportunity to pursue their interest in the discipline [18]. Currently, the only postgraduate opportunity that exists specifically for clinical associates in South Africa is an Honours degree in emergency medicine [19]. A specialisation in mental health for similar cadres already exists in some African countries [13, 20, 21]. In Malawi, their mid-level medical worker cadre (clinical officers) complete a three-year diploma and one-year internship and can, thereafter, pursue advanced training in mental health through a two-year Bachelor of Science in Clinical Medicine (Mental Health) degree [13, 22]. They are then able to practise as specialised psychiatric clinical officers and form part of district mental health teams based at district hospitals [13]. A specialisation in psychiatry is possible in the USA through a one-year residency or fellowship and/or obtaining a Certificate of Added

Qualification (CAQ) in psychiatry [14]. Psychiatry is one of seven specialties in the USA in which a physician assistant can obtain a CAQ [23]. Speciality is achieved through experience, continuing professional development, and physician attestation as well as successful completion of a national exam [23].

Clinical associates in South Africa are already involved to some extent in mental health service provision [24]. While they have good self-reported knowledge, there is lack of confidence with respect to certain aspects of practical application in assessing and managing mental health patients [24], and undergraduate training needs to address some of the deficiencies for future graduates [10, 24]. In addition, the rollout of a postgraduate qualification in mental health for clinical associates needs to be considered in order to address shortages of the specialist mental health workforce and provide career progression opportunities for clinical associates [18]. The objectives of the study were to identify the potential content, training sites, and teaching modalities for undergraduate and postgraduate training in mental health for clinical associates in South Africa and to identify the mental health tasks that clinical associates should perform based on their level of training.

## Methods

### Study Design

We utilised the Delphi method in the third phase of a larger study to reach consensus on training items and mental health tasks to include in a mental health task sharing model for clinical associates.

### Study Population and Sampling

The study population consisted of psychiatrists and family physicians working either in the public or private sector in the South African health system. Purposive sampling was utilised to select the Delphi participants. Psychiatrists and family physicians were selected to ensure differing levels of experience and participants were invited from different provinces. The target was to include a minimum of 10 psychiatrists and 10 family physicians in the panel.

### Measurement Tools

The items for Round 1 of the Delphi survey were developed based on a literature review as well as the results from the first two phases of the larger study [10, 18, 24, 25]. The first round

questionnaire included professional characteristics of the members of the Delphi panel. The training components of the questionnaire comprised questions on the levels of care at which mental health training of clinical associates should occur, the mental illnesses they should be able to recognise and manage based on Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)[26] categories, and the teaching modalities and health professionals that should be utilised in training. The service provision components of the questionnaire comprised questions on the levels of care at which mental health task sharing should occur, and the mental health tasks that should be performed. The questions were asked for both undergraduate and postgraduate training. Participants were asked to assume that only four weeks (160 notional hours) could be allocated to mental health in the BCMP/BMCP curriculum for the questions related to undergraduate training. Participants were asked to consider a potential postgraduate mental health training qualification (one-year full-time or two-years part-time postgraduate Diploma or Honours degree) for the questions related to postgraduate training. The questionnaire consisted primarily of nine-point scales (1-9). Depending on the question, these ranged from extremely unimportant to extremely important, extremely unsuitable to extremely suitable, or extremely inappropriate to extremely appropriate. In the first round, participants were also requested to suggest additional items to add to the questionnaire. Items suggested by two or more participants were included in the second round questionnaire.

**Data Collection**

The College of Psychiatrists and the College of Family Physicians of the Colleges of Medicine of South Africa as well as the Heads of Departments of Family Medicine at South Africa's medical schools assisted to identify potential panellists. Potential participants were contacted by e-mail and requested to participate. The Delphi survey was administered electronically using the Qualtrics platform and it was decided prior to commencement that it would consist of a maximum of three rounds with the survey only being terminated after the first or second round if there was consensus on all items. It was decided not to go beyond three rounds as Iqbal and Pipon-Young[27] have noted that multiple rounds impact enthusiasm and response rates. Participants were provided with some background information viz. links to the scope of practice of clinical associates[28], a paper by Moodley *et al.*[10] on mental health in the current clinical associate undergraduate curriculum, and a list of disorders making up each DSM-5[26] category. A video recording of what was required from participants was provided to them prior to Round 1 and a new recording was provided prior to Round 2. They were given approximately

two weeks to submit their responses in each round with periodic reminders of upcoming deadlines. An updated questionnaire was constructed and sent out to the panellists to complete after the first and second rounds. Questions on which consensus was reached were not included in subsequent rounds. Questionnaires in the second and third rounds included the participant's response for each item from the previous round as well as the median response of the panel for each item. The participants were therefore reminded of their response compared to the rest of the panel before revisiting the question [29, 30].

**Data Management and Analysis**

The data were downloaded from Qualtrics after each round and stored on a password-protected computer with a backup stored in a password-secured cloud account. The in-built Qualtrics functionality was used to determine proportions of each response (1-9) on the scales being used. Consensus was based on a proportion within a range (unrestricted) approach viz. 70% of participants rating 1,2,3 or 7,8,9 [31]. Data were imported into Stata version 16 (Statacorp; http://www.stata.com) after the first two rounds to determine the median panel responses for each item in order to include in the questionnaire in the subsequent round.

**Processes to ensure quality of research**

Follow up e-mails were sent to participants to ensure non-responses in each round were kept to a minimum [32]. The four criteria of a good quality Delphi study suggested by Diamond *et al.*[31] were adhered to viz. planned number of survey rounds specified, stopping criteria specified, reproducible criteria used for the selection of participants, and provision of the criteria to be used to drop items after each round.

## Results

The first round of the Delphi survey involved 26 participants (15 psychiatrists and 11 family physicians). These 26 participants were invited to participate in the second round but this was completed by only 23 of them (13 psychiatrists and 10 family physicians). Only the 23 participants who completed the second round were invited to participate in the third round with all of them completing the third round. The dropout rate was, therefore, 11.5% (3/26). The professional characteristics of the participants are shown in Table 1. The majority of participants had more than 10 years of experience as a specialist. Most were employed in the public sector with just over 30% across the three rounds having some private sector

involvement. Five of South Africa's nine provinces were represented with the largest numbers of participants from Gauteng.

**Table 1. Professional characteristics of the Delphi participants**

| | **Round 1 N=26 n (%)** | **Rounds 2 & 3 N=23 n (%)** |
|---|---|---|
| **Occupational Category** | | |
| Family Physician | 11 (42.3) | 10 (43.5) |
| Psychiatrist | 15 (57.7) | 13 (56.5) |
| **Years of experience as a specialist** | | |
| 0 – 9 years | 7 (26.9) | 7 (30.4) |
| 10 – 19 years | 12 (46.2) | 10 (43.5) |
| 20 – 29 years | 4 (15.4) | 3 (13.0) |
| 30 years or more | 3 (11.5) | 3 (13.0) |
| **Sector of work** | | |
| Public sector only | 17 (65.4) | 15 (65.2) |
| Private sector only | 3 (11.5) | 3 (13.0) |
| Both public and private sectors | 5 (19.2) | 4 (17.4) |
| Other | 1 (3.9) | 1 (4.4) |
| **Province of work** | | |
| Eastern Cape | 1 (3.9) | 1 (4.4) |
| Gauteng | 12 (46.2) | 11 (47.8) |
| Kwazulu Natal | 5 (19.2) | 3 (13.0) |
| Limpopo | 2 (7.7) | 2 (8.7) |
| Western Cape | 6 (23.1) | 6 (26.1) |

## Training

### Training attachments

Participants were asked to rate the importance of various training attachments in an undergraduate BCMP/BMCP curriculum as well as a postgraduate mental health qualification for clinical associates (Table 2). A nine-point scale was used i.e. extremely unimportant (1) to extremely important (9). The only item that did not reach consensus in the first round for undergraduate training was attachment to an inpatient unit at a psychiatric hospital. This item also failed to reach consensus in the second and third rounds. A mental health attachment to a primary health care (PHC) clinic for undergraduate training was added to the second round

following feedback from the participants in the first round and this item reached consensus in the second round. The only item that did not reach consensus for postgraduate training was attachment to a private psychiatric practice (Table 2).

**Table 2. Importance of potential mental health training attachments at undergraduate and postgraduate levels for clinical associates (all items)**

| Attachment | Proportion of participants scoring 7,8,9 (%) | | |
|---|---|---|---|
| | Round 1 | Round 2 | Round 3 |
| **Potential training attachments in an undergraduate BCMP/BMCP curriculum** | **N=26** | **N=23** | **N=23** |
| Attachment to a mental health clinic at a community health centre | 96.2 | - | - |
| Attachment to a psychiatric outpatients clinic at a hospital | 84.6 | - | - |
| Attachment to a 72-hour observation unit at a district hospital | 73.1 | - | - |
| Attachment to inpatient unit at a psychiatric hospital | 30.8 | 30.4 | 4.3 |
| Mental health attachment to a primary health care clinic | - | 82.6 | - |
| **Potential training attachments in a postgraduate mental health qualification for clinical associates** | **N=25** | **N=23** | **N=23** |
| Attachment to a mental health clinic at a community health centre | 100.0 | - | - |
| Attachment to a psychiatric outpatients clinic at a hospital | 100.0 | - | - |
| Attachment to a 72-hour observation unit at a district hospital | 100.0 | - | - |
| Attachment to inpatient unit at a psychiatric hospital | 72.0 | - | - |
| Attachment to a private psychiatric practice | 28.0 | 8.7 | 8.7 |

## Training on the recognition and management of psychiatric disorders

The participants rated the importance of training on the recognition and management of the 19 DSM-5[26] categories of psychiatric disorders as part of undergraduate BCMP/BMCP curricula. Consensus was reached in the first round of the importance of recognising eight categories of disorders at undergraduate level with all participants (100.0%) agreeing on the importance (rating 7,8 or 9) of depressive disorders, bipolar and related disorders, and schizophrenia spectrum and other psychotic disorders (Table 3). Neurocognitive disorders reached consensus in the second round with no further categories reaching consensus in the third round. Consensus was reached on the importance (rating 7,8 or 9) of training to manage depressive disorders, anxiety disorders, substance-related and addictive disorders in the first round and a further three categories of disorders in the second round (Table 3). Two categories reached consensus in being considered unimportant in the third round with respect to management (rating 1, 2 or 3) viz. paraphilic disorders (82.6%) and dissociative disorders (73.9%).

Similarly, the 19 DSM-5[26] categories were provided to participants for a hypothetical postgraduate mental health qualification for clinical associates. In the first round of the Delphi, nine categories of disorders reached consensus (rating 7, 8 or 9) regarding the training to recognise the disorders (Table 3). In addition, sleep-wake disorders, somatic symptom and related disorders, and obsessive-compulsive and related disorders reached consensus in the third round of the survey. Consensus was reached on the importance (rating 7,8 or 9) of training on the management of eight categories of disorders in the first round and neurocognitive disorders in the second round (Table 3). No additional categories of disorders reached consensus in the third round.

**Table 3. Importance for training on the recognition and management of psychiatric disorders at undergraduate and postgraduate levels (items where consensus on being important was reached)**

| **DSM-5 Disorder categories** | **Proportion of participants scoring 7,8,9 (%)** | | |
|---|---|---|---|
| | **Round 1** | **Round 2** | **Round 3** |
| **Training on recognition in an undergraduate BCMP/BMCP curriculum** | **N=26** | **N=23** | **N=23** |
| Depressive disorders | 100.0 | - | - |
| Bipolar and related disorders | 100.0 | - | - |
| Schizophrenia spectrum and other psychotic disorders | 100.0 | - | - |
| Substance-related and addictive disorders | 96.2 | - | - |
| Anxiety disorders | 96.0* | - | - |
| Trauma- and stressor-related disorders | 92.3 | - | - |
| Neurodevelopmental disorders | 80.8 | - | - |
| Medication-induced movement disorders and other adverse effects of medication | 76.9 | - | - |
| Neurocognitive disorders | 65.4 | 78.3 | - |
| **Training on management in an undergraduate BCMP/BMCP curriculum** | **N=26** | **N=23** | **N=23** |
| Depressive disorders | 88.4 | - | - |
| Anxiety disorders | 84.6 | - | - |
| Substance-related and addictive disorders | 80.8 | - | - |
| Trauma and stressor related disorders | 65.4 | 78.3 | - |
| Bipolar and related disorders | 61.5 | 78.3 | - |
| Schizophrenia spectrum and other psychotic disorders | 60.0* | 78.3 | - |
| **Training on recognition in a postgraduate mental health qualification for clinical associates** | **N=25** | **N=23** | **N=23** |
| Depressive disorders | 100.0 | - | - |
| Substance-related and addictive disorders | 100.0 | - | - |
| Anxiety disorders | 100.0 | - | - |
| Trauma and stressor related disorders | 100.0 | - | - |

| | | | |
|---|---|---|---|
| Bipolar and related disorders | 92.0 | - | - |
| Schizophrenia spectrum and other psychotic disorders | 92.0 | - | - |
| Medication-induced movement disorders and other adverse effects of medication | 84.0 | - | - |
| Neurodevelopmental disorders | 80.0 | - | - |
| Neurocognitive disorders | 80.0 | - | - |
| Sleep-wake disorders | 64.0 | 69.6 | 78.3 |
| Somatic symptom and related disorders | 60.0 | 60.9 | 73.9 |
| Obsessive-compulsive and related disorders | 60.0 | 56.5 | 73.9 |
| **Training on management in a postgraduate mental health qualification for clinical associates** | **N=25** | **N=23** | **N=23** |
| Depressive disorders | 92.0 | - | - |
| Anxiety disorders | 92.0 | - | - |
| Substance-related and addictive disorders | 87.5[#] | - | - |
| Trauma and stressor related disorders | 84.0 | - | - |
| Bipolar and related disorders | 79.2[#] | - | - |
| Schizophrenia spectrum and other psychotic disorders | 76.0 | - | - |
| Medication-induced movement disorders and other adverse effects of medication | 76.0 | - | - |
| Neurodevelopmental disorders | 72.0 | - | - |
| Neurocognitive disorders | 68.0 | 78.3 | - |

*only answered by 25 participants (N=25), [#]only answered by 24 participants (N=24)

## Teaching modalities

Potential teaching modalities for mental health were provided to the participants in order to rate their suitability for mental health training in the undergraduate BCMP/BMCP curriculum as well as postgraduate mental health qualification. Consensus was reached in the first round for suitability (7,8,9) for all potential teaching modalities at undergraduate level except attending patient rounds, watching recording consultations and online lectures which were all just under 70.0% (Table 4). These three items reached consensus in the second round. All participants (100.0%) agreed in the first round that clerking patients was either suitable, very suitable, or extremely suitable. All potential teaching modalities for a postgraduate mental health qualification for clinical associates reached consensus in the first round with 100.0% consensus on suitability for clerking patients, case studies, attending multidisciplinary team meetings, and attending patient rounds (Table 4).

**Table 4. Suitability of potential teaching modalities at undergraduate and postgraduate levels for clinical associates (all items)**

| Teaching modalities | Proportion of participants scoring 7,8,9 (%) | | |
|---|---|---|---|
| | Round 1 | Round 2 | Round 3 |
| **Potential teaching modalities in an undergraduate BCMP/BMCP curriculum** | **N=26** | **N=23** | **N=23** |
| Clerking patients | 100.0 | - | - |
| Case vignettes to formulate differential diagnoses | 96.2 | - | - |
| Case studies | 92.3 | - | - |
| Simulated mental health assessments | 88.5 | - | - |
| Attending multidisciplinary team meetings | 80.8 | - | - |
| In-person lectures | 76.9 | - | - |
| Attending patient rounds | 69.2 | 78.3 | - |
| Watching recording consultations | 69.2 | 73.9 | - |
| Online lectures | 69.2 | 73.9 | - |
| Sitting in on consultations | - | 87.0 | - |
| **Potential teaching modalities in a postgraduate mental health qualification for clinical associates** | **N=25** | **N=23** | **N=23** |
| Clerking patients | 100.0 | - | - |
| Case studies | 100.0 | - | - |
| Attending multidisciplinary team meetings | 100.0 | - | - |
| Attending patient rounds | 100.0 | - | - |
| Case vignettes to formulate differential diagnoses | 96.0 | - | - |
| Simulated mental health assessments | 96.0 | - | - |
| In-person lectures | 91.3* | - | - |
| Watching recorded consultations | 80.0 | - | - |
| Online lectures | 76.0 | - | - |

*Only answered by 23 participants (N=23)

## Health professionals involved in training

The participants were asked to rate the importance of involving various health professional cadres in mental health training of clinical associates in undergraduate BCMP/BMCP programmes. Consensus on importance (7,8, or 9) was reached in the first round (N=26) for family physicians (84.6%), psychologists (84.6%), qualified clinical associates (76.9%), psychiatrists (73.1%), and psychiatric nurses (73.1%). The three cadres that did not reach consensus in the first round were psychiatric registrars (69.2%), family medicine registrars (65.4%), and medical officers (61.5%). Consensus was reached on psychiatric registrars (87.0%) and family medicine registrars (87.0%) in the second round (N=23) and on medical officers (82.6%) in the third round (N=23). Following participant feedback, social workers

(60.9%) and occupational therapists (52.2%) were added as items in the second round. For both social workers (87.0%) and occupational therapists (73.9%), consensus was only reached in the third round.

Consensus on importance (7,8,9) of involving various health professionals cadres in training of clinical associates in postgraduate mental health qualification was reached in the first round (N=25) for family physicians (88.0%), psychiatrists (88.0%), psychologists (80.0%), psychiatric registrars (80.0%), and psychiatric nurses (76.0%). No consensus was reached on family medicine registrars (68.0%) and medical officers (44.0%) in the first round. Social workers and occupational therapists were also added to the second round for postgraduate training following participant feedback. Only family medicine registrars (87.0%) reached consensus in the second round (N=23) and social workers (78.3%) in the third round (N=23) of the remaining cadres. No consensus was reached on medical officers and occupational therapists.

**Service provision**

**Work settings for service provision**

The Delphi panel reached consensus in the first round (Table 5) on CHCs, PHC clinics, and district hospitals as appropriate settings (7,8,9) for clinical associates to deliver mental health services based on undergraduate training. No consensus was reached on any of the other work settings in the subsequent rounds. Specialised psychiatric hospitals (69.6%) fell just short of the 70.0% consensus threshold for being considered inappropriate (1,2,3). The Delphi panel reached consensus in the first round on CHCs, PHC clinics, district hospitals, and private GP practices as appropriate settings (7,8,9) for clinical associates to deliver mental health services based on postgraduate training. (Table 5). Consensus was reached on secondary hospitals in the second round with no additional work setting reaching consensus in the third round.

