BMJ Open

BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (http://bmjopen.bmj.com).

If you have any questions on BMJ Open's open peer review process please email info.bmjopen@bmj.com

BMJ Open

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-068238
Article Type:	Original research
Date Submitted by the Author:	17-Sep-2022

Complete List of Authors:	Nakwafila, Olivia; University of KwaZulu-Natal College of Health Sciences; University of Namibia Faculty of Health Sciences, Public Health Sartorius, Benn; University of Oxford, Centre for Tropical Medicine and Global Health; University of KwaZulu-Natal College of Health Sciences, Discipline of Public health Medicine Shumba, Tonderai; University of Namibia Faculty of Health Sciences, School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy Dzinamarira, Tafadzwa; University of Pretoria School of Health Systems and Public Health Mashamba-Thompson, Tivani; University of Pretoria Faculty of Health Sciences; University of KwaZulu-Natal College of Health Sciences, Discipline of Public Health Medicine

Keywords:	Hypertension < CARDIOLOGY, PUBLIC HEALTH, QUALITATIVE RESEARCH

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

ABSTRACT

Objective: To collaborate with stakeholders and determine the most acceptable hypertension intervention package to promote hypertension adherence.

Design: We employed the Nominal Group Technique method and purposively sampled and invited key stakeholders offering hypertension services and patients with hypertension. Phase one was focused on determining barriers to hypertension adherence, phase two on enablers, and phase 3 on the strategies. We employed the ranking method based on a maximum of 60 scores to establish consensus regarding hypertension adherence barriers, enablers, and proposed strategies

Setting and Participants: A total of 12 key stakeholders were identified and invited to participate in the workshop in Khomas region. Key stakeholders included Subject Matter Experts in NCDs, family medicine, and representatives of our target population (hypertensive patients).

Results: The stakeholders reported 14 factors as barriers and enablers to hypertension adherence. The most important barriers were: Lack of knowledge on hypertension (57 scores), unavailability of drugs (55 scores), and lack of social support (49 scores). Patient education emerged as the most important enabler (57 scores), availability of drugs emerged second (53 scores), and third having a support system (47 scores). Strategies were 17 and ranked as follows: Continuous patient education as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by developing a national dashboard to primarily monitor stock (52 scores) and community support groups for peer counseling (49 scores).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Conclusions: Multifaceted educational intervention package targeting patient and health care system factors may be considered in implementing Namibia's most acceptable hypertension package. These findings will offer an opportunity to promote adherence to hypertension therapy and reduce cardiovascular outcomes. We recommend a follow-up study to evaluate the feasibility of implementing the proposed adherence package.

Keywords: Nominal Group Technique, Intervention package, Hypertension, Adherence, Non-Communicable Diseases

For peer review only

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Strengths and Limitations of this study

- We included the target population, patients with hypertension, in the sample.
- There was an equal gender homogenous group of participants used in this study, which means participants had more freedom to discuss their perspectives on hypertension adherence.
- The nominal group technique is based on reaching an agreement. In the current study, stakeholders managed to build a consensus on the predominant barriers, enablers, and strategies of hypertension adherence to guide the co-creation of a hypertension intervention package.
- A group of key stakeholders involved in co-creating hypertension strategies did not include Pharmacists nor Health insurance stakeholders. Given that hypertension drugs are distributed through pharmacies, pharmacists would likely have valuable perceptions about the distribution of hypertension medication. Health insurance stakeholders might have valuable insights on``out of pocket`` expenses.
- We included study participants who were able to speak English only. Despite the fact that English is the official language in Namibia, perhaps the creation of an opportunity for the participants to express their views in their local languages would have created room for more or different opinions.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

INTRODUCTION

It is well known that hypertension, the major risk factor for cardiovascular diseases (CVD), is a vital cause of premature death and disability worldwide.[1, 2] Recent estimates indicate that 1.4 billion adults worldwide have hypertension, of which more than half live in low- and middle-income countries.[3] Data from the World Health Organization (WHO, 2020) reported that hypertension deaths in Namibia reached 428 or 2.53% of total deaths. The age-adjusted death rate was 37.70 per 100,000, ranking Namibia at number 28 globally.[4] Nonadherence to chronic medication is a complex issue that affects clinical outcomes,[5] health expenditure, and the health system operation.[6-8] Several implementation research studies have revealed that it is imperative to involve the relevant stakeholders to effectively recommend interventions and decide on long-term decisions to improve patient compliance.[9-11]

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Since hypertension barriers are different in specific settings, it is advisable to develop interventions addressing the specific barriers to hypertension.[12] The National Health and Nutrition Examination Survey (NHANES) in the United States, conducted between 1998 and 2018, identified that factors most often associated with nonadherence were related to the following: patient socioeconomic factors; issues with the therapy or medication; health care system/care team relationship; patient-related issues such as visual or hearing impairments as well as lack of education; and condition-related such as disease severity.[12] The survey further revealed that for the barriers identified to be addressed, specific interventions concerning the barriers needed to be proposed. Among the proposed interventions included health systems strategies, Real-time counseling, open-ended discussions, visual aids, and patient diaries, Technologies to integrate reminder notices, Simplification of regimes, elimination of out-of-pocket costs, and Home Blood Pressure (BP) monitoring systems.[12] The interventions, as mentioned earlier, have also been propped by the WHO dimension model of adherence factors.[13] Interventions for hypertension adherence, such as community health worker-led multicomponent intervention, Drug monitoring programs, have been studied in countries such as Argentina and Nigeria and evidenced to produce good outcomes.[14, 15] Similar strategies can also be considered in Namibia.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Multilevel interventions have been shown to improve hypertension prevention, detection, and control.[14, 16] However, a well-established surveillance system or strategy for Non-communicable diseases is almost nonexistent in Namibia. A few studies in Namibia have reported hypertension adherence predicting factors including supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[17, 18] Based on the studies conducted in Namibia, the authors recommended the need to strengthen adherence monitoring, investigation of social-demographic characteristics such as transport, and collaboration of public and private health facilities in preparing the country to fully practice universal access to medication.[17, 18]

Universal access is one of the targets of the Namibia Strategic Plan in response to reducing NCDs .[19] Through consultation with stakeholders, including WHO, Namibia developed The National Multisectoral Strategic Plan for the prevention and control of NCDs for the next 5 years, 2017/18 – 2021/22. The strategic plan aims to reduce morbidity, mortality, and disability due to NCDS and achieve a healthy and productive population.[19] Hence in our study, we conducted a stakeholder workshop to collaborate with stakeholders in determining the acceptable hypertension intervention package to help promote hypertension adherence in Namibia. The results of this study will help guide the design and implementation of the most acceptable hypertension intervention for Namibia, which will be used to help reduce cardiovascular outcomes among patients with hypertension.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

METHODS

This paper adheres to the Standards for Reporting Qualitative Research reporting guidelines.[20] We invited key stakeholders offering hypertension services and patients with hypertension to participate in the Nominal Group Technique (NGT) workshop in Khomas region, Namibia. The study was part of a multi-phase study aimed to determine factors influencing the implementation of interventions to promote adherence to hypertension in Namibia. We employed the Nominal Group Technique (NGT) method. The NGT method, commonly referred to as the consensus method, is a highly structured face-to-face group interaction, which empowers participants by providing an opportunity to have their voices heard and opinions considered by other members .[21, 22] The aim is to achieve a general agreement or convergence of opinion around a particular topic to solve a problem, generate an idea, and, especially in the health sector, develop guidelines and identify research priorities.[23, 24] Nominal Group Technique consists of four key steps: Silent generation of ideas, round-robin where participants discuss individual ideas, clarification of ideas, narrowing exhaustive idea list into key themes and voting (ranking or rating), scoring respondents' perceptions for importance or preference.[23, 25] The scoring is usually done on a maximum five-point scale, which we applied in our study. The workshop took place at Unam Hage-Geingob Campus, Windhoek - Khomas region, 27 November 2021.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Study participants and sampling

We invited the key stakeholders via email by means of invitation letters. We purposely sampled twelve (12) key stakeholders using snowball or chain-referral sampling techniques. The key stakeholders included NCD expert from an NGO, public and private health care professionals, an academic, a Medical Scientist, a Field Epidemiologist, and patients with hypertension. We defined key stakeholders as subject matter experts (SMEs) in NCDs, family medicine, and representatives of our target population (hypertensive patients) who have an interest in the implementation of the most acceptable hypertension package in Namibia.

Eligibility criteria

We included individuals aged 18 years and above who met one of the following inclusion criteria:

- Health professionals employed in public and private sectors with a specialty in family medicine;
- Health professionals employed in the public or private sector working with non-communicable diseases at primary health care
- Health professionals employed by a clinical reference laboratory and involved in testing for biochemistry analysts
- An advocate or research expert in non-communicable diseases
- Patients with hypertension residing in Khomas region who have at least completed a 6 month cycle of hypertensive medication
- Health professional employed by an NGO and an expert in non-communicable diseases
- Individuals who are able to communicate in English language

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Exclusion criteria

- Health professionals who are not involved in non-communicable diseases or hypertension care
- Patients representing the target population with a diagnosis of hypertension and did not complete at least a 6 month cycle of hypertensive medication
- Individuals who are unable to communicate in English
- Individuals who did not consent to participate in the study

Workshop program

The nominal group process,[26] was conducted in three phases in a highly structured group discussion to achieve a group consensus on the priorities in response to our specific research questions. Phase 1: Consensus on the prioritization of barriers that influence hypertension adherence. Phase 2: Consensus on the prioritization of enablers that currently influence hypertension adherence Phase 3: Consensus on the prioritization of the most acceptable hypertension intervention strategies to address the barriers and enablers.

- Phase one: What are the barriers to hypertension adherence?
- Phase two: What are the enabling factors for hypertension adherence?
- Phase three: What are the most acceptable strategies for the proposed barriers and enablers to promote hypertension adherence?

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

During the nominal group process, we arranged the participants into four sub-groups of 3, ensuring that each group contained one representative of the target population and two SMEs. The principal investigator served as the convener and moderator for the group.

Phase one: We requested key stakeholders to share their views on barriers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes according to the severity of hypertension barriers. The ranking score was between one and five.

Phase two: We requested key stakeholders to share their views on the enablers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes based on the most important enabler for hypertension adherence. The ranking score was between one and five.

Phase three: During this phase, we requested key stakeholders to suggest the most acceptable strategies for hypertension adherence based on the barriers and enablers proposed in phases 1 and 2. The PI listed the themes in a voting form to enable voting through ranking. Participants were asked to rank the themes according to the effectiveness of promoting hypertension adherence. The ranking score was between one and five, with one being the least effective and five being the most effective strategy.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

After the workshop, a report presenting the results of NGT was compiled by the principal investigator (ON) and shared with key stakeholders for comments. The transcripts from the qualitative component of this study are available in Supplementary File 1.

Data management and analysis

For the quantitative data gathered during the ranking step in the nominal group process total importance score for each barrier was calculated by summing the participants' scores; for phase 2, a total importance score for each enabler was summed up based on the most important enabler for hypertension adherence. In phase 3, a total importance score for each strategy was calculated to indicate perceived effectiveness to help address the barriers and enablers identified in phases 1 and 2. The ranking scores were between one and five. We analyzed the qualitative data using thematic content analysis to inductively identify the themes that emerged from the data presented during the discussion using NVivo 12 pro software. The data analysis was based on the naturalistic paradigm, with a conventional content analysis,[27] in which coding categories were derived directly from the text data to reduce bias as a result of preconceived ideas or other theoretical views. The first and fifth authors performed data analysis.

Patient and public involvement

Patients or members of the public were not involved in the research design nor dissemination of the findings; however, because patients were part of the stakeholders, they were involved in the analysis and interpretation of the results. Provincial managers and Supervisors at the Ministry of Health and Social services were involved in recruiting key stakeholders. The data will be shared with the public through publication; and presentations.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

RESULTS

We recruited eight (8) SMEs and four (4) representatives of the target population aged between 33-59. The participants were equally distributed in terms of sex: males 6 (50%), females 6 (50%). All the participants were employed. The SMEs represented as follows: a specialist in non-communicable diseases from WHO, two internal medicine specialists who are practicing privately; two key stakeholders employed in primary health care in the state; Medical Scientist; a research expert in chronic diseases from a higher institution, and the last key stakeholder was a Field Epidemiologist who also works closely with the fishing industry. Refer to Table 1 for the characteristics of the study participants.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table 1. Characteristics of the participants

ID	Sex	Age	Highest qualification	Title	Designation
1	Male	43	PhD Epidemiology	WHO consultant (NCD specialist)	SME
2	Male	55	MBBch, DA	Physician/ Health Former Minister	SME
3	Male	52	MMED (Internal medicine)	Physician Internal medicine	SME
4	Female	49	Postgraduate BNSc advanced practice	Diabetes nurse educator	SME
5	Female	49	Diploma in Nursing& BA community and health psychology	Registered nurse: SHPO-FH, PHC	SME
6	Male	42	MSc Field Epidemiology	Medical scientist Epidemiologist	SME
7	Male	36	PhD Physiotherapy	Academic researcher lecturer	SME
8	Female	33	MSc Field Epidemiology	Registered nurse Epidemiologist	SME
9	Male	36	Grade 12	Community health care worker	Target population representative
10	Female	38	Grade 12	Self employed	Target population representative
11	Female	45	Grade 9	Self-employed	Target population representative
12	Female	59	Diploma in Economics	Sales manager	Target population representative

* SHPO- Senior Health Programme Officer – Family Health, PHC- Primary Health Care, SME-Subject Matter Experts

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholders' perspective on the barriers to hypertension adherence

The stakeholders reported 14 factors as barriers to hypertension adherence. The voting results showed that lack of knowledge on hypertension (57 scores) was voted as the most barrier; shortage of hypertension medication emerged second position (53 scores), followed by not having a support system (47 scores). Having to take multiple medications emerged last (27 scores). Figure 1 is submitted in the figure file attached and the legend displayed at the end of the manuscript shows barriers to hypertension adherence the ranking results.

Stakeholders' perspective on the enablers to hypertension adherence

The stakeholders reported 14 factors as enablers to hypertension adherence. The voting results showed that patient education scored first position (57 scores); availability of drugs emerged second position (53 scores); followed by having a support system (47 scores). The provision of a national health fund emerged last (27 scores). Figure 2 is submitted in the figure file attached and the legend at the end of the manuscript shows enablers to hypertension adherence ranking results.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's perspective on the most suitable intervention package for hypertension adherence

All 12 participating stakeholders were requested to suggest hypertension strategies based on the suggested barriers and enablers and rank them according to their potential effectiveness. Table 2 shows 17 suggested hypertension strategies in ascending order of their ranking score. Key stakeholders ranked continuous patient education from initiation of treatment as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by developing a national dashboard to primary monitor medication stock (52 scores) and community support groups for peer counseling (49 scores

For peer review only

Table 2. Proposed hypertension strategies to promote hypertension adherence

Proposed strategies for hypertension adherence	**Summing by votes** 1= less effective 5=highly effective					**Total number of voting scores** (weighted sum = number of votes × ranking score)
	1	**2**	**3**	**4**	**5**	**60**
Enabling community health care workers to refill	2	2	4	1	3	37
Creating common low cost community transport	2	2	2	5	1	37
Family support to the BP initiation treatment		6		4	2	38
Sport interventions to target man	1	3	3	2	3	39
National health fund –critical pillar for Universal Health Coverage		5	2	1	4	40
Construction of health facilities		3	3	5	1	40
Change in health workers attitude towards patients	1		7	2	2	40
Employment opportunities	1	2	3	3	3	41
Collaboration of hypertension program and fishing industry		3	3	2	4	43
Appropriate measure to regulate prophetic Churches and so called healing medicines	1	1	3	3	4	44
Simplification of regimes		2	2	4	4	46
Mobile clinics- Provision for hypertension outreach programmes			4	5	3	47
Involvement of social worker in adherence counseling		1	2	5	4	48
Patient reminders			4	4	4	48
Community support groups-peer counselling		1	2	4	5	**49**
National dashboard- stock availability		1	1	3	7	**52**
Patient Education			1	4	7	**54**

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Reported barriers and enablers versus proposed strategies

Our results show a relationship between the identified barriers and enablers to promote hypertension adherence. Patient education has been proposed as the most important strategy that could help address barriers due to lack of knowledge concerning hypertension medication, social stigma, lack of proper diet and adverse side effects as a result of medications or non-adherence. It will also help understand enabling factors on hypertension assessment interventions, belief customized culturally appropriate. Table 3 is informed by the WHO model of medication adherence guidance.[28]

Table 3: Matching hypertension barriers and enablers to promote hypertension adherence with proposed hypertension strategies

Strategies	Barriers	Enablers
Enabling community health care workers to refill	Expensive finances, transport issues	Duration of hospital stay reduced, money or financial resource
Creating common low-cost community transport	Expensive finances, transport issues	Money/Financial resource
Family support for BP initiation treatment	Lack of social support	support system, perception of hypertension
Sports intervention to target man	Social stigma	support system, perception of hypertension
National health fund as a critical pillar of Universal health coverage	Expensive finances	Money/Financial resources, national health fund
Construction of health facilities	Duration of hospital stay	Duration of hospital stay reduced, hospital environment improved

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Change in health workers' attitudes towards the patients	Forgetfulness, Adverse side effects	A good relationship with health care providers/pro-active health workers
Employment opportunities	Expensive finances	Money/financial resources
Collaboration of hypertension program and fishing industry	shortage of drugs	political will
Appropriate measure to regulate prophetic churches and so-called healing medicines	Prophetic church influence	Patient education, Political will
Simplification of regimes	too many daily medications	National health fund
Mobile clinics-Provision for hypertension outreach programs	shortage of drugs, lack of knowledge, transport issues	A shorter length of refill
Involvement of social worker in adherence counseling	Lack of social support	Experience/witness of a person who has undergone hypertension complication
Patient reminders on the phone	forgetfulness	Availability of drugs at PHC, Duration of hospital stay reduced
Community support groups-peer counseling	Lack of social support	Experience/witness of a person who undergone hypertension complications, stroke clinics
National dashboard- stock availability	shortage of drugs	Availability of drugs at PHC
Patient Education	lack of knowledge, social stigma, proper diet, adverse side effects	study interventions of BP assessment and belief customized cultural appropriate

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Feedback from stakeholders on proposed strategies

All 12 participants (P) from the workshop were requested to comment on the proposed strategies to promote hypertension adherence. They all read the report and agreed with the results.

Major responses from the top 3 hypertension strategies proposed:

Patient Education: The key stakeholders suggested patient education as one of the key strategies that can be employed to promote hypertension adherence, emphasizing continual education by health care workers, including community health workers, from initiation of treatment. Health Education should focus on what hypertension is, its signs and symptoms, treatment, reference ranges, side effects, complications due to non-adherence, and the importance of counseling sessions in relation to hypertension. Promotion of a healthy diet, physical activity, religion, and beliefs should all be part of the package. Stakeholders also suggested that patient education be conducted in local languages through different media platforms such as radio and TV as well as community leaders. Spouses of patients with hypertension were suggested to be part of patient education.

``I think every time patients go to the hospital, they should get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how is hypertension treated; what are the side effects; consequences of a lack of adherence to the medication). All this information should be well explained to the patients. Hypertension is physiological; hence patients need to be reminded and explained what it means if they default when hypertension is controlled and they no longer see signs and symptoms and what they need to do in terms of taking medication.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Patients need to fully understand the importance of adherence that the moment you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again`` (P1).

``Education is an ongoing process with every follow-up. Constant education on diet, and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When you are dealing with NCDs is a broad spectrum of NCDs; therefore, we need to capacitate and strengthen community health workers. From nurses to pharmacists. Hypertension is a silent killer, hence Education`` (P7)

``Highly educated people are more likely to adhere. More knowledgeable tend to adhere, and also individual attitudes and beliefs are influenced by knowledge. Most people are not used to taking medication for life. Health education is very important for knowledge and, therefore, will be a good strategy for medication adherence. Again on knowledge, if you know the consequences and complications you are likely to adhere`` (P12)

``This whole patient education should be from day one, it is not just at the beginning, it has to be every day, when they come to the hospital, the health care workers must check in the patients log books if they are taking their medication. Patients must see a counselor first and be explained hypertension figures and what they mean; we do not even know what some of the values of the figures mean. Information is power`` (P4)

`` Educate patients on the implications of nonadherence and what hypertension is. If you don't have that kind of understanding is unlikely you'll adhere. Patients need to be congratulated/be encouraged when they are adherent as well`` (P7)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``Health education is key and must address the aspect of religion because is a common challenge. Yes God will save you but the same God who will save you is the one who provided knowledge to the health workers and scientists to come up with the medication; therefore, one needs to adhere ``(P8)

``Contrary to the past, I have been receiving my medication every month, and now I feel much better. So now the question I have been asking myself is, should I stop taking my medication because the doctor did not tell me when to stop, even though my blood pressure has been low ``

(P 2)

``Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved, especially outreach. Capacitate our health workers``(P 7)

``There are so many ways that can be used to spread information on adherence. We can use media, TV presentations, adverts, and community awareness, for example, church pastors, traditional leaders, and the heads of households, key members of the community who influence our decisions; all those people are extremely important. Your own husband can be a barrier to taking your medication, maybe he disapproves of you taking your medication, so maybe we need to use quite a number of platforms``(P 6)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``Information sharing should be done at least twice a month in local languages. If the person could not be available for the first broadcast, they will have another chance on the next Everything must be explained, even me that medication that I am taking, I cannot even read that name, (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you cannot read it``. (P 4)

National dashboard- stock availability

The National dashboard was suggested with the primary aim of monitoring medication stock shortage which is an issue in the state hospitals. Additionally, minimize unexpected out-of-pocket expenses, prevent stealing medication in the state facilities, and avoid unnecessary transport costs and wrong prescriptions.