**Table 5. Appropriateness of potential work settings for clinical associates to provide mental health services**

| Work setting | Proportion of participants scoring 7,8,9 (%) | | |
|---|---|---|---|
| | Round 1 | Round 2 | Round 3 |
| **With only undergraduate mental health training as part of BCMP/BMCP degrees** | **N=26** | **N=23** | **N=23** |
| Community health centre | 92.3 | - | - |
| Primary health care clinic | 88.5 | - | - |
| District hospital | 76.9 | - | - |
| GP Practice | 46.2 | 34.8 | 13.0 |
| Secondary hospital | 38.5 | 30.4 | 8.7 |
| Psychiatrist practice | 19.2 | 0.0 | 0.0 |
| Tertiary hospital | 15.4 | 0.0 | 0.0 |
| Private hospital | 15.4 | 0.0 | 0.0 |
| Specialist psychiatric hospital | 11.5 | 0.0 | 0.0 |
| **With a postgraduate qualification in mental health** | **N=25** | **N=23** | **N=23** |
| Community health centre | 96.0 | - | - |
| District hospital | 92.0 | - | - |
| Primary health care clinic | 88.0 | - | - |
| GP Practice | 76.0 | - | - |
| Secondary hospital | 68.0 | 78.3 | - |
| Specialist psychiatric hospital | 32.0 | 17.4 | 0.0 |
| Psychiatrist practice | 32.0 | 4.4 | 0.0 |
| Tertiary hospital | 28.0 | 17.4 | 4.4 |
| Private hospital | 24.0 | 13.6 | 4.4 |

## Mental health tasks

The Delphi panel reached consensus on eight of the 21 listed mental health tasks for clinical associates with undergraduate degrees in the first round. The eight tasks considered appropriate (7,8,9) included taking a mental health history, doing a mental health examination, and mental health promotion activities (Table 6). Providing counselling to patients and their families reached consensus in Round 2 with no further mental health tasks reaching consensus in Round 3. The same 21 mental health tasks were provided to the panel to the rate the appropriateness for clinical associates with a postgraduate mental health qualification to perform. A total of 16 tasks reached consensus for appropriateness in the first round, one task in the second round, and three tasks in the third round. The only task that did not reach consensus was completing the required reports for patients admitted to the 72-hour observation units (69.6%) which was marginally below the consensus threshold of 70.0%.

**Table 6. Appropriateness of mental health tasks that could potentially be performed by clinical associates**

| Work setting | Proportion of participants scoring 7,8,9 (%) | | |
|---|---|---|---|
| | Round 1 | Round 2 | Round 3 |
| **With only undergraduate mental health training as part of BCMP/BMCP degrees (items where consensus on being appropriate was reached)** | **N=26** | **N=23** | **N=23** |
| Screening for common mental disorders | 96.2 | - | - |
| Taking a mental health history from patients suspected of having a mental illness | 96.2 | - | - |
| Doing a mental health examination on patients suspected of having a mental illness | 92.3 | - | - |
| Mental health promotion in communities | 88.5 | | |
| Mental health promotion in schools | 84.6 | - | - |
| Doing physical examination on patients with mental illness | 80.8 | - | - |
| Assessing cognitive functioning using a suitable cognitive screening test on patients suspected of having a mental illness | 80.8 | - | - |
| Home visits to mental health patients | 76.9 | - | - |
| Providing counselling to families of patients with mental illness | - | 86.9 | - |
| Providing counselling to patients with mental illness | - | 78.3 | - |
| **With a postgraduate qualification in mental health (all items)** | **N=25** | **N=23** | **N=23** |
| Taking a mental health history from patients suspected of having a mental illness | 100.0 | - | - |
| Doing a mental health examination on patients suspected of having a mental illness | 100.0 | - | - |
| Screening for common mental disorders | 96.0 | - | - |
| Assessing cognitive functioning using a suitable cognitive screening test on patients suspected of having a mental illness | 96.0 | - | - |
| Providing counselling to families of patients with mental illness | 96.0 | - | - |
| Mental health promotion in communities | 96.0 | - | - |
| Mental health promotion in schools | 96.0 | - | - |
| Providing counselling to patients with mental illness | 95.8* | - | - |
| Doing physical examination on patients with mental illness | 88.0 | - | - |
| Home visits to mental health patients | 84.0 | - | - |
| Monitoring of patients admitted to 72-hour observation units | 76.0 | - | - |
| Management of a patient suspected to be exposed to traumatic event(s) | 75.0* | - | - |
| Management of a patient at risk of suicide | 73.9# | - | - |
| Managing common side effects from psychiatric medication | 72.0 | - | - |
| Management of a patient presenting with confusion | 70.8* | - | - |
| Management of a patient presenting with aggression | 70.8* | - | - |
| Restraining a patient who is aggressive/violent | 68.0 | 73.9 | - |
| Sedating a patient who is aggressive/violent | 64.0 | 69.6 | 82.6 |
| Prescribing psychotropic medication to patients with mental illness | 56.0 | 65.2 | 73.9 |
| Managing serious adverse events from emergency psychiatric medication | 52.0 | 56.5 | 73.9 |
| Completing the required reports for patients admitted to 72-hour observation units | 66.7* | 65.2 | 69.6 |

*Only answered by 24 participants (N=24), #only answered by 23 participants (N=23)

**Discussion**

Our study aimed to identify the potential content, training sites, and teaching modalities for undergraduate and postgraduate training in mental health for clinical associates and identify the mental health tasks that clinical associates should perform based on their level of training. The identified items would form part of a mental health task-sharing model for clinical associates. Mental health training does currently form part of the three BCMP/BMCP curricula in the country [10] but there is no existing postgraduate qualification in mental health for clinical associates. The panel was, therefore, asked to consider an hypothetical postgraduate qualification (Postgraduate Diploma or Honours Degree). Unsurprisingly, the panel drew a clear distinction between the content that should be included at an undergraduate level compared to postgraduate level as well as the tasks that should be performed by those with only undergraduate training in mental health compared to those with a postgraduate qualification.

There was strong consensus from the panel of the importance of attachments to a mental health clinic at a CHC for both undergraduate and postgraduate training. There is no evidence that CHCs are currently being utilised for undergraduate mental health training, instead the most common sites for their mental health rotation are district and regional hospitals [24]. With South Africa's National Mental Health Policy Framework and Strategic Plan 2023 – 2030[33] indicating that community mental health services including mental health services at primary health care facilities will be scaled up, this presents an opportunity to make use of CHCs and PHC clinics who provide mental health services for clinical associate training. The benefits of mental health attachments to PHC settings may include exposure to a broader range of patients, developing an approach that is more 'patient-centred', and reducing stigmatising attitudes [34]. Primary care settings are used in the USA and UK for the mental health training of physician assistants and physician associates respectively [14, 17]. The panel did reach consensus on mental health training at a hospital level both in 72-hour observation units and psychiatric outpatients clinics for both undergraduate and postgraduate students, although attachment to an inpatient unit at a psychiatric hospital only reached consensus at the postgraduate level.

The panel was provided with the 19 DSM-5[26] categories for undergraduate curriculum content. There were nine disorder categories that the panel felt were important for clinical associates to be able to recognise but only six reached consensus for clinical associates playing a role in management. The choice of the six disorder categories (depressive disorders, anxiety

disorders, substance-related and addictive disorders, trauma and stressor related disorders, bipolar and related disorders, and schizophrenia spectrum and other psychotic disorders) appear to be linked to their prevalence or burden of disease. Based on global burden of disease data for 2019, depressive disorders ranked 13th and were the highest ranked of the mental disorders with respect to the leading causes of disability-adjusted life-years (DALYs) followed by anxiety disorders (ranked 24$^{th}$), and schizophrenia (ranked 42$^{nd}$) [35]. Depressive disorders (ranked 2$^{nd}$), anxiety disorders (ranked 8$^{th}$), and schizophrenia (ranked 20$^{th}$) were also the leading mental health disorders when considering years lived with disability (YLDs) [35]. Bipolar disorder also featured prominently with respect to DALYs (ranked 67$^{th}$) and YLDs (ranked 28$^{th}$) [35]. Herman *et al.*[1] reported that the three mental disorders with the highest lifetime prevalence in South Africa were anxiety disorders (15.8%), substance use disorders (13.3%), and mood disorders (9.8%). The consensus reached on trauma- and stressor-related disorders is also not surprising given the high levels of interpersonal violence including gender-based violence in South Africa [36]. The items on which the panel reached consensus supports previous recommendations by Moodley *et al.*[10] that questioned the utility of including a number of uncommon disorders in the clinical associate undergraduate mental health curriculum and recommended a focus on common and high burden disorders. Self-reported knowledge deficits were identified in a survey of clinical associates for schizophrenia, dementia, acute-stress disorder, bipolar disorders and attention-deficit hyperactivity disorder which all fall within the DSM-5[26] categories on which consensus was reached with respect to recognition suggesting that undergraduate training needs to strengthened for these disorders [24].

The panel reached consensus for training on recognition of disorders at postgraduate level on all nine DSM-5[26] categories deemed suitable at an undergraduate level with three additional DSM-5[26] categories considered important to be able to recognise viz. sleep-wake disorders, somatic symptom and related disorders, and obsessive-compulsive and related disorders. None of these three categories of disorders is considered particularly common or high burden disorders. The panel did not reach consensus on the importance on training on the management of these three disorders suggesting the view was that clinical associates with a postgraduate qualification in mental health should just be able to recognise these disorders and refer for further management. Three additional disorder categories were considered important with respect to training on management at postgraduate level compared to undergraduate level viz. medication-induced movement disorders and other adverse effects of medication,

neurodevelopmental disorders, and neurocognitive disorders. Sorsdahl *et al.*[37] have noted the neglect and inequitable distribution of child and adolescent mental health as well as psychogeriatric services in South Africa and the consensus reached by the panel on training on management of neurodevelopmental disorders and neurocognitive disorders suggests clinical associates with a postgraduate qualification in mental health may have a role to play in addressing this neglect.

All potential teaching modalities provided to the panel reached consensus for both undergraduate and postgraduate training. The only item that reached 100% consensus at an undergraduate level was clerking patients highlighting the importance of practical training. Practical learning is mainly by chance in two of the three BCMP/BMCP programmes in the country, and this would need to be addressed [10]. It has been found in a study among medical students that compared a number of different teaching modalities during their psychiatry rotation that face-to-face clinical teaching with psychiatrists was the most highly valued by the students [38]. While the COVID-19 pandemic has seen the wider use of online teaching in psychiatry for medical students for example [39, 40], online lectures had the lowest proportion of consensus amongst the panel for suitability at both undergraduate and postgraduate levels though it did reach the 70% consensus threshold. It has been suggested by Nayak[41] that using "newer" teaching techniques in psychiatry teaching such as case-based and problem-based learning, simulated patients, multidisciplinary seminars, movies, and small group teaching could develop interest in psychiatry among medical students and reduce stigmatising attitudes. The Delphi panel reached consensus on the importance of a wide range of health professionals to be involved in mental health training at an undergraduate level. Currently, mental health training of these students at facilities is facilitated by medical officers, qualified clinical associates, and/or psychiatrists depending on the programme [10]. Based on panel consensus, this training role should be expanded to involve other members of multidisciplinary team such as psychologists and social workers. Consensus was reached on the importance of all of the suggested cadres being involved at postgraduate level except medical officers and occupational therapists. Medical officers not reaching consensus is an indication that they may not be equipped to provide mental health training to clinical associates at a postgraduate level given that the psychiatry training for most of them would have been limited to their undergraduate medical degrees.

The Delphi panel reached consensus on just three of the public and private sector work settings to provide mental health services for those with only an undergraduate degree. Unsurprisingly, this included district hospitals as this cadre was originally developed to address health workforce shortages at district level and their undergraduate clinical training takes place mostly at district hospitals [42, 43]. However, both CHCs and PHC clinics reached a higher degree of consensus than district hospitals suggesting that clinical associates should have a bigger role to play at this level than they do currently. Monareng *et al.*[44] found less than ten percent of clinical associates in their study were currently practising at PHC clinics in the public sector. In addition to PHC clinics, CHCs and district hospitals, the panel also reached consensus on secondary hospitals and private general practitioner (GP) practices as being appropriate work settings for clinical associates with a postgraduate qualification in mental health. The panel consensus was that it would be appropriate for clinical associates with only undergraduate mental health training and those with a postgraduate mental health qualification to provide mental health services at PHC level (presumably with different roles). The use of this cadre at PHC level may help address some of the issues related to integration of mental health into PHC services such as the lack of trained staff [37, 45]. The use of clinical associates with postgraduate mental health training in GP practices may be an acknowledgement of the need to strengthen primary care mental health services in the private sector as well.

The mental health tasks that the Delphi panel reached consensus on for clinical associates with only undergraduate training in mental health aligned closely with the current clinical associates scope of practice [28]. Taking a mental health history, performing a mental health examination and a mini-mental state examination, doing a physical examination, and mental health counselling all form part of their scope of practice [28]. In addition, four tasks that could be broadly classified as mental health promotion activities reached consensus viz. screening for common mental disorders, home visits to mental health patients, mental health promotion in communities, and mental health promotion in schools. Promoting health at both an individual and community level are recognised as entrustable professional activities for clinical associates [43, 46]. The involvement of clinical associates in mental health promotion activities in communities as well as a role in school mental health has previously been suggested by those involved in undergraduate clinical associate training programmes [18]. A role for them in screening has also been previously suggested though this was limited to screening for drug and alcohol abuse and screening for mental health issues in patients with chronic medical conditions [18].

The Delphi panel reached consensus on 20 of the 21 mental health tasks being appropriate for a clinical associate with a postgraduate mental health qualification to perform suggesting the panel saw a broad role for clinical associates with advanced training in mental health. Completing the required reports for patients admitted to 72-hour observation units narrowly missed consensus. The lack of consensus on this item may be due to clinical associates not currently being recognised as mental health practitioners in terms of the Mental Health Care Act, 2002 which would be a requirement for completion of the 72-hour observation documentation [47]. Prescribing psychotropic medication was probably the most contentious item on the list of tasks provided as most psychoactive medicines are registered as Schedule 5 in South Africa and clinical associates may only prescribe up to Schedule 4 - and even then it needs to be done under the supervision of a medical practitioner [28, 48]. The panel appeared to become supportive of the idea of clinical associates prescribing through the rounds with the proportion feeling it was appropriate for them to prescribe psychotropic medication moving from 56.0% in Round 1 to 65.2% in Round 2 and ultimately reaching consensus in Round 3 at 73.9%. It has been suggested by Moodley *et al.*[24] that the limitation on prescribing Schedule 5 medication could be eased with appropriate training such as a prescribing course for psychiatric medication. A prescribing course should ideally form part of the postgraduate qualification in mental health for clinical associates. A few of the other tasks on the list the panel felt were appropriate for clinical associates with a postgraduate qualification to perform such as restraining or sedating an aggressive patient may be considered to currently fall outside of the current scope of practice of clinical associates [28]. These Regulations[28] may need to be revisited if postgraduate training in mental health does become a reality. There would also need to be consideration given to whether it would be appropriate for a clinical associate with a postgraduate qualification in mental health to be supervised by a medical officer who is likely to only have had undergraduate training in mental health as is likely to be the case at district and primary care level.

**Limitations**

There is no definitive guidance on the ideal size of a Delphi panel with panels of between 10-100 participants generally being utilised [49]. While the size of our panel was at the lower end of this range with 26 participants in the first round dropping to 23 participants by the end of the third round, we maintained our initial target of a minimum of 10 psychiatrists and 10 family physicians throughout. The panel comprised of a few more psychiatrists than family physicians

which may potentially have influenced the results [49]. There is also no definitive agreement on how to define consensus in a Delphi panel. We used the proportion within a range (unrestricted) approach with 70% of participants scoring 1,2,3 or 7,8,9 regarded as consensus though only a limited number of items reached consensus at the lower end of the range in our study [31]. It is conceivable that the results would have been different had a different definition of consensus been used. The decision on what proportion threshold to use for the proportion within a range (unrestricted) approach is also somewhat arbitrary as higher proportions of 75% for example have been used [31]. We opted for 70% based on a recent Delphi panel by the World Health Organization related to COVID-19 [50]. We used DSM-5[26] disorder categories in our study rather than individual disorders. As it was possible that participants could rate individual disorders differently within a category, we asked participants to rate the overall category according to disorder they would rate the highest within the category in order to standardise responses.

## Conclusions

The Delphi panel's recommendations provide a clear roadmap for enhancing mental health curricula for clinical associates. The proposed approach advocates a focused selection of disorders during undergraduate training, expanding to a broader spectrum at the postgraduate level, with a strong emphasis on practical skills. The suggested delineation of mental health service provision aligns with the tiered health system, emphasising employment at primary care and district levels for clinical associates with undergraduate training. Clinical associates who complete a postgraduate qualification in mental health in the future could perform an expanded set of mental health tasks at primary care, district and regional hospital levels, offering a more comprehensive range of mental health services.

### List of abbreviations

| | |
|---|---|
| BCMP | Bachelor of Clinical Medical Practice |
| BMCP | Bachelor of Medicine in Clinical Practice |
| CAQ | Certificate of added qualification |
| CHC | Community health centre |
| COVID-19 | Coronavirus disease 2019 |
| DSM-5 | Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition |
| GP | General practitioner |
| UK | United Kingdom |

| | |
|---|---|
| USA | United States of America |

## Declarations

### Ethics approval and consent to participate

The study had ethics approval from the University of Pretoria Faculty of Health Sciences Research Ethics Committee (778/2020). Informed consent was obtained from all panellists. Information about the study was e-mailed to all potential panellists followed by a link to an online consent form using Qualtrics which required them to sign if they chose to participate. The link to the first round of the Delphi survey was only e-mailed to those that provided consent. The participants received an individualised link to allow for the follow up of those who did not respond in each round. The identity of the participants was not shared with the other panellists and the confidentiality of participants was maintained throughout the process. Data were stored securely and only accessible to the research team.

### Consent for publication

Not applicable

### Availability of data and materials

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

### Competing interests

The authors declare that they have no competing interests.


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### Authors contributions

The study was conceptualised by SVM. The Delphi methodology and first round questionnaire was developed by SVM with input from JW and CG. SVM analysed the data from each round and updated the second and third round questionnaires. SVM wrote the first draft of the

manuscript with JW and CG providing further inputs. All the authors read and approved the final manuscript.

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# CHAPTER 7: DISCUSSION AND CONCLUSION

The previous chapter identified some of the key elements of the mental health task sharing model for clinical associates. The disorders that should be included as part of training at undergraduate and postgraduate training were identified as were the sites that should be used for practical training, the teaching modalities that should be utilised in training, and the health professionals who should be involved in training. The appropriate work settings for clinical associates to deliver mental health services were identified. Importantly, the mental health tasks that should be performed by those with an undergraduate degree and those with a postgraduate qualification in mental health were defined.

Chapter 7 integrates the key findings of chapters 3 to 6 and presents the proposed task sharing model, discusses the curriculum and policy implications of the model, reviews the study limitations, makes recommendations for future research and provides a conclusion to the thesis.

## 1. Synthesis of findings

The study aimed to describe the mental health content of the three clinical associate training programmes in South Africa, to determine knowledge, attitudes and practices (KAP) of clinical associates with respect to management of mental illness, to describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates, and to identify the key elements of a mental health task sharing model for clinical associates. Different perspectives were elicited through the course of the three phases of the study including from those involved in training clinical associates, clinical associates themselves, health managers, clinicians involved in mental health service provision, and finally family physicians and psychiatrists who formed part of the Delphi panel.

A common thread running through the chapters is the need to strengthen undergraduate training in mental health. The deficiencies were identified by those involved in the training with concerns raised regarding the short period of time allocated to mental health in the curriculum, mental health training only taking place in the final year of the degree, the long lists of disorders that needed to be taught, the lack of practical exposure in one programme and substantial variation in another, and the lack of experiential targets. The survey of clinical associates confirmed the gaps in undergraduate training with concerning self-reported knowledge for schizophrenia, dementia, acute-stress disorder, bipolar disorders, attention-deficit hyperactivity disorder. Only half of participants felt quite/very confident taking a mental health history and even fewer felt quite/very confident doing a mental health examination. There were a number of confidence 'deficits' identified with respect to aspects of mental health assessment and management suggesting deficiencies in practical training at the undergraduate level. While the health managers, doctors and nurses who participated in the focus groups did not have a great deal of insight into clinical associates undergraduate mental health training, there was the perception that it was inadequate based on the time allocated to it.

The need for additional training for clinical associates in mental health was also a thread in the different phases of the research. This additional training would either be in the form of short courses or a specialisation (advanced training) in mental health which could either be an Honours degree or postgraduate diploma. Those involved in training clinical associates felt short courses would help close the gaps in undergraduate training given the limited time available at undergraduate level. The KAP survey of clinical associates showed a majority of participants were already involved in mental health assessment and management despite the

gaps in their knowledge and confidence which suggests the urgent need for short courses in mental health. The suggestion of sending clinical associates to mental health courses to capacitate them and compensate for the deficiencies in their undergraduate training also emerged in the focus group discussions with health managers and clinicians. The survey of clinical associates also confirmed that just under 90% of participants would be interested in attending short courses in mental health which could be seen as an acknowledgement by them of gaps in their undergraduate training as well as an interest in mental health.

There were generally positive views of a clinical specialisation (advanced training) in mental health throughout the study. There was overwhelming support for it among those involved in clinical associate training as participants felt it would address mental health workforce shortages and the lack of access to mental health services, provide clinical associates with a career path, and provide them with more employment opportunities. Managers and clinicians in the focus groups saw the value in postgraduate training for clinical associates as it would be an improvement on the current reality of medical officers who provide mental health services without the appropriate training. Parallels were drawn between the potential of task sharing for clinical associates with advanced training in mental health and the task sharing in successes in the response to the HIV pandemic. The idea of a career path in mental health for clinical associates was also seen as way of creating a sustainable mental health workforce. What was not known at the start of the study was whether there would be interest from clinical associates in pursuing a specialisation in mental health. This question was answered as part of the clinical associate survey with two-thirds of participants indicating an interest. This proportion is much higher than anticipated and could partly be due to selection bias. There were, however, more than 100 participants who indicated interest suggesting a postgraduate qualification in mental health for clinical associates would be a viable option.

There were various roles suggested for clinical associates in mental health service provision by those involved in their training during the in the in-depth interviews and health managers and clinicians in the focus groups. Their potential use at primary health care (PHC) level and in communities was an area of common ground between those involved in their training, and the health managers and clinicians in the focus groups with the role in communities involving mental health promotion and home visits. There was strong interest from clinical associates in the KAP survey in working in mental health at PHC level. A role in the emergency care of mental health patients at hospital level came across strongly in the in-depth interviews but was

less prominent in the focus groups. A role in the 72-hour observation of mental health patients in hospitals was also mentioned in the in-depth interviews and focus groups and clinical associates showed interest in this role in the KAP survey. It was not clear through the initial phases of the study how the roles and tasks of those with an undergraduate training in mental health would differ from those who had a postgraduate qualification in mental health. However, this differentiation was clearly made by the Delphi panel in the final phase of the study.

Six of the 14 domains of the Theoretical Domains Framework (TDF) were explored through the different phases of the research viz. knowledge, skills, beliefs about capabilities, environmental context and resources, social influences, social/professional identity and role.[1,2] These six domains were considered the most relevant domains to the overall aim of the study and were identified prior to commencement of the research. Potential gaps in knowledge were identified in the exploration of the three mental health training programmes and self-reported knowledge of clinical associates appeared to confirm this. The development of skills is highly dependent on practical exposure which was a concern at two institutions. Clinical associates' reported confidence in carrying out certain aspects of a mental health assessment and managing mental health patients suggests their beliefs about their capabilities in mental health may be lacking. A number of barriers and constraints related to the environmental (policy) context were identified particularly in the focus group discussions that need to be overcome in order for clinical associates to be fully utilised in mental health. As a group, clinical associates appear to be interested in provision of mental health services with doctors and nurses being supportive of the idea (indicative of a low risk of interprofessional conflict) which are both positive factors linked to the social influences domain. The overwhelming view across all phases of the study was that clinical associates could have a professional identity and role in mental health.

**2. The mental health task sharing model for clinical associates**

The findings of the study confirmed that clinical associates have a role to play in mental health service provision. The actual mental tasks they could perform are highly dependent on the training they receive. The model, therefore, incorporates the training component and the tasks they could perform based on the training they have received. While a specialisation (advanced training) in mental health through a postgraduate qualification does not currently exist, it is incorporated into the model given the support for this idea. A diagrammatic representation of the model is shown in Figure 1.

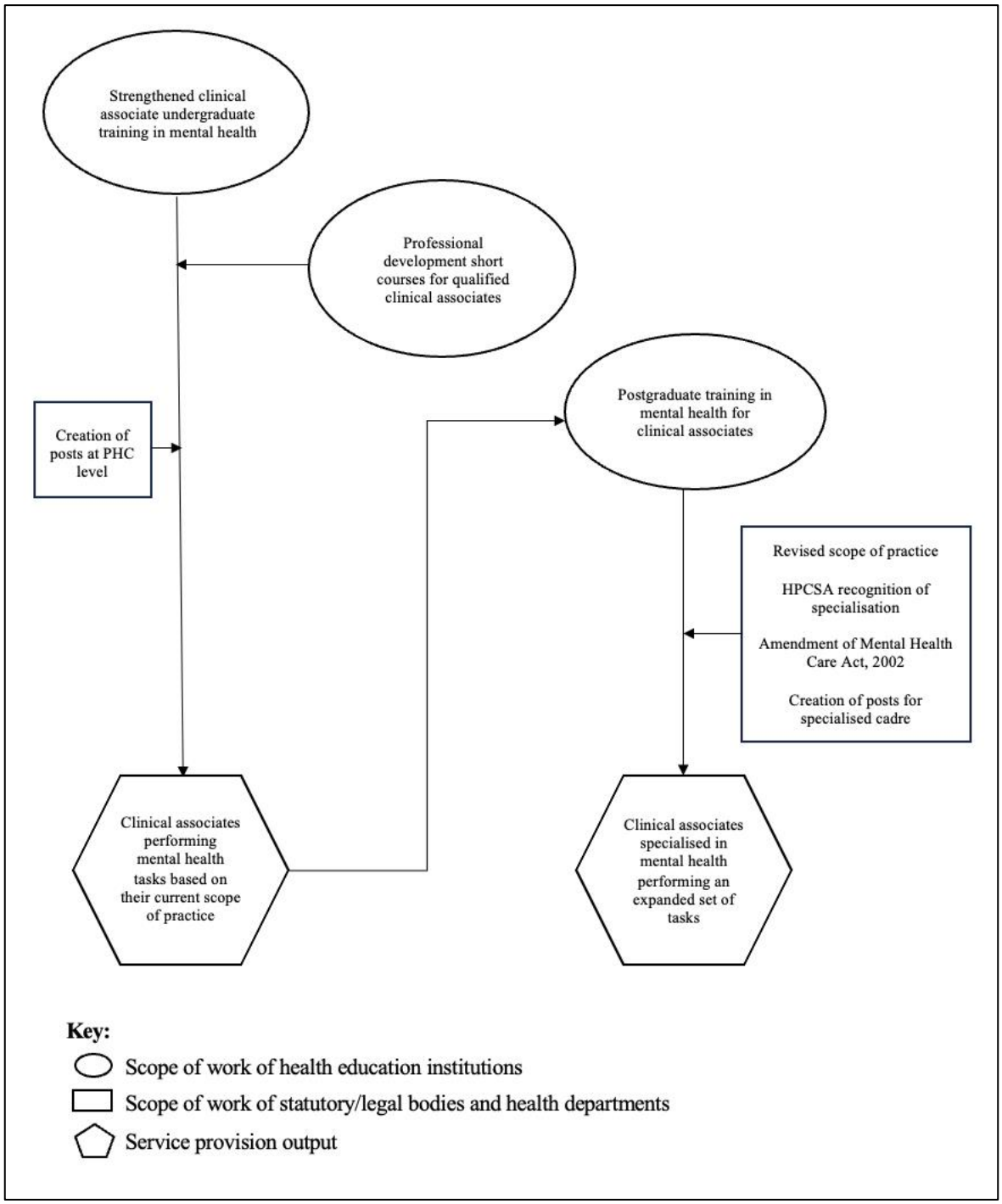


**Figure 1. Diagrammatic representation of the task sharing model**

**Component 1: Strengthened clinical associate undergraduate training in mental health**

Clinical associates have early clinical exposure mainly at district hospitals from their first year of training.[3,4] However, their mental health teaching and training takes places in their final year. The missed opportunities for earlier learning in mental health should be addressed by

integrating introductory lectures in mental health and some training in mental health history-taking and examination in the first year of the programme even if the mental health block itself remains in their final year. The duration of the mental health block should be a minimum of four weeks. The four-week block should comprise one week of formal teaching, and three weeks of site-based practical training. The latter should be split depending on availability between a mental health clinic at a community health centre (CHC), a psychiatric outpatients' clinics at a hospital, and 72-hour observation units. Leaving mental health exposure to chance in emergency units and general wards should no longer be an option. Experiential targets with logbooks should be implemented with an emphasis on clerking mental health patients. A broader range of mental health professionals should be involved in training including psychologists, psychiatrists, and psychiatric nurses.

Training should be focussed on a narrow set of disorders that are common or high burden and clinical associates are likely to see often in practice. The four priority disorder categories at undergraduate level should be depressive disorders, anxiety disorders, substance-related and addictive disorders, and schizophrenia spectrum and other psychotic disorders based on the literature[5-9] and the Delphi results. While trauma and stressor-related disorders and bipolar and related disorders reached a similar level of consensus in the Delphi panel as schizophrenia spectrum and other psychotic disorders, they have lower disease burdens and should probably be allocated slightly less time during formal teaching and practical training.[5,8,9] Training should also ensure that clinical associates are able to recognise neurodevelopmental disorders, neurocognitive disorder, medication-induced movement disorders and other adverse effects of medication and refer appropriately. The focus group findings suggest that particular attention needs to be substance-related disorders and increased attention to mental illness in children, adolescents and young adults. Undergraduate programmes should include training on evidence-based interventions that clinical associates could implement in the management of priority conditions. An expansion of counselling training such as motivational interviewing for substance use and problem-solving for depression is required.[10-12]

**Component 2: Professional development short courses for qualified clinical associates**

A strengthening of undergraduate training in mental health has no impact on the substantial numbers of clinical associates that have already qualified and are working in the health system.[13] Short courses need to be developed and offered to close the gaps that these clinical associates have with respect to mental health assessment and management. These short courses

should address the priority conditions identified for undergraduate training. The short courses require a significant practical component given the confidence issues in taking a mental history and performing a mental health examination amongst other deficiencies that have been identified. Given that clerking patients would likely not be feasible in short courses, other options such as simulated mental health assessments would need to be explored. Short courses should also include training on evidence-based counselling interventions for the priority conditions.[10-12]

**Component 3: Task sharing for clinical associates (without postgraduate training)**

The strengthening of undergraduate training and short courses for those that have already qualified would allow for the wider use of clinical associates in mental health service provision. The mental health tasks they would perform would be closely aligned to their current scope of practice viz. mental health history taking, performing a mental health examination, doing a mini-mental state examination, doing a physical examination on mental health patients, and counselling mental health patients and their families.[14] These tasks would be performed at PHC clinics, CHCs and district hospitals. They would have a role in district hospitals both in emergency units (casualty) and in outpatients' departments in assessment of patients presenting with features of mental illness. Their role in 72-hour observation units at district hospitals would be limited to carrying out investigations and managing these patients medically. They would see patients with mental illness as part of general patient population in PHC clinics and CHCs, assess, and refer for further management where appropriate. This is in addition to screening for common mental disorders at primary care level. The clinical associates based at PHC clinics, CHCs and in community-orientated primary care (COPC) should be utilised in mental health promotion activities in communities and should join school health teams in mental health education and promotion at schools. Those based in COPC should be involved in home visits and monitoring of mental health patients including adherence to psychotropic medication.

**Component 4: Establishing postgraduate training in mental health for clinical associates**

Given the broad support for a specialisation (advanced training) in mental health, a postgraduate qualification in mental health for clinical associates should be established. The qualification could take the form of an Honours degree or postgraduate diploma and should initially be a one-year fulltime programme. Consideration could be given to a part-time programme once the programme is fully established. The one-year programme could

commence with a month of formal teaching on campus followed by site attachments for supervised practical exposure. The latter could be broken down into an attachment to a mental health clinic at a CHC (three months), attachment to a psychiatric outpatient's clinic (two months), attachment to a 72-hour observation unit (two months), and an attachment to an inpatient unit at a psychiatric hospital (three months) which would ensure five months of outpatient exposure and five months of inpatient exposure. The final month could be utilised for consolidation of learning at the relevant university and for final assessments.

Training should emphasise the priority mental health conditions taught at undergraduate level but clinical associates in this programme should be trained to manage a broader set of conditions including neurodevelopmental and neurocognitive disorders which could help address deficiencies in child and psychogeriatric services.[15] A broad range of teaching modalities should be used in the first month of teaching including formal lectures, case studies, case vignettes, simulated mental health assessments, and watching recorded consultations. The emphasis should be on clerking patients and working as part of the multidisciplinary team when they are based in inpatient units. Training should mainly be conducted by family physicians and specialist mental health professionals viz. psychiatrists (and psychiatric registrars), psychologists, and psychiatric nurses. Training on management of mental disorders should include evidence-based psychological interventions such as cognitive- behavioural therapy[16] and pharmacological management including a dispensing course.

**Component 5: Task sharing for specialised clinical associates**

Specialist clinical associates would be placed like those with only undergraduate training at PHC clinics, CHCs and district hospitals but with an expanded role. In addition, they would provide mental health services at secondary hospitals and at private general practitioner (GP) practices. They would assess and initiate treatment for the majority of patients presenting with features of mental illness at PHC level in the public sector. They would refer the more complex cases to a psychiatrist or psychologist for an assessment but would manage these patients following down referral. They would review the treatment of mental health patients periodically. They would function similarly in private GP practices under the supervision of a general practitioner. At district and secondary hospital level, they would be expected to manage most patients presenting to emergency departments (casualty) with mental health issues including those presenting with confusion, suicide risk, or aggression. They would be responsible for monitoring patients admitted to 72-hour observation units from both a medical

and a mental health perspective. They would be involved in in-patient management of mental health patients as well as assessment, management, and follow up of patients in psychiatric outpatients' departments at secondary hospitals.

**3. Curriculum and training implications of the task sharing model**

The introductory mental health sessions envisaged in the first year of the undergraduate programme could be done within a period of one to two days to minimise the impact on the rest of the first-year curriculum. The aim of the sessions should be to sensitise students to allow them to identify and engage with mental health patients rather than training them to assess and manage these patients. Two of the universities would need to increase total time spent on mental health in their undergraduate curricula from three to four weeks. Given the competing priorities for time, this may be a challenge but there is a strong case for this based on burden of disease due to mental health.[5,9] This inclusion implies reducing time for another clinical discipline. The choice of the discipline for the 'trade off' is likely to be controversial and should be based on a clear set of criteria such as burden of disease, scope of practice of clinical associates, and health system's needs. The 'trade off' should be identified and supported by research such as a discrete choice experiment.[17] There are suggestions that the duration of the undergraduate clinical associate degree may be increased to four years which would provide more scope for expanding mental health training to six or potentially even eight weeks without impacting on other disciplines. A review of site attachments for mental health is required and CHCs need to be integrated as a training platform. Two universities would need to rethink their approach of students spending their mental health block at the general hospitals they are based for the year. Appropriate supervisors with qualifications or experience in mental need to be identified at the new training sites.

One or more of the three universities would need to develop a new postgraduate programme in mental health for clinical associates and have it approved by internal university structures as well as external accreditation bodies. The only postgraduate qualification available to clinical associates currently viz. an Honours in emergency medicine at the University of Witwatersrand may hold valuable lessons.[18] Given the multidisciplinary nature of the teaching required, there would need to be collaboration internally between the Departments of Family Medicine, Psychiatry, and Psychology in the development and implementation of the programme. There would need to be memoranda of agreement in place with the relevant provincial departments of health with respect to site attachments and supervision.

The short courses envisaged in the model are usually delivered by private providers not by universities. Given that the short courses proposed are meant to address deficits in undergraduate training, potential providers would need to have to a good understanding of the mental health curricula at the three universities. These courses should ideally be face-to-face to enable a strong practical component. Hybrid and online options might need to be considered due to logistical barriers that may prevent clinical associates working in some parts of South Africa from attending in person but providers need to ensure that practical training is integrated into the online environment. Various funding mechanisms can be considered for these courses. Potential funding sources are the Health and Welfare Sector Education and Training Authority or the provincial departments of health as these courses should ultimately benefit mental health service delivery. Some clinical associates may be motivated to self-fund particularly if the courses are linked to career progression, continuing professional development, or credits that could be used for a postgraduate qualification in mental health. Employers need to be encouraged to allow clinical associates the time off to attend these courses.