``If we have the national dashboard where authorized persons have access to it, this way you will have many people looking at the dashboard, and if there are flags, someone will be able to alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees even steal the medication; therefore, the dashboard will help with this. `` (P 11)

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``We need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less then you need to add. Actually, stock-outs are a result of poor planning`` (P7

``The person responsible for ordering the drugs should ensure an ever availability of the drugs, and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and also the way this pharmacist is responding to you, that there is no medication, they are very rude. Imagine sitting there the whole day, and when you come to the pharmacy the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there``.(P4)

``The hospitals should estimate the usage rate of the drugs depending on an estimated increase of the rate of high blood pressure patients per month to maintain a certain number of drugs available at specific times. Proper procurement should be exercised to have a batch of drugs available at all time, and should be treated as an emergency. If we have run out of stock, there must be a way where the medication can be procured because patients need the medicine`` (P1)

``In Namibia, we have a tendency of a bottleneck, you already have two or more committees to the procurement, then later you still want to add another committee, and this committee there will be a middle man that needs a share from the tender, so the only way is to shorten the process of buying this life-saving drugs. `` (P2)

For peer review only

``The national dashboard should be able to cater to the people who work in the sea to help the Fisherman, that way they are not left out`` (P 10)

Community support groups-peer counseling

The key stakeholders suggested community support groups as one of the strategies that can be employed to promote hypertension medication. This is to avoid stigma and forgetfulness; patients are most likely to adhere when a fellow patient has gone through, for example, a stroke.

`` We need to have support groups for hypertension in the community just like we have for HIV and TB. So I think that is where the problem is we are putting so much on the tertiary treatment and not primary prevention. Our focus is more on once they have had the stroke is when we start putting them in a group, we are not really proactive enough in prevention hypertension in developing into a stroke, so more emphasis is needed on putting them in groups, let them share ideas, interact, because one of the major causes of a stroke is defaulting, so I believe maybe if you put more resources into primary prevention, by actually implementing some of these techniques within the community may, or even, within hospital set ups``(P1)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``When you are diagnosed with hypertension at 35 years of age, for instance, instead of having doubts about whether you will leave long enough (participants laugh), when you are introduced to a fellow patient who has been having hypertension for years and is surviving for many years, you might be encouraged to adhere to medication and build hope. And then the issue of having children, some will tell you I have been on medication before I got married, now I have my 7 children (all participants laugh), so when you are being told by someone who is a living example, it really encourages and helps you. (other participants concur)``(P2)

``Encourage people with hypertension to join support groups in the community and also support from the family. People with the same diseases join and do activities together like poultry farming, and gardening and also encourage each other. Just like the ones for HIV programs. The clinic in charge should encourage patients with hypertension or community health workers to set up support groups in the community. Every community health worker can form in a village where they are allocated`` (P10).

``Community support is important. It could be that you have your family's support, but the community members are still looking down on you. There is a need for community sensitization of what hypertension is, and also how these people are supposed to survive or live within the community because come people discriminate, because like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well`` (P 2)

For peer review only

DISCUSSION

This study presents the consensus of key stakeholders' most acceptable intervention package for promoting hypertension adherence in Namibia. The stakeholders reported multiple barriers and enablers to the uptake of antihypertensive medication and proposed compressive integrated strategies to address the barriers and enablers. The findings from the current study are in coherence with WHO guidelines for medication adherence.[28] Lack of knowledge in taking medication, shortage of drugs, and lack of social support were identified as the top three barriers and, at the same time, enablers to hypertension adherence, which means that the top 3 enablers identified in this study were comprehensive patient education, availability of drugs at PHC, and having a social support system. Our findings on the most severe barriers and enablers identified collaborate with many studies conducted across the globe.[29-33] A scoping review qualitative study by Kvarnström, K. ; (2021) et al.; revealed that information and knowledge of diseases and their treatment, communication, support, and adequate resources appeared to be the critical barriers and facilitators in medication adherence.[29] Similar findings were reported from a study conducted in Malaysia which concluded that a lack of knowledge on targeted blood pressure levels has led to poor blood pressure monitoring among the participants.[30]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Contrary to our findings, a study conducted in Nigeria indicated that the availability of affordable health insurance was considered one of the most important resources for providing high-quality hypertension care to the local, primarily poor, population.[34] The findings from Nigeria may have differed from ours because they included primary health care providers and insurance managers as opposed to our study, which included the target population, hypertensive patients. Nonetheless, our findings, including those on medication availability, interestingly agree with factors that were identified as predictors for hypertension in Namibia, which include supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[17, 18] This shows how much the barriers and enablers, as identified earlier, are significant to hypertension management and adherence.

The most important key strategies identified by the current study were the promotion of patient education through different delivery platforms, having a national dashboard, and encouraging community support groups-peer counseling. In our study, stakeholders suggested that health professionals give continuous education in local languages through platforms such as radio and Television and community awareness through the leaders in the Communities. The stakeholders added that education through platforms such as Television should be done at least twice a month so that if a person is not available for the first broadcast, they will have another chance on the next broadcast. Our findings agree with similar studies conducted in South Africa, Bangladesh, Pakistan, Sri Lanka, and South Korea, which demonstrated that educational interventions, organizational interventions aimed at delivery care, and SMS reminder systems could effectively manage chronic medication adherence.[35-37] Additionally, one of the Lancet commission's articles on hypertension agrees with our findings on hypertension health promotion and strengthening of the care system.[38]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Similar findings were reported in a study conducted in China which found that Interactive education workshops may be the most effective strategy in community-based health promotion education programs for hypertensive patients.[39] Similarly, a qualitative study by Emily P (2013), where knowledge was found to be a barrier, suggested that developing a more personalized approach to education and communication could be effective.[40] Our study suggested a national dashboard to monitor medication stock so that patients do not run out of medication and end up paying ``out of pocket``. The stakeholders in our study believed that this method worked very well in countries such as Zimbabwe with HIV and TB programs. Similar results on the national dashboard were reported in 5 Indian states, which found that an adaptive strategy of community-based drug distribution through community or social workers and home delivery appears feasible and may help improve access to hypertension care.[41, 42] The dashboard monitors the drugs and identifies patients at risk of potentially hazardous prescribing.[43] Social support was identified as the third most important strategy in the current study. Similar findings were identified by Isiguzo, G.C. et al. (2022), who reported that adherence clubs for hypertension control is feasible and led to a statistically significant and clinically meaningful improvement in self-reported medication adherence, resulting in BP reduction.[44] Similar results were reported by Jingjing P; (2021) from China. Group hypertension education classes are an effective way to care for patients.[45]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

The collaboration with stakeholders on perceptions of the most suitable hypertension strategy resulted in multiple strategies and how to implement them, especially in the current setting and Namibia at large. Therefore, we propose conducting a Discrete Choice Experiment (DCE) with patients with hypertension to determine Namibia's most acceptable hypertension package. The stakeholders recommended a multifaceted educational intervention package that targets patient and health care system factors. Since education is paramount, we recommend that the package incorporate continual reminders on hypertension information, including the importance of medication adherence, consequences of not taking medication throughout an organizational- drug reminder system. Reminders can be sent ones, on a weekly basis.

For peer review only

CONCLUSIONS

Hypertension key stakeholders in Namibia perceived patient education as the most acceptable intervention package to help promote medication adherence for their population. These findings will offer an opportunity to implement a strategy for promoting adherence to hypertension therapy consequently reducing cardiovascular outcomes. Before implementing the proposed intervention, we recommend a follow-up study to determine the most preferred hypertension strategy by different population groups from different regions across Namibia.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Acknowledgments

We would like to thank and acknowledge all the stakeholders who participated in this workshop. A special thanks to Dr Shumba Washington for co-moderating the workshop and Ms Esther Muhepa who assisted with recording and transcribing. We would also like to thank the NCD coordinator and Primary health Care Supervisors at the Namibia Ministry of Health and Social services (MoHSS) for their assistance with recruiting some of the workshop participants. A special thanks to the University of Namibia for providing a venue to conduct the workshop.The authors would also like to thank the University of KwaZulu-Natal (UKZN) for providing the platform to set up and conduct this research study.

Competing interests

None declared

Funding Statement

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors

Ethical approval and consent to participate

This study has been ethically reviewed and approved by two institutional review boards: The Namibia MoHSS National Ethics Committee (Approval number: (17/3/3 ON), and the University of Kwazulu Natal Biomedical Research Ethics Committee (Approval number: BRE/00000944/2020). All participants received an information sheet explaining the study background, objectives, and procedures and signed a consent form prior to the study.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Authors' contributions

The study has been conceptualized and designed by ON, BS, and TPM-T. Data collection was done by ON and WS. ON and TPM-T performed data analysis assisted by SW and TAD. All authors reviewed and approved the final draft of the manuscript.

Data availability

The transcripts from the qualitative component of this study are available in supplementary file 1.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

REFERENCES

1. WHO. *Hypertension: Key facts*. 2021 [cited 2022 26 June 2022]; Available from: https://www.who.int/news-room/fact-sheets/detail/hypertension.
2. World Health, O., *Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies*. 2010, Geneva: World Health Organization.
3. Mills, K.T., et al., *Global Disparities of Hypertension Prevalence and Control: A Systematic Analysis of Population-Based Studies From 90 Countries.* Circulation, 2016. **134**(6): p. 441-50.
4. World Health, O. *World Health Rankings Live Longer Live better*. 2020 [cited 2022 26 June 2022]; Available from: https://www.worldlifeexpectancy.com/namibia-hypertension.
5. Cramer, J.A., et al., *The significance of compliance and persistence in the treatment of diabetes, hypertension and dyslipidaemia: a review.* Int J Clin Pract, 2008. **62**(1): p. 76-87.
6. Halpern, M.T., et al., *Recommendations for Evaluating Compliance and Persistence With Hypertension Therapy Using Retrospective Data.* Hypertension, 2006. **47**(6): p. 1039-1048.
7. Lynch, W.D., et al., *Effect of antihypertensive medication adherence among employees with hypertension.* Am J Manag Care, 2009. **15**(12): p. 871-80.
8. Mar, J. and F. Rodríguez-Artalejo, *Which is more important for the efficiency of hypertension treatment: hypertension stage, type of drug or therapeutic compliance?* J Hypertens, 2001. **19**(1): p. 149-55.
9. Nilsen, P., et al., *Never the twain shall meet?--a comparison of implementation science and policy implementation research.* Implement Sci, 2013. **8**: p. 63.
10. Bergström, A., et al., *Health system context and implementation of evidence-based practices—development and validation of the Context Assessment for Community Health (COACH) tool for low- and middle-income settings.* Implementation Science, 2015. **10**(1): p. 120.
11. Barker, P.M., A. Reid, and M.W. Schall, *A framework for scaling up health interventions: lessons from large-scale improvement initiatives in Africa.* Implementation Science, 2016. **11**(1): p. 12.
12. Choudhry, N.K., et al., *Medication Adherence and Blood Pressure Control: A Scientific Statement From the American Heart Association.* Hypertension, 2022. **79**(1): p. e1-e14.
13. World Health Organisation, *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
14. He, J., et al., *Effect of a Community Health Worker-Led Multicomponent Intervention on Blood Pressure Control in Low-Income Patients in Argentina: A Randomized Clinical Trial.* Jama, 2017. **318**(11): p. 1016-1025.
15. Uzochukwu, B., O. Onwujekwe, and C. Akpala, *Effect of the Bamako-Initiative drug revolving fund on availability and rational use of essential drugs in primary health care facilities in south-east Nigeria.* Health Policy Plan., 2002. **17**: p. 378.
16. Jaffe, M.G., et al., *Improved blood pressure control associated with a large-scale hypertension program.* Jama, 2013. **310**(7): p. 699-705.
17. Nakwafila, O., et al., *A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale.* International Journal of Environmental Research and Public Health, 2022. **19**(7): p. 4416.
18. Nashilongo, M.M., et al., *Assessing Adherence to Antihypertensive Therapy in Primary Health Care in Namibia: Findings and Implications.* Cardiovasc Drugs Ther, 2017. **31**(5-6): p. 565-578.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

19. MoHSS, *National Multisectoral Strategic Plan For Prevention and Control of Non-Communicable Diseases (NCDs) in Namibia 2017/18 – 2021/22* T.M.o.H.a.S. Services, Editor. 2017: Namibia.
20. O'Brien, B.C., et al., *Standards for reporting qualitative research: a synthesis of recommendations.* Acad Med, 2014. **89**(9): p. 1245-51.
21. Jones, J. and D. Hunter, *Consensus methods for medical and health services research.* Bmj, 1995. **311**(7001): p. 376-80.
22. Tully, M.P. and C. Ja. *The use of the nominal group technique in pharmacy practice research: processes and practicalities*. 1997.
23. *GROUP TECHNIQUES FOR PROGRAM PLANNING: A GUIDE TO NOMINAL GROUP AND DELPHI PROCESSES Andre L. Delbecq, Andrew H. Van de Ven, and David H. Gustafson Glenview, III.: Scott, Foresman, 1975. xv plus 174 pp., $4.95, paperbound. INTERPERSONAL CONFLICT RESOLUTION Alan C. Filley Glenview, III.: Scott, Foresman, 1975. 180 pp., $4.95, paperbound.* Group & Organization Studies, 1976. **1**(2): p. 256-256.
24. Allen, J., J. Dyas, and M. Jones, *Building consensus in health care: a guide to using the nominal group technique.* British Journal of Community Nursing, 2004. **9**(3): p. 110-114.
25. Dening, K.H., L. Jones, and E.L. Sampson, *Preferences for end-of-life care: a nominal group study of people with dementia and their family carers.* Palliat Med, 2013. **27**(5): p. 409-17.
26. Bartunek, J.M. and J.K. Murninghan, *The Nominal Group Technique: Expanding the Basic Procedure and Underlying Assumptions.* Group & Organization Studies, 1984. **9**(3): p. 417-432.
27. Krippendorff, K., *Content analysis: An introduction to its methodology*. 2018: Sage publications.
28. World Health, O., *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
29. Kvarnström, K., et al., *Factors Contributing to Medication Adherence in Patients with a Chronic Condition: A Scoping Review of Qualitative Research.* Pharmaceutics, 2021. **13**(7): p. 1100.
30. Tan, C.S., et al., *A qualitative exploration of hypertensive patients' perception towards quality use of medication and hypertension management at the community level.* Pharm Pract (Granada), 2017. **15**(4): p. 1074.
31. Magadza, C., S.E. Radloff, and S.C. Srinivas, *The effect of an educational intervention on patients' knowledge about hypertension, beliefs about medicines, and adherence.* Research in Social and Administrative Pharmacy, 2009. **5**(4): p. 363-375.
32. Konstantinou, P., et al., *Barriers, facilitators, and interventions for medication adherence across chronic conditions with the highest non-adherence rates: a scoping review with recommendations for intervention development.* Translational behavioral medicine, 2020. **10**(6): p. 1390-1398.
33. Tsiantou, V., et al., *Factors affecting adherence to antihypertensive medication in Greece: results from a qualitative study.* Patient Prefer Adherence, 2010. **4**: p. 335-43.
34. Odusola, A.O., et al., *Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers.* Glob Health Action, 2016. **9**: p. 29041.
35. Bobrow, K., et al., *Mobile Phone Text Messages to Support Treatment Adherence in Adults With High Blood Pressure (SMS-Text Adherence Support [StAR]): A Single-Blind, Randomized Trial.* Circulation, 2016. **133**(6): p. 592-600.
36. Jafar, TH, et al., *Community based lifestyle intervention for blood pressure reduction in children and young adults in developing country: cluster randomised controlled trial.* BMJ (Clinical Research Ed.), 2010. **340**: p. c2641-c2641.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

37. Park, Y.-H., et al., *The effects of an integrated health education and exercise program in community-dwelling older adults with hypertension: A randomized controlled trial.* Patient Education & Counseling, 2011. **82**(1): p. 133-137.
38. O'Brien, E., *The Lancet Commission on hypertension: Addressing the global burden of raised blood pressure on current and future generations.* J Clin Hypertens (Greenwich), 2017. **19**(6): p. 564-568.
39. Lu, C.-H., et al., *Community-based interventions in hypertensive patients: a comparison of three health education strategies.* BMC Public Health, 2015. **15**(1): p. 33.
40. Jolles, E.P., et al., *A Qualitative Study of Patient Perspectives about Hypertension.* ISRN Hypertension, 2013. **2013**: p. 671691.
41. Kunwar, A., et al., *Interventions to Ensure the Continuum of Care for Hypertension During the COVID-19 Pandemic in Five Indian States-India Hypertension Control Initiative.* Glob Heart, 2021. **16**(1): p. 82.
42. Campbell, N.R.C., et al., *Monitoring and evaluation framework for hypertension programs. A collaboration between the Pan American Health Organization and World Hypertension League.* J Clin Hypertens (Greenwich), 2018. **20**(6): p. 984-990.
43. Jeffries, M., et al., *Understanding the utilisation of a novel interactive electronic medication safety dashboard in general practice: a mixed methods study.* BMC Medical Informatics and Decision Making, 2020. **20**(1): p. 69.
44. Isiguzo, G.C., et al., *Adherence Clubs to Improve Hypertension Management in Nigeria: Clubmeds, a Feasibility Study.* Glob Heart, 2022. **17**(1): p. 21.
45. Meredith, A.H., et al., *Group education program for hypertension control.* The Journal of Clinical Hypertension, 2020. **22**(11): p. 2146-2151.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Legends

Figure 1. Barriers to hypertension adherence

Figure 2. Enablers to hypertension adherence

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

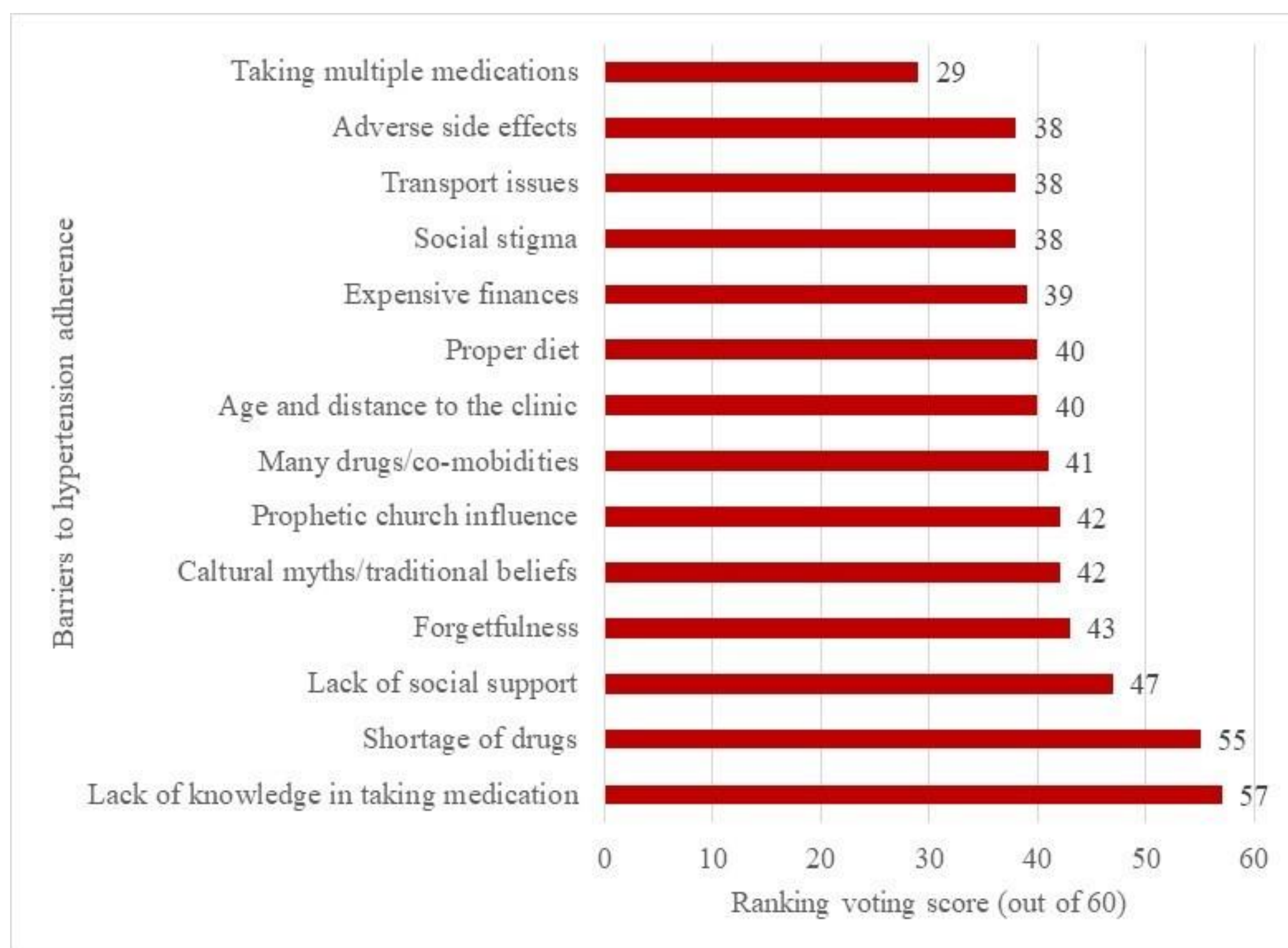

Figure 1. Barriers to hypertension adherence

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

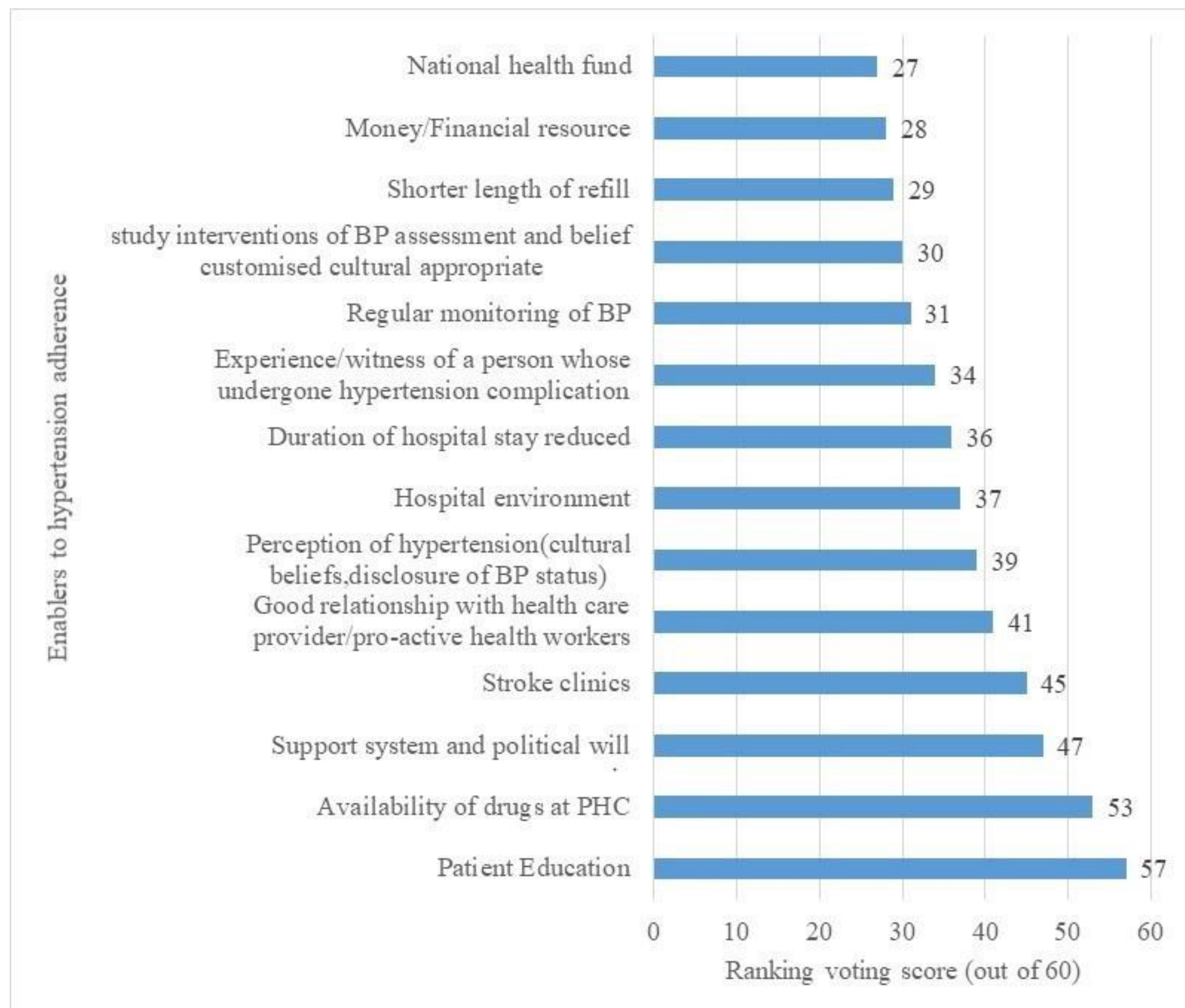

Figure 2. Enablers to hypertension adherence

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Interview Transcripts

Moderator: Once again, thank you for agreeing to participate in this important study. I believe we all know that we have challenges of hypertension blood pressure specially here in Namibia. I'm going to take you through the procedures, how we are going to be discussing throughout the session.. The first question we want to find out about what barriers hinders people from taking high blood pressure drugs. We also want to find out about the enables or what helps people to adhere to hypertensive drugs .We move on to the next question, where we are asking for strategies how to adhere to the hypertensive drugs.