**4. Policy and health service implications of the task sharing model**

There is nothing from a regulatory perspective preventing the greater involvement of clinical associates in mental health service provision as there is alignment between the tasks identified for those with only undergraduate training in mental health and their current scope of practice[14] The broader scope of practice issues that extend beyond just mental health such as supervision by a medical doctor and the countersignature of prescriptions need further interrogation.[4,19,20] Should a specialisation (advanced training) be established in mental health for clinical associates, the current generalist scope of practice may not be adequate to cover all the mental health tasks envisaged in the model e.g. the prescription of psychoactive medicines which are Schedule 5.[14,21] A separate scope of practice may be needed for clinical associates with advanced training in mental health and for any other clinical discipline that goes this route. There are also regulatory matters that would need to be addressed with the Health Professionals Council of South Africa (HPCSA) including recognition of the postgraduate qualification(s) in mental health, the recognition of specialised clinical associates as a registration category, and accreditation of training sites for mental health.

South Africa's Mental Health Care Act, 2002 indicates that assisted and involuntary patients must be assessed by two mental health care practitioners with one of these two being qualified to physically examine patients.[22] As this legislation predates the inception of clinical associate training in South Africa, clinical associates are not recognised as one of the mental health care practitioners who are defined in the Mental Health Care Act, 2002 as a "*psychiatrist or a registered medical practitioner or a nurse, occupational therapist, psychologist or social worker who has been trained to provide prescribed mental-health care, treatment and rehabilitation services*".[22] The Delphi panel reached consensus that clinical associates with a postgraduate qualification in mental health could monitor patients admitted to 72-hour observation units but the ability to complete the required reports narrowly missed consensus in the third round which may have been a result of panel members recognising that the legislation does not allow for it. If a specialisation (advanced training) in mental health is established for clinical associates, then this cadre would have met the requirements of a mental health care practitioner and the Mental Health Care Act, 2002 should be amended at that point to recognise them.[22] The added benefit would be that they are qualified to conduct physical examinations.[14]

While there is strong support for the use of clinical associates to provide mental health services at primary care level in the public sector, the small numbers of clinical associates currently working at this level in South Africa is a barrier.[23] Provincial departments of health would need to create new posts for clinical associates at PHC clinics and CHCs. A decision would need to be taken on whether clinical associates with advanced training in mental health could be appointed at PHC clinics given concerns related to vertical programming at this level. However, the mental health crisis and lack of priority given to mental health services at PHC level probably override these concerns similar to what was done to address the HIV pandemic.[15,24] An alternative option would be for clinical associates with advanced training in mental health based at CHCs and at hospital level to provide outreach to PHC clinics. Clinical associates already based at district and regional hospitals should be encouraged to attend short courses in mental health which should be funded by their employers or in-service training in mental health should be offered. New posts for clinical associates with advanced training in mental health need to be created at district and regional hospitals. A pilot programme integrating clinical associates with advanced training in mental health into private GP practices needs to be established.

## 5. Study Limitations

While the study had a number of strengths including the use of multiple methodological approaches and exploration of different perspectives, there were a few limitations. These are summarised by objective.

### Objective 1: To describe the mental health content of the three clinical associate training programmes in South Africa

The description of mental health training at health facilities was based on a sample of participants and there may have been individual training sites not represented in the study that differed from the overall findings for a particular programme. Access to documents for the document review was limited to those provided by programme co-ordinators which may not have included all the relevant documentation. The overall descriptions of the three programmes obtained was comprehensive and unlikely to be affected significantly by these two potential issues. The strong support elicited in the interviews for a role in mental health service provision for clinical associates as well as a clinical specialisation could be attributed to this being a fairly homogenous group of participants involved in clinical associate training programmes who saw this as potentially creating an opportunity for the cadre they train. It was, therefore, important to explore the view of other stakeholders which was done later in the study.

### Objective 2: To determine knowledge, attitudes and practices of clinical associates with respect to management of mental illness

The proportion of clinical associates in SA that participated in the KAP survey was approximately 12%. While there were efforts to increase participation including incentives, this is a smaller number than was anticipated. Generalisation based on the findings of the survey should be done with caution due to possible selection bias as those who participated may have been more likely to be interested in mental health than the clinical associate population as a whole. Nonetheless, the crude numbers alone indicated that a substantial number of clinical associates are already seeing mental health patients, are interested in doing mental health work, and are interested in advanced training in mental health. It is likely that the KAP survey responses overestimated the knowledge and skills of the participants given that it was a self-assessment (Dunning-Kruger effect).[25] The skills questions required participants to rate their 'confidence' and participants may have felt confident based on the false assumption that they have the requisite skills.[25] Despite the likely overestimation of knowledge and skills, the

comparison of self-assessed knowledge of different conditions and the comparison of confidence performing different tasks does provide insight into potential gaps.

**Objective 3: To describe the attitudes of health managers, medical doctors and nurses towards mental health task sharing involving clinical associates**

The selection of the four districts for the study was based on them already employing clinical associates. Ideally, all members of the focus group should have had first-hand experience of working with clinical associates. This was, however, not the case due to the small numbers of clinical associates employed in the districts with the vast majority of them being hospital-based. The focus group panels consisted of managers, nurses, and doctors on the same panel. The composition of the panels may have inhibited some members from fully expressing their points of view particularly if those views varied from more senior colleagues on the panel.

**Objective 4: To identify the key elements of a mental health task sharing model for clinical associates**

The initial (first-round) Delphi panel comprised of 15 psychiatrists and 11 family physicians and this may have potentially influenced the results if psychiatrists as a group differed from family physicians on particular items.[26] There is no clear agreement on how consensus should be defined in a Delphi panel with a variety of definitions described in the literature.[27] The proportion within a range (unrestricted) approach was used in this study with consensus defined as 70% of participants scoring 1,2,3 or 7,8,9.[27] It is possible that a different definition of consensus would have resulted in different findings. Setting a higher threshold for consensus using the proportion within a range (unrestricted) approach may have also resulted in few items reaching consensus.[27] The use of DSM-5[28] disorder categories in this study meant that participants could not differentiate between individual disorders. Within categories, there may be disorders that participants may have considered unimportant if they were given that option to rate individual disorders. This would not have been feasible given the number of disorders and they were, therefore, asked to use the disorder they would rate the highest within the category in order to rate the overall category to ensure standardised responses.

**6. Recommendations for future research**

While the Delphi panel has provided clear guidance with respect to training and task-sharing, there may be scope for further work by a Delphi panel in future. In this study, DSM-5 disorder categories[28] were used to identify curriculum content. A future Delphi panel could look at

individual disorders within the categories that reached consensus to streamline the undergraduate curriculum even further. The mental health tasks to be performed by clinical associates could be further differentiated by presentation (e.g. presentation following a suicide attempt). The level of supervision required for the different tasks could also be assessed.

Increasing the duration of mental health training at undergraduate level would require that the time of at least one other clinical discipline be reduced. These 'trade-offs' could be the subject of a discrete choice experiment.[29] A knowledge, confidence and attitudes survey could be conducted pre- and post- the undergraduate mental health blocks prior to and after the implementation of the curriculum changes. The Mental Illness Clinicians' Attitudes version 4 scale (MICA-4) tool could be utilised to measure changes in attitudes.[29] Similarly, pre- and post- surveys could be conducted for each short course that is introduced. There would be scope for a number of medical education research studies as the postgraduate mental health qualification(s) are established.

Various elements of the task sharing model could be piloted with qualitative studies conducted to determine acceptability and feasibility. Studies could be designed to evaluate clinical associates' (with differing levels of training) ability to detect mental illness and initiate appropriate management with psychiatrists being utilised to assess this.[30] Ideally, a cluster randomised trial design should be utilised to evaluate mental outcomes of the proposed task sharing model with facilities randomised to either implement the task-sharing model (or aspects thereof) or continue with their current mental health service delivery model. Only facilities that employ clinical associates could be included in such a study. A quasi-experimental design (no randomisation) may be more feasible with facilities that agree to implement the model being compared to those not implementing the model. The latter may include facilities which do not employ any clinical associates. In addition, mental health outcomes at a district level could be compared between districts where some implementation has taken place to districts where no implementation has taken place. The tasks identified in this study could form the basis for interventions for specific disorders to be delivered by clinical associates. The efficacy of these interventions delivered by clinical associates could be measured against standard care using randomised controlled trials. In addition, economic evaluations such as cost-effectiveness analyses could be conducted to evaluate aspects of the model or delivery of specified mental health interventions by clinical associates.

The focus group discussions with health managers and clinicians highlighted a number of issues that could be the subject of future research. The views expressed that mental illness is on the rise suggests that nationally representative survey data is urgently required to estimate prevalence of mental disorders in South Africa. Current prevalence estimates are based on data that is now almost 20 years old.[6,7] Specific factors contributing to high rates of relapse and readmissions could be identified by retrospective cohort or case-control study designs. The link between mental illness and the social determinants of health should be explored further using qualitative and epidemiological (analytical) study designs. Potential interventions could be assessed using cluster randomised trials.[31] Research regarding the social determinants of mental health should be underpinned by the conceptual framework developed by Lund et al[32] that identifies five domains of social determinants of mental disorders.

## 7. Conclusion

This study was the first to explore the potential utilisation of clinical associates in mental health service provision in South Africa. The study combined both curriculum and service delivery perspectives using multiple methodological approaches and involving a diverse range of stakeholders. Based on our findings, clinical associates have a potentially important role to play in addressing the mental health crisis in South Africa. They could help improve access to mental health services in the public sector particularly in rural areas. The proposed model comprises training and service provision components and highlights the policy and regulatory changes that are needed to enable mental health task sharing and optimise the contribution of clinical associates to the mental health system. Strengthening undergraduate mental health training and establishing postgraduate training in mental health for clinical associates is required. Key stakeholders including universities, the National Department of Health, provincial departments of health, and regulatory bodies would need to work together to ensure successful implementation of the proposed task sharing model. Constraints such as scope of practice, mental health legislation, and lack of posts at primary care level need to be addressed in order to ensure effective utilisation of clinical associate in mental health service provision.

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# APPENDICES

**Appendix A:** Approval from Academic Advisory Committee of the School of Health Systems and Public Health, University of Pretoria (UP)

**Appendix B:** First approval from the UP Faculty of Health Sciences Research Ethics Committee

**Appendix C:** Approval of amendments submitted to the UP Faculty of Health Sciences Research Ethics Committee

**Appendix D:** Annual renewals from the UP Faculty of Health Sciences Research Ethics Committee

**Appendix E:** Authorisation to conduct focus groups discussions from the relevant provincial departments of health

**Appendix F:** Proof of acceptance for publication of article (Chapter 4c) to South African Family Practice

**Appendix G:** Author guidelines for International Journal of Mental Health Systems (Chapter 5 manuscript)

**Appendix H:** Author guidelines BMC Medical Education (Chapter 6 manuscript)

**Appendix I:** Informed consent document and interview guide for in-depth interviews

**Appendix J:** Informed consent document for cognitive interviews to test KAP survey questionnaire

**Appendix K:** Informed consent document and questionnaire for clinical associate survey

**Appendix L:** Informed consent document and interview guide for focus groups

**Appendix M:** Informed consent document and first round questionnaire for Delphi Panel

## Appendix A: Approval from Academic Advisory Committee of the School of Health Systems and Public Health, University of Pretoria

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

08 October 2020

Dr Saiendhra Vasudevan Moodley
Student number: 04296222
Email: saiendhra.moodley@up.ac.za

Dear Dr Moodley

**SUCCESSFUL PHD PROTOCOL DEFENCE**

**SUPERVISOR:** Dr Liz Wolvaardt, Faculty of Health Sciences, SHSPH
**CO-SUPERVISOR:** Prof Christoffel Grobler, Walter Sisulu University

**TITLE: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

You had a successful virtual PhD protocol oral defence on **09 September 2020** at the School of Health Systems and Public Health, chaired by Dr Joyce Shirinde. All three reviewers indicated that revisions were required to your protocol and that they recommended your protocol for PhD Health [10260408] studies at the School of Health Systems and Public Health. Herewith the names of reviewers:

External Reviewer: **Prof M Wainberg - Columbia University**
External Reviewer: **Prof D Niehaus - Stellenbosch University**
Internal Reviewer: **Dr Murray Louw - Department of Family Medicine, University of Pretoria**

You addressed all the reviewer feedback and the SHSPH Academic Advisory Committee approved your updated protocol. You may now proceed and submit for ethical approval. The AAC strongly recommends that you also attach all three review forms in case the Faculty Research Ethics Committee questions the quality of your PhD protocol.

Yours sincerely

**Dr Joyce Shirinde**
Chairperson
SHSPH Academic Advisory Committee
Cc: Dr Liz Wolvaardt
Prof Christoffel Grobler

Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

# Appendix B: First approval from the UP Faculty of Health Sciences Research Ethics Committee

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

**Institution:** The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

**15 December 2020**

**Approval Certificate**
**New Application**

**Ethics Reference No.: 778/2020**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

**Dear Dr SV Moodley**

The **New Application** as supported by documents received between 2020-10-21 and 2020-11-18 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2020-11-18 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Ethics Approval is valid for 1 year and needs to be renewed annually by 2021-12-15.
- Please remember to use your protocol number (778/2020 ) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**Dr R Sommers**
MBChB MMed (Int) MPharmMed PhD
**Deputy Chairperson** of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health)*

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# Appendix C: Approval of amendments submitted to the UP Faculty of Health Sciences Research Ethics Committee

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

**Institution:** The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

Faculty of Health Sciences **Research Ethics Committee**

18 June 2021

**Approval Certificate**
**Amendment**

Dear Dr SV Moodley

**Ethics Reference No.: 778/2020**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

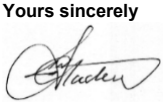
The **Amendment** as supported by documents received between 2021-05-27 and 2021-06-17 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2021-06-17 as resolved by its quorate meeting.

Please note the following about your ethics approval:
- Please remember to use your protocol number (778/2020 ) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**



**On behalf of the FHS REC, Professor Werdie (CW) Van Staden**
MBChB, MMed(Psych), MD, FCPsych(SA), FTCL, UPLM
***Chairperson**: Faculty of Health Sciences Research Ethics Committee*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).*

Research Ethics Committee
Room 4-60, Level 4, Tswelopele Building
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www.up.ac.za

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UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

**Institution:** The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

Faculty of Health Sciences **Research Ethics Committee**

11 November 2021

**Approval Certificate**
**Amendment**

Dear Dr SV Moodley

**Ethics Reference No.: 778/2020**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

The **Amendment** as supported by documents received between 2021-10-26 and 2021-11-10 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2021-11-10 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Please remember to use your protocol number (778/2020 ) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

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- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**On behalf of the FHS REC, Dr R Sommers**
MBChB, MMed (Int), MPharmMed, PhD
***Deputy Chairperson*** *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).*

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Faculty of Health Sciences

**Institution**: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0278 Approved for use through August 31, 2023.

Faculty of Health Sciences **Research Ethics Committee**

20 June 2023

**Approval Certificate**
**Amendment**

Dear Dr SV Moodley,

**Ethics Reference No.: 778/2020 – Line 5**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

The **Amendment** as supported by documents received between 2023-05-30 and 2023-06-14 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2023-06-14 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Please remember to use your protocol number (778/2020) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**On behalf of the FHS REC, Professor C Kotzé**
MBChB, DMH, MMed(Psych), FCPsych, Phd
***Acting Chairperson**: Faculty of Health Sciences Research Ethics Committee*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).*

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# Appendix D: Annual renewals from the UP Faculty of Health Sciences Research Ethics Committee

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Faculty of Health Sciences

**Institution:** The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

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- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

Faculty of Health Sciences **Research Ethics Committee**

11 November 2021

**Approval Certificate**
**Annual Renewal**

Dear Dr SV Moodley

**Ethics Reference No.: 778/2020**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

The **Annual Renewal** as supported by documents received between 2021-10-15 and 2021-11-10 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2021-11-10 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Renewal of ethics approval is valid for 1 year, subsequent annual renewal will become due on 2022-11-11.
- Please remember to use your protocol number (778/2020 ) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**On behalf of the FHS REC, Dr R Sommers**
MBChB, MMed (Int), MPharmMed, PhD
***Deputy Chairperson*** *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health)*

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YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

**Institution**: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0278 Approved for use through August 31, 2023.

Faculty of Health Sciences **Research Ethics Committee**

13 October 2022

**Approval Certificate**
**Annual Renewal**

Dear Dr SV Moodley,

**Ethics Reference No.: 778/2020 – Line 4**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

The **Annual Renewal** as supported by documents received between 2022-09-14 and 2022-10-12 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2022-10-12 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Renewal of ethics approval is valid for 1 year, subsequent annual renewal will become due on 2023-10-13.
- Please remember to use your protocol number (778/2020) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**On behalf of the FHS REC, Dr R Sommers**
MBChB, MMed (Int), MPharmMed, PhD
***Deputy Chairperson*** *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health)*

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**Institution**: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through June 30, 2025 and Expires 07/28/2026.

Faculty of Health Sciences **Research Ethics Committee**

14 September 2023

**Approval Certificate**
**Annual Renewal**

Dear Dr SV Moodley,

**Ethics Reference No.: 778/2020 – Line 6**
**Title: Task sharing in mental health service provision: Developing a model for clinical associates in South Africa**

The **Annual Renewal** as supported by documents received between 2023-08-21 and 2023-09-13 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2023-09-13 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Renewal of ethics approval is valid for 1 year, subsequent annual renewal will become due on 2024-09-14.
- Please remember to use your protocol number (778/2020) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

**Yours sincerely**

**On behalf of the FHS REC, Dr R Sommers**
MBChB, MMed (Int), MPharmMed, PhD
***Deputy Chairperson*** *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health)*

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**Appendix E: Authorisation to conduct focus groups discussions from the relevant provincial departments of health**

Province of the
EASTERN CAPE
HEALTH

Enquiries: Yvonne Gixela Tel no: 079 074 0859

Email: Yvonne.Gixela@echealth.gov.za / ncebagixela22@gmail.com

Date: 01 August 2022

**Task sharing in mental health service provision: Developing a model for clinical associates in South Africa.(EC_202207_011)**

Dear Dr. S.V. Moodley

The department would like to inform you that your application for the above mentioned research topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health in writing.

2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.

3. The Department of Health expects you to provide a progress update on your study every 3 months (from date you received this letter) in writing.

4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Eastern Cape Health Research Committee secretariat. You may also be invited to the department to come and present your research findings with your implementable recommendations.

5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

SECRETARIAT: EASTERN CAPE HEALTH RESEARCH COMMITTE

2030 NDP

*TOGETHER, MOVING THE HEALTH SYSTEM FORWARD*

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3180/ 3123 Fax: 033 394 3782
Email:
www.kznhealth.gov.za

DIRECTORATE:
Health Research & Knowledge Management

NHRD Ref: KZ_202207_043

**Dear Dr SV Moodley**
(University of Pretoria)

**Approval of research**

1. The research proposal titled '**Task sharing in mental health service provision: Developing a model for clinical associates in South Africa'** was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

   The proposal is hereby **approved** for research to be undertaken at Osindisweni Hospital; Inanda C, KwaMashu and Phoenix Community Health Centre.