The first question is, what are those in your own experience as a patient or as a community health worker, or as a key stakeholder from your own experience what do you think hinders people who take hypertensive drugs? Secondly, What helps or facilitates people to adhere to hypertensive drugs? We will give you 10 minutes so that you write down what you think hinders people from taking hypertensive drugs and what helps them to adhere. After that, you get in 4 groups of 3 each. After you finish, you discuss your thoughts and choose a group leader.

The group leader's purpose is to put the thoughts together so that we have one set and don't have duplicates. After that we ask you to come to one group, just the way we are seated and then each group presents their findings. We write the findings of group one and findings of group two. After that we discuss the findings together. After we get back in our groups again and rank or vote on the findings we got. Then we will be done with the first face of barriers and facilitators.

Next stage we get in our groups and find the solutions. We discuss again and vote for the solutions. But as we go we will always be explaining, if there is anyone with a question, you are free to ask. We will be helping each other as we go feel free to express yourself. We printed out papers where you have to write, on one side it's the enables, what helps you to adhere to take in hypertensive drugs. On the other side you write what hinders or what are those barriers that challenge taking of hypertensive drugs. Before we divide you into groups there is a concerned form attached behind. The form is like you are agreeing to participate and then you sign it.

We will start with group one and explain what you discussed in your groups and then move to group two,three, and then last group four. In that sequence.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1. Groups presentation on barriers to Hypertension Adherence

[Group 1 reported barriers]

Moderator: I think we are all ready, Group 1, you may start presenting the barriers that you have identified.

Participant 1: The first barrier is Lack of knowledge on hypertension medication – What we mean here is patients need to be educated about hypertension itself as well as the medication. What causes it? What happens in case of non-adherence? Most of the patients default because they do not know and understand the complications due to non-adherence because they are not educated about it.

Participant 2: When you go to the hospital, and your blood pressure is high or low, and you are going there for the first time, you might not know, it's always good to study the meaning of the blood pressure, what are the numbers that represent that the blood pressure is high. For example, if your blood pressure is 120, you know the meaning of it.

Participant 1: Medication is very important and it should be taken every day. My neighbors would complain about dizziness after consuming medication, so they hide it, and they don't take it. So one day I saw one of them had swollen feet, I asked what's wrong, and if they are taking their medication, they said no, then I asked then why do you go and get the medication if you are not drinking it, they said We sometimes just go to the pharmacy to have that record on the hospital cards, to avoid a reaction from the doctors on the next follow-up., laughs

Participant 3: See it all comes down to Education. Sometimes you just do it to please the doctors and not get into trouble

Participant 1: Another barrier we discussed is diet. The medication has strong effects on the body and if a patient does not have enough food at home for breakfast, lunch, and dinner, they will not take the medication to avoid unwanted reactions of the body. Sometimes, you will collapse if you take the medication without eating.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 2– You need a glass of milk to have enough calcium in your body to avoid blockage of veins in the body. The blood will not flow properly, and sometimes the food that contains this are expensive and they are needed, and the supplements that contain calcium.

Moderator: Ouk… What you are saying is patients do not take their medication because they do not have money to buy food..?

Participant 1: Yes, the healthy food is very expensive

Participant 1: Alcohol is also a problem. When you are on medication and you drink alcohol, you might forget to take your medication. Especially when you are taking medication for hypertension, instead of drinking your medication with water, you will end up taking it with just alcohol. So too much alcohol will hinder you from taking your medication.

Moderator: So in other words, alcohol can shift either way. If it is becoming too much, it will hinder you from taking your medicine. If you are advised not to take alcohol, it will enable you to take your tablets

All participants agree…

Participant 1: Which brings us to our 4th barrier which is not having someone to remind you to take your medication. That, can lead to non-adherence.

Moderator: Lack of a support system…Can you elaborate on that..?

Participant 3: What we mean is at least you need someone to remind you to take medication. It could be a family member or spouse. It is always good to have someone by you to remind you. Especially with age, a ``katekulu``(grandchild) can be of great help)..participants laugh

Participant 1– Usually, if the patients who are on hypertension drugs, a large number of such patients are also taking medication of high cholesterol and a good number of diabetes medication. So many patients become exhausted and feel burdened with taking too many drugs, so The costs of buying the tablets are also high, especially for patients with unemployment status. And also, for the state patients, sometimes when they come and get their medication, they only had that transport

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

money, now they must come back again when there is stock in the hospital, so finance is also an issue.

Participant 2: The only issue I have is the new immerging Companies offering ``Forever-Living products``, ``Herbal Life``, and they are all curing hypertension, products that are advertised everywhere, and by nurses as well doctors, which is marketed to provide speedy recovery instead of life-long medication from hospitals encourage patients to avoid taking their tablets. And when one has a condition you are looking for answers, it makes it difficult for the patients to take their medication for life because they feel there is herbal life or forever-living product that can cure it. (all participants laugh)

Participant 1: Social stigma also plays a large role in patients taking their medication as patients are afraid of being criticized because of their hypertension and medical status. So sometimes, when one is told hypertension is a killer disease, the person will sometimes shy away and not want to talk about their condition. It's just like when I meet a beautiful girl when I approach her, I will not tell her, hi, how are you, I want something with you, but I am on hypertension medication, she will obviously say, no this one can go, he is going to die (all participants laugh) so because of that stigma, one is not going to adhere, so if I go to her every weekend, that means I will not take my medication. (Participants continue to laugh)

Participant 2: Just to add on that, our African population we have a mistrust and misbelief on adverse medical issues that might be brought about during the period a patient will be taking hypertension medication. And some drugs end up causing a lack of blood circulation, causing sexual impotence with some people, and causing a lack of sexual drive in many people; this can drive you crazy sometimes

Moderator: The medication have an effect on sexual dive?

Participant 1: Yes, it does, in the long run, especially when you are aging. Also hospital accessibility, hospitals being far from the people, so at the end of the day, you debate, should I go, or should I not go, do I have transport money to go get the medication, and also because of poverty, there is no many things we priorities in the African context, so the medication will be part of them. And there is also a shortage of drugs, and the drugs these patients take is quite expensive, and sometimes you might not have the money to buy the drugs, and sometime the public hospitals

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

might not have the stock. Also, the elderly, when it comes to issues of not understanding why they should take the medication, they will tend to forget, and we also spoke about social support, if you do not have anyone to help you as well, there is no one to inspire you, or encourage you to take the medication, it makes it a barrier, even if you have the money, to buy the medication, And you do not have anyone to remind you, you will tend to forget.

Moderator: Okay…Thank you group 1, great discussions!

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Moderator: Let us move on to group 2

[Group 2 reported barriers]

Participant 4: Our barriers are similar to those of group 1. The first one was Lack of Education. Patients need to be educated on what hypertension is, implications of non adherence. Education is key. From initiation of treatment, Education must be continuous

Participant 5: Most of the barriers we discussed are around Education

Moderator: Yes, go ahead…

Participant 4: Exercise and alcohol is another point we discussed.

Moderator: So if you are taking exercises, how does it help you take your medication?

Participant 4: It is very important for health professionals to continuously educate on the importance of exercise and to avoid excessive alcohol intake. If you exercise and you have hypertension, it reduce high blood pressure, it can reduce hypertension, don't just come from the car, and you go sit, and when you exercise the blood pump properly. Patients also need to be educated that in order to take their medication on time, they should not drink too much alcohol. This will also help them not to forget

Moderator: So Forgetfulness was also another barrier identified

Participant 4: Yes

Participant 5: To add on exercise, If you are doing exercises and you are hypertensive, you are encouraged to continue taking walks as it will reduce hypertension, and the blood in the veins circulates all over the body and the heart pumps faster when you do heavy things. It is recommended to exercise at least daily.

Participant 6: When you exercise, it is another way of treatment as it puts your blood pressure on the desired level.

All in agreement…

Moderator: Is that all from Group 2…Well, thank you very much group 2.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 3 reported on Barriers]

Moderator: Lets continue with the discussion: Group 3 can you present the barriers you have identified..

Participant 7: Walking long distances to collect the drugs. As opposed to the availability of cars here in Windhoek, should you find yourself somewhere far at the villages were there are rarely cars, when a patient has to go collect their medication and go for a follow-up and they take the distance into consideration they might change their mind on going for the follow-up.

Participant 7- Some cultures are based on traditional medication and believe that God will heal you without taking your medication, as well as prophets' teachings during church services. Some cultures believe they can use their traditional medicine, that is another barrier.

Moderator: Do you have any idea of a tribe that prohibits people from taking their medicine?

Participant 8: Can I add on that?

Moderator: Yes, please

Participant 8: Some prophetic churches are the ones that can say don't take your medicine.

Participant 7- Yes, But you also have to think to yourself, God will heal you but you must also take your weapons, its just like when someone tells you that you must not eat anymore, will you stop eating, if you stop obviously you will be starving. (Laughs)

Moderator: So the barriers here are distance, Lack of transport, cultural beliefs, and prophetic churches. Is that right?

Yes… all participants concur

Participant 7 - Another barrier we identified is the Unavailability of medication at hospitals: It is a stressful matter in Namibia - When you go for your follow-ups at the hospitals, you might wait from 8 am to 5pm and when you reach the queue at the pharmacy, they at times tell patients that they have ran out of hypertension medication, and by the time you are going to run to the pharmacy, the pharmacy is closed , and sometimes you do not have money, you didn't budget to go to the pharmacy, it's really frustrating us, and they don't even put a notice to say that there is no medication today, They give no prior communication from the staff there and personally when I

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

find myself experiencing low-blood pressure and I am referred to counseling. You will be told to go see the doctor instead, and doctors will eventually offer no help; and it is a waste of time as doctors tell you to go buy the medication from private pharmacies and not all of us have money to afford that medication, because you already used the transport money to come there.

Moderator: I understand…

Participant 7: That's about it from our group

Moderator: Great! Thank you group 3

[Group 4 reported barriers]

Moderator: We are almost there. Group 4, Can we discuss the barriers you have written down.

Participant 9: Education, just like the rest of the group members we listed it as a barrier. Perhaps what we can add which have not been mentioned is patients who take multiple medications.

Moderator: Ouk, Can you explain on that?

Participant 11: Yes, of course when taking a lot of medication can be discouraging. In the private facilities, we have what we call combination medication. However, these are expensive, not everyone can afford them. So perhaps the state can subsitise on this type of medication so that patients do not end up so many medications.

Participant 12: I agree…

Male Speaker 10: Otherwise, all the other points are the same, we agree with what other groups have discussed

Moderator: Okay, thank you, group 4

[End of recording]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

2. Groups presentation on enablers for Hypertension Adherence

[Group 1 reported enablers]

Moderator: Group 1, can we go to the Enablers. Lets go aheard and discuss the enablers

Participant 1: Education, There are so many factors that we named about hypertensive-patients. What is hypertension; Signs and symptoms; the type of medication that they are supposed to take and why they are taking that; The side-effects of the drugs. Those factors maybe that will probably improve the adherence to of the drugs. And we thought that the most important thing is the health workers explaining the condition to the patient about why it is important for them to take their medication and adhere…including education on Herbal life as well, (participants laugh)

Participant 3: on the point of taking medication – If the patient understands how the medication works in their body and what will happen if they do not take their medication, they will likely adhere

Participant 1: The second point is having a support system: If you got a very good social, support system or home support system there is a high chance that you have someone who is going to remind you to take your medication. So, if I am a granny with hypertension and I go to the hospital with my little daughter, for example. My daughter can actually help me remember that I am supposed to take my medication at 7 o' clock every day. So good.

Moderator: Ouk…Can other participants add…

Participant 2: Yes, another important enabler with regards to sticking is having a social support system by mmeans of stroke clinics at various public healthcare services that offer this medication. You can have a day when stroke patients or patients with hypertension come to meet and interact. So, that social interaction can motivate other patients who are not adhering to their medication to start doing it. So maybe having stroke clinics at our hospitals may act as an enabler.

All participants in agreement…

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: There must also be an availability of the drugs, accessibility of the hospitals, disclosure of BP by patients, sharing of hypertensive status with friends and community members. If there can be support groups, this will really assist the patients

Participant 2: In ensuring that medication is available, the hospital environment must be welcoming as well when the patients go to collect their medication. especially when they are sacrificing the whole day to come and collect their medication.

Moderator: Ouk, So in other words you are saying there should be a good rapport between patients and Health Care workers?

Participant 2: Not only that, I mean if you go in our state facilities there is no privacy, it is congested. Is just that many of us in Namibia we are Christians however you find in some certain religion like Muslim they don`t allow to be just undressed in the open. So that need to change

Participants agree

Participant 3: Medication should always be there, should be enough stock, so when there is a guarantee that the medication is at the hospital and you will not miss a day or two,

Moderator: Good…, Can we go to the next points?

Participant 1: Accessibility to the health facilities., are the hospitals accessible to the people because some of these patients leave very far from the hospitals, do they have transport to take them to the clinic and so forth, and also encouraging patients to disclose their status, sharing your hypertension status with your close friends,

Participant 2: To add, usually, patients do not take their medication when there are people around whom they have not disclosed their statuses with, and if there are always people around, they will never take their medication.

Participant 2: Also, Marital status favors adherence to taking medication. When you have a partner, the chances of him/ her reminding you to take your medication is there, and also the level of education.

Moderator: Do this only favor those that are married or also those that are staying together (cohabitating)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Male speaker 1: As long as there is someone to offer that support, that reminder that you are supposed to take your medication, reminding them what the side effects are, what are the importance of taking their medication**.**

All participants agree

[Group 2 response to enablers]

Participant 4: Education on the importance of exercise and the need to avoid alcohol when taking medication. Checking the trend of your BP also helps you to adhere – If you do regular check-ups of your blood pressure, and when it is high that will help you to adhere to taking the tablets.

Participant 4: Proactive health workers actively involved in reminding the patients on taking their medication because of old age of many the patients, could be helpful as well. If Dr's and nurses are actively reminding patients maybe a social visit, or digital reminders, they can maybe send them SMS's,

Participant 5: I agree as well, Education and being active is key, Is vice versa with the barriers ***…Participants agree…***

Moderator: Thank you group 2

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 3 responses to the enablers]

Moderator: I know that most of the barriers and enablers are similar. Group 3, can you go ahead and discuss the enablers that you have written down:

Participant 7: One of the enablers we discussed is to have nearby clinics in the villages to avoid long distances. Also to have community health workers to assist with distributing hypertension medication.

Participant 8: Another thing we need to understand is that Education is very important when it comes to changing patients' negative belief of the medication to avoid going to prophets .

Participants agree…

Participant 8: ….Go ahead participant 7, just wanted to add on that point

Participant 7: Another enabler we discussed to help with the accessibility of medication is for the hospitals to learn how to plan and control stock so that the medication can be available

Moderator: How can we ensure the availability of medication at all time?

Participant 8: Develop something to monitor the medication stock, Also announce on the different media platforms on when medication will be available to also avoid patients from traveling long distances when there is no medication

Moderator: Good, Is there anything else…?

Participant 7: That is all for now

Moderator: Ouk, Thank you group 4

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 4 Reported Enablers]

Moderator: Group 4 can you comment on the enablers

Participant Male Speaker 9: The enablers we discussed is for the Health professionals to educate patients on hypertension and the consequences of non-adherences. Health professionals must also educate themselves on non-communicable diseases. You might find that a patient will be diagnosed as hypertensive as a first timer already; however, it could be just that that day maybe they were going through something that put their pressure up and not necessarily that they have high blood pressure.

Participant Female speaker 9: Yes...So education for all health professionals involved in hypertension care

Participant Male Speaker 10: Perhaps the government can come up with some sort of solution to meet the patients halfway so that the number of state patients' medication can be reduced to avoid defaulting.

Moderator: Well, Ouk, thank you group 4

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

A discussion is going on about which enablers and barriers will be added to the respective lists.

A discussion is going on about how to rank the barriers and enablers.

(The final list comprises 14 Enablers and 14 Barriers).

3. Groups presentation on the strategies for hypertension

[Participants responses on Strategies]

Moderator: Thank you so much, we are done with this round. The next round we are not going to get into ranking but we are just going to discuss more on the solutions that can help patients to adhere. We want to explain further on these items and the strategies thereof).

(A discussion is going on about the accumulative results, other possible factors that can be added to the list and a further analysis of the listed factors)

Participant 2: I just wanted to speak on the period of refill, if it can be shorter, like for example if it can be maybe two weeks rather than 3 months, so the issue of forgetting and remembering also plays a role, if you do not see your physician for a long time, you tend to forget, unlike when you go to them more often, they will be able to see that you don't look so good, so when they go there often they kind of adhere better. When you go to the Dr after a week, its easier for you to remember, rather than if you go once after a long time.

Participants ranking the barriers and enablers from a scale of 1- being the lowest, and 5 being the highest

The participant writing down the most important strategies.

Moderator: Explaining on the strategies of the barriers and enablers. Patient Education, how can it help the people to adhere to their medication to hypertension?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1: I think every time, when the patients go to the hospital, every time, if they can get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how is hypertension treated; what are the side effects; what are the consequences of a lack of adherence to the medication) and this are explained to the patient's every time they go to the hospital, because you know adherence is also physiological, because now I will need to be reminded or know, why am I taking this medication, like when the patient default, they default after six months or so when the blood pressure is now controlled by the medication, then when the blood does not go up anymore, then they stop taking the medication, because they are no longer seeing the sign and symptoms, so all this things need to be explained, so that they fully understand the importance of adherence, the blood is not controlled by the medication, the moment you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again even if you stop taking the medication. So this whole patient education should be continual, from day one, it's not just at the beginning, it has to be every day, when they come to the hospital, the Dr or the nurses must check on their log book if they are taking their medication, they must see a counsellor first, and explain this figures, what they mean, some of this figures are not explained to them, we don't even know what some of the values of this figures mean.

Participant 12: Highly educated people are highly likely to adhere. More knowledgeable tend to be adhere and also individual attitudes, beliefs, which is influenced by knowledge. Their belief is. Most people are not used to taking medication for life. Health education is very important for knowledge and therefore will be a good strategy for medication adherence. Again on knowledge, if you know the consequences and complications you ware likely to adhere.

Participant 4*:* Yes, I think at the hospital, when you go there for the first as a hypertension patient with high blood pressure, the nurses do not give some sort of counselingE prior to the patient receiving the medication. Like for me I was just informed, you have high blood pressure, go to the pharmacy, you are not informed if your blood is low, then you are okay, or if it's at this stage, it's too high.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 6: If you diagnose a person with hypertension and you don't educate the person on what is hypertension, what are the contributing factors to hypertension,is likely that the patient will not have information and adherence will be very low. Most of the patients they are just told you have high blood pressure. Right? And you are going to be on medication. Lack of knowledge on the bases of the patients. Both nurses and doctors. Education is an ongoing process with every follow up. Any barriers the patient is facinf. Constant Education on diet, and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When you are dealing with NCDs is a broad spectrum of NCds so we need a guide education. Make use capacitate and strengthen community health workers. From nurses to the pharmacies. Hypertension is a silent killer, the fourth month they default because they feel fine hence Education. Some people default because of money issues, because of Lack of knowledge. Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved especially outreach. Capacitate our health workers

Moderator: Who should be accountable for this patient education, is it the health workers only?

Participant 1: All health workers are mandated to give health education to the patients, on the key issues that is affecting their health, it could be the nurse, it could be the medical doctor, it could be the community health workers, as long as they are known legible about the health condition, so information is power.

Moderator : Is there another way, apart from pamphlets that this information can be disseminated to the people?

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 6: There is so many ways that can be used, we can use media, you can make presentation, tv presentations, adverts, community awareness, like example what she said, we can use the pastors, because like how are you going to influence the church, you have to find a way on how to engage the community, especially the key members of the community of who they influence our decisions, the traditional leaders, the heads of households, all those people are extremely important, because sometimes, your own husband can be a barrier to taking your medication, maybe he does not approve to you taking your medication, so maybe we need to use quite a number of platforms.

Moderator: How often do you think the information should be disseminated, like the example on the radio?

Participant 1: Quite often.

(The aforementioned questions are being further explained and discussed in depth)

(A discussion is going on about how often the nation needs to be educated on hypertension on the radio)

Participant 1 : At least twice a month. If the person was not able to available for the first broadcast, then they will have another chance on the next broadcast. And it should be done in certain languages, in all the local languages. And they must always explain, even myself that medication that I am taking, I cannot even read that name, (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you can't read it.

Participant 2 (On a side note) : Contrary to the past, I have been receiving my medication every month and now I feel much better. So now the question I have been asking myself, should I stop taking my medication, because the doctor did not tell me when to stop, even though my blood pressure has been low. (Participants giggle)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 3 (Adding to the above point) : Sometimes you might experience high blood pressure for a while but later the level becomes lower again when you go back to the doctor. So the hospitals should offer more Education on what causes high blood pressure and what can increase it, hypertension can be caused by different things, sometimes it can be generational inherited, or stress can cause hypertension.

Participant 2: (Adding to the point of Education and causes of hypertension)

They are kind of modifiable facts. Patients need to be educated on lifestyle changes to improve their condition, to understand why they need to change improve their diet and lifestyle when they see improvement in their condition, once educated they can make their adjustment, because when they take their medication, they will see change. unlike when you are on medication, but you are still drinking alcohol, eating too much fat, you will not see any change. (Other participants concur).

Moderator : (A probing discussion is going on about the support system)

(The community and family need to support hypertensive patients)

(There should be support groups for hypertension, as there are for other medical conditions and diseases)

Participant 1: There should also be community support, it could be that you have your families support, but the community members are still looking down on you. There is need for community sensitization of what hypertension is, and also how this people are supposed to survive or live, within the community because come people discriminate, because like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well. (other participants concur).

Moderator: Do we have support groups for hypertension in the community? So we only have for HIV, TB. Respondents (all together).No, there are no support groups.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1 : So I think that is where the problem is, because they are putting so much on the tertiary treatment, and not primary prevention if we do have clinics that cater for this patients before they actually have a TI or a stroke, but our focus is more on once they have had the stroke is when we start putting them in a group, but we are not really proactive enough in prevention hypertension in developing into a stroke, so more emphasis is needed on putting them in groups, let them share ideas, let them interact, because one of the major causes of a stroke is default, because if we do not address the adherence to the medication now, that is going to result into a stroke,, so I believe maybe if you put more resources into primary prevention, by actually implementing some of this techniques within the community may, or even, within hospital set ups. (We as a nation are not proactive enough and focus more on treatment of hypertension than the prevention thereof, to prevent the development of hypertension leading to strokes)

Participant 2: When you are diagnosed of hypertension at 35 years of age for instance, instead of having doubts about whether you will leave long enough (participants laugh), when you are introduced to a fellow patient whom has been having hypertension for years and is surviving for many years, you might be encouraged to adhere to medication and build hope. And then the issue of having children, some will tell you I have been on medication before I got married, now I have my 7 children (all participants laugh) so when you are being told by someone who is a living example, it really encourages and helps you. (other participants concur)

Participant 1: There should be good rapport between health workers and patients, changing their attitude towards the patients and providing care to the patients, medical staff, they need to develop an interested in the patients wellbeing.

Moderator: How do we make them change?

Participant 1: Attitude change I think, the training on professional issues, ethical issues, because this is a job you are giving, you are rendering a service to somebody, basic training on how to handle a patient, because you are rendering a service, sympathy, empathy, the ubuntu kind of spirit, humanistic approach to someone in need, so all that should be included in our training,

Moderator: Are there any challenges experienced by health workers when providing a good environment for patients, is caused by staffing, money issues?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: I am sure it has nothing to do with staffing. You do not need all the proper equipment to engage well with patients as merely kindness and show of care will bring about an open environment around the patients, just sitting with the patient and just asking if everything is okay at home.

Participant 1: There are 3 settings in the health sector, we have the government, when if you come and get your medication, you are just given medicine and you are told, okay, here is your medicine, you can go, (all participants laugh) and the then we have a hospital like lady pohamba, where they have a boss, so they have to act accordingly because, any complaint that happens and goes to top management, then they are in trouble, and then you find Shali there who is their own boss, for him its all about money, you get your medicine and go, but if you have a setting there where you ask, mam how are you doing, do you have any side effects, are you eating well at home, it will help the patient to adhere better because they know my Dr's are expecting this from me, unlike some health professionals when the patient comes to the office, then they are like, or are you back again, you are not dead, (all participants laugh) or this thing of calling people by their sickness, e.g you tate with high blood pressure go (participants continue to laugh) so if our health care workers can improve on that, and even at medical school I see this in our medical students, you are studying medicine, but the whole month your focus is just there in the bank, and thinking of what car to buy, and wanting to look like some models out there (all participants laugh) so if we can have a culture of saying, that you focus on your work, and whatever reward you get is based on that, and we treat humans, as humans, I think that will solve that problem, I mean a good health worker, where the Dr really cares about the patient, like going back in the days when we were small boys, nurses use to care for me more than my own mother, because when you go to the hospital the nurses really care more than my own mother, because with your mother even if you cut yourself she will be like you people like playing around, and then she hits you on the butt, (participants laugh) but if you go to the hospital, the nurses will be like, don't worry you won't feel any pain, it will heal in how many days, so we need such kind of health workers. Health care workers need to show better care and communication with patients, and treat patients with a sense of belonging and respect for their medical status.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: The availability of drugs at hospitals: what do you think can help us? What can you suggest to make the drugs readily available at pharmacies?)

National dashboard- stock availability

Participant 11: If we have the national dashboard where everybody who is in each and every region of Namibia, whose of course is authorized, have access to it, this way you will have many people looking at the dashboard and if there are flags someone will be able to alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees steal the medication.

Participants in shock…

Participant 7: Wow…, Also another thing, we need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less then you need to add. Actually, stock-outs are a result of poor planning``

Participant 2: The person responsible for ordering the drugs should ensure an ever availability of the drugs and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and also the way this pharmacist are responding to you, that there is no medication, they are very rude, now image sitting there the whole day, and when you come to the pharmacy the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there.

Participant 2 (Adding to the above point) : The hospitals should estimate the drug usage rate depending on an estimated increase of the rate of high blood pressure patients per month to maintain a certain number of drugs available at specific times. Additionally, proper procurement should be exercised to have a batch of drugs available at all times. And it should be treated as an emergency, if we have run out of stock, there must be a way where the medication can be procured,

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

because patients, need the medicine, e.g in Namibia, we have a tendency of bottle neck, you already have two or more committees to the procument, then later you still want to add another committee again, and this committee there will be a middle man that needs a share from the tender, so the only way is to shorten the process of buying this life saving drugs.

Participant 1: And also make the drugs available, at Local clinics should have the first-line medication, to avoid time-consuming queues and costs of transport fare. Decentralize the services to the local communities, where people can just walk to clinics and get their medication.

Participant 1 : I stay in Shandumbala, we have a clinic near Donderhoek. The staff there literally select a certain group everyday which they will assist on that specific day, without a timetable anywhere at the clinic stating the group that will be assisted every day, instead of announcing to the visitors in the queues. And sometimes they just look at your age and they will say, go to katutura, imagine now you have spent the whole day in the queue.

Participant 1 : You will be told while sitting there, imagine now sitting there for two to three hours and later you are told we are not assisting high blood pressure patients. If they see someone go in there for high blood pressure, they will come out and announce, if they cannot do the job, perhaps they can hire us, and we give service to our people living with high blood pressure (participants giggle).

Participant 1: One thing that can assist will be to have a registry of all the hypertensive patients, this data is quite helpful, which I think we do not have in Namibia, and also what kind of medication they are taking, that makes the availability so easier because you know what the people need, and it's easier to plan the decentralization of the medication to cascade down to, the local people.

Participant 8: People who work in the sea, the fisherman/ engineers. Most of the ship have doctors inside however BP medication is not available. For medicine control, you have to give after 3 months. The pharmacists are not authorized. You have a person going in the sea for 6 months and you have a person who is sik. Is a dilemma. There is no regulation to keep medication in the ship, you cannt keep it in the ship. This people most of the time their adherence is low

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: Disclosure of medical status, will be with the aid of support systems. and then money issue has to do with employment as a financial constraint amongst patients.

Participant 1: It is a perennial problem, we all struggle with money, When there is medication at the public health centers and hospitals, patients are forced to go to private health practitioners to buy the medication and it is costly, so the country has to subsidize, so there is a huge need for government subsidies, so that at least when people go and buy the medication at pharmacies it's a bit affordable, because when you go to the general practitioner, he is recommended to give you certain medication, but when you go to a private physician, he is a specialist, he will give you very expensive medication, I can give you an example of kajura, its very expensive, and you cannot find it in government hospitals, you will have to buy it for like N$ 700-00 dollars, and imagine its per month, that you need this medication, so it's going to be very expensive, and you may not have that money, so the government need to subsidize, or make the drugs available at public hospitals.

Moderator: With the demographic features, what strategies can we utilize to bring about improvement

Participant 1: Maybe patient Education, because this are non-modifiable.

Moderator: In terms of gender, there seem to be more women at pharmacies as men follow stereotypes surrounding certain medications).

Participant 1: More women are more courageous to soldier on when it comes to taking hypertensive medication. There is a requirement for more research on the topic)

Moderator: According to survey I did, most of the hypertensive people in Namibia are women but this is also due to the population differences in the country, according to statistics.

Participant 2: Men are more ignorant when it comes to taking medication and they are less easy to educate compared to women, because if you look at the statistics of the people that die of stroke, most of them are man, like we had a friend who had a stroke, so when we took him to the Dr, the Dr was like, is the guy not taking his tablets, then the people were like, which tablets? Later somebody found that prescription in his pocket, so he was diagnosed with hypertension like a

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

month ago, he did not go to any hospital after that, he did not did not go to the pharmacy, he will just go to the pharmacy to buy pain killers to control his headache, so its more of people thinking they are brave, and while we are on Education, what needs to be done, is some sort of tailor made, message for man, but with a better strategies on how to get them, because women they are easy to educate, they are easy to access, man they are very diverse, even the place you will find them, even if they are not doing anything productive, they are still busy for you to engage them, so if we are to engage them in terms of Education, one will really need to come up with a strategy that really target man, I don't know now whether it will have to go through some sort of sports or, whatever recreational activity that is being done, (other participants concur) .

Moderator: If we have a support system where the community and health workers engage in reminding patients about collecting their medications. For interest sake, how are you reminded that your time is up, for you to collect your medication

Participant 2: You will have to confirm with your health passport to remember when next you have to go collect your medication, you just have to make sure of the dates that are on your passport, and make sure you put it in your head, (participants laugh) and if you don't go, they will not even bother to call you.

Moderator : What if perhaps they can use this automated sms via mtc, and remind people over the phone, but that will now have to involve the government.

Moderator : I think that system is only in the private facilities, because I understand its quite expensive.

Participant 1: The government must be able to sacrifice. And also create a data base, because what is the point of taking my number if you don't even use it.

Participant 2: There should be a way where they can charge me on my phone.

Participant 1: The government should be able to do a cost benefit analysis, they are spending billions of dollars on stroke patients, why not use telecommunications, where they just send reminders to patients, to get their medication, and stopping the stroke from happening. So I think its just prioratasasion of resources there, as long as there is information that states the magnitude

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

of a problem, that you are dealing with, at stroke level, its so easy for us to channel the resources for prevention rather than treatment (participants concur).

A discussion is going on about how the government should intervene in reminding patients to go collect their medication once the period of the latest medication lapses. A discussion is going on about how alcohol and too much of it affects the patients, and exercises and length of refilling the patients' medication batch.

Participant 1*:* It will come back to lifestyle modification, its not only about taking medication that is involved with hypertension, so there is a lot of emphases not to take alcohol, you need to exercise, you need to drink a lot of water, (all participants concur)

Moderator: What strategies can be used for the medication refilling period, shorter or longer periods?) (A 3-month medication prescription period might be best)

Participant 1: The medication period should be tailored made as patients reside at different places, with different distances from the health care facilities, and also maybe the Dr's are not there all the time, I think its better to give them a 6 months' prescription, they take the medication once, then they go, and then they come back when the 3 months is gone.

Participant 2: The medication should be tailored made, I did a study on adherence in opuwo, there is an area during the census, and their political, and drought relief, is only assessed by helicopter, now if somebody is staying there, than definitely that person will need a longer period, you will then need to adhere to the medication, while those ones that are staying in town, for example Khomas region, if you see that they are having a challenge with adherence, then they need a shorter period, I think it needs to be tailor made depending from person to person.

Moderator: (The technology used to remind patients about their medication collection and other vital details for diseases like TB should be used comprehensively a means of communication for high blood pressure)

Participant 6: Medication follow up, when you give medication for too long they forget their next appointment. I see some people ant to give up to 6 months. There is no guideline, the only schedule available is the one available at the pharmacy. We don't have a system to help patients for scheduled follow up. Causes a lot of problem

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Participant 1: Namibia should change the quantification methodology that has existed for years to move with what exists now. The is huge a need for research to understand the magnitude, because how do you argue with the politicians, the policy makers and the ministers, what you need to so, especially when you do not have data to prove.

Participant 2: The data is there, is just that people are still leaving in the past (participants laugh) during the 90's hypertension was not as much as it used to be, unlike the TB and malaria's where quite a lot, but now the NCD's are taking over from the communicable diseases, but the decisions and the policies are still based on those diseases, so if we are saying Namibia has a high preference of hypertension with 50%, which other disease has that high percentage, its not that much, its now a matter of quantifying the numbers and telling the decision makers that look, you need to change that. Currently most of the money is pumped into HIV and AIDS, and if you look at what's put into hypertension, its less, and the attention given is not that much maybe because that disease is not communicable, but in the end its going to ask a lot (participants laugh)

Moderator: How best can we resolve the problem with medical beliefs followed by prophetic churches?)

Participant 2 : There should be appropriate measures regulating how and what medical information can be shared and what consequences will be faced by culprits sharing the information contradicting the regulations. There should be policies in place, and if you are going to sell certain products, there should be policies that regulate this massage, and it should go through this body. Because in absence of that regulator, the person will go preach anything in the name of freedom of speech, because then if the person knows that if you are going to preach healing you are going to follow this rule, otherwise I can come up with a church and say, if you have hypertension, you can drink petrol and get cured (participants laugh) so there the authority there just need to stand up and say this are the rules and people will have to abide by this rules, especially when it comes to this companies selling supplements, they are becoming a lot, and they are taking people's money.

Participant 2: Other medications such as Herbalife have side effects and they comprise of many chemicals added. And about the churches, people should continue to go to churches but they should not concord with whatever the pastors and prophets preach about (participants concur).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1: We need to restore belief in our body systems and try to avoid products which are rumored to offer quick recovery. We must make our health system robust so that the drugs are there, the health workers are there, that way we restore faith in the health system, people don't have faith in the health system, people don't believe in the help that they get, they get at the clinic or the hospital, and worse of all you are putting me on this long term drugs, without proper Education.

A closing speech is going on, thanking all the participants and communicating what will be follow next as part of the workshop.

[End of recording]

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

Title and abstract

	Page (s).
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2-3

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	5-7
Purpose or research question - Purpose of the study and specific objectives or questions	7

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	8
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	9-12
Context - Setting/site and salient contextual factors; rationale**	8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	9-10
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	34
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	10-12

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	10-12
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	13-14
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	12
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	12
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	12

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	15-20, Figures attached
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	20-26

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	27-30,32
Limitations - Trustworthiness and limitations of findings	28-30

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	4,32
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	32-33

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-068238.R1
Article Type:	Original research
Date Submitted by the Author:	16-Jan-2023

Complete List of Authors:	Nakwafila, Olivia; University of KwaZulu-Natal College of Health Sciences; University of Namibia Faculty of Health Sciences, Public Health Sartorius, Benn; University of Oxford, Centre for Tropical Medicine and Global Health; University of KwaZulu-Natal College of Health Sciences, Discipline of Public health Medicine Shumba, Tonderai; University of Namibia Faculty of Health Sciences, School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy Dzinamarira, Tafadzwa; University of Pretoria School of Health Systems and Public Health Mashamba-Thompson, Tivani; University of Pretoria Faculty of Health Sciences; University of KwaZulu-Natal College of Health Sciences, Discipline of Public Health Medicine

Primary Subject Heading:	Cardiovascular medicine
Secondary Subject Heading:	Global health, Emergency medicine, Public health, Qualitative research, Respiratory medicine
Keywords:	Hypertension < CARDIOLOGY, PUBLIC HEALTH, QUALITATIVE RESEARCH

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafadzwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

ABSTRACT

Objective: To determine the most acceptable hypertension intervention package to promote hypertension adherence based on stakeholders' perspectives.

Design: We employed the Nominal Group Technique method and purposively sampled and invited key stakeholders offering hypertension services and patients with hypertension. Phase one was focused on determining barriers to hypertension adherence, phase two on enablers, and phase 3 on the strategies. We employed the ranking method based on a maximum of 60 scores to establish consensus regarding hypertension adherence barriers, enablers, and proposed strategies

Setting and Participants: 12 key stakeholders were identified and invited to participate in the workshop in Khomas region. Key stakeholders included Subject Matter Experts in Non-Communicable Diseases, family medicine, and representatives of our target population (hypertensive patients).

Results: The stakeholders reported 14 factors as barriers and enablers to hypertension adherence. The most important barriers were: Lack of knowledge on hypertension (57 scores), unavailability of drugs (55 scores), and lack of social support (49 scores). Patient education emerged as the most important enabler (57 scores), availability of drugs emerged second (53 scores), and third having a support system (47 scores). Strategies were 17 and ranked as follows: Continuous patient education as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by developing a national dashboard to primarily monitor stock (52 scores) and community support groups for peer counseling (49 scores).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Conclusions: Multifaceted educational intervention package targeting patient and healthcare system factors may be considered in implementing Namibia's most acceptable hypertension package. These findings will offer an opportunity to promote adherence to hypertension therapy and reduce cardiovascular outcomes. We recommend a follow-up study to evaluate the proposed adherence package's feasibility.