2. You are requested to take note of the following:
   a. *All research conducted in KwaZulu-Natal must comply with government regulations relating to Covid-19. These include but are not limited to: regulations concerning social distancing, the wearing of personal protective equipment, and limitations on meetings and social gatherings.*
   b. *Kindly liaise with the facility manager BEFORE your research begins in order to ensure that conditions in the facility are conducive to the conduct of your research. These include, but are not limited to, an assurance that the numbers of patients attending the facility are sufficient to support your sample size requirements, and that the space and physical infrastructure of the facility can accommodate the research team and any additional equipment required for the research.*
   c. *Please ensure that you provide your letter of ethics re-certification to this unit, when the current approval expires.*
   d. *Provide an interim progress report and final report (electronic and hard copies) when your research is complete to* ***HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200*** *and e-mail an electronic copy to hrkm@kznhealth.gov.za*
   e. *Please note that the Department of Health shall not be held liable for any injury that occurs as a result of this study.*

For any additional information please contact Mr X. Xaba on 033-395 2805.

Yours Sincerely

**Dr E Lutge**
**Chairperson, Provincial Health Research Committee**
**Date:** 04/11/2022

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REPUBLIC OF SOUTH AFRICA

Indwe Building, Government Boulevard, Riverside Park, Ext. 2, Mbombela, 1200, Mpumalanga Province
Private Bag X11285, Mbombela, 1200, Mpumalanga Province
Tel I: +27 (13) 766 3429, Fax: +27 (13) 766 3458

Lilliko Letemphilo | Departement van Gesondheid | UmNyango WezeMaphilo

Enq: 013 766 3766
Ref: MP_202207_007

## Research Permission Letter

**DR S MOODLEY**
**PRINCIPAL INVESTIGATOR**
**PO BOX 193**
**PRETORIA, 0027**

**Dear Dr Moodley**

***STUDY TITLE: TASK SHARING IN MENTAL HEALTH SERVICE PROVISION: DEVELOPING A MODEL FOR CLINICAL ASSOCIATES IN SOUTH AFRICA***

The Mpumalanga Provincial Health Research and Ethics Committee (MPHREC) has approved your research proposal in the latest format you sent, and hereby grant you permission to conduct your research as detailed below.

- Approval Reference Number: **MP_202207_007**
- Data Collection Period: **20/10/2022 to 10/11/2023**
- Approved Data Collection Facilities:

* EMTHONJENI CLINIC (MSUKALIGWA); ERMELO CLINIC; THUSSIVILLE/MN CINDI CLINIC & ERMELO HOSPITAL

Kindly ensure that conditions mentioned below are adhered to, and that the study is conducted with minimal disruption and impact on our staff, and also ensure that you provide us with a soft or hard copy of the report once your research project has been completed.

***Conditions:***
- *Researchers not allowed to make copies or take pictures of medical records.*
- *Kindly notify the facility manager **a week BEFORE** you start with data collection to ensure that conditions are conducive in the facility.*
- *The FINAL RESEARCH FINDINGS must be uploaded on the NHRD website*

Kind regards

**DR C NELSON**
**MPHREC CHAIRPERSON**
**DATE:** 31/10/2022

MPUMALANGA
THE PLACE OF THE RISING SUN

health
Department:
Health
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

1st Floor, Health Office Park
Private Bag X 2068
MMABATHO
2735

RESEARCH, MONITORING & EVALUATION

Tel: +27 (18) 391 4501
E-mail: MbuleloT@nwpg.gov.za
www.nwhea.th.gov.za

**Name of Researcher:** Dr S.V. Moodley
University of Pretoria

**Physical Address:** 31 BOPHELO ROAD
**(Work/ Institution)** GEZINA
PRETORIA

HEAD OF DEPARTMENT
2022 -05- 31
NORTH WEST DEPARTMENT OF HEALTH
PRIVATE BAG X 2068, MMABATHO, 2735

**Subject:** **Research Approval Letter – Task sharing in mental health service provision: Developing a model for clinical associates in South Africa.**

---

This letter serves to inform the Researcher that permission to undertake the above mentioned study has been granted by the North West Department of Health. The Researcher must arrange in advance a courtesy meeting with the District Chief Director and the Chairperson of the District Health Research Committee (DHRC) (as per their details below), to introduce their research team/members on the proposed research to be undertaken. The researcher can thereafter proceed to the identified institution/s and/or facility and produce this letter to the Management as proof that the research was approved by the NWDoH.

**This letter of permission should be signed and a copy returned to the department.** By signing, the Researcher agrees, binds him/herself and undertakes to furnish the Department with an electronic copy of the final research report. Alternatively, the Researcher can also provide the Department with an electronic summary highlighting recommendations that will assist the Department in its planning to improve some of its services where possible. Through this, the Researcher will not only contribute to the academic body of knowledge but also contributes towards the bettering of health care services and thus the overall health of citizens in the North West Province.

Below are the contact details.

## Appendix F: Proof of acceptance for publication of article (Chapter 4c) to South African Family Practice

Note: The title below has subsequently been shortened to comply with journal requirements



UNIVERSITEIT VAN PRETORIA
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YUNIBESITHI YA PRETORIA

Saiendhra Moodley <saiendhra.moodley@up.ac.za>

**SAFP 5808: Manuscript Accepted for Publication, Sent to Editing**

1 message

**aosis@safpj.co.za** <aosis@safpj.co.za> 17 October 2023 at 11:19
Reply-To: Ms Margo Van Blerk <10ts.srsupport@safpj.co.za>
To: saiendhra.moodley@up.ac.za, liz.wolvaardt@up.ac.za, dr.stof@mweb.co.za

**********
Ref. No.: 5808
Manuscript title: Exploring mental illness attitudes, service provision interest, and further training preferences of clinical associates in South Africa
Journal: South African Family Practice
**********

Dear Saiendhra Moodley, Jacqueline Wolvaardt, Christoffel Grobler

We are pleased to confirm your manuscript's acceptance for publication on 17-Oct-23.

We can also confirm that the Submission and Review Department released your manuscript to our Finalisation Department to commence the various editing processes to secure online publication within the next 90 days (if not sooner).

Kindly note:
1. If you need to make contact with AOSIS Publishing during the finalisation stage of your manuscript, kindly contact us per email or phone.
2. The finalisation procedure works as follows: (a) The first stage is the language editing that is returned to the corresponding Author for review. This will be the final opportunity for the corresponding Author to make text changes to the manuscript. (b) At a later stage, the editorial staff will send the corresponding author one set of galley proofs, at which time the Author will have two working days to mark any typographical errors.
3. Manuscript tracking is available on the submitting authors' journal profile. The submitting Author could visit their home page frequently to assess the stage of the manuscript.

Thank you for your continued patience and support, and we hope you have joined our online community by signing up to our RSS alerts and Twitter page.

Kind regards,
Ms Van Blerk
AOSIS
Supervisor
Submissions and Review Unit
Scholarly Publishing Department
AOSIS Publishing, Empowering Africa through access to knowledge

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South African Family Practice | https://safpj.co.za | ISSN: 2078-6190 (PRINT) | ISSN: 2078-6204 (ONLINE)

If you require immediate assistance, please contact AOSIS Publishing | Tel: +27 21 975 2602 | Support email: publishing@aosis.co.za | Business hours are weekdays between 8:00am-16:30pm

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## Appendix G: Author guidelines for International Journal of Mental Health Systems (Chapter 5 manuscript)

The following information is extracted from https://ijmhs.biomedcentral.com/submission-guidelines/preparing-your-manuscript/research-article

### Research article criteria

Research articles are reports of data from original research.

*International Journal of Mental Health Systems* strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible. Please see Springer Nature's information on recommended repositories. Where a widely established research community expectation for data archiving in public repositories exists, submission to a community-endorsed, public repository is mandatory. A list of data where deposition is required, with the appropriate repositories, can be found on the Editorial Policies Page.
Authors who need help depositing and curating data may wish to consider uploading their data to Springer Nature's Research Data Support or contacting our Research Data Support Helpdesk. Springer Nature's Research Data Support provides data deposition and curation to help authors follow good practice in sharing and archiving of research data, and can be accessed via an online form. The services provide secure and private submission of data files, which are curated and managed by the Springer Nature Research Data team for public release, in agreement with the submitting author. These services are provided in partnership with figshare. Checks are carried out as part of a submission screening process to ensure that researchers who should use a specific community-endorsed repository are advised of the best option for sharing and archiving their data. Use of Research Data Support is optional and does not imply or guarantee that a manuscript will be accepted.

### Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

### Title page

The title page should:

- present a title that includes, if appropriate, the study design e.g.:
    - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"

    - or for non-clinical or non-research studies a description of what the article reports
- list the full names and institutional addresses for all authors
    - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below
    - Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our authorship criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.
- indicate the corresponding author

**Abstract**

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the CONSORT extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be stated in this section. If it was not registered prospectively (before enrollment of the first participant), you should include the words 'retrospectively registered'. See our editorial policies for more information on trial registration

**Keywords**

Three to ten keywords representing the main content of the article.

**Background**

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

**Methods**

The methods section should include:

- the aim, design and setting of the study
- the characteristics of participants or description of materials

- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

**Results**

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

**Discussion**

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

**Conclusions**

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

**List of abbreviations**

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

**Declarations**

All manuscripts must contain the following sections under the heading 'Declarations':

- Ethics approval and consent to participate
- Consent for publication
- Availability of data and materials
- Competing interests
- Funding
- Authors' contributions
- Acknowledgements
- Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

***Ethics approval and consent to participate***

Manuscripts reporting studies involving human participants, human data or human tissue must:

- include a statement on ethics approval and consent (even where the need for approval was waived)
- include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval and for experimental studies involving client-owned animals, authors must also include a statement on informed consent from the client or owner.

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If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

### *Consent for publication*

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our consent form if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication).
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If your manuscript does not contain data from any individual person, please state "Not applicable" in this section.

### *Availability of data and materials*

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Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

- The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]
- The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

- All data generated or analysed during this study are included in this published article [and its supplementary information files].
- The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.
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Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare. 2014. http://dx.doi.org/10.6084/m9.figshare.853801
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The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].[Reference number]
If you wish to co-submit a data note describing your data to be published in *BMC Research Notes*, you can do so by visiting our submission portal. Data notes support open data and help authors to comply with funder policies on data sharing. Co-published data notes will be linked to the research article the data support (example).

***Competing interests***

All financial and non-financial competing interests must be declared in this section.

See our editorial policies for a full explanation of competing interests. If you are unsure whether you or any of your co-authors have a competing interest please contact the editorial office.
Please use the authors initials to refer to each authors' competing interests in this section.

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***Funding***

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Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

### *Acknowledgements*

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Always use footnotes instead of endnotes.

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Examples of the Vancouver reference style are shown below.

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**Web links and URLs:** All web links and URLs, including links to the authors' own websites, should be given a reference number and included in the reference list rather than within the text of the manuscript. They should be provided in full, including both the title of the site and the URL, as well as the date the site was accessed, in the following format: The Mouse Tumor Biology Database. http://tumor.informatics.jax.org/mtbwi/index.do. Accessed 20 May 2013. If an author or group of authors can clearly be associated with a web link, such as for weblogs, then they should be included in the reference.
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Wyllie AH, Kerr JFR, Currie AR. Cell death: the significance of apoptosis. In: Bourne GH, Danielli JF, Jeon KW, editors. International review of cytology. London: Academic; 1980. p. 251-306.

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*Online document*
Doe J. Title of subordinate document. In: The dictionary of substances and their effects. Royal Society of Chemistry. 1999. http://www.rsc.org/dose/title of subordinate document. Accessed 15 Jan 1999.

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*University site*
Doe, J: Title of preprint. http://www.uni-heidelberg.de/mydata.html (1999). Accessed 25 Dec 1999.

*FTP site*
Doe, J: Trivial HTTP, RFC2169. ftp://ftp.isi.edu/in-notes/rfc2169.txt (1999). Accessed 12 Nov 1999.

*Organization site*
ISSN International Centre: The ISSN register. http://www.issn.org (2006). Accessed 20 Feb 2007.

*Dataset with persistent identifier*
Zheng L-Y, Guo X-S, He B, Sun L-J, Peng Y, Dong S-S, et al. Genome data from sweet and grain sorghum (Sorghum bicolor). GigaScience Database. 2011. http://dx.doi.org/10.5524/100012.

## Appendix H: Author guidelines for BMC Medical Education (Chapter 6 Manuscript)

The following information is extracted from:
https://bmcmededuc.biomedcentral.com/submission-guidelines/preparing-your-manuscript/research-article

### Research article

### Criteria

Research articles should report on original primary research, but may report on systematic reviews of published research provided they adhere to the appropriate reporting guidelines which are detailed in our editorial policies. Please note that non-commissioned pooled analyses of selected published research will not be considered. Studies reporting descriptive results from a single institution or region will only be considered if analogous data have not been previously published in a peer reviewed journal and the conclusions provide distinct insights that are of relevance to a regional or international audience.

*BMC Medical Education* strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible.
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### Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

#### *Title page*

The title page should:

- present a title that includes, if appropriate, the study design e.g.:

    - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"
    - or for non-clinical or non-research studies a description of what the article reports
- list the full names and institutional addresses for all authors
    - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below
    - Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our authorship criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.
- indicate the corresponding author

***Abstract***

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the CONSORT extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be stated in this section. If it was not registered prospectively (before enrollment of the first participant), you should include the words 'retrospectively registered'. See our editorial policies for more information on trial registration

***Keywords***

Three to ten keywords representing the main content of the article.

***Background***

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

***Methods***

The methods section should include:

- the aim, design and setting of the study

- the characteristics of participants or description of materials
- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

***Results***

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

***Discussion***

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

***Conclusions***

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

***List of abbreviations***

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

**Declarations**

All manuscripts must contain the following sections under the heading 'Declarations':

- Ethics approval and consent to participate
- Consent for publication
- Availability of data and materials
- Competing interests
- Funding
- Authors' contributions
- Acknowledgements
- Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

**Ethics approval and consent to participate**

Manuscripts reporting studies involving human participants, human data or human tissue must:

- include a statement on ethics approval and consent (even where the need for approval was waived)
- include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval and for experimental studies involving client-owned animals, authors must also include a statement on informed consent from the client or owner.

See our editorial policies for more information.
If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

**Consent for publication**

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our consent form if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication).
See our editorial policies for more information on consent for publication.
If your manuscript does not contain data from any individual person, please state "Not applicable" in this section.

**Availability of data and materials**

All manuscripts must include an 'Availability of data and materials' statement. Data availability statements should include information on where data supporting the results reported in the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study. By data we mean the minimal dataset that would be necessary to interpret, replicate and build upon the findings reported in the article. We recognise it is not always possible to share research data publicly, for instance when individual privacy could be compromised, and in such instances data availability should still be stated in the manuscript along with any conditions for access.

Authors are also encouraged to preserve search strings on searchRxiv https://searchrxiv.org/, an archive to support researchers to report, store and share their searches consistently and to enable them to review and re-use existing searches. searchRxiv enables researchers to obtain a digital object identifier (DOI) for their search, allowing it to be cited.
Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

- The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]
- The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

- All data generated or analysed during this study are included in this published article [and its supplementary information files].
- The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.
- Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.
- The data that support the findings of this study are available from [third party name] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [third party name].
- Not applicable. If your manuscript does not contain any data, please state 'Not applicable' in this section.

More examples of template data availability statements, which include examples of openly available and restricted access datasets, are available here.
BioMed Central strongly encourages the citation of any publicly available data on which the conclusions of the paper rely in the manuscript. Data citations should include a persistent identifier (such as a DOI) and should ideally be included in the reference list. Citations of datasets, when they appear in the reference list, should include the minimum information recommended by DataCite and follow journal style. Dataset identifiers including DOIs should be expressed as full URLs. For example:

Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare. 2014. http://dx.doi.org/10.6084/m9.figshare.853801
With the corresponding text in the Availability of data and materials statement:

The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].[Reference number]
If you wish to co-submit a data note describing your data to be published in *BMC Research Notes*, you can do so by visiting our submission portal. Data notes support open data and help authors to comply with funder policies on data sharing. Co-published data notes will be linked to the research article the data support (example).
Competing interests

All financial and non-financial competing interests must be declared in this section.

See our editorial policies for a full explanation of competing interests. If you are unsure whether you or any of your co-authors have a competing interest please contact the editorial office.
Please use the authors initials to refer to each authors' competing interests in this section.

If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

## Funding

All sources of funding for the research reported should be declared. If the funder has a specific role in the conceptualization, design, data collection, analysis, decision to publish, or preparation of the manuscript, this should be declared.

## Authors' contributions

The individual contributions of authors to the manuscript should be specified in this section. Guidance and criteria for authorship can be found in our editorial policies.
Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

## Acknowledgements

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If you do not have anyone to acknowledge, please write "Not applicable" in this section.

Group authorship (for manuscripts involving a collaboration group): if you would like the names of the individual members of a collaboration Group to be searchable through their individual PubMed records, please ensure that the title of the collaboration Group is included on the title page and in the submission system and also include collaborating author names as the last paragraph of the “Acknowledgements” section. Please add authors in the format First Name, Middle initial(s) (optional), Last Name. You can add institution or country information for each author if you wish, but this should be consistent across all authors.

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You may choose to use this section to include any relevant information about the author(s) that may aid the reader's interpretation of the article, and understand the standpoint of the author(s). This may include details about the authors' qualifications, current positions they hold at institutions or societies, or any other relevant background information. Please refer to authors using their initials. Note this section should not be used to describe any competing interests.

**Footnotes**

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

**References**

Examples of the Vancouver reference style are shown below.

See our editorial policies for author guidance on good citation practice
**Web links and URLs:** All web links and URLs, including links to the authors' own websites, should be given a reference number and included in the reference list rather than within the text of the manuscript. They should be provided in full, including both the title of the site and the URL, as well as the date the site was accessed, in the following format: The Mouse Tumor Biology Database. http://tumor.informatics.jax.org/mtbwi/index.do. Accessed 20 May 2013. If an author or group of authors can clearly be associated with a web link, such as for weblogs, then they should be included in the reference.
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Smith JJ. The world of science. Am J Sci. 1999;36:234-5.

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*Article within a journal by DOI*
Slifka MK, Whitton JL. Clinical implications of dysregulated cytokine production. Dig J Mol Med. 2000; doi:10.1007/s801090000086.

*Article within a journal supplement*
Frumin AM, Nussbaum J, Esposito M. Functional asplenia: demonstration of splenic activity by bone marrow scan. Blood 1979;59 Suppl 1:26-32.