Keywords: Nominal Group Technique, Intervention package, Hypertension, Adherence, Non-Communicable Diseases

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Strengths and Limitations of this study

- We included the target population, patients with hypertension, in the sample.
- The nominal group technique consensus approach allowed multiple barriers, enablers, and strategies for hypertension adherence to be determined with a balanced group of participants' involvement.
- We did not include pharmacists or health insurance stakeholders, meaning their perceptions of hypertension are not part of the study.
- Provincial managers and Supervisors at the Ministry of Health and Social services were involved in recruiting some key stakeholders due to the nature of the study.
- We included study participants who were able to speak English only, which might have limited the participants to express their views in their local languages

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

INTRODUCTION

It is well known that hypertension, the major risk factor for cardiovascular diseases (CVD), is a vital cause of premature death and disability worldwide.[1] Recent estimates indicate that 1.4 billion adults worldwide have hypertension, of which more than half live in low- and middle-income countries.[2] Data from the World Health Organization (WHO, 2020) reported that hypertension deaths in Namibia reached 428 or 2.53% of total deaths. The age-adjusted death rate was 37.70 per 100,000, ranking Namibia at number 28 globally.[3] Nonadherence to chronic medication is a complex issue that affects clinical outcomes[4], health expenditure, and the health system's operation.[5, 6] Several implementation research studies have revealed that it is imperative to involve the relevant stakeholders to recommend interventions effectively and agree on long-term decisions to improve patient compliance.[7-9]

Since hypertension barriers diverge for specific geographic settings, it is advisable to develop interventions addressing the specific barriers to hypertension.[10] The National Health and Nutrition Examination Survey (NHANES) in the United States, conducted between 1998 and 2018, identified that factors most often associated with nonadherence were related to the following: patient socioeconomic factors; medication; health care system; patient-related issues such as visual or hearing impairments, lack of education; and condition-related such as disease severity.[10] The survey further revealed that for the barriers identified to be addressed, specific interventions concerning the barriers needed to be proposed. Among the proposed interventions included health systems strategies, Real-time counseling, open-ended discussions, visual aids, and patient diaries, Technologies to integrate reminder notices, Simplification of regimes, elimination of out-of-pocket costs, and Home Blood Pressure (BP) monitoring systems.[10]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

The WHO dimension model of adherence factors has also propped similar adherence-related factors with corresponding interventions identified by the NHANES survey.[11] Although hypertension adherence factors with corresponding interventions are known, previous studies conducted in high-income countries have indicated that the most common facilitators for hypertension control were social support, knowing how to control hypertension, and community resources. [12] The most common barriers were a lack of hypertension knowledge and medication, provider-patient communication gaps, and disease awareness.[12-14] Studies often focus on hypertension barriers more than facilitators, which creates a gap in patient-physician communication or the health sector regarding patients' concerns about medication.[12, 14] On the other hand, a study conducted in Iran indicated that physician communication training improves physician-patient communication skills, hypertension outcomes, and medication adherence.[15] Similarly, another study found that the perceived availability of support and beliefs about the condition and treatment influences hypertension management. [16] Patient-centered approach, including engagement of the patients in their care by self-blood pressure monitoring, can also significantly improve medication adherence.[17, 18] The current study addresses both barriers and facilitators, including communication barriers, contributing to filling the gap identified in previous studies[12, 14, 16]. Interventions for hypertension adherence, such as community health worker-led multicomponent intervention, drug monitoring programs, have been studied in countries such as Argentina and evidenced to produce good outcomes.[19] Similar strategies can also be considered in Namibia.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Information on multilevel hypertension prevention, detection, and control interventions is quite evident.[19, 20]. Despite the information, Namibia lacks a well-established surveillance system or strategy for non-communicable diseases. A few studies in Namibia have reported hypertension adherence predicting factors, including supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[21, 22] Based on the studies conducted in Namibia, the authors recommended strengthening adherence monitoring, investigation of social-demographic characteristics such as transport, and collaboration of public and private health facilities in preparing the country to practice universal access to medication fully.[21, 22]

In Namibia, we have not located a study similar to this focused on enforcing medication adherence, although universal access is one of the targets of the Namibia Strategic Plan in response to reducing Non Communicable Diseases (NCDs).[23] Nonetheless, through consultation with stakeholders, including World Health Organization (WHO), Namibia developed The National Multisectoral Strategic Plan for the prevention and control of NCDs for the next 5 years, 2017/18 – 2021/22. The strategic plan aims to reduce morbidity, mortality, and disability due to NCDS and achieve a healthy and productive population.[23] Hence in our study, we conducted a stakeholder workshop to determine the acceptable hypertension intervention package to help promote hypertension adherence in Namibia. The results of this study will help guide the design and implementation of the most acceptable hypertension intervention for Namibia, which will be used to help reduce cardiovascular outcomes among patients with hypertension.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

METHODS

This paper adheres to the Standards for Reporting Qualitative Research reporting guidelines.[24] We invited key stakeholders offering hypertension services and patients with hypertension to participate in the Nominal Group Technique (NGT) workshop in Khomas region, Namibia. The study was part of a multi-phase study aimed to determine factors influencing the implementation of interventions to promote adherence to hypertension in Namibia[25-27]. We employed the Nominal Group Technique (NGT) method. The NGT method, commonly referred to as the consensus method, is a highly structured face-to-face group interaction that empowers participants by providing an opportunity to have their voices heard and opinions considered by other members.[28, 29] The aim is to achieve a general agreement or convergence of opinion around a particular topic to solve a problem, generate an idea, and, especially in the health sector, develop guidelines and identify research priorities.[30, 31] Nominal Group Technique consists of four key steps: Silent generation of ideas, round-robin where participants discuss individual ideas, clarification of ideas, narrowing exhaustive idea list into key themes and voting (ranking or rating), scoring respondents' perceptions for importance or preference.[30, 32] The scoring is usually done on a maximum five-point scale, which we applied in our study. The workshop took place at Unam Hage-Geingob Campus, Windhoek - Khomas region, on 27 November 2021.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Study participants and sampling

The principal investigator (ON) invited the key stakeholders, including blood pressure patients, via email by means of invitation letters and purposely sampled twelve (12) key stakeholders. We defined key stakeholders as subject matter experts (SMEs) in NCDs, including primary health care professionals, family medicine, and representatives of our target population (hypertensive patients) who have an interest in the implementation of the most acceptable hypertension package in Namibia. All the key stakeholders included in the study were over 18 years and above and resided in Windhoek, Khomas region. The key stakeholders included an NCD expert from the WHO, public and private healthcare professionals, an academic, a Medical Scientist, a Field Epidemiologist, and patients with hypertension.

All the participants explained that their participation is voluntary, and in the event of refusal/withdrawal of participation, the participants will not incur penalty or loss of treatment or other benefits to which they are usually entitled. The data collected was kept safely on a computer with a password to which the principal investigator only had access. The information was only shared with authorized research team members. No harm was intrigued to participants as no human sample was collected.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Patients

The patients or participants were recommended for the study by community health workers who work closely with them. Interest in the study was then discussed with a prospective participant in person and through a phone call by the Principal Investigator (PI). During recruitment, the PI considered patients' demographic characteristics, including age, marital status, employment, place of residence, and facility ownership (public or private), to ensure a balanced representation. Four participants were considered part of the stakeholders, two from public health facilities and two from private facilities. The study information sheets were sent to interested participants, and signed consent was obtained prior to the workshop.

Other key-stakeholders

Potential participants were approached in person or via phone call by the PI. We also used the snowball or chain referral technique to recruit suitable stakeholders. During recruitment, the PI considered stakeholders' demographic characteristics, including age and employment, to ensure a balanced representation. We included eight subject matter experts in the study. The study information sheets were sent to interested participants, and signed consent was obtained prior to the workshop.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Eligibility criteria

We included individuals aged 18 years and above who met one of the following inclusion criteria:

- Health professionals working in Khomas region in the domain of family medicine or primary health care division for at least three months
- Health professionals employed in Khomas region at NGOs such as WHO with a focus on non-communicable diseases
- Health professionals employed by a clinical reference laboratory and involved in testing for biochemistry analysts
- A senior academic whose research interest is in non-communicable diseases, including hypertension
- Patients with hypertension residing in Khomas region who have at least completed a 6 month cycle of hypertensive medication
- Individuals who are able to communicate in English language

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Exclusion criteria

- Personnel who work in pharmacies and health insurance companies
- Patients who are taking other chronic medication apart from hypertension
- Individuals who are mentally challenged to give consent to participate in the study

Workshop program

The nominal group process [33] was conducted in three phases in a highly structured group discussion to achieve a group consensus on the priorities in response to our specific research questions. Phase 1: Consensus on the prioritization of barriers that influence hypertension adherence. Phase 2: Consensus on the prioritization of enablers that currently influence hypertension adherence Phase 3: Consensus on the prioritization of the most acceptable hypertension intervention strategies to address the barriers and enablers.

- Phase one: What are the barriers to hypertension adherence?
- Phase two: What are the enabling factors for hypertension adherence?
- Phase three: What are the most acceptable strategies for the proposed barriers and enablers to promote hypertension adherence?

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

During the nominal group process, we arranged the participants into four sub-groups of 3, ensuring that each group contained one representative of the target population and two SMEs. The principal investigator served as the convener and moderator for the group.

Phase one: We requested key stakeholders to share their views on barriers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes according to the severity of hypertension barriers. The ranking score was between one and five.

Phase two: We requested key stakeholders to share their views on the enablers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes based on the most important enabler for hypertension adherence. The ranking score was between one and five.

Phase three: During this phase, we requested key stakeholders to suggest the most acceptable strategies for hypertension adherence based on the barriers and enablers proposed in phases 1 and 2. The PI listed the themes in a voting form to enable voting through ranking. Participants were asked to rank the themes according to the effectiveness of promoting hypertension adherence. The ranking score was between one and five, with one being the least effective and five being the most effective strategy.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

After the workshop, a report presenting the results of NGT was compiled by the principal investigator (ON) and shared with key stakeholders for comments. The transcripts from the qualitative component of this study are available in Supplementary File 1.

Data management and analysis

For the quantitative data gathered during the ranking step in the nominal group process, the total importance score for each barrier was calculated by summing the participants' scores; for phase 2, a total importance score for each enabler was summed up based on the most important enabler for hypertension adherence. In phase 3, a total importance score for each strategy was calculated to indicate perceived effectiveness to help address the barriers and enablers identified in phases 1 and 2. The ranking scores were between one and five. We analyzed the qualitative data using thematic content analysis to inductively identify the themes that emerged from the data presented during the discussion using NVivo 12 pro software, QSR International. The data analysis was based on the naturalistic paradigm, with conventional content analysis [34] in which coding categories were derived directly from the text data to reduce bias as a result of preconceived ideas or other theoretical views. The first and fifth authors performed data analysis.

Patient and public involvement

Patients or members of the public were not involved in the research design nor dissemination of the findings; however, because patients were part of the stakeholders, they were involved in the analysis and interpretation of the results. Provincial managers and Supervisors at the Ministry of Health and Social services were involved in recruiting key stakeholders. The data will be shared with the public through publication; and presentations.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

RESULTS

We recruited (8) SMEs and (4) representatives of the target population aged between 33-59. The participants were equally distributed in terms of sex: males 6 (50%), females 6 (50%). All the participants were employed. The SMEs represented as follows: a specialist in non-communicable diseases from WHO, two internal medicine specialists who are practicing privately; two key stakeholders employed in primary health care in the state; Medical Scientist; a research expert in chronic diseases from a higher institution, and the last key stakeholder was a Field Epidemiologist who also works closely with the fishing industry. Refer to Table 1 for the characteristics of the study participants.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table 1. Characteristics of the participants

ID	Sex	Age range (years)	Highest qualification	Title	Designation
1	Male	40-45	PhD Epidemiology	WHO consultant (NCD specialist)	SME
2	Male	50-55	MBBch, DA	Physician/ Health Former Minister	SME
3	Male	50-55	MMED (Internal medicine)	Physician Internal medicine	SME
4	Female	45-49	Postgraduate BNSc advanced practice	Diabetes nurse educator	SME
5	Female	45-49	Diploma in Nursing& BA community and health psychology	Registered nurse: SHPO-FH, PHC	SME
6	Male	42-45	MSc Field Epidemiology	Medical scientist Epidemiologist	SME
7	Male	31-36	PhD Physiotherapy	Academic researcher lecturer	SME
8	Female	30-35	MSc Field Epidemiology	Registered nurse Epidemiologist	SME
9	Male	31-36	Grade 12	Community health care worker	Target population representative
10	Female	35-39	Grade 12	Self employed	Target population representative
11	Female	40-45	Grade 9	Self-employed	Target population representative
12	Female	54-60	Diploma in Economics	Sales manager	Target population representative

Footnotes: SHPO- Senior Health Programme Officer – Family Health, PHC- Primary Health Care, SME- Subject Matter Experts

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholders' perspective on the barriers to hypertension adherence

The stakeholders reported 14 factors as barriers to hypertension adherence. The voting results showed that lack of knowledge on hypertension (57 scores) was voted as the most barrier; shortage of hypertension medication emerged second position (53 scores), followed by not having a social support system (47 scores). Having to take multiple medications emerged last (27 scores). Figure 1 shows barriers to hypertension adherence. .

Stakeholders' perspective on the enablers to hypertension adherence

The stakeholders reported 14 factors as enablers to hypertension adherence. The voting results showed that patient education scored first position (57 scores); availability of drugs emerged second position (53 scores), followed by having a support system (47 scores). The provision of a national health fund emerged last (27 scores). Figure 2 is submitted in the figure file attached, and the legend at the end of the manuscript shows enablers to hypertension adherence ranking results.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's perspective on the most suitable intervention package for hypertension adherence

All 12 participating stakeholders were requested to suggest hypertension strategies based on the suggested barriers and enablers and rank them according to their potential effectiveness. Table 2 shows 17 suggested hypertension strategies in ascending order of their ranking score. Key stakeholders ranked continuous patient education from initiation of treatment as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by setting up of a national dashboard to primary monitor medication stock (52 scores) and community support groups for peer counselling (49 scores)

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table 2. Proposed hypertension strategies to promote hypertension adherence

Proposed strategies for hypertension adherence	**Summing by votes** 1= less effective 5=highly effective					**Total number of voting scores** (weighted sum = number of votes × ranking score)
	1	**2**	**3**	**4**	**5**	**60**
Enabling community health care workers to refill	2	2	4	1	3	37
Creating common low-cost community transport	2	2	2	5	1	37
Family support to the BP initiation treatment		6		4	2	38
Sports interventions to target man	1	3	3	2	3	39
National health fund –critical pillar for Universal Health Coverage		5	2	1	4	40
Construction of health facilities		3	3	5	1	40
Change in health workers attitude towards patients	1		7	2	2	40
Employment opportunities	1	2	3	3	3	41
Collaboration of hypertension program and fishing industry		3	3	2	4	43
Appropriate measures to regulate prophetic Churches and so called healing medicines	1	1	3	3	4	44
Simplification of regimes		2	2	4	4	46
Mobile clinics- Provision for hypertension outreach programmes			4	5	3	47
Involvement of social worker in adherence counseling		1	2	5	4	48
Patient reminders			4	4	4	48
Community support groups-peer counseling		1	2	4	5	**49**
National dashboard- stock availability		1	1	3	7	**52**
Patient Education			1	4	7	**54**

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Reported barriers and enablers versus proposed strategies

Our results show a relationship between the identified barriers and enablers to promote hypertension adherence. Patient education has been proposed as the most important strategy that could help address barriers due to lack of knowledge concerning hypertension medication, social stigma, lack of proper diet, and adverse side effects resulting from medications or non-adherence. It will also help understand enabling factors on hypertension assessment interventions that are culturally appropriate. Table 3 is informed by the WHO model of medication adherence guidance.[35]

Table 3: Matching hypertension barriers and enablers to promote hypertension adherence with proposed hypertension strategies

Barriers	Enablers	Strategies
Expensive finances, transport issues	Duration of hospital stay reduced, money or financial resource	Enabling community health care workers to refill
Expensive finances, transport issues	Money/Financial resource	Creating common low-cost community transport
Lack of social support	support system, perception of hypertension	Family support for blood pressure initiation treatment
Social stigma	support system, perception of hypertension	Sports intervention to target man
Expensive finances	Money/Financial resources, national health fund	National health fund as a critical pillar of Universal health coverage
Shorter waiting period at the health center	Shorter waiting period at the health center, hospital environment improved	Construction of health facilities
Forgetfulness, Adverse side effects	A good relationship with healthcare providers/proactive health workers	Change in health workers' attitudes toward the patients

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Expensive finances	Money/financial resources	Employment opportunities
shortage of drugs	political will	Collaboration of hypertension program and fishing industry
Prophetic church influence	Patient education, Political will	Appropriate measures to regulate prophetic churches and so-called healing medicines
too many daily medications	National health fund	Simplification of regimes
shortage of drugs, lack of knowledge, transport issues	A shorter length of refill	Mobile clinics- Provision for hypertension outreach programs
Lack of social support	Experience/witness of a person who has undergone hypertension complication	Involvement of social worker in adherence counseling
forgetfulness	Availability of drugs at Primary Health Care, Shorter waiting period at the health center	Patient reminders on the phone
Lack of social support	Experience/witness of a person who has undergone hypertension complications, stroke clinics	Community support groups-peer counseling
shortage of drugs	Availability of drugs at Primary Health Care	National dashboard- stock availability
lack of knowledge, social stigma, proper diet, adverse side effects	study interventions of blood pressure assessment that are culturally appropriate	Patient Education

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Feedback from stakeholders on proposed strategies

All 12 participants (P) from the workshop were requested to comment on the proposed strategies to promote hypertension adherence. They all read the report and agreed with the results.

Major responses from the top 3 hypertension strategies proposed:

Patient Education: The key stakeholders suggested patient education as one of the key strategies that can be employed to promote hypertension adherence, emphasizing continual education by healthcare workers, including community health workers, from the initiation of treatment. Health Education should focus on hypertension, its signs and symptoms, treatment, reference ranges, side effects, complications due to non-adherence, and the importance of counseling sessions in relation to hypertension. Promotion of a healthy diet, physical activity, religion, and beliefs should all be part of the package. Stakeholders also suggested that patient education be conducted in local languages through different media platforms such as radio and TV as well as community leaders. Spouses of patients with hypertension were suggested to be part of patient education. Some of the participants indicate that:

``I think every time patients go to the hospital; they should get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how hypertension is treated; what are the side effects; consequences of a lack of adherence to the medication). All this information should be well explained to the patients. Hypertension is physiological; hence patients need to be reminded and explained what it means if they default when hypertension is controlled, and they no longer see signs and symptoms and what they need to do in terms of taking medication. Patients need to fully understand the importance of adherence that moment

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again`` (P1).

``Education is an ongoing process with every follow-up. Ongoing education on diet and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When dealing with NCDs there is a broad spectrum of NCDs; therefore, we need to capacitate and strengthen community health workers. From nurses to pharmacists. Hypertension is a silent killer, hence Education`` (P7)

``This whole patient education should be from day one, it is not just at the beginning, it has to be every day, when they come to the hospital, the health care workers must check in the patients log books if they are taking their medication. Patients must see a counselor first and be explained hypertension figures and what they mean; we do not even know what some of the values of the figures mean. Information is power`` (P4)

`` Educate patients on the implications of nonadherence and what hypertension is. . Patients need to be congratulated/be encouraged when they are adherent as well`` (P7)

``Health education is key and must address the aspect of religion because it is a common challenge. Yes, God will save you, but the same God who will save you is the one who provided knowledge to the health workers and scientists to come up with the medication; therefore, one needs to adhere ``(P8)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

``Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved, especially outreach. Capacitate our health workers`` (P 7)

``There are so many ways that can be used to spread information on adherence. We can use media, TV presentations, adverts, and community awareness, for example, church pastors, traditional leaders, and the heads of households, key members of the community who influence our decisions; all those people are extremely important. Your own husband can be a barrier to taking your medication, maybe he disapproves of you taking your medication, so maybe we need to use quite a number of platforms`` (P 6)

``Information sharing should be done at least twice a month in local languages. If the person could not be available for the first broadcast, they will have another chance on the next Everything must be explained, even me the medication that I am taking, I cannot even read that name (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you cannot read it``. (P 4)

National dashboard- stock availability

The National dashboard was suggested with the primary aim of monitoring medication stock shortage which is an issue in state hospitals. Additionally, minimize unexpected out-of-pocket expenses, prevent stealing medication in the state facilities, and avoid unnecessary transport costs and wrong prescriptions. Some of the participants indicate that:

``If we have the national dashboard where authorized persons have access to it, this way you will have many people looking at the dashboard, and if there are flags, someone will be able to

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees even steal the medication; therefore, the dashboard will help with this. `` (P 11)

``We need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less, then you need to add. Stock-outs are a result of poor planning`` (P7

``The person responsible for ordering the drugs should ensure an ever availability of the drugs, and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and the way this pharmacist is responding to you, that there is no medication, they are very rude. Imagine sitting there the whole day, and when you come to the pharmacy, the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there``. (P4)

`` Proper procurement at the hospitals should be exercised to have a batch of drugs available at all times and should be treated as an emergency. If we have run out of stock, there must be a way where the medication can be procured because patients need the medicine`` (P1)

``In Namibia, we have a tendency of a bottleneck, you already have two or more committees to the procurement, then later you still want to add another committee, and this committee there will be a middleman that needs a share from the tender, so the only way is to shorten the process of buying this life-saving drugs. `` (P2)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``The national dashboard should be able to cater to the people who work in the sea to help the Fisherman, that way they are not left out`` (P 10)

Community support groups-peer counseling

The key stakeholders suggested community support groups as one of the strategies that can be employed to promote hypertension medication. This is to avoid stigma and forgetfulness; patients are most likely to adhere when a fellow patient has gone through, for example, a stroke. Some of the participants indicate that:

`` We need to have support groups for hypertension in the community just like we have for HIV and TB. We are putting so much on tertiary treatment and not primary prevention. Our focus is more on once they have had the stroke is when we start putting them in a group, we are not really proactive enough in preventing hypertension in developing into a stroke, so more emphasis is needed on putting them in groups, let them share ideas, interact, because one of the major causes of a stroke is defaulting, so I believe maybe if you put more resources into primary prevention, by actually implementing some of these techniques within the community may, or even, within hospital set ups``(P1)

``When you are diagnosed with hypertension at 35 years of age, for instance, instead of having doubts about whether you will leave long enough (participants laugh), when you are introduced to a fellow patient who has been having hypertension for years and is surviving for many years, you might be encouraged to adhere to medication and build hope. And then the issue of having children, some will tell you I have been on medication before I got married, now I have my 7 children (all participants laugh), so when you are being told by someone who is a living example, it really encourages and helps you. (Other participants concur) ``(P2)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

``Encourage people with hypertension to join support groups in the community and also support from the family. People with the same diseases join and do activities together like poultry farming, and gardening and encourage each other. Just like the ones for HIV programs. The clinic in charge should encourage patients with hypertension or community health workers to set up support groups in the community. Every community health worker can form in a village where they are allocated`` (P10).

``Community support is important. You could have your family's support, but the community members are still looking down on you. There is a need for community sensitization of what hypertension is, how these people are supposed to survive or live within the community because some people discriminate, like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well`` (P 2)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

DISCUSSION

This study presents the consensus of key stakeholders' most acceptable intervention package for promoting hypertension adherence in Namibia. The stakeholders reported multiple barriers and enablers to the uptake of antihypertensive medication and proposed compressive integrated strategies to address the barriers and enablers. The findings from the current study are in coherence with WHO guidelines for medication adherence.[35] Lack of knowledge in taking medication, shortage of drugs, and lack of social support were identified as the top three barriers and, at the same time, enablers to hypertension adherence, which means that the top 3 enablers identified in this study were comprehensive patient education, availability of drugs at PHC, and having a social support system. Our findings on the most severe barriers and enablers identified corroborate with many studies conducted across the globe.[14, 36-39] A scoping review qualitative study on factors contributing to medication adherence in patients with a chronic condition revealed that information and knowledge of diseases and their treatment, communication, support, and adequate resources appeared to be the critical barriers and facilitators in medication adherence.[14] Similar findings were reported from a study conducted in Malaysia which concluded that a lack of knowledge on targeted blood pressure levels has led to poor blood pressure monitoring among the participants.[36]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Contrary to our findings, a study conducted in Nigeria indicated that the availability of affordable health insurance was considered one of the most important resources for providing high-quality hypertension care to the local, primarily poor, population.[40] The findings from Nigeria may have differed from ours because they included primary health care providers and insurance managers as opposed to our study, which included the target population, hypertensive patients. Nonetheless, our findings, including those on medication availability, interestingly agree with factors that were identified as predictors for hypertension in Namibia, which include supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[21, 22] This shows how much the barriers and enablers, as identified earlier, are significant to hypertension management and adherence.

The most important key strategies identified by the current study were the promotion of patient education through different delivery platforms, having a national dashboard, and encouraging community support groups-peer counseling. In our study, stakeholders suggested that health professionals give continuous education in local languages through platforms such as radio and Television and community awareness through the leaders in the community. The stakeholders added that education through platforms such as Television should be done at least twice a month so that if a person is not available for the first broadcast, they will have another chance on the next broadcast. Our findings agree with similar studies conducted in South Africa, Bangladesh, Pakistan, Sri Lanka, and South Korea, which demonstrated that educational interventions, organizational interventions aimed at delivery care, and SMS reminder systems could effectively manage chronic medication adherence.[41-44] Additionally, one of the Lancet commission's articles on hypertension agrees with our findings on hypertension health promotion and strengthening of the care system.[45]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Similar findings were reported in a study conducted in China which found that Interactive education workshops may be the most effective strategy in community-based health promotion education programs for hypertensive patients.[46] Similarly, a qualitative study , where knowledge was found to be a barrier, suggested that developing a more personalized approach to education and communication could be effective.[47] Similar findings on the involvement of health practitioners including nurses, pharmacists, and community health workers in giving educational sessions and disseminating information are supported through a systematic review study, [48] Our study suggested a national dashboard to monitor medication stock so that patients do not run out of medication and end up paying ``out of pocket``. The stakeholders in our study believed that this method worked very well in countries such as Zimbabwe with HIV and TB programs. Similar results on the national dashboard were reported in 5 Indian states, which found that an adaptive strategy of community-based drug distribution through community or social workers and home delivery appears feasible and may help improve access to hypertension care.[49, 50]. In Namibia community based strategies have been reported to be successful with for example Directly observed treatment (DOT) on Tuberculosis and community-based antiretroviral therapy (C-BART).[51, 52]The dashboard monitors the drugs and identifies patients at risk of potentially hazardous prescribing.[53]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Social support was identified as the third most important strategy in the current study. Similar findings were reported by a study conducted in Nigeria, which indicated that adherence clubs for hypertension control are feasible and led to a statistically significant and clinically meaningful improvement in self-reported medication adherence, resulting in BP reduction.[54] Similar results were also stated in a study conducted in China [55] Group hypertension education classes are an effective way to care for patients.[56]

The collaboration with stakeholders on perceptions of the most suitable hypertension strategy resulted in multiple strategies and how to implement them, especially in the current setting and Namibia at large. Therefore, we propose conducting a Discrete Choice Experiment (DCE) with patients with hypertension to determine Namibia's most acceptable hypertension package. The stakeholders recommended a multifaceted educational intervention package that targets patient and healthcare system factors. Since education is paramount, we recommend that the package incorporate continual reminders on hypertension information, including the importance of medication adherence, and the consequences of not taking medication throughout an organizational- drug reminder system. Reminders can be sent once, weekly.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

CONCLUSIONS

Hypertension key stakeholders in Namibia perceived patient education as the most acceptable intervention package to help promote medication adherence for their population. Therefore it presents the most common recent barriers and enablers to hypertension adherence which will offer an opportunity to implement a strategy for promoting adherence to hypertension therapyconsequently reducing cardiovascular outcomes. Before implementing the proposed intervention, we recommend a follow-up study to determine the most preferred hypertension strategy by different population groups from different regions across Namibia.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Acknowledgments

We would like to thank and acknowledge all the stakeholders who participated in this workshop. A special thanks to Dr Shumba Washington for co-moderating the workshop and Ms Esther Muhepa who assisted with recording and transcribing. We would also like to thank the NCD coordinator and Primary health Care Supervisors at the Namibia Ministry of Health and Social services (MoHSS) for their assistance with recruiting some of the workshop participants. A special thanks to the University of Namibia for providing a venue to conduct the workshop.The authors would also like to thank the University of KwaZulu-Natal (UKZN) for providing the platform to set up and conduct this research study.

Competing interests

None declared

Funding Statement

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors

Ethical approval and consent to participate

This study has been ethically reviewed and approved by two institutional review boards: The Namibia MoHSS National Ethics Committee (Approval number: (17/3/3 ON), and the University of Kwazulu Natal Biomedical Research Ethics Committee (Approval number: BRE/00000944/2020). All participants received an information sheet explaining the study background, objectives, and procedures and signed a consent form prior to the study.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Authors' contributions

The study has been conceptualized and designed by ON, BS, and TPM-T. Data collection was done by ON and WS. ON and TPM-T performed data analysis assisted by SW and TAD. All authors reviewed and approved the final draft of the manuscript.

Data availability

The transcripts from the qualitative component of this study are available in supplementary file 1.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

REFERENCES

1. WHO. *Hypertension: Key facts*. 2021 [cited 2022 26 June 2022]; Available from: https://www.who.int/news-room/fact-sheets/detail/hypertension.
2. Mills, K.T., et al., *Global Disparities of Hypertension Prevalence and Control: A Systematic Analysis of Population-Based Studies From 90 Countries.* Circulation, 2016. **134**(6): p. 441-50.
3. World Health, O. *World Health Rankings Live Longer Live better*. 2020 [cited 2022 26 June 2022]; Available from: https://www.worldlifeexpectancy.com/namibia-hypertension.
4. Burnier, M. and B.M. Egan, *Adherence in Hypertension.* Circulation Research, 2019. **124**(7): p. 1124-1140.
5. Kostova, D., et al., *The cost-effectiveness of hypertension management in low-income and middle-income countries: a review.* BMJ Glob Health, 2020. **5**(9).
6. Edward, A., et al., *Patient and healthcare provider perspectives on adherence with antihypertensive medications: an exploratory qualitative study in Tanzania.* BMC Health Services Research, 2021. **21**(1): p. 834.
7. Barker, P.M., A. Reid, and M.W. Schall, *A framework for scaling up health interventions: lessons from large-scale improvement initiatives in Africa.* Implementation Science, 2016. **11**(1): p. 12.
8. O'Donnell, A.J., et al., *Stakeholder Perspectives on Changes in Hypertension Care Under the Patient-Centered Medical Home.* Prev Chronic Dis, 2016. **13**: p. E28.
9. Shrestha, A., et al., *Stakeholder engagement in a hypertension and diabetes prevention research program: Description and lessons learned.* PLoS One, 2022. **17**(10): p. e0276478.
10. Choudhry, N.K., et al., *Medication Adherence and Blood Pressure Control: A Scientific Statement From the American Heart Association.* Hypertension, 2022. **79**(1): p. e1-e14.
11. World Health Organisation, *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
12. Heinert, S., et al., *Barriers and Facilitators to Hypertension Control Following Participation in a Church-Based Hypertension Intervention Study.* Am J Health Promot, 2020. **34**(1): p. 52-58.
13. Dhungana, R.R., A.R. Pandey, and N. Shrestha, *Trends in the Prevalence, Awareness, Treatment, and Control of Hypertension in Nepal between 2000 and 2025: A Systematic Review and Meta-Analysis.* International Journal of Hypertension, 2021. **2021**: p. 6610649.
14. Kvarnström, K., et al., *Factors Contributing to Medication Adherence in Patients with a Chronic Condition: A Scoping Review of Qualitative Research.* Pharmaceutics, 2021. **13**(7): p. 1100.
15. Tavakoly Sany, S.B., et al., *Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: a randomized controlled trial.* BMC Health Services Research, 2020. **20**(1): p. 60.
16. Morton, K., et al., *Qualitative process study to explore the perceived burdens and benefits of a digital intervention for self-managing high blood pressure in Primary Care in the UK.* BMJ Open, 2018. **8**(5): p. e020843.
17. Hamrahian, S.M., O.H. Maarouf, and T. Fülöp, *A Critical Review of Medication Adherence in Hypertension: Barriers and Facilitators Clinicians Should Consider.* Patient Prefer Adherence, 2022. **16**: p. 2749-2757.
18. Elnaem, M.H., et al., *Disparities in Prevalence and Barriers to Hypertension Control: A Systematic Review.* Int J Environ Res Public Health, 2022. **19**(21).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

19. He, J., et al., *Effect of a Community Health Worker-Led Multicomponent Intervention on Blood Pressure Control in Low-Income Patients in Argentina: A Randomized Clinical Trial.* Jama, 2017. **318**(11): p. 1016-1025.
20. Innab, A. and A. Kerari, *Impact of Behavioral Interventions on Patient Activation in Adults with Hypertension: A Systematic Review and Meta-Analysis.* INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 2022. **59**: p. 00469580221090408.
21. Nakwafila, O., et al., *A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale.* International Journal of Environmental Research and Public Health, 2022. **19**(7): p. 4416.
22. Nashilongo, M.M., et al., *Assessing Adherence to Antihypertensive Therapy in Primary Health Care in Namibia: Findings and Implications.* Cardiovasc Drugs Ther, 2017. **31**(5-6): p. 565-578.
23. MoHSS, *National Multisectoral Strategic Plan For Prevention and Control of Non-Communicable Diseases (NCDs) in Namibia 2017/18 – 2021/22* T.M.o.H.a.S. Services, Editor. 2017: Namibia.
24. O'Brien, B.C., et al., *Standards for reporting qualitative research: a synthesis of recommendations.* Acad Med, 2014. **89**(9): p. 1245-51.
25. Chauke, G.D., et al., *Factors influencing poor medication adherence amongst patients with chronic disease in low-and-middle-income countries: A systematic scoping review.* Heliyon, 2022. **8**(6): p. e09716.
26. Nakwafila, O., et al., *Effectiveness of Interventions to Enable Hypertension Medication Adherence in Low-And Middle-Income Countries: A Systematic Review and Meta-Analysis.* SSRN Electronic Journal, 2021.
27. Nakwafila, O., et al., *A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale.* International Journal of Environmental Research and Public Health, 2022. **19**.
28. Jones, J. and D. Hunter, *Consensus methods for medical and health services research.* Bmj, 1995. **311**(7001): p. 376-80.
29. Tully, M.P. and C. Ja. *The use of the nominal group technique in pharmacy practice research: processes and practicalities*. 1997.
30. *GROUP TECHNIQUES FOR PROGRAM PLANNING: A GUIDE TO NOMINAL GROUP AND DELPHI PROCESSES Andre L. Delbecq, Andrew H. Van de Ven, and David H. Gustafson Glenview, III.: Scott, Foresman, 1975. xv plus 174 pp., $4.95, paperbound. INTERPERSONAL CONFLICT RESOLUTION Alan C. Filley Glenview, III.: Scott, Foresman, 1975. 180 pp., $4.95, paperbound.* Group & Organization Studies, 1976. **1**(2): p. 256-256.
31. Allen, J., J. Dyas, and M. Jones, *Building consensus in health care: a guide to using the nominal group technique.* British Journal of Community Nursing, 2004. **9**(3): p. 110-114.
32. Dening, K.H., L. Jones, and E.L. Sampson, *Preferences for end-of-life care: a nominal group study of people with dementia and their family carers.* Palliat Med, 2013. **27**(5): p. 409-17.
33. Bartunek, J.M. and J.K. Murninghan, *The Nominal Group Technique: Expanding the Basic Procedure and Underlying Assumptions.* Group & Organization Studies, 1984. **9**(3): p. 417-432.
34. Krippendorff, K., *Content analysis: An introduction to its methodology*. 2018: Sage publications.
35. World Health, O., *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
36. Tan, C.S., et al., *A qualitative exploration of hypertensive patients' perception towards quality use of medication and hypertension management at the community level.* Pharm Pract (Granada), 2017. **15**(4): p. 1074.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

37. Magadza, C., S.E. Radloff, and S.C. Srinivas, *The effect of an educational intervention on patients' knowledge about hypertension, beliefs about medicines, and adherence.* Research in Social and Administrative Pharmacy, 2009. **5**(4): p. 363-375.
38. Konstantinou, P., et al., *Barriers, facilitators, and interventions for medication adherence across chronic conditions with the highest non-adherence rates: a scoping review with recommendations for intervention development.* Translational behavioral medicine, 2020. **10**(6): p. 1390-1398.
39. Tsiantou, V., et al., *Factors affecting adherence to antihypertensive medication in Greece: results from a qualitative study.* Patient Prefer Adherence, 2010. **4**: p. 335-43.
40. Odusola, A.O., et al., *Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers.* Glob Health Action, 2016. **9**: p. 29041.
41. Bobrow, K., et al., *Mobile Phone Text Messages to Support Treatment Adherence in Adults With High Blood Pressure (SMS-Text Adherence Support [StAR]): A Single-Blind, Randomized Trial.* Circulation, 2016. **133**(6): p. 592-600.
42. Jafar, T.H., et al., *Community based lifestyle intervention for blood pressure reduction in children and young adults in developing country: cluster randomised controlled trial.* BMJ (Clinical Research Ed.), 2010. **340**: p. c2641-c2641.
43. Park, Y.-H., et al., *The effects of an integrated health education and exercise program in community-dwelling older adults with hypertension: A randomized controlled trial.* Patient Education & Counseling, 2011. **82**(1): p. 133-137.
44. Ogungbe, O., et al., *Medication Adherence Interventions for Cardiovascular Disease in Low- and Middle-Income Countries: A Systematic Review.* Patient Prefer Adherence, 2021. **15**: p. 885-897.
45. O'Brien, E., *The Lancet Commission on hypertension: Addressing the global burden of raised blood pressure on current and future generations.* J Clin Hypertens (Greenwich), 2017. **19**(6): p. 564-568.
46. Lu, C.-H., et al., *Community-based interventions in hypertensive patients: a comparison of three health education strategies.* BMC Public Health, 2015. **15**(1): p. 33.
47. Jolles, E.P., et al., *A Qualitative Study of Patient Perspectives about Hypertension.* ISRN Hypertension, 2013. **2013**: p. 671691.
48. Dineen-Griffin, S., et al., *Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice.* PLoS One, 2019. **14**(8): p. e0220116.
49. Kunwar, A., et al., *Interventions to Ensure the Continuum of Care for Hypertension During the COVID-19 Pandemic in Five Indian States-India Hypertension Control Initiative.* Glob Heart, 2021. **16**(1): p. 82.
50. Campbell, N.R.C., et al., *Monitoring and evaluation framework for hypertension programs. A collaboration between the Pan American Health Organization and World Hypertension League.* J Clin Hypertens (Greenwich), 2018. **20**(6): p. 984-990.
51. Kibuule, D., et al., *Effectiveness of community-based DOTS strategy on tuberculosis treatment success rates in Namibia.* Int J Tuberc Lung Dis, 2019. **23**(4): p. 441-449.
52. Katirayi, L., et al., *Taking care to the patients: a qualitative evaluation of a community-based ART care program in northern Namibia.* BMC Health Services Research, 2022. **22**(1): p. 498.
53. Jeffries, M., et al., *Understanding the utilisation of a novel interactive electronic medication safety dashboard in general practice: a mixed methods study.* BMC Medical Informatics and Decision Making, 2020. **20**(1): p. 69.
54. Isiguzo, G.C., et al., *Adherence Clubs to Improve Hypertension Management in Nigeria: Clubmeds, a Feasibility Study.* Glob Heart, 2022. **17**(1): p. 21.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

55. Pan, J., et al., *The Effect of Social Support on Treatment Adherence in Hypertension in China.* Patient Prefer Adherence, 2021. **15**: p. 1953-1961.
56. Meredith, A.H., et al., *Group education program for hypertension control.* The Journal of Clinical Hypertension, 2020. **22**(11): p. 2146-2151.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Legends

Figure 1. Barriers to hypertension adherence

Figure 2. Enablers to hypertension adherence

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

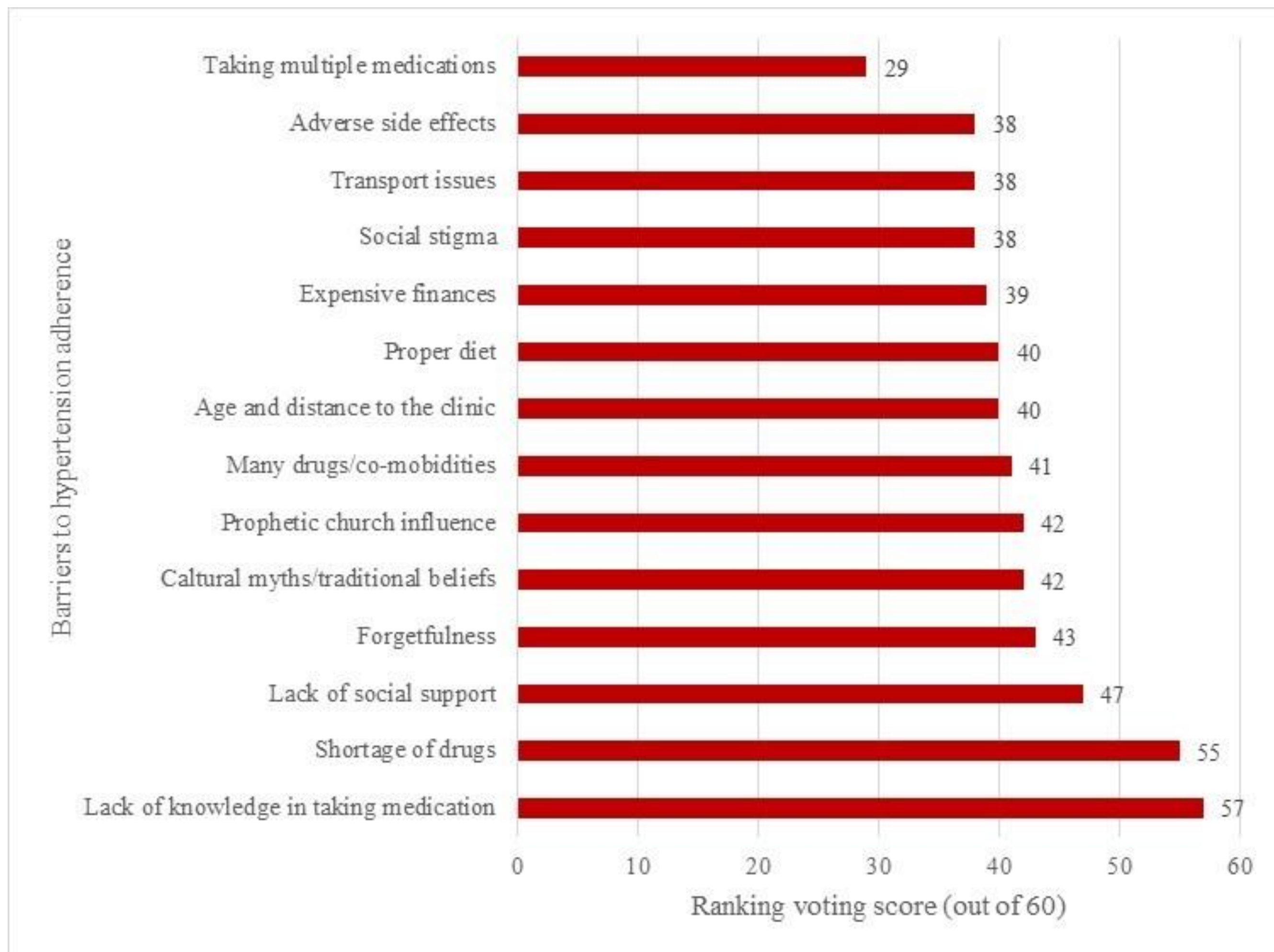

Figure 1. Barriers to hypertension adherence

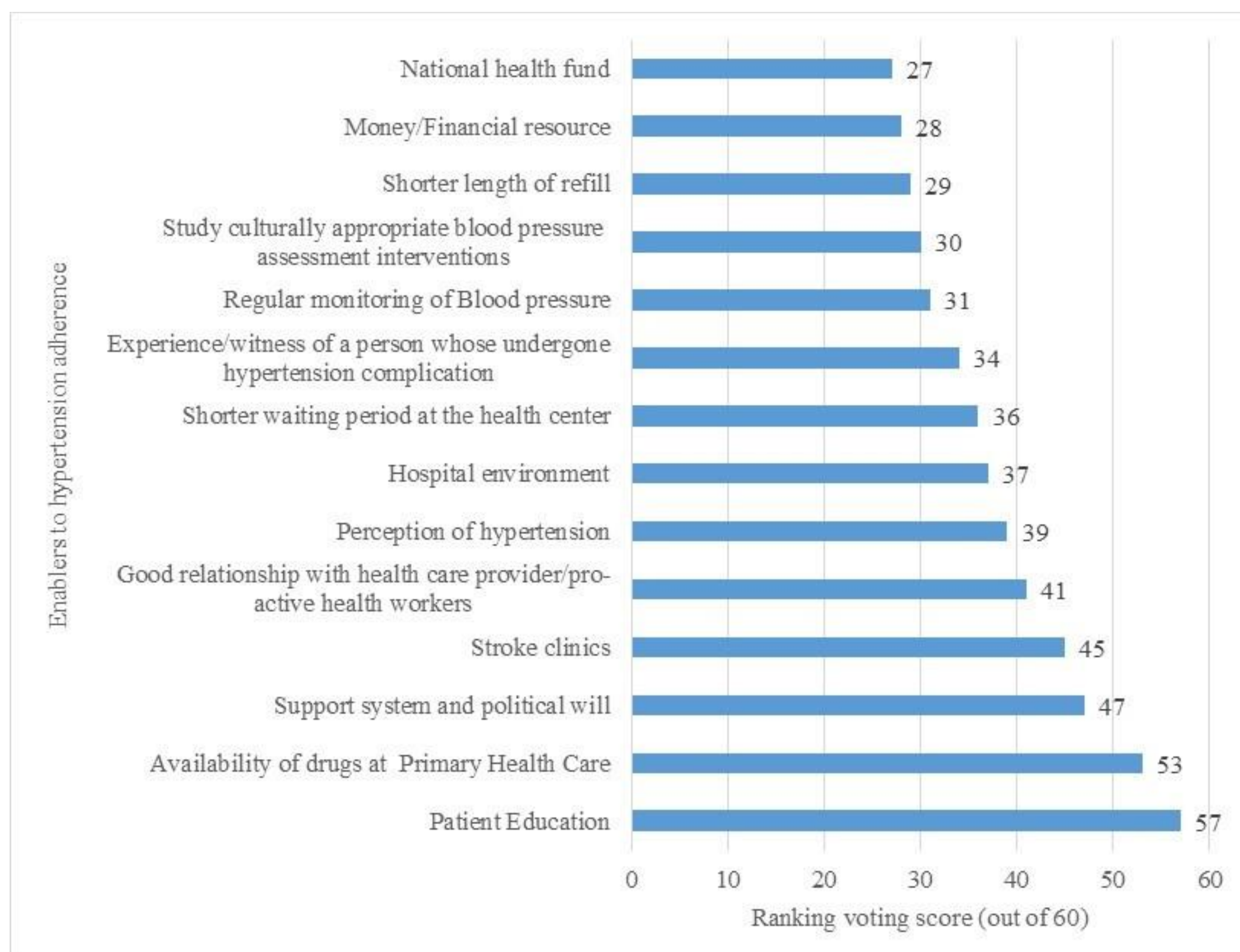

Figure 2. Enablers to hypertension adherence

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Interview Transcripts

Moderator: Once again, thank you for agreeing to participate in this important study. I believe we all know that we have challenges of hypertension blood pressure specially here in Namibia. I'm going to take you through the procedures, how we are going to be discussing throughout the session.. The first question we want to find out about what barriers hinders people from taking high blood pressure drugs. We also want to find out about the enables or what helps people to adhere to hypertensive drugs .We move on to the next question, where we are asking for strategies how to adhere to the hypertensive drugs.