*Book chapter, or an article within a book*
Wyllie AH, Kerr JFR, Currie AR. Cell death: the significance of apoptosis. In: Bourne GH, Danielli JF, Jeon KW, editors. International review of cytology. London: Academic; 1980. p. 251-306.

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*Online document*
Doe J. Title of subordinate document. In: The dictionary of substances and their effects. Royal Society of Chemistry. 1999. http://www.rsc.org/dose/title of subordinate document. Accessed 15 Jan 1999.

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Healthwise Knowledgebase. US Pharmacopeia, Rockville. 1998. http://www.healthwise.org. Accessed 21 Sept 1998.

*Supplementary material/private homepage*
Doe J. Title of supplementary material. 2000. http://www.privatehomepage.com. Accessed 22 Feb 2000.

*University site*
Doe, J: Title of preprint. http://www.uni-heidelberg.de/mydata.html (1999). Accessed 25 Dec 1999.

*FTP site*
Doe, J: Trivial HTTP, RFC2169. ftp://ftp.isi.edu/in-notes/rfc2169.txt (1999). Accessed 12 Nov 1999.

*Organization site*
ISSN International Centre: The ISSN register. http://www.issn.org (2006). Accessed 20 Feb 2007.

*Dataset with persistent identifier*
Zheng L-Y, Guo X-S, He B, Sun L-J, Peng Y, Dong S-S, et al. Genome data from sweet and grain sorghum (Sorghum bicolor). GigaScience Database. 2011. http://dx.doi.org/10.5524/100012.

**Appendix I: Informed consent document and interview guide for in-depth interviews**

**PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT FOR AN INDIVIDUAL IN-DEPTH INTERVIEW RESEARCH STUDY**

**Study title:** Task sharing in mental health service provision: Developing a model for clinical associates in South Africa
**Principal Investigator**: Dr Saiendhra Moodley
**Supervisors:** Dr Liz Wolvaardt and Prof. Christoffel Grobler
**Institution:** University of Pretoria

DAYTIME AND AFTER HOURS TELEPHONE NUMBER(S):
Daytime number: 012 356 3277
Afterhours number: 082 579 6985

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

| | | | |
|---|---|---|---|
| | | | : |
| date | month | year | Time |

Dear Prospective Participant

1) INTRODUCTION
You are invited to volunteer for a research study. I am doing this research for PhD degree purposes at the University of Pretoria. This document gives information about the study to help you decide if you would like to participate. Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to contact me via e-mail (saiendhra.moodley@up.ac.za) or telephone (082 579 6985). You should not agree to take part unless you are completely happy about what we will be discussing during the interview.

2) THE NATURE AND PURPOSE OF THIS STUDY

The objective of this part of the study is to explore the mental health content of the three clinical associate training programmes in South Africa.
By doing so I wish to learn more about the mental health tasks that can be carried out by qualified clinical associates.
You will be interviewed by the researcher using a videoconferencing application that you are comfortable with.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM THE PARTICIPANTS

If you agree to participate, you will be asked to participate in an individual interview which will take about 30 minutes. The individual interview will be a one-on-one meeting between the two of us. I will ask you several questions about the research topic. This study involves answering some questions such as your views on whether mental health is adequately covered in the curriculum.

With your permission, the interview will be recorded using the videoconferencing application to ensure that no information is missed.

## 4) RISKS AND DISCOMFORTS INVOLVED

We do not think that taking part in the study will cause any physical or emotional discomfort or risk.

## 5) POSSIBLE BENEFITS OF THE STUDY

You will not benefit directly by being part of this study. But your participation is important for us to better understand the mental health training received by clinical associate students. The information you give will help the researcher develop a model for task sharing in mental health service provision involving clinical associates.

## 6) COMPENSATION

You will not be paid to take part in the study. However, any cost you have because of taking part in the study, for example data costs will be reimbursed.

## 7) VOLUNTARY PARTICIPATION

The decision to take part in the study is yours and yours alone. You do not have to take part if you do not want to. You can also stop at any time during the interview without giving a reason. If you refuse to take part in the study, this will not affect you in any way.

## 8) ETHICAL APPROVAL

This study was submitted to the Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria, Medical Campus, Tswelopele Building, Level 4-59, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been given by that committee. The study will follow the Declaration of Helsinki (last update: October 2013), which guides doctors on how to do research in people. The researcher can give you a copy of the Declaration if you wish to read it.

## 9) INFORMATION ON WHO TO CONTACT

If you have any questions about this study, you should contact:
Dr Saiendhra Moodley (saiendhra.moodley@up.ac.za or 082 579 6985)

## 10) CONFIDENTIALITY

We will not record your name anywhere. Your answers will be linked to a fictitious code number or a pseudonym (another name) and we will refer to you in this way in the data, any publication, report or other research output.

All records from this study will be regarded as confidential. Results will be published in journals or presented at conferences in such a way that it will not possible for people to know that you were part of the study.

The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Research Ethics Committee. All of these people are required to keep your identity confidential. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

All hard copy information will be kept in a locked facility at the School of Health Systems and Public Health at the University of Pretoria, for a minimum of 15 years and only the research team will have access to this information.

## 11) CONSENT TO PARTICIPATE IN THIS STUDY

- I confirm that the person requesting my consent to take part in this study has told me about the nature and process, any risks or discomforts, and the benefits of the study.
- I have also received, read and understood the above written information about the study.
- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to stop taking part in the study and my withdrawal will not affect and my withdrawal will not affect my employment or student status .
- If photos are taken it may only be used after I have seen it and agreed that it may be used.
- I am participating willingly.
- I understand that the in-depth interview will be recorded. I give consent that it may be recorded YES / NO

| | |
|---|---|
| _____ | _____ |
| Participant's name (Please print) | Date |
| _____ | _____ |
| Participant's signature | Date |
| _____ | _____ |
| Researcher's name (Please print) | Date |
| _____ | _____ |
| Researcher's signature | Date |

**Interview Guide for In-depth Interviews**

Date:

Time of Interview:

University: UP / WSU / Wits

Interviewer:

Interviewee:

Position of interviewee:

Questions

1. What aspects of mental health/psychiatry are currently covered in the curriculum?

2. How is the mental health component delivered through formal teaching?

3. What practical training is given in mental health?

3a. Can you tell me about your psychiatry rotation if there is one?

4. What are your views on whether mental health is adequately covered in your curriculum?

4a. What are the gaps in mental health teaching (if any)?

5. Based on their existing training, what sort of mental health work do you feel clinical associates will be competent to do when they graduate?

6. What role(s) would you like to see clinical associates playing in mental health service provision both now and in the future?

7. What are you views on a clinical specialisation in psychiatry for clinical associates?

**Appendix J: Informed consent document for cognitive interviews to test KAP survey questionnaire**

# PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

**STUDY TITLE:** Task sharing in mental health service provision: Developing a model for clinical associates in South Africa

**Principal Investigator:** Dr Saiendhra Moodley

**Supervisors:** Dr Liz Wolvaardt and Prof. Christoffel Grobler

**Institution:** University of Pretoria

**DAYTIME AND AFTER HOURS TELEPHONE NUMBER(S):**

**Daytime number/s:** 082 579 6985

**Afterhours number**: 082 579 6985

**DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:**

| | | | |
|---|---|---|---|
| | | | : |
| **date** | **month** | **year** | **Time** |

**Dear Prospective Participant**

## 1) INTRODUCTION

You are invited to volunteer for a research study. I am doing research for PhD (Public Health) degree purposes at the University of Pretoria. This information in this document is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to ask the researcher. You should not agree to take part unless you are completely happy about all the procedures involved.

## 2) THE NATURE AND PURPOSE OF THIS STUDY

The objective of this component of the study is to determine knowledge, attitudes and practices of clinical associates with respect to management of mental illness using a survey questionnaire. **We require your assistance in testing the questionnaire we intend to use for the survey**. By doing so we wish to identify any issues with the questions and improve the questionnaire prior to the survey.

**3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPEXTED FROM PARTICIPANTS.**

If you agree to participate, you will be asked to participate in an individual interview in person or using videoconferencing which will take about 60 minutes. This study involves you going through the set of questions that we want to use for our survey and thinking aloud as you respond to each question. The researcher may ask you to clarify or elaborate at certain times. With your permission, the interview will be recorded (audio only) to ensure that no information is missed.

**4) POSSIBLE RISKS AND DISCOMFORTS INVOLVED**

There are no risks associated with the study.

**5) POSSIBLE BENEFITS OF THIS STUDY**

Although you may not benefit directly, your participation is important for us to improve the questionnaire we want to use for our survey. The research will help develop a model for task sharing in mental health service provision involving clinical associates which could lead to more work opportunities in mental health for clinical associates in the future.

**6) COMPENSATION**

You will not be paid to take part in the study. However, any cost you have because of taking part in the study, for example data costs will be paid back to you (reimbursed).

**7) YOUR RIGHTS AS A RESEARCH PARTICIPANT**

Your participation in this study is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will not affect you in any way.

**8) ETHICS APPROVAL**

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

**9) INFORMATION**

If I have any questions concerning this study, you should contact:
Dr Saiendhra Moodley tel: 082 579 6985

**10) CONFIDENTIALITY**

All information obtained during the course of this study will be regarded as confidential. Each participant that is taking part will be provided with an alphanumeric coded number e.g. A001. This will ensure confidentiality of information so collected. Only the researcher will be able to identify you as participant. Results will be published or presented in such a fashion that participants remain unidentifiable. The hard copies of all your records will be kept in a locked facility at the School of Health Systems and Public Health, University of Pretoria.

**11) CONSENT TO PARTICIPATE IN THIS STUDY**

- I confirm that the person requesting my consent to take part in this study has told me about the nature and process, any risks or discomforts, and the benefits of the study.
- I have also received, read and understood the above written information about the study.
- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue with the study and that withdrawal will not affect me in any way.
- I am participating willingly.
- I have received a signed copy of this informed consent agreement.
- I understand that the interview will be recorded (audio only). I give consent that audio of the interview may be recorded YES / NO

| | |
|---|---|
| Participant's name (Please print) | Date |
| Participant's signature | Date |
| Researcher's name (Please print) | Date |
| Researcher's signature | Date |

**Please go through the set of questions below that we want to use for our survey and think out aloud as you respond to each question:**

**Section 1: Socio-demographic Characteristics**

1.1. Age:

| | |
|---|---|
| 20 – 24 years | 1 |
| 25 – 29 years | 2 |
| 30 – 34 years | 3 |
| 35 – 39 years | 4 |
| 40 years and above | 5 |

1.2. Gender:

| | |
|---|---|
| Male | 1 |
| Female | 2 |

1.3. In which province do you currently reside?

| | |
|---|---|
| Eastern Cape | 1 |
| Free State | 2 |
| Gauteng | 3 |
| KwaZulu Natal | 4 |
| Limpopo | 5 |
| Mpumalanga | 6 |
| Northern Cape | 7 |
| North West | 8 |
| Western Cape | 9 |

1.4. Do you currently reside in a metropolitan municipality (Joburg, Tshwane, Ekurhuleni, Cape Town, Ethekwini, Nelson Mandela Bay, Buffalo City, Mangaung) or a district municipality?

| | |
|---|---|
| Metropolitan | 1 |
| District | 2 |

1.5. Would you describe the area in which you currently reside as rural or urban?

| | |
|---|---|
| Rural | 1 |
| Urban | 2 |

1.6. Current employment status

| | |
|---|---|
| Employed within the health system in the public sector | 1 |
| Employed within the health system in the private sector | 2 |
| Employed within the health system in a non-governmental organisation | 3 |

| | |
|---|---|
| Employed outside the health system | 4 |
| Unemployed | 5 |

**1.**6. a) If you are currently working within the health system, please select the work setting where you work? (If you work in more than one setting, select the one where you spend the most time)

| | |
|---|---|
| Primary health care clinic (public sector) | 1 |
| Community health centre (public sector) | 2 |
| District hospital (public sector) | 3 |
| Regional hospital (public sector) | 4 |
| Tertiary hospital (public sector) | 5 |
| Central hospital (public sector) | 6 |
| Private general practitioner | 7 |
| Private specialist practice | 8 |
| Private Hospital | 9 |
| Non-governmental organisation | 10 |
| Other (please specify.....) | 11 |

---

**Section 2: BCMP/BMCP details**

2.1. Where did you complete your BCMP/BMCP degree?

| | |
|---|---|
| University of Pretoria | 1 |
| University of Witwatersrand | 2 |
| Walter Sisulu University | 3 |

2.2. How long have you been practising as a clinical associate?

| | |
|---|---|
| Less than three years | 1 |
| Between three and six years | 2 |
| More than six years | 3 |

2.3. Did you have training on assessment of patients with mental illness during your BCMP/BMCP degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.4. Did you have training on management of patients with mental illness during your BCMP/BMCP degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.5. Did you have a mental health/psychiatry rotation during your BCMP/BMCP degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.5.a) If you did have a mental health/psychiatry rotation, how long was that rotation?

| | |
|---|---|
| Less than one month | 1 |
| 1 month | 2 |
| 2 months | 3 |
| 3 months | 4 |
| More than 3 months | 5 |

2.5.b) Where did your psychiatry rotation take place? (Multiple options may be selected)

| | |
|---|---|
| Primary health care clinic | 1 |
| Community health centre | 2 |
| District hospital | 3 |
| Regional hospital | 4 |
| Tertiary hospital | 5 |
| Central hospital | 6 |
| Psychiatric hospital | 7 |

**Section 3: Knowledge and confidence**

3.1. Have you received any psychiatry-related training after you qualified with your BCMP/BMCP degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

3.1.a) If yes, please provide details of the training:

_____

_____

3.2. Please rate your knowledge of the following conditions.

| | **Very Poor** | **Poor** | **Fair** | **Good** | **Excellent** |
|---|---|---|---|---|---|
| Schizophrenia | 1 | 2 | 3 | 4 | 5 |
| Bipolar 1 Disorder | 1 | 2 | 3 | 4 | 5 |
| Substance use disorders | 1 | 2 | 3 | 4 | 5 |
| Depressive disorders | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Anxiety disorders | 1 | 2 | 3 | 4 | 5 |
| Post-traumatic stress disorder | 1 | 2 | 3 | 4 | 5 |
| Suicide risk | 1 | 2 | 3 | 4 | 5 |

3.3. For each type of patient, please rate your confidence in doing each of the tasks.

| | **Not at all confident** | **Slightly confident** | **Moderately confident** | **Quite confident** | **Very confident** |
|---|---|---|---|---|---|
| Patient with suspected depression | | | | | |
| Taking a mental health history from the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a mini mental state examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a physical examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the family of the patient | 1 | 2 | 3 | 4 | 5 |
| Patient suspected of substance abuse | | | | | |
| Taking a mental health history from the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a mini mental state examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a physical examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the family of the patient | 1 | 2 | 3 | 4 | 5 |
| Patient with suspected schizophrenia | | | | | |
| Taking a mental health history from the patient | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Doing a mini mental state examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a physical examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the family of the patient | 1 | 2 | 3 | 4 | 5 |
| Patient considered a suicide risk | | | | | |
| Taking a mental health history from the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a mini mental state examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a physical examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the patient | 1 | 2 | 3 | 4 | 5 |
| Providing counselling to the family of the patient | 1 | 2 | 3 | 4 | 5 |

---

**Section 4. Attitude/Perception Items**

4. For each of the statements below, please circle your response:

| | **Strongly agree** | **Agree** | **Somewhat Agree** | **Somewhat Disagree** | **Disagree** | **Strongly disagree** |
|---|---|---|---|---|---|---|
| I just learn about mental health when I have to, and would not bother reading additional material on it. | 1 | 2 | 3 | 4 | 5 | 6 |
| People with a severe mental illness can never recover enough to have a good quality of life. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Working in the mental health field is just as respectable as other fields of health and social care. | 1 | 2 | 3 | 4 | 5 | 6 |
| If I had a mental illness, I would never admit this to my friends because I would fear being treated differently | 1 | 2 | 3 | 4 | 5 | 6 |
| People with a severe mental illness are dangerous more often than not | 1 | 2 | 3 | 4 | 5 | 6 |
| Health/social care staff know more about the lives of people treated for a mental illness than do family members or friends. | 1 | 2 | 3 | 4 | 5 | 6 |
| If I had a mental illness, I would never admit this to my colleagues for fear of being treated differently | 1 | 2 | 3 | 4 | 5 | 6 |
| Being a health/social care professional in the area of mental health is not like being a real health/social care professional. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a senior colleague instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions. | 1 | 2 | 3 | 4 | 5 | 6 |
| I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness. | 1 | 2 | 3 | 4 | 5 | 6 |
| It is important that any health/social care professional supporting a person with a mental illness also ensures that their physical health is assessed. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| The public does not need to be protected from people with a severe mental illness. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a person with a mental illness complained of physical symptoms (such as chest pain) I would attribute it to their mental illness. | 1 | 2 | 3 | 4 | 5 | 6 |
| General practitioners should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist. | 1 | 2 | 3 | 4 | 5 | 6 |
| I would use the terms 'crazy', 'nutter', 'mad' etc. to describe to colleagues people with a mental illness who I have seen in my work. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a colleague told me they had a mental illness, I would still want to work with them. | 1 | 2 | 3 | 4 | 5 | 6 |


Kassam A, Glozier N, Leese M, Henderson C, Thornicroft G. Development and responsiveness of a scale to measure clinicians' attitudes to people with mental illness (medical student version). Acta Psychiatr Scand. 2010 Aug;122(2):153-61.

**Section 5: Practice**

5. Does your current work involve any of the following?

| | **Never** | **Sometimes** | **Often** |
|---|---|---|---|
| Taking a mental health history from patients you suspect of having: | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |

| | | | |
|---|---|---|---|
| Doing a mini mental state examination on patients you suspect of having: | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| Doing a physical examination on a patient with: | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| Providing counselling to a patient with: | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| Providing counselling to the family of a patient with: | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| Prescribing treatment to patients with mental illness | | | |
| Depression | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |

| | | | |
|---|---|---|---|
| Suicidal risk. | 1 | 2 | 3 |

**Section 6: Interest**

6. For each of the statements below, please circle the most appropriate response

| | **Strongly disagree** | **Disagree** | **Neither disagree nor agree** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|
| I would be interested in receiving additional training in psychiatry | 1 | 2 | 3 | 4 | 5 |
| I would be interested in pursuing a 1-year specialisation in psychiatry | 1 | 2 | 3 | 4 | 5 |
| I would be interested in doing mental health work at a primary health care clinic | 1 | 2 | 3 | 4 | 5 |
| I would be interested in working in a 72-hour psychiatric observation unit in a district hospital | 1 | 2 | 3 | 4 | 5 |
| I would be interested in working in a psychiatric hospital | 1 | 2 | 3 | 4 | 5 |

**Appendix K: Informed consent document and KAP Questionnaire**

**PARTICIPANT'S INFORMATION LEAFLET & INFORMED CONSENT**

**Researcher's name:** Dr Saiendhra Moodley

**Student Number:** 04296222

**Title:** Task sharing in mental health service provision: Developing a model for clinical associates in South Africa

I am a PhD student in the field of Public Health in the School of Health Systems and Public Health, University of Pretoria. You are invited to volunteer to participate in our research project on developing a model for clinical associates to provide mental health services in South Africa.