The first question is, what are those in your own experience as a patient or as a community health worker, or as a key stakeholder from your own experience what do you think hinders people who take hypertensive drugs? Secondly, What helps or facilitates people to adhere to hypertensive drugs? We will give you 10 minutes so that you write down what you think hinders people from taking hypertensive drugs and what helps them to adhere. After that, you get in 4 groups of 3 each. After you finish, you discuss your thoughts and choose a group leader.

The group leader's purpose is to put the thoughts together so that we have one set and don't have duplicates. After that we ask you to come to one group, just the way we are seated and then each group presents their findings. We write the findings of group one and findings of group two. After that we discuss the findings together. After we get back in our groups again and rank or vote on the findings we got. Then we will be done with the first face of barriers and facilitators.

Next stage we get in our groups and find the solutions. We discuss again and vote for the solutions. But as we go we will always be explaining, if there is anyone with a question, you are free to ask. We will be helping each other as we go feel free to express yourself. We printed out papers where you have to write, on one side it's the enables, what helps you to adhere to take in hypertensive drugs. On the other side you write what hinders or what are those barriers that challenge taking of hypertensive drugs. Before we divide you into groups there is a concerned form attached behind. The form is like you are agreeing to participate and then you sign it.

We will start with group one and explain what you discussed in your groups and then move to group two,three, and then last group four. In that sequence.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1. Groups presentation on barriers to Hypertension Adherence

[Group 1 reported barriers]

Moderator: I think we are all ready, Group 1, you may start presenting the barriers that you have identified.

Participant 1: The first barrier is Lack of knowledge on hypertension medication – What we mean here is patients need to be educated about hypertension itself as well as the medication. What causes it? What happens in case of non-adherence? Most of the patients default because they do not know and understand the complications due to non-adherence because they are not educated about it.

Participant 2: When you go to the hospital, and your blood pressure is high or low, and you are going there for the first time, you might not know, it's always good to study the meaning of the blood pressure, what are the numbers that represent that the blood pressure is high. For example, if your blood pressure is 120, you know the meaning of it.

Participant 1: Medication is very important and it should be taken every day. My neighbors would complain about dizziness after consuming medication, so they hide it, and they don't take it. So one day I saw one of them had swollen feet, I asked what's wrong, and if they are taking their medication, they said no, then I asked then why do you go and get the medication if you are not drinking it, they said We sometimes just go to the pharmacy to have that record on the hospital cards, to avoid a reaction from the doctors on the next follow-up., laughs

Participant 3: See it all comes down to Education. Sometimes you just do it to please the doctors and not get into trouble

Participant 1: Another barrier we discussed is diet. The medication has strong effects on the body and if a patient does not have enough food at home for breakfast, lunch, and dinner, they will not take the medication to avoid unwanted reactions of the body. Sometimes, you will collapse if you take the medication without eating.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 2– You need a glass of milk to have enough calcium in your body to avoid blockage of veins in the body. The blood will not flow properly, and sometimes the food that contains this are expensive and they are needed, and the supplements that contain calcium.

Moderator: Ouk… What you are saying is patients do not take their medication because they do not have money to buy food..?

Participant 1: Yes, the healthy food is very expensive

Participant 1: Alcohol is also a problem. When you are on medication and you drink alcohol, you might forget to take your medication. Especially when you are taking medication for hypertension, instead of drinking your medication with water, you will end up taking it with just alcohol. So too much alcohol will hinder you from taking your medication.

Moderator: So in other words, alcohol can shift either way. If it is becoming too much, it will hinder you from taking your medicine. If you are advised not to take alcohol, it will enable you to take your tablets

All participants agree…

Participant 1: Which brings us to our 4th barrier which is not having someone to remind you to take your medication. That, can lead to non-adherence.

Moderator: Lack of a support system…Can you elaborate on that..?

Participant 3: What we mean is at least you need someone to remind you to take medication. It could be a family member or spouse. It is always good to have someone by you to remind you. Especially with age, a ``katekulu``(grandchild) can be of great help)..participants laugh

Participant 1– Usually, if the patients who are on hypertension drugs, a large number of such patients are also taking medication of high cholesterol and a good number of diabetes medication. So many patients become exhausted and feel burdened with taking too many drugs, so The costs of buying the tablets are also high, especially for patients with unemployment status. And also, for the state patients, sometimes when they come and get their medication, they only had that transport

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

money, now they must come back again when there is stock in the hospital, so finance is also an issue.

Participant 2: The only issue I have is the new immerging Companies offering ``Forever-Living products``, ``Herbal Life``, and they are all curing hypertension, products that are advertised everywhere, and by nurses as well doctors, which is marketed to provide speedy recovery instead of life-long medication from hospitals encourage patients to avoid taking their tablets. And when one has a condition you are looking for answers, it makes it difficult for the patients to take their medication for life because they feel there is herbal life or forever-living product that can cure it. (all participants laugh)

Participant 1: Social stigma also plays a large role in patients taking their medication as patients are afraid of being criticized because of their hypertension and medical status. So sometimes, when one is told hypertension is a killer disease, the person will sometimes shy away and not want to talk about their condition. It's just like when I meet a beautiful girl when I approach her, I will not tell her, hi, how are you, I want something with you, but I am on hypertension medication, she will obviously say, no this one can go, he is going to die (all participants laugh) so because of that stigma, one is not going to adhere, so if I go to her every weekend, that means I will not take my medication. (Participants continue to laugh)

Participant 2: Just to add on that, our African population we have a mistrust and misbelief on adverse medical issues that might be brought about during the period a patient will be taking hypertension medication. And some drugs end up causing a lack of blood circulation, causing sexual impotence with some people, and causing a lack of sexual drive in many people; this can drive you crazy sometimes

Moderator: The medication have an effect on sexual dive?

Participant 1: Yes, it does, in the long run, especially when you are aging. Also hospital accessibility, hospitals being far from the people, so at the end of the day, you debate, should I go, or should I not go, do I have transport money to go get the medication, and also because of poverty, there is no many things we priorities in the African context, so the medication will be part of them. And there is also a shortage of drugs, and the drugs these patients take is quite expensive, and sometimes you might not have the money to buy the drugs, and sometime the public hospitals

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

might not have the stock. Also, the elderly, when it comes to issues of not understanding why they should take the medication, they will tend to forget, and we also spoke about social support, if you do not have anyone to help you as well, there is no one to inspire you, or encourage you to take the medication, it makes it a barrier, even if you have the money, to buy the medication, And you do not have anyone to remind you, you will tend to forget.

Moderator: Okay…Thank you group 1, great discussions!

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: Let us move on to group 2

[Group 2 reported barriers]

Participant 4: Our barriers are similar to those of group 1. The first one was Lack of Education. Patients need to be educated on what hypertension is, implications of non adherence. Education is key. From initiation of treatment, Education must be continuous

Participant 5: Most of the barriers we discussed are around Education

Moderator: Yes, go ahead…

Participant 4: Exercise and alcohol is another point we discussed.

Moderator: So if you are taking exercises, how does it help you take your medication?

Participant 4: It is very important for health professionals to continuously educate on the importance of exercise and to avoid excessive alcohol intake. If you exercise and you have hypertension, it reduce high blood pressure, it can reduce hypertension, don't just come from the car, and you go sit, and when you exercise the blood pump properly. Patients also need to be educated that in order to take their medication on time, they should not drink too much alcohol. This will also help them not to forget

Moderator: So Forgetfulness was also another barrier identified

Participant 4: Yes

Participant 5: To add on exercise, If you are doing exercises and you are hypertensive, you are encouraged to continue taking walks as it will reduce hypertension, and the blood in the veins circulates all over the body and the heart pumps faster when you do heavy things. It is recommended to exercise at least daily.

Participant 6: When you exercise, it is another way of treatment as it puts your blood pressure on the desired level.

All in agreement…

Moderator: Is that all from Group 2…Well, thank you very much group 2.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

[Group 3 reported on Barriers]

Moderator: Lets continue with the discussion: Group 3 can you present the barriers you have identified..

Participant 7: Walking long distances to collect the drugs. As opposed to the availability of cars here in Windhoek, should you find yourself somewhere far at the villages were there are rarely cars, when a patient has to go collect their medication and go for a follow-up and they take the distance into consideration they might change their mind on going for the follow-up.

Participant 7- Some cultures are based on traditional medication and believe that God will heal you without taking your medication, as well as prophets' teachings during church services. Some cultures believe they can use their traditional medicine, that is another barrier.

Moderator: Do you have any idea of a tribe that prohibits people from taking their medicine?

Participant 8: Can I add on that?

Moderator: Yes, please

Participant 8: Some prophetic churches are the ones that can say don't take your medicine.

Participant 7- Yes, But you also have to think to yourself, God will heal you but you must also take your weapons, its just like when someone tells you that you must not eat anymore, will you stop eating, if you stop obviously you will be starving. (Laughs)

Moderator: So the barriers here are distance, Lack of transport, cultural beliefs, and prophetic churches. Is that right?

Yes… all participants concur

Participant 7 - Another barrier we identified is the Unavailability of medication at hospitals: It is a stressful matter in Namibia - When you go for your follow-ups at the hospitals, you might wait from 8 am to 5pm and when you reach the queue at the pharmacy, they at times tell patients that they have ran out of hypertension medication, and by the time you are going to run to the pharmacy, the pharmacy is closed , and sometimes you do not have money, you didn't budget to go to the pharmacy, it's really frustrating us, and they don't even put a notice to say that there is no medication today, They give no prior communication from the staff there and personally when I

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

find myself experiencing low-blood pressure and I am referred to counseling. You will be told to go see the doctor instead, and doctors will eventually offer no help; and it is a waste of time as doctors tell you to go buy the medication from private pharmacies and not all of us have money to afford that medication, because you already used the transport money to come there.

Moderator: I understand…

Participant 7: That's about it from our group

Moderator: Great! Thank you group 3

[Group 4 reported barriers]

Moderator: We are almost there. Group 4, Can we discuss the barriers you have written down.

Participant 9: Education, just like the rest of the group members we listed it as a barrier. Perhaps what we can add which have not been mentioned is patients who take multiple medications.

Moderator: Ouk, Can you explain on that?

Participant 11: Yes, of course when taking a lot of medication can be discouraging. In the private facilities, we have what we call combination medication. However, these are expensive, not everyone can afford them. So perhaps the state can subsitise on this type of medication so that patients do not end up so many medications.

Participant 12: I agree…

Male Speaker 10: Otherwise, all the other points are the same, we agree with what other groups have discussed

Moderator: Okay, thank you, group 4

[End of recording]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

2. Groups presentation on enablers for Hypertension Adherence

[Group 1 reported enablers]

Moderator: Group 1, can we go to the Enablers. Lets go aheard and discuss the enablers

Participant 1: Education, There are so many factors that we named about hypertensive-patients. What is hypertension; Signs and symptoms; the type of medication that they are supposed to take and why they are taking that; The side-effects of the drugs. Those factors maybe that will probably improve the adherence to of the drugs. And we thought that the most important thing is the health workers explaining the condition to the patient about why it is important for them to take their medication and adhere…including education on Herbal life as well, (participants laugh)

Participant 3: on the point of taking medication – If the patient understands how the medication works in their body and what will happen if they do not take their medication, they will likely adhere

Participant 1: The second point is having a support system: If you got a very good social, support system or home support system there is a high chance that you have someone who is going to remind you to take your medication. So, if I am a granny with hypertension and I go to the hospital with my little daughter, for example. My daughter can actually help me remember that I am supposed to take my medication at 7 o' clock every day. So good.

Moderator: Ouk…Can other participants add…

Participant 2: Yes, another important enabler with regards to sticking is having a social support system by mmeans of stroke clinics at various public healthcare services that offer this medication. You can have a day when stroke patients or patients with hypertension come to meet and interact. So, that social interaction can motivate other patients who are not adhering to their medication to start doing it. So maybe having stroke clinics at our hospitals may act as an enabler.

All participants in agreement…

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: There must also be an availability of the drugs, accessibility of the hospitals, disclosure of BP by patients, sharing of hypertensive status with friends and community members. If there can be support groups, this will really assist the patients

Participant 2: In ensuring that medication is available, the hospital environment must be welcoming as well when the patients go to collect their medication. especially when they are sacrificing the whole day to come and collect their medication.

Moderator: Ouk, So in other words you are saying there should be a good rapport between patients and Health Care workers?

Participant 2: Not only that, I mean if you go in our state facilities there is no privacy, it is congested. Is just that many of us in Namibia we are Christians however you find in some certain religion like Muslim they don`t allow to be just undressed in the open. So that need to change

Participants agree

Participant 3: Medication should always be there, should be enough stock, so when there is a guarantee that the medication is at the hospital and you will not miss a day or two,

Moderator: Good…, Can we go to the next points?

Participant 1: Accessibility to the health facilities., are the hospitals accessible to the people because some of these patients leave very far from the hospitals, do they have transport to take them to the clinic and so forth, and also encouraging patients to disclose their status, sharing your hypertension status with your close friends,

Participant 2: To add, usually, patients do not take their medication when there are people around whom they have not disclosed their statuses with, and if there are always people around, they will never take their medication.

Participant 2: Also, Marital status favors adherence to taking medication. When you have a partner, the chances of him/ her reminding you to take your medication is there, and also the level of education.

Moderator: Do this only favor those that are married or also those that are staying together (cohabitating)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Male speaker 1: As long as there is someone to offer that support, that reminder that you are supposed to take your medication, reminding them what the side effects are, what are the importance of taking their medication**.**

All participants agree

[Group 2 response to enablers]

Participant 4: Education on the importance of exercise and the need to avoid alcohol when taking medication. Checking the trend of your BP also helps you to adhere – If you do regular check-ups of your blood pressure, and when it is high that will help you to adhere to taking the tablets.

Participant 4: Proactive health workers actively involved in reminding the patients on taking their medication because of old age of many the patients, could be helpful as well. If Dr's and nurses are actively reminding patients maybe a social visit, or digital reminders, they can maybe send them SMS's,

Participant 5: I agree as well, Education and being active is key, Is vice versa with the barriers ***…Participants agree…***

Moderator: Thank you group 2

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 3 responses to the enablers]

Moderator: I know that most of the barriers and enablers are similar. Group 3, can you go ahead and discuss the enablers that you have written down:

Participant 7: One of the enablers we discussed is to have nearby clinics in the villages to avoid long distances. Also to have community health workers to assist with distributing hypertension medication.

Participant 8: Another thing we need to understand is that Education is very important when it comes to changing patients' negative belief of the medication to avoid going to prophets .

Participants agree…

Participant 8: ….Go ahead participant 7, just wanted to add on that point

Participant 7: Another enabler we discussed to help with the accessibility of medication is for the hospitals to learn how to plan and control stock so that the medication can be available

Moderator: How can we ensure the availability of medication at all time?

Participant 8: Develop something to monitor the medication stock, Also announce on the different media platforms on when medication will be available to also avoid patients from traveling long distances when there is no medication

Moderator: Good, Is there anything else…?

Participant 7: That is all for now

Moderator: Ouk, Thank you group 4

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 4 Reported Enablers]

Moderator: Group 4 can you comment on the enablers

Participant Male Speaker 9: The enablers we discussed is for the Health professionals to educate patients on hypertension and the consequences of non-adherences. Health professionals must also educate themselves on non-communicable diseases. You might find that a patient will be diagnosed as hypertensive as a first timer already; however, it could be just that that day maybe they were going through something that put their pressure up and not necessarily that they have high blood pressure.

Participant Female speaker 9: Yes...So education for all health professionals involved in hypertension care

Participant Male Speaker 10: Perhaps the government can come up with some sort of solution to meet the patients halfway so that the number of state patients' medication can be reduced to avoid defaulting.

Moderator: Well, Ouk, thank you group 4

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

A discussion is going on about which enablers and barriers will be added to the respective lists.

A discussion is going on about how to rank the barriers and enablers.

(The final list comprises 14 Enablers and 14 Barriers).

3. Groups presentation on the strategies for hypertension

[Participants responses on Strategies]

Moderator: Thank you so much, we are done with this round. The next round we are not going to get into ranking but we are just going to discuss more on the solutions that can help patients to adhere. We want to explain further on these items and the strategies thereof).

(A discussion is going on about the accumulative results, other possible factors that can be added to the list and a further analysis of the listed factors)

Participant 2: I just wanted to speak on the period of refill, if it can be shorter, like for example if it can be maybe two weeks rather than 3 months, so the issue of forgetting and remembering also plays a role, if you do not see your physician for a long time, you tend to forget, unlike when you go to them more often, they will be able to see that you don't look so good, so when they go there often they kind of adhere better. When you go to the Dr after a week, its easier for you to remember, rather than if you go once after a long time.

Participants ranking the barriers and enablers from a scale of 1- being the lowest, and 5 being the highest

The participant writing down the most important strategies.

Moderator: Explaining on the strategies of the barriers and enablers. Patient Education, how can it help the people to adhere to their medication to hypertension?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1: I think every time, when the patients go to the hospital, every time, if they can get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how is hypertension treated; what are the side effects; what are the consequences of a lack of adherence to the medication) and this are explained to the patient's every time they go to the hospital, because you know adherence is also physiological, because now I will need to be reminded or know, why am I taking this medication, like when the patient default, they default after six months or so when the blood pressure is now controlled by the medication, then when the blood does not go up anymore, then they stop taking the medication, because they are no longer seeing the sign and symptoms, so all this things need to be explained, so that they fully understand the importance of adherence, the blood is not controlled by the medication, the moment you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again even if you stop taking the medication. So this whole patient education should be continual, from day one, it's not just at the beginning, it has to be every day, when they come to the hospital, the Dr or the nurses must check on their log book if they are taking their medication, they must see a counsellor first, and explain this figures, what they mean, some of this figures are not explained to them, we don't even know what some of the values of this figures mean.

Participant 12: Highly educated people are highly likely to adhere. More knowledgeable tend to be adhere and also individual attitudes, beliefs, which is influenced by knowledge. Their belief is. Most people are not used to taking medication for life. Health education is very important for knowledge and therefore will be a good strategy for medication adherence. Again on knowledge, if you know the consequences and complications you ware likely to adhere.

Participant 4*: *Yes, I think at the hospital, when you go there for the first as a hypertension patient with high blood pressure, the nurses do not give some sort of counselingE prior to the patient receiving the medication. Like for me I was just informed, you have high blood pressure, go to the pharmacy, you are not informed if your blood is low, then you are okay, or if it's at this stage, it's too high.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 6: If you diagnose a person with hypertension and you don't educate the person on what is hypertension, what are the contributing factors to hypertension,is likely that the patient will not have information and adherence will be very low. Most of the patients they are just told you have high blood pressure. Right? And you are going to be on medication. Lack of knowledge on the bases of the patients. Both nurses and doctors. Education is an ongoing process with every follow up. Any barriers the patient is facinf. Constant Education on diet, and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When you are dealing with NCDs is a broad spectrum of NCds so we need a guide education. Make use capacitate and strengthen community health workers. From nurses to the pharmacies. Hypertension is a silent killer, the fourth month they default because they feel fine hence Education. Some people default because of money issues, because of Lack of knowledge. Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved especially outreach. Capacitate our health workers

Moderator: Who should be accountable for this patient education, is it the health workers only?

Participant 1: All health workers are mandated to give health education to the patients, on the key issues that is affecting their health, it could be the nurse, it could be the medical doctor, it could be the community health workers, as long as they are known legible about the health condition, so information is power.

Moderator : Is there another way, apart from pamphlets that this information can be disseminated to the people?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Participant 6: There is so many ways that can be used, we can use media, you can make presentation, tv presentations, adverts, community awareness, like example what she said, we can use the pastors, because like how are you going to influence the church, you have to find a way on how to engage the community, especially the key members of the community of who they influence our decisions, the traditional leaders, the heads of households, all those people are extremely important, because sometimes, your own husband can be a barrier to taking your medication, maybe he does not approve to you taking your medication, so maybe we need to use quite a number of platforms.

Moderator: How often do you think the information should be disseminated, like the example on the radio?

Participant 1: Quite often.

(The aforementioned questions are being further explained and discussed in depth)

(A discussion is going on about how often the nation needs to be educated on hypertension on the radio)

Participant 1 : At least twice a month. If the person was not able to available for the first broadcast, then they will have another chance on the next broadcast. And it should be done in certain languages, in all the local languages. And they must always explain, even myself that medication that I am taking, I cannot even read that name, (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you can't read it.

Participant 2 (On a side note) : Contrary to the past, I have been receiving my medication every month and now I feel much better. So now the question I have been asking myself, should I stop taking my medication, because the doctor did not tell me when to stop, even though my blood pressure has been low. (Participants giggle)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 3 (Adding to the above point) : Sometimes you might experience high blood pressure for a while but later the level becomes lower again when you go back to the doctor. So the hospitals should offer more Education on what causes high blood pressure and what can increase it, hypertension can be caused by different things, sometimes it can be generational inherited, or stress can cause hypertension.