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask me You should not agree to take part unless you are completely happy about what we expect of you.

The objective of this component of the study is to determine knowledge, attitudes and practices of clinical associates with respect to management of mental illness. We would like you to complete a questionnaire. This may take about 30 minutes. The questionnaire will be completed electronically. The data will be kept secure to ensure that it remains confidential. The questionnaire is anonymous. At the end of the questionnaire, you will be redirected to a page where you can complete a few contact details if you wish to be entered into the draw for one of five gift cards from Takealot . Please note that the contact details you provide will not be connected to your questionnaire so the questionnaire will remain anonymous.

You may contact me via e-mail (saiendhra.moodley@up.ac.za) or telephone (082 579 6985) if you are having any difficulties completing the questionnaire.

The Faculty of Health Sciences Research Ethics Committee of the University of Pretoria has granted written approval for this study.

Your participation in this study is voluntary. You can decline to participate or stop at any time without giving any reason. As you do not provide your name on the questionnaire, you give us the information anonymously. Once you have given the questionnaire back to us, you cannot recall your consent as we will not be able to trace your specific questionnaire. Therefore, you will also not be identified as a participant in any publication that comes from this study.

**Note: The implication of submitting the questionnaire is that informed consent has been given by you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.**

We sincerely appreciate your help.

Yours truly,

Dr Saiendhra Moodley

| | |
|---|---|
| **STUDY IDENTIFICATION NUMBER** | |
| **PARTICIPANT IDENTIFICATION NUMBER** | |

.

You will have to fill the following questionnaire if you decide to join the study. Please do not complete the section if you are unsure of the required information. Please e-mail saiendhra.moodley@up.ac.za if you need any assistance. Answering the questions is completely voluntary and participants may leave out any questions that make them feel uncomfortable. This data will be used anonymously in our researchand your privacy will be protected to the best of our ability.

---

**Section 1: Socio-demographic Characteristics**

1.1.Age:

| | |
|---|---|
| 20 – 24 years | 1 |
| 25 – 29 years | 2 |
| 30 – 34 years | 3 |
| 35 – 39 years | 4 |
| 40 years and above | 5 |

1.2. Gender:

| | |
|---|---|
| Male | 1 |
| Female | 2 |
| Prefer not to say | 3 |

1.3. In which province do you currently work? (If you work in more than one province, select the province in which you work the most hours in a month)

| | |
|---|---|
| Eastern Cape | 1 |
| Free State | 2 |
| Gauteng | 3 |
| KwaZulu Natal | 4 |
| Limpopo | 5 |
| Mpumalanga | 6 |
| Northern Cape | 7 |
| North West | 8 |
| Western Cape | 9 |

1.4. Do you currently work mostly in a metropolitan municipality (Joburg, Tshwane, Ekurhuleni, Cape Town, Ethekwini, Nelson Mandela Bay, Buffalo City, Mangaung) or a district municipality?

| | |
|---|---|
| Metropolitan | 1 |
| District | 2 |

1.5. Would you describe the area in which you currently work most of the time as rural or urban?

| | |
|---|---|
| Rural | 1 |
| Urban | 2 |

1.6. Current employer (If you have multiple employers, please select the one for which you work the most hours in a month)

| | |
|---|---|
| Provincial Department of Health | 1 |
| Private health facility or private medical practice | 2 |
| Non-governmental organisation | 3 |
| Academic institution | 4 |
| Self-employed | 5 |
| Unemployed | 6 |
| Other (please specify……) | 7 |

**1.7.** Please select the work setting where you work? (If you work in more than one setting, select the one where you spend the most time)

| | |
|---|---|
| Primary health care clinic (public sector) | 1 |
| Community health centre (public sector) | 2 |
| District hospital (public sector) | 3 |
| Regional hospital (public sector) | 4 |
| Tertiary or central hospital (public sector) | 5 |
| Private general practitice | 6 |
| Private specialist practice | 7 |
| Private Hospital | 8 |
| Academic institution | 9 |
| Unemployed | 10 |
| Other (please specify.....) | 11 |

---

**Section 2: BCMP/BMCP details**

2.1. Where did you complete your BCMP/BMCP (or equivalent) degree?

| | |
|---|---|
| University of Pretoria | 1 |
| University of Witwatersrand | 2 |
| Walter Sisulu University | 3 |

| | |
|---|---|
| Other (please specify……..) | 4 |

2.2. How long has it been since you qualified as a  as a clinical associate?

| | |
|---|---|
| Less than three years | 1 |
| Between three and six years | 2 |
| More than six years | 3 |

2.3. Did you have training on assessment of patients with mental illness during your BCMP/BMCP (or equivalent) degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.4. Did you have training on management of patients with mental illness during your BCMP/BMCP (or equivalent) degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.5. Did you have a mental health/psychiatry rotation during your BCMP/BMCP (or equivalent) degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

2.5.a) If you did have a mental health/psychiatry rotation, how long was that rotation?

| | |
|---|---|
| 1-2 weeks | 1 |
| 3-4 weeks | 2 |
| 5-6 weeks | 3 |
| 7-8 weeks | 4 |
| More than 8 weeks | 5 |

2.5.b) Where did your mental health/psychiatry rotation take place? (Multiple options may be selected)

| | |
|---|---|
| Primary health care clinic | 1 |
| Community health centre | 2 |
| District hospital | 3 |
| Regional hospital | 4 |
| Tertiary or central hospital | 5 |
| Specialised psychiatric hospital | 6 |

| | |
|---|---|
| Other (please specify…….) | 7 |

---

**Section 3: Knowledge**

3.1. Have you received any mental health-related training after you qualified with your BCMP/BMCP degree?

| | |
|---|---|
| Yes | 1 |
| No | 2 |

3.1.a) If yes, please provide details of the training (e.g. name of the course, duration, institution):

_____

_____

_____

3.2. We would like to know about your overall knowledge of certain mental health conditions and groups of conditions. Please rate your overall knowledge of the following:

| | **Very Poor** | **Poor** | **Fair** | **Good** | **Excellent** |
|---|---|---|---|---|---|
| Bipolar disorders | 1 | 2 | 3 | 4 | 5 |
| Substance use disorders | 1 | 2 | 3 | 4 | 5 |
| Depressive disorders | 1 | 2 | 3 | 4 | 5 |
| Anxiety disorders | 1 | 2 | 3 | 4 | 5 |
| Schizophrenia | 1 | 2 | 3 | 4 | 5 |
| Post-traumatic stress disorder | 1 | 2 | 3 | 4 | 5 |
| Acute-stress disorder | 1 | 2 | 3 | 4 | 5 |
| Dementia | 1 | 2 | 3 | 4 | 5 |
| Attention-deficit hyperactivity disorder | 1 | 2 | 3 | 4 | 5 |

3.3. We would like to know about your knowledge of the management of certain mental health presentations. Please rate your knowledge of the management of the following:

| | Very Poor | Poor | Fair | Good | Excellent |
|---|---|---|---|---|---|
| Suicide risk | 1 | 2 | 3 | 4 | 5 |
| Aggressive patient | 1 | 2 | 3 | 4 | 5 |
| Confused patient | 1 | 2 | 3 | 4 | 5 |

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**Section 4: Confidence**

4.1. We would like to know how confident you are to carrying out different aspects of an assessment for a person presenting to you with mental health symptoms. Please rate your confidence in doing each of the following:

| | Not at all confident | Slightly confident | Moderately confident | Quite confident | Very confident |
|---|---|---|---|---|---|
| Taking a mental health history from the patient | 1 | 2 | 3 | 4 | 5 |
| Doing a mental health examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Assessing the cognitive functioning of the patient using a suitable cognitive screening test (e.g. the Mini Mental State Examination) | 1 | 2 | 3 | 4 | 5 |
| Doing a physical examination on the patient | 1 | 2 | 3 | 4 | 5 |
| Ordering relevant investigations for the patient | 1 | 2 | 3 | 4 | 5 |

4.2. We would like to know how confident you are in managing certain mental health presentations. Please rate your confidence in managing each of the following:

| | Not at all confident | Slightly confident | Moderately confident | Quite confident | Very confident |
|---|---|---|---|---|---|
| Suicide risk | 1 | 2 | 3 | 4 | 5 |
| Aggressive patient | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Confused patient | 1 | 2 | 3 | 4 | 5 |
| Patient suspected to be exposed to traumatic event(s) (including violence and abuse) | 1 | 2 | 3 | 4 | 5 |

4.3. We would like to know how confident you are carrying out specific tasks related to the management of mental health patients. Please rate your confidence in doing each of the following:

| | **Not at all confident** | **Slightly confident** | **Moderately confident** | **Quite confident** | **Very confident** |
|---|---|---|---|---|---|
| **Prescribing pharmacological treatment for a patient with:** | | | | | |
| A substance use disorder | 1 | 2 | 3 | 4 | 5 |
| A depressive disorder | 1 | 2 | 3 | 4 | 5 |
| An anxiety disorder | 1 | 2 | 3 | 4 | 5 |
| Schizophrenia | 1 | 2 | 3 | 4 | 5 |
| **Providing counselling to a patient with:** | | | | | |
| A depressive disorder | 1 | 2 | 3 | 4 | 5 |
| An anxiety disorder | 1 | 2 | 3 | 4 | 5 |
| A substance use disorder | 1 | 2 | 3 | 4 | 5 |
| Schizophrenia | 1 | 2 | 3 | 4 | 5 |
| Suicidal risk | 1 | 2 | 3 | 4 | 5 |
| **Providing counselling to the family of a patient with:** | | | | | |
| A depressive disorder | 1 | 2 | 3 | 4 | 5 |
| An anxiety disorder | 1 | 2 | 3 | 4 | 5 |
| A substance use disorder | 1 | 2 | 3 | 4 | 5 |
| Schizophrenia | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Suicidal risk | 1 | 2 | 3 | 4 | 5 |
| **Other:** | | | | | |
| Sedating a patient who is aggressive/violent | 1 | 2 | 3 | 4 | 5 |
| Managing common side effects from psychiatric medication | 1 | 2 | 3 | 4 | 5 |
| Managing serious adverse events from emergency psychiatric medication | 1 | 2 | 3 | 4 | 5 |
| Completion of the relevant forms for 72-hour observation of a mental health patient | 1 | 2 | 3 | 4 | 5 |

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**Section 5. Attitude/Perception Items**

5. For each of the statements below, please circle your response:

| | **Strongly agree** | **Agree** | **Somewhat Agree** | **Somewhat Disagree** | **Disagree** | **Strongly disagree** |
|---|---|---|---|---|---|---|
| I just learn about mental health when I have to, and would not bother reading additional material on it. | 1 | 2 | 3 | 4 | 5 | 6 |
| People with a severe mental illness can never recover enough to have a good quality of life. | 1 | 2 | 3 | 4 | 5 | 6 |
| Working in the mental health field is just as respectable as other fields of health and social care. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| If I had a mental illness, I would never admit this to my friends because I would fear being treated differently | 1 | 2 | 3 | 4 | 5 | 6 |
| People with a severe mental illness are dangerous more often than not | 1 | 2 | 3 | 4 | 5 | 6 |
| Health/social care staff know more about the lives of people treated for a mental illness than do family members or friends. | 1 | 2 | 3 | 4 | 5 | 6 |
| If I had a mental illness, I would never admit this to my colleagues for fear of being treated differently | 1 | 2 | 3 | 4 | 5 | 6 |
| Being a health/social care professional in the area of mental health is not like being a real health/social care professional. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a senior colleague instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions. | 1 | 2 | 3 | 4 | 5 | 6 |
| I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| It is important that any health/social care professional supporting a person with a mental illness also ensures that their physical health is assessed. | 1 | 2 | 3 | 4 | 5 | 6 |
| The public does not need to be protected from people with a severe mental illness. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a person with a mental illness complained of physical symptoms (such as chest pain) I would attribute it to their mental illness. | 1 | 2 | 3 | 4 | 5 | 6 |
| General practitioners should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist. | 1 | 2 | 3 | 4 | 5 | 6 |
| I would use the terms 'crazy', 'nutter', 'mad' etc. to describe to colleagues people with a mental illness who I have seen in my work. | 1 | 2 | 3 | 4 | 5 | 6 |
| If a colleague told me they had a mental illness, I would still want to work with them. | 1 | 2 | 3 | 4 | 5 | 6 |


Kassam A, Glozier N, Leese M, Henderson C, Thornicroft G. Development and responsiveness of a scale to measure clinicians' attitudes to people with mental illness (medical student version). Acta Psychiatr Scand. 2010 Aug;122(2):153-61.

**Section 5: Practice**

5. We are interested in the mental health work you do in your current work. Does your current work involve any of the following?

| | Never | Sometimes (four times or less per month) | Often (five times or more per month) |
|---|---|---|---|
| **Taking a mental health history from patients you suspect of having:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Doing a mental health examination on patients you suspect of having:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Doing a physical examination on a patient with:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 2 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Ordering special investigations in patients you suspect of having:** | | | |
| A depressive disorder | 1 | 2 | 3 |

| | | | |
|---|---|---|---|
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Providing counselling to patients with:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Providing counselling to the family of patients with:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use disorder | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Prescribing pharmacological treatment to patients with:** | | | |
| A depressive disorder | 1 | 2 | 3 |
| An anxiety disorder | 1 | 2 | 3 |
| A substance use problem | 1 | 2 | 3 |
| Schizophrenia | 1 | 2 | 3 |
| Suicidal risk | 1 | 2 | 3 |
| **Other:** | | | |

| | | | |
|---|---|---|---|
| Assessing the cognitive functioning of a patient with confusion using a suitable cognitive screening test (e.g. Mini-Mental State Exam) | 1 | 2 | 3 |
| Sedating an aggressive/violent patient | 1 | 2 | 3 |
| Completion of the relevant forms for 72-hour observation of a mental health patient | 1 | 2 | 3 |

**Section 6: Interest**

6.1. We would like to know about your interest in getting additional mental health training. For each of the statements below, please circle the most appropriate response

| | **Strongly disagree** | **Disagree** | **Neither disagree nor agree** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|
| I would be interested in receiving additional training in mental health in the form of short courses | 1 | 2 | 3 | 4 | 5 |
| I would be interested in pursuing a specialisation in mental health (e.g. one- or two- year honours degree or postgraduate diploma) | 1 | 2 | 3 | 4 | 5 |

6.2. We would like to know about your interest in working in mental health. For each of the statements below, please circle the most appropriate response

| | **Strongly disagree** | **Disagree** | **Neither disagree nor agree** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|
| I would be interested in doing mental health work at a primary health care clinic | 1 | 2 | 3 | 4 | 5 |
| I would be interested in working in a 72-hour psychiatric observation unit in a district hospital | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| I would be interested in working in a specialised psychiatric hospital | 1 | 2 | 3 | 4 | 5 |

**Appendix L: Informed consent document and interview guide for focus groups**

**PARTICIPANT'S INFORMATION AND INFORMED CONSENT DOCUMENT FOR A FOCUS GROUP INTERVIEW**

**Study title:** Task sharing in mental health service provision: Developing a model for clinical associates in South Africa
**Principal Investigator:** Dr Saiendhra Moodley
**Supervisors:** Dr Liz Wolvaardt and Prof. Christoffel Grobler
**Institution:** University of Pretoria

DAYTIME AND AFTER HOURS TELEPHONE NUMBER(S):
Daytime number: 012 356 3277
Afterhours number: 082 579 6985

**Date and time of informed consent discussion:**

| | | |
|---|---|---|
| **date** | **month** | **year** |

| |
|---|
| **:** |
| **Time** |

Dear Prospective Participant

1) INTRODUCTION

You are invited to volunteer for a research study. I am doing this research for PhD degree purposes at the University of Pretoria. This information in this document is provided to help you decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to contact me via e-mail (saiendhra.moodley@up.ac.za) or telephone (082 579 6985). You should not agree to take part unless you are completely happy about what we will be discussing during the focus group discussion.

2) THE NATURE AND PURPOSE OF THIS STUDY

The objective of this part of study is to explore the attitudes of health managers, clinical associates, medical doctors and nurses towards mental health task sharing involving clinical associates
Part of the study will be a focus group discussion. A focus group is where a few people – usually about 8 or 10 – get together with the researcher to discuss a specific topic. The discussion will be arranged at a time that is convenient to you and will take place in your district/by videoconferencing.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS

If you agree to participate, you will be asked to participate in a focus group discussion which will take about 60 – 90 minutes. You and the other participants will be asked some questions

about your opinion about your views of mental health in your district and the potential roles clinical associates could play.
We will not ask any questions about your personal experience. With your permission, the discussions will be recorded on an audio recording device/the videoconference will be recorded to ensure that no information is missed.

4) RISKS AND DISCOMFORTS INVOLVED

We do not think that taking part in the study will cause any physical or emotional discomfort or risk. You do not have to share any knowledge you are not comfortable with. We do not think any of the questions are of a sensitive nature.
If you do feel any of the questions too personal or make you uncomfortable, you do not have to answer them.

5) POSSIBLE BENEFITS OF THIS STUDY

You will not benefit directly by being part of this study. But your participation is important for us to better understand the views of key stakeholders on whether mental health service provision by clinical associates is feasible in your district. The information you give may help the researcher develop a model for task sharing in mental health service provision involving clinical associates.

6) COMPENSATION

You will not be paid to take part in the study. However, any cost you have because of taking part in the study, for example transport costs will be paid back to you (reimbursed).

7) VOLUNTARY PARTICIPATION

The decision to take part in the study is yours and yours alone. You do not have to take part if you do not want to. You can also stop at any time during the interview without giving a reason. If you refuse to take part in the study, this will not affect you in any way.

8) ETHICAL APPROVAL

This study was submitted to the Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria, Medical Campus, Tswelopele Building, Level 4-59, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been given by that committee. The study will follow the Declaration of Helsinki (last update: October 2013), which guides doctors on how to do research in people. The researcher can give you a copy of the Declaration if you wish to read it.

9) INFORMATION ON WHO TO CONTACT
If you have any questions concerning this study, you should contact:
Dr Saiendhra Moodley – e-mail saiendhra.moodley@up.ac.za or phone 082 5796985

10) CONFIDENTIALITY

We will not record your name anywhere and no one will be able to connect you to the answers you give. Your answers will be linked to a fictitious code number or a pseudonym (another name) and we will refer to you in this way in the data, any publication, report or other research output.
All records from this study will be regarded as confidential. Results will be published in medical journals or presented at conferences in such a way that it will not possible for people to know that you were part of the study.

The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Research Ethics Committee. All of these people are required to keep your identity confidential. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

All hard copy information will be kept in a locked facility at School of Health Systems and Public Health at the University of Pretoria, for a minimum of 15 years and only the research team will have access to this information.

Although all participants of the focus group discussion will be requested to keep the discussion confidential, the researcher cannot guarantee that they will do so. I therefore request that you do not disclose any information of a very personal or sensitive nature.

10) CONSENT TO PARTICIPATE IN THIS STUDY

- I confirm that the person requesting my consent to take part in this study has told me about the nature and process, any risks or discomforts, and the benefits of the study.
- I have also received, read and understood the above written information about the study.
- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue with the study and my withdrawal will not affect my employment status.
- If photos are taken it may only be used after I have seen it and agreed that it may be used.
- I am participating willingly.
- I understand that the focus group discussion will be audiotaped. I give consent that it may be audio recorded. YES / NO /I understand that the videoconference will be recorded. I give consent that both video and audio may be recorded. YES/NO
  I understand that the videoconference will be recorded. I give consent that only audio may be recorded. YES/NO

_____ _____

Participant's name (Please print) Date

| | |
|---|---|
| _____ | _____ |
| Participant's signature | Date |
| _____ | _____ |
| Researcher's name (Please print) | Date |
| _____ | _____ |
| Researcher's signature | Date |

**Focus Group Discussion**
**Date: _____**

**Participant Information**

***Instructions: Where applicable, mark the appropriate block with an X***

1. Participant Number: ☐
2. Age: ☐
3. Gender: Female ☐ Male ☐ Other ☐ Prefer not to say ☐

***For questions 4-6, please select ALL responses that are applicable.***

4. Professional category: Medical Practitioner - Specialist ☐
   Medical Practitioner ☐ Nurse ☐
   Other ☐ specify _____
5. Current position: Clinical ☐ Management ☐
6. Work setting: District office ☐ Hospital ☐ CHC ☐ Clinic ☐

**Focus Group Interview Guide**

**Date:**

**Time of Focus Group:**

**District:**

**Interviewer:**

**Number of participants:**

1. How big a problem is mental illness in your district?
   1a. What are the common illnesses seen?

2. Do you think there are sufficient human resources to deal with mental illnesses in your district?
   2a. Are they adequately trained?

3. Where are clinical associates currently based in your district?
   3a. What work are they currently doing?

4. What are your views on whether clinical associates are equipped to manage mental health issues?

5. Are you open to clinical associates currently in your district playing a greater role in managing mental illness in your district?
   5a. What work in mental health do you think clinical associates can do (if 4 = yes) or why not (if 4 = no)?

6. Are you open to posts being created for clinical associates to work specifically on mental health in the district?

7. What do you think would be the health system challenges to adopting mental health task sharing involving clinical associates?

**Appendix M: Informed consent document and Delphi panel survey instrument (Round 1)**

PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT
FOR A PARTICIPANT ADMINISTERED QUESTIONNAIRE (NOT ANONYMOUS)

**Study title:** Task sharing in mental health service provision: Developing a model for clinical associates in South Africa
**Principal Investigator:** Dr Saiendhra Moodley
**Supervisors:** Dr Liz Wolvaardt and Prof. Christoffel Grobler
**Institution:** University of Pretoria

DAYTIME AND AFTER HOURS TELEPHONE NUMBER(S):
Daytime number: 012 356 3277
Afterhours number: 082 579 6985

DATE AND TIME OF INFORMED CONSENT DISCUSSION:

| | | | |
|---|---|---|---|
| | | | : |
| dd | month | year | Time |

Dear Prospective Research Participant

1) INTRODUCTION
You are invited to volunteer for a research study. I am doing this research for PhD degree purposes at the University of Pretoria. The information in this document is provided to help you to decide if you would like to participate. Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to contact me via e-mail (saiendhra.moodley@up.ac.za) or telephone (082 579 6985). You should not agree to take part unless you are completely happy with the kind of questions that will be asked.

2) THE NATURE AND PURPOSE OF THIS STUDY
The objective of this component of the study is to identify the key elements of a mental health task sharing model for clinical associates by using a Delphi panel. By doing so we wish to learn more about the elements that the Delphi panel feel are important to include in the task sharing model.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS
This study involves answering some questions regarding the relative importance of various aspects of mental health training clinical associates should receive and services they should provide. This will be the first of a maximum of three rounds of the survey. We would like you to complete a questionnaire in each round. It will take approximately 45 minutes. The questionnaire is submitted electronically. If you need any clarity on the procedures or questions, please contact me using the details provided . All data will be securely held electronically and only people working on the study will have access to it. We will not provide your identity to other Delphi panel participants at any point during the survey. Confidentiality will be maintained in subsequent rounds of the survey as only aggregated data will be provided to the Delphi participants.

*The questionnaire consists of five parts:*

Part 1: Professional characteristics e.g. sector in which you work.

Part 2: Undergraduate mental health training for clinical associates

Part 3: Service provision based on undergraduate training

Part 4: Postgraduate mental health training for clinical associates

Part 5. Service provision based on postgraduate training

4) RISK AND DISCOMFORT INVOLVED

There is no foreseeable physical discomfort or risk involved. There are no questions we consider particularly sensitive.

5) POSSIBLE BENEFITS OF THIS STUDY

The information you give may help the researcher develop a model for task sharing in mental health service provision involving clinical associates which may possibly improve mental health services in South Africa.

6) ETHICS APPROVAL

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, Medical Campus, Tswelopele Building, Level 4-59, Telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research involving humans. A copy of the Declaration may be obtained from the investigator should you wish to review it.

7) INFORMATION

If you have any questions concerning this study, you may contact: Dr Saiendhra Moodley by e-mail (saiendhra.moodley@up.ac.za) or telephone (082 579 6985).

8) CONFIDENTIALITY

All records from this study will be regarded as confidential. All results will be published or presented in such a way that it is not possible to identify the participants.

9) COMPENSATION

You will not be paid to take part in the study. There are no costs involved for you to be part of the study.

9) CONSENT TO PARTICIPATE IN THIS STUDY

- I confirm that the person requesting my consent to take part in this study has told me about the nature and process, any risks or discomforts, and the benefits of the study.
- I have also received, read and understood the above written information about the study.

- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue with the study and my withdrawal will not affect my employment or student status.
- I am participating willingly.
- I have received a signed copy of this informed consent agreement.

| | |
|---|---|
| Participant's name (Please print) | Date |
| Participant's signature | Date |
| Researcher's name (Please print) | Date |
| Researcher's signature | Date |

| | |
|---|---|
| **STUDY TITLE** | **Task sharing in mental health service provision: Developing a model for clinical associates in South Africa** |

Thank you for agreeing to participate in the Delphi panel. This is the first-round questionnaire and consists of five sections. The first section captures your professional characteristics. Section 2 deals with mental health as part of the undergraduate clinical associate curriculum and section 3 the mental health services that can be provided by clinical associates based on their undergraduate training. Section 4 addresses the curriculum of a potential postgraduate mental qualification for clinical associates and section 5 the potential mental health services that can be provided by clinical associates with this postgraduate qualification. Please do not complete any section or question if you are unsure of the required information. Please e-mail saiendhra.moodley@up.ac.za or call 082 579 6985 if you need any assistance. Answering the questions is completely voluntary and you may leave out any questions that make them feel uncomfortable. Your identity will not be shared with other members of the Delphi panel. Data will be used anonymously in our network and your privacy will be protected to the best of our ability.

---

**Section 1: Professional characteristics**

1.1. Please indicate your occupational category based on your primary role:

| | |
|---|---|
| Family Physician | 1 |
| Mental health manager | 2 |
| Psychiatrist | 3 |
| Other (specify….) | 4 |

a) Years of experience as a family physician / mental health manager/ psychiatrist: _____

1.2. Please indicate the sector in which you work:

| | |
|---|---|
| Public sector only | 1 |
| Private sector only | 2 |
| Both public and private sectors | 3 |
| Other (specify….) | 4 |

1.3. Please indicate the province in which you work **MOST** of the time:

| | |
|---|---|
| Eastern Cape | 1 |
| Free State | 2 |
| Gauteng | 3 |
| KwaZulu Natal | 4 |
| Limpopo | 5 |
| Mpumalanga | 6 |
| Northern Cape | 7 |
| North West | 8 |
| Western Cape | 9 |
| National | 10 |
| Other (please specify….) | 11 |

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**Section 2: Undergraduate Training**

The following questions relate to the undergraduate mental health training of Bachelor of Clinical Medical Practice or Bachelor of Medicine in Clinical Practice students i.e. students training to become clinical associates. Assume that only FOUR WEEKS (160 notional hours) can be allocated to mental health training in their undergraduate curriculum. With respect to mental health disorders, our focus in this round is on groups of disorders as per the DSM-5 classification. In later rounds, we will unpack more details.

2.1. Please rate how important each of the following attachments should be in an undergraduate curriculum for these students.

Rate on a scale of 1 (not important) to 9 (very important).

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Attachment to a mental health clinic at a community health centre | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Attachment to a psychiatric outpatients clinic at a hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to a 72-hour observation unit at a district hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to inpatient unit at a psychiatric hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

a) Please specify any additional mental health attachments that should be in an undergraduate curriculum for these students:

_____

_____

2.2. Please rate how important it is for training on the **recognition** of one or more disorders in the following DSM-5 categories to be included in an undergraduate curriculum for these students?

If you think at least one disorder in a DSM-5 category is important for clinical associates to recognise, then rate according to that disorder even if you think the other disorders in the group may not be important.

Rate on a scale of 1 (not important) to 9 (very important).

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Neurodevelopmental Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Schizophrenia Spectrum and Other Psychotic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Bipolar and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Depressive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Anxiety Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obsessive-Compulsive and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Trauma- and Stressor-Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Dissociative Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Somatic Symptom and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Feeding and Eating Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elimination Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sleep-Wake Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sexual Dysfunctions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Gender Dysphoria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disruptive, Impulse-Control, and Conduct Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Substance-Related and Addictive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Neurocognitive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Paraphilic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medication-Induced Movement Disorders and Other Adverse Effects of Medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

2.3. Please rate how important it is for undergraduate mental health training to prepare clinical associates to play a role in the **management** of one or more disorders in the following DSM-5 categories?

If you think at least one disorder in a DSM-5 category is important for clinical associates to manage, then rate according to that disorder even if you think the other disorders in the group may not be important.

Rate on a scale of 1 (not important) to 9 (very important).

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Neurodevelopmental Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Schizophrenia Spectrum and Other Psychotic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Bipolar and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Depressive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Anxiety Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obsessive-Compulsive and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Trauma- and Stressor-Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Dissociative Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Somatic Symptom and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Feeding and Eating Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elimination Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sleep-Wake Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sexual Dysfunctions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Gender Dysphoria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disruptive, Impulse-Control, and Conduct Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Substance-Related and Addictive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Neurocognitive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Paraphilic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medication-Induced Movement Disorders and Other Adverse Effects of Medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

2.4. Please rate how suitable the following teaching modalities would be in the undergraduate mental health training of these students:

Rate on a scale of 1 (not suitable) to 9 (very suitable)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| In-person lectures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Online lectures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Case studies | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Case vignettes to formulate differential diagnoses | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Simulated mental health assessments | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Watching recorded consultations | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attending patient rounds | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attending multidisciplinary team meetings | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Clerking patients | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

a) Please specify any additional teaching modalities that you would recommend be utilised in their undergraduate mental health training

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2.5. Please rate how important it is for the following cadres to be involved in the undergraduate mental health training of these students:

Rate on a scale of 1(not important) to 9 (very important)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Clinical associates (qualified) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Family physicians | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Family medicine registrars | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medical officers | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatrists | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatric registrars | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatric nurses | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychologists | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

a) Please specify any additional cadres that you would recommend be involved in their undergraduate mental health training

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**Section 3: Service provision based on undergraduate training**

3.1. Please indicate the appropriateness of the following work settings for clinical associates to provide mental health services?

Rate on a scale of 1 (not appropriate) to 9 (very appropriate)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Public sector** | | | | | | | | | |
| Primary health care clinic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Community health centre | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| District hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Secondary hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Tertiary hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Specialist psychiatric hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Private sector** | | | | | | | | | |
| GP practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatrist practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Private hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

3.2. Please indicate the appropriateness of the following tasks for clinical associates to perform.

Rate on a scale of 1 (not appropriate) to 9 (very appropriate)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Screening for common mental disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Taking a mental health history from patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Doing a mental health examination on patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Assessing cognitive functioning using a suitable cognitive screening test on patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Doing a physical examination on patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Monitoring of patients admitted to 72-hour observation units | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Completing the required reports for patients admitted to 72-hour observation units | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient presenting with confusion | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient presenting with aggression | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient at risk of suicide | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient suspected to be exposed to traumatic event(s) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Providing counselling to patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Providing counselling to families of patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Prescribing psychotropic medication to patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sedating a patient who is aggressive/violent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Restraining a patient who is aggressive/violent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Managing common side effects from psychiatric medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Managing serious adverse events from emergency psychiatric medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Home visits to mental health patients | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mental health promotion in schools | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mental health promotion in communities | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

3.3. Please specify any additional tasks not listed above that you think would be appropriate for clinical associates to perform:

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**Section 4. Postgraduate training**

The following questions relate to a **potential postgraduate mental health training qualification** (Diploma or Honours Degree) for BCMP/BMCP students. Assume that the qualification is either 1-year full time or 2-years part-time.

With respect to mental health disorders, our focus in this round is on groups of disorders as per the DSM-5 classification. In later rounds, we will unpack more details.

4.1. Please rate how important each of the following attachments should be in a **postgraduate** mental health qualification for clinical associates?

Rate on a scale of 1 (not important) to 9 (very important)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Attachment to a mental health clinic at a community health centre | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to a psychiatric outpatients clinic at a hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to a 72-hour observation unit at a district hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to inpatient unit at a psychiatric hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attachment to a private psychiatrist practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

d) Please specify any additional mental health attachments that should be in a postgraduate mental health qualification for these students:

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4.2. Please rate how important it is for training on the **recognition** of one or more disorders in the following DSM-5 categories to be included in a **postgraduate** mental health qualification for clinical associates?

If you think at least one disorder in a DSM-5 category is important for clinical associates to recognise, then rate according to that disorder even if you think the other disorders in the group may not be important.

Rate on a scale of 1 (not important) to 9 (very important)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Neurodevelopmental Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Schizophrenia Spectrum and Other Psychotic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Bipolar and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Depressive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Anxiety Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obsessive-Compulsive and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Trauma- and Stressor-Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Dissociative Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Somatic Symptom and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Feeding and Eating Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elimination Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sleep-Wake Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sexual Dysfunctions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Gender Dysphoria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disruptive, Impulse-Control, and Conduct Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Substance-Related and Addictive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Neurocognitive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Paraphilic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medication-Induced Movement Disorders and Other Adverse Effects of Medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

4.3 Please rate how important it is for training in a **postgraduate** mental health qualification to prepare clinical associates to play a role in the **management** of one or more disorders in the following DSM-5 categories?

If you think at least one disorder in a DSM-5 category is important for clinical associates to manage, then rate according to that disorder even if you think the other disorders in the group may not be important.

Rate on a scale of 1 (not important) to 9 (very important)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Neurodevelopmental Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Schizophrenia Spectrum and Other Psychotic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Bipolar and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Depressive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Anxiety Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obsessive-Compulsive and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Trauma- and Stressor-Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Dissociative Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Somatic Symptom and Related Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Feeding and Eating Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elimination Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sleep-Wake Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sexual Dysfunctions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Gender Dysphoria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disruptive, Impulse-Control, and Conduct Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Substance-Related and Addictive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Neurocognitive Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Paraphilic Disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medication-Induced Movement Disorders and Other Adverse Effects of Medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

4.4. Please rate how suitable the following teaching modalities would be in the **postgraduate** mental health training of clinical associates:

Rate on a scale of 1 (not suitable) to 9 (very suitable)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| In-person lectures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Online lectures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Case studies | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Case vignettes to formulate differential diagnoses | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Simulated mental health assessments | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Watching recorded consultations | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attending patient rounds | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attending multidisciplinary team meetings | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Clerking patients | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

a) Please specify any additional teaching modalities that you would recommend be utilised in **postgraduate** mental health training of clinical associates

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4.5 Please rate how important it is for the following cadres to be involved in the **postgraduate** mental health training of clinical associates:

Rate on a scale of 1(not important) to 9 (very important)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Family physicians | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Family medicine registrars | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Medical officers | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatrists | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatric registrars | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychologists | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatric nurses | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

a) Please specify any additional cadres that you would recommend be involved in the postgraduate mental health training of clinical associates

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**Section 5: Service Provision based on postgraduate training**

5.1. Please indicate the appropriateness of the following work settings for clinical associates with a **postgraduate** mental health qualification to provide mental health services?

Rate on a scale of 1 (not appropriate) to 9 (very appropriate)

| **Public sector** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Primary health care clinic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Community health centre | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| District hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Secondary hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Tertiary hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Specialist psychiatric hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Private sector** | | | | | | | | | |
| GP practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Psychiatrist practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Private hospital | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

5.2. Please indicate the appropriateness of the following tasks for clinical associates with a **postgraduate** mental health qualification to perform.

Rate on a scale of 1 (not appropriate) to 9 (very appropriate)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Screening for common mental disorders | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Taking a mental health history from patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Doing a mental health examination on patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Assessing cognitive functioning using a suitable cognitive screening test on patients suspected of having a mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Doing physical examination on patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Monitoring of patients admitted to 72-hour observation units | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Completing the required reports for patients admitted to 72-hour observation units | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient presenting with confusion | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient presenting with aggression | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient at risk of suicide | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Management of a patient suspected to be exposed to traumatic event(s) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Providing counselling to patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Providing counselling to families of patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Prescribing psychotropic medication to patients with mental illness | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sedating a patient who is aggressive/violent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Restraining a patient who is aggressive/violent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Managing common side effects from psychiatric medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Managing serious adverse events from emergency psychiatric medication | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Home visits to mental health patients | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mental health promotion in schools | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mental health promotion in communities | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

3.3. Please specify any additional tasks not listed above that you think would be appropriate for clinical associates with a **postgraduate** mental health qualification to perform:

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Thank you for participating in Round 1 of the Delphi survey. The data for Round 1 will be analysed and the results will be provided to you together with the Round 2 questionnaire in 1-2 weeks.