Participant 2: (Adding to the point of Education and causes of hypertension)

They are kind of modifiable facts. Patients need to be educated on lifestyle changes to improve their condition, to understand why they need to change improve their diet and lifestyle when they see improvement in their condition, once educated they can make their adjustment, because when they take their medication, they will see change. unlike when you are on medication, but you are still drinking alcohol, eating too much fat, you will not see any change. (Other participants concur).

Moderator : (A probing discussion is going on about the support system)

(The community and family need to support hypertensive patients)

(There should be support groups for hypertension, as there are for other medical conditions and diseases)

Participant 1: There should also be community support, it could be that you have your families support, but the community members are still looking down on you. There is need for community sensitization of what hypertension is, and also how this people are supposed to survive or live, within the community because come people discriminate, because like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well. (other participants concur).

Moderator: Do we have support groups for hypertension in the community? So we only have for HIV, TB. Respondents (all together).No, there are no support groups.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1 : So I think that is where the problem is, because they are putting so much on the tertiary treatment, and not primary prevention if we do have clinics that cater for this patients before they actually have a TI or a stroke, but our focus is more on once they have had the stroke is when we start putting them in a group, but we are not really proactive enough in prevention hypertension in developing into a stroke, so more emphasis is needed on putting them in groups, let them share ideas, let them interact, because one of the major causes of a stroke is default, because if we do not address the adherence to the medication now, that is going to result into a stroke,, so I believe maybe if you put more resources into primary prevention, by actually implementing some of this techniques within the community may, or even, within hospital set ups. (We as a nation are not proactive enough and focus more on treatment of hypertension than the prevention thereof, to prevent the development of hypertension leading to strokes)

Participant 2: When you are diagnosed of hypertension at 35 years of age for instance, instead of having doubts about whether you will leave long enough (participants laugh), when you are introduced to a fellow patient whom has been having hypertension for years and is surviving for many years, you might be encouraged to adhere to medication and build hope. And then the issue of having children, some will tell you I have been on medication before I got married, now I have my 7 children (all participants laugh) so when you are being told by someone who is a living example, it really encourages and helps you. (other participants concur)

Participant 1: There should be good rapport between health workers and patients, changing their attitude towards the patients and providing care to the patients, medical staff, they need to develop an interested in the patients wellbeing.

Moderator: How do we make them change?

Participant 1: Attitude change I think, the training on professional issues, ethical issues, because this is a job you are giving, you are rendering a service to somebody, basic training on how to handle a patient, because you are rendering a service, sympathy, empathy, the ubuntu kind of spirit, humanistic approach to someone in need, so all that should be included in our training,

Moderator: Are there any challenges experienced by health workers when providing a good environment for patients, is caused by staffing, money issues?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: I am sure it has nothing to do with staffing. You do not need all the proper equipment to engage well with patients as merely kindness and show of care will bring about an open environment around the patients, just sitting with the patient and just asking if everything is okay at home.

Participant 1: There are 3 settings in the health sector, we have the government, when if you come and get your medication, you are just given medicine and you are told, okay, here is your medicine, you can go, (all participants laugh) and the then we have a hospital like lady pohamba, where they have a boss, so they have to act accordingly because, any complaint that happens and goes to top management, then they are in trouble, and then you find Shali there who is their own boss, for him its all about money, you get your medicine and go, but if you have a setting there where you ask, mam how are you doing, do you have any side effects, are you eating well at home, it will help the patient to adhere better because they know my Dr's are expecting this from me, unlike some health professionals when the patient comes to the office, then they are like, or are you back again, you are not dead, (all participants laugh) or this thing of calling people by their sickness, e.g you tate with high blood pressure go (participants continue to laugh) so if our health care workers can improve on that, and even at medical school I see this in our medical students, you are studying medicine, but the whole month your focus is just there in the bank, and thinking of what car to buy, and wanting to look like some models out there (all participants laugh) so if we can have a culture of saying, that you focus on your work, and whatever reward you get is based on that, and we treat humans, as humans, I think that will solve that problem, I mean a good health worker, where the Dr really cares about the patient, like going back in the days when we were small boys, nurses use to care for me more than my own mother, because when you go to the hospital the nurses really care more than my own mother, because with your mother even if you cut yourself she will be like you people like playing around, and then she hits you on the butt, (participants laugh) but if you go to the hospital, the nurses will be like, don't worry you won't feel any pain, it will heal in how many days, so we need such kind of health workers. Health care workers need to show better care and communication with patients, and treat patients with a sense of belonging and respect for their medical status.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: The availability of drugs at hospitals: what do you think can help us? What can you suggest to make the drugs readily available at pharmacies?)

National dashboard- stock availability

Participant 11: If we have the national dashboard where everybody who is in each and every region of Namibia, whose of course is authorized, have access to it, this way you will have many people looking at the dashboard and if there are flags someone will be able to alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees steal the medication.

Participants in shock…

Participant 7: Wow…, Also another thing, we need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less then you need to add. Actually, stock-outs are a result of poor planning``

Participant 2: The person responsible for ordering the drugs should ensure an ever availability of the drugs and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and also the way this pharmacist are responding to you, that there is no medication, they are very rude, now image sitting there the whole day, and when you come to the pharmacy the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there.

Participant 2 (Adding to the above point) : The hospitals should estimate the drug usage rate depending on an estimated increase of the rate of high blood pressure patients per month to maintain a certain number of drugs available at specific times. Additionally, proper procurement should be exercised to have a batch of drugs available at all times. And it should be treated as an emergency, if we have run out of stock, there must be a way where the medication can be procured,

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

because patients, need the medicine, e.g in Namibia, we have a tendency of bottle neck, you already have two or more committees to the procument, then later you still want to add another committee again, and this committee there will be a middle man that needs a share from the tender, so the only way is to shorten the process of buying this life saving drugs.

Participant 1: And also make the drugs available, at Local clinics should have the first-line medication, to avoid time-consuming queues and costs of transport fare. Decentralize the services to the local communities, where people can just walk to clinics and get their medication.

Participant 1 : I stay in Shandumbala, we have a clinic near Donderhoek. The staff there literally select a certain group everyday which they will assist on that specific day, without a timetable anywhere at the clinic stating the group that will be assisted every day, instead of announcing to the visitors in the queues. And sometimes they just look at your age and they will say, go to katutura, imagine now you have spent the whole day in the queue.

Participant 1 : You will be told while sitting there, imagine now sitting there for two to three hours and later you are told we are not assisting high blood pressure patients. If they see someone go in there for high blood pressure, they will come out and announce, if they cannot do the job, perhaps they can hire us, and we give service to our people living with high blood pressure (participants giggle).

Participant 1: One thing that can assist will be to have a registry of all the hypertensive patients, this data is quite helpful, which I think we do not have in Namibia, and also what kind of medication they are taking, that makes the availability so easier because you know what the people need, and it's easier to plan the decentralization of the medication to cascade down to, the local people.

Participant 8: People who work in the sea, the fisherman/ engineers. Most of the ship have doctors inside however BP medication is not available. For medicine control, you have to give after 3 months. The pharmacists are not authorized. You have a person going in the sea for 6 months and you have a person who is sik. Is a dilemma. There is no regulation to keep medication in the ship, you cannt keep it in the ship. This people most of the time their adherence is low

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: Disclosure of medical status, will be with the aid of support systems. and then money issue has to do with employment as a financial constraint amongst patients.

Participant 1: It is a perennial problem, we all struggle with money, When there is medication at the public health centers and hospitals, patients are forced to go to private health practitioners to buy the medication and it is costly, so the country has to subsidize, so there is a huge need for government subsidies, so that at least when people go and buy the medication at pharmacies it's a bit affordable, because when you go to the general practitioner, he is recommended to give you certain medication, but when you go to a private physician, he is a specialist, he will give you very expensive medication, I can give you an example of kajura, its very expensive, and you cannot find it in government hospitals, you will have to buy it for like N$ 700-00 dollars, and imagine its per month, that you need this medication, so it's going to be very expensive, and you may not have that money, so the government need to subsidize, or make the drugs available at public hospitals.

Moderator: With the demographic features, what strategies can we utilize to bring about improvement

Participant 1: Maybe patient Education, because this are non-modifiable.

Moderator: In terms of gender, there seem to be more women at pharmacies as men follow stereotypes surrounding certain medications).

Participant 1: More women are more courageous to soldier on when it comes to taking hypertensive medication. There is a requirement for more research on the topic)

Moderator: According to survey I did, most of the hypertensive people in Namibia are women but this is also due to the population differences in the country, according to statistics.

Participant 2: Men are more ignorant when it comes to taking medication and they are less easy to educate compared to women, because if you look at the statistics of the people that die of stroke, most of them are man, like we had a friend who had a stroke, so when we took him to the Dr, the Dr was like, is the guy not taking his tablets, then the people were like, which tablets? Later somebody found that prescription in his pocket, so he was diagnosed with hypertension like a

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

month ago, he did not go to any hospital after that, he did not did not go to the pharmacy, he will just go to the pharmacy to buy pain killers to control his headache, so its more of people thinking they are brave, and while we are on Education, what needs to be done, is some sort of tailor made, message for man, but with a better strategies on how to get them, because women they are easy to educate, they are easy to access, man they are very diverse, even the place you will find them, even if they are not doing anything productive, they are still busy for you to engage them, so if we are to engage them in terms of Education, one will really need to come up with a strategy that really target man, I don't know now whether it will have to go through some sort of sports or, whatever recreational activity that is being done, (other participants concur) .

Moderator: If we have a support system where the community and health workers engage in reminding patients about collecting their medications. For interest sake, how are you reminded that your time is up, for you to collect your medication

Participant 2: You will have to confirm with your health passport to remember when next you have to go collect your medication, you just have to make sure of the dates that are on your passport, and make sure you put it in your head, (participants laugh) and if you don't go, they will not even bother to call you.

Moderator : What if perhaps they can use this automated sms via mtc, and remind people over the phone, but that will now have to involve the government.

Moderator : I think that system is only in the private facilities, because I understand its quite expensive.

Participant 1: The government must be able to sacrifice. And also create a data base, because what is the point of taking my number if you don't even use it.

Participant 2: There should be a way where they can charge me on my phone.

Participant 1: The government should be able to do a cost benefit analysis, they are spending billions of dollars on stroke patients, why not use telecommunications, where they just send reminders to patients, to get their medication, and stopping the stroke from happening. So I think its just prioratasasion of resources there, as long as there is information that states the magnitude

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

of a problem, that you are dealing with, at stroke level, its so easy for us to channel the resources for prevention rather than treatment (participants concur).

A discussion is going on about how the government should intervene in reminding patients to go collect their medication once the period of the latest medication lapses. A discussion is going on about how alcohol and too much of it affects the patients, and exercises and length of refilling the patients' medication batch.

Participant 1*:* It will come back to lifestyle modification, its not only about taking medication that is involved with hypertension, so there is a lot of emphases not to take alcohol, you need to exercise, you need to drink a lot of water, (all participants concur)

Moderator: What strategies can be used for the medication refilling period, shorter or longer periods?) (A 3-month medication prescription period might be best)

Participant 1: The medication period should be tailored made as patients reside at different places, with different distances from the health care facilities, and also maybe the Dr's are not there all the time, I think its better to give them a 6 months' prescription, they take the medication once, then they go, and then they come back when the 3 months is gone.

Participant 2: The medication should be tailored made, I did a study on adherence in opuwo, there is an area during the census, and their political, and drought relief, is only assessed by helicopter, now if somebody is staying there, than definitely that person will need a longer period, you will then need to adhere to the medication, while those ones that are staying in town, for example Khomas region, if you see that they are having a challenge with adherence, then they need a shorter period, I think it needs to be tailor made depending from person to person.

Moderator: (The technology used to remind patients about their medication collection and other vital details for diseases like TB should be used comprehensively a means of communication for high blood pressure)

Participant 6: Medication follow up, when you give medication for too long they forget their next appointment. I see some people ant to give up to 6 months. There is no guideline, the only schedule available is the one available at the pharmacy. We don't have a system to help patients for scheduled follow up. Causes a lot of problem

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: Namibia should change the quantification methodology that has existed for years to move with what exists now. The is huge a need for research to understand the magnitude, because how do you argue with the politicians, the policy makers and the ministers, what you need to so, especially when you do not have data to prove.

Participant 2: The data is there, is just that people are still leaving in the past (participants laugh) during the 90's hypertension was not as much as it used to be, unlike the TB and malaria's where quite a lot, but now the NCD's are taking over from the communicable diseases, but the decisions and the policies are still based on those diseases, so if we are saying Namibia has a high preference of hypertension with 50%, which other disease has that high percentage, its not that much, its now a matter of quantifying the numbers and telling the decision makers that look, you need to change that. Currently most of the money is pumped into HIV and AIDS, and if you look at what's put into hypertension, its less, and the attention given is not that much maybe because that disease is not communicable, but in the end its going to ask a lot (participants laugh)

Moderator: How best can we resolve the problem with medical beliefs followed by prophetic churches?)

Participant 2 : There should be appropriate measures regulating how and what medical information can be shared and what consequences will be faced by culprits sharing the information contradicting the regulations. There should be policies in place, and if you are going to sell certain products, there should be policies that regulate this massage, and it should go through this body. Because in absence of that regulator, the person will go preach anything in the name of freedom of speech, because then if the person knows that if you are going to preach healing you are going to follow this rule, otherwise I can come up with a church and say, if you have hypertension, you can drink petrol and get cured (participants laugh) so there the authority there just need to stand up and say this are the rules and people will have to abide by this rules, especially when it comes to this companies selling supplements, they are becoming a lot, and they are taking people's money.

Participant 2: Other medications such as Herbalife have side effects and they comprise of many chemicals added. And about the churches, people should continue to go to churches but they should not concord with whatever the pastors and prophets preach about (participants concur).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1: We need to restore belief in our body systems and try to avoid products which are rumored to offer quick recovery. We must make our health system robust so that the drugs are there, the health workers are there, that way we restore faith in the health system, people don't have faith in the health system, people don't believe in the help that they get, they get at the clinic or the hospital, and worse of all you are putting me on this long term drugs, without proper Education.

A closing speech is going on, thanking all the participants and communicating what will be follow next as part of the workshop.

[End of recording]

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

Title and abstract

	Page (s).
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2-3

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	5-7
Purpose or research question - Purpose of the study and specific objectives or questions	7

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	8
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	9-12
Context - Setting/site and salient contextual factors; rationale**	8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	9-10
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	34
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	10-12

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	10-12
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	13-14
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	12
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	12
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	12

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	15-20, Figures attached
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	20-26

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	27-30,32
Limitations - Trustworthiness and limitations of findings	28-30

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	4,32
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	32-33

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-068238.R2
Article Type:	Original research
Date Submitted by the Author:	18-Apr-2023
Complete List of Authors:	Nakwafila, Olivia; University of KwaZulu-Natal College of Health Sciences; University of Namibia Faculty of Health Sciences, Public Health Sartorius, Benn; University of Oxford, Centre for Tropical Medicine and Global Health; University of KwaZulu-Natal College of Health Sciences, Discipline of Public health Medicine Shumba, Tonderai; University of Namibia Faculty of Health Sciences, School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy Dzinamarira, Tafadzwa; University of Pretoria School of Health Systems and Public Health Mashamba-Thompson, Tivani; University of Pretoria Faculty of Health Sciences; University of KwaZulu-Natal College of Health Sciences, Discipline of Public Health Medicine
Primary Subject Heading:	Cardiovascular medicine
Secondary Subject Heading:	Global health, Emergency medicine, Public health, Qualitative research, Respiratory medicine
Keywords:	Hypertension < CARDIOLOGY, PUBLIC HEALTH, QUALITATIVE RESEARCH

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

For peer review only

1
2
3
4
5
6
7
8

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

9
10
11
12
13
14
15
16
17
18

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafadzwa Dzinamarira[5], Tivani Phosa-Mashamba-Thompson[1, 6]

19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

40
41
42
43
44
45
46
47
48
49
50

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: onakwafila@unam.na

51
52
53
54
55
56
57
58
59
60

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

ABSTRACT

Objective: To determine the most acceptable hypertension intervention package to promote hypertension adherence based on stakeholders' perspectives.

Design: We employed the Nominal Group Technique method and purposively sampled and invited key stakeholders offering hypertension services and patients with hypertension. Phase one was focused on determining barriers to hypertension adherence, phase two on enablers, and phase 3 on the strategies. We employed the ranking method based on a maximum of 60 scores to establish consensus regarding hypertension adherence barriers, enablers, and proposed strategies.

Setting and Participants: 12 key stakeholders were identified and invited to participate in the workshop in Khomas region. Key stakeholders included Subject Matter Experts in Non-Communicable Diseases, family medicine, and representatives of our target population (hypertensive patients).

Results: The stakeholders reported 14 factors as barriers and enablers to hypertension adherence. The most important barriers were: Lack of knowledge on hypertension (57 scores), unavailability of drugs (55 scores), and lack of social support (49 scores). Patient education emerged as the most important enabler (57 scores), availability of drugs emerged second (53 scores), and third having a support system (47 scores). Strategies were 17 and ranked as follows: Continuous patient education as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by developing a national dashboard to primarily monitor stock (52 scores) and community support groups for peer counseling (49 scores).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Conclusions: Multifaceted educational intervention package targeting patient and healthcare system factors may be considered in implementing Namibia's most acceptable hypertension package. These findings will offer an opportunity to promote adherence to hypertension therapy and reduce cardiovascular outcomes. We recommend a follow-up study to evaluate the proposed adherence package's feasibility.

Keywords: Nominal Group Technique, Intervention package, Hypertension, Adherence, Non-Communicable Diseases

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Strengths and Limitations of this study

- We included the target population, patients with hypertension, in the sample.
- The nominal group technique consensus approach allowed multiple barriers, enablers, and strategies for hypertension adherence to be determined with a balanced group of participants' involvement.
- We did not include pharmacists or health insurance stakeholders, meaning their perceptions of hypertension are not part of the study.
- Provincial managers and Supervisors at the Ministry of Health and Social services were involved in recruiting some key stakeholders due to the nature of the study.
- We included study participants who were able to speak English only, which might have limited the participants to express their views in their local languages

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

INTRODUCTION

It is well known that hypertension, the major risk factor for cardiovascular diseases (CVD), is a vital cause of premature death and disability worldwide.[1] Recent estimates indicate that 1.4 billion adults worldwide have hypertension, of which more than half live in low- and middle-income countries.[2] Data from the World Health Organization (WHO, 2020) reported that hypertension deaths in Namibia reached 428 or 2.53% of total deaths. The age-adjusted death rate was 37.70 per 100,000, ranking Namibia at number 28 globally.[3] Nonadherence to chronic medication is a complex issue that affects clinical outcomes[4], health expenditure, and the health system's operation.[5, 6] Several implementation research studies have revealed that it is imperative to involve the relevant stakeholders to recommend interventions effectively and agree on long-term decisions to improve patient compliance.[7-9]

Since hypertension barriers diverge for specific geographic settings, it is advisable to develop interventions addressing the specific barriers to hypertension.[10] The National Health and Nutrition Examination Survey (NHANES) in the United States, conducted between 1998 and 2018, identified that factors most often associated with nonadherence were related to the following: patient socioeconomic factors; medication; health care system; patient-related issues such as visual or hearing impairments, lack of education; and condition-related such as disease severity.[10] The survey further revealed that for the barriers identified to be addressed, specific interventions concerning the barriers needed to be proposed. Among the proposed interventions included health systems strategies, Real-time counseling, open-ended discussions, visual aids, and patient diaries, Technologies to integrate reminder notices, Simplification of regimes, elimination of out-of-pocket costs, and Home Blood Pressure (BP) monitoring systems.[10]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

The WHO dimension model of adherence factors has also propped similar adherence-related factors with corresponding interventions identified by the NHANES survey.[11] Although hypertension adherence factors with corresponding interventions are known, previous studies conducted in high-income countries have indicated that the most common facilitators for hypertension control were social support, knowing how to control hypertension, and community resources. [12] The most common barriers were a lack of hypertension knowledge and medication, provider-patient communication gaps, and disease awareness.[12-14] Studies often focus on hypertension barriers more than facilitators, which creates a gap in patient-physician communication or the health sector regarding patients' concerns about medication.[12, 14] On the other hand, a study conducted in Iran indicated that physician communication training improves physician-patient communication skills, hypertension outcomes, and medication adherence.[15] Similarly, another study found that the perceived availability of support and beliefs about the condition and treatment influences hypertension management. [16] Patient-centered approach, including engagement of the patients in their care by self-blood pressure monitoring, can also significantly improve medication adherence.[17, 18] The current study addresses both barriers and facilitators, including communication barriers, contributing to filling the gap identified in previous studies[12, 14, 16]. Interventions for hypertension adherence, such as community health worker-led multicomponent intervention, drug monitoring programs, have been studied in countries such as Argentina and evidenced to produce good outcomes.[19] Similar strategies can also be considered in Namibia.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Information on multilevel hypertension prevention, detection, and control interventions is quite evident.[19, 20]. Despite the information, Namibia lacks a well-established surveillance system or strategy for non-communicable diseases. A few studies in Namibia have reported hypertension adherence predicting factors, including supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[21, 22] Based on the studies conducted in Namibia, the authors recommended strengthening adherence monitoring, investigation of social-demographic characteristics such as transport, and collaboration of public and private health facilities in preparing the country to practice universal access to medication fully.[21, 22]

To our knowledge, there is no such study in Namibia that has focused on enforcing medication adherence, although universal access is one of the targets of the Namibia strategic plan in response to reducing non communicable diseases (NCDs).[23] Nonetheless, through consultation with stakeholders, including World Health Organization (WHO), Namibia developed The National Multisectoral Strategic Plan for the prevention and control of NCDs for the next 5 years, 2017/18 – 2021/22. The strategic plan aims to reduce morbidity, mortality, and disability due to NCDS and achieve a healthy and productive population.[23] Hence in our study, we conducted a stakeholder workshop to determine the acceptable hypertension intervention package to help promote hypertension adherence in Namibia. The results of this study will help guide the design and implementation of the most acceptable hypertension intervention for Namibia, which will be used to help reduce cardiovascular outcomes among patients with hypertension.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

METHODS

This paper adheres to the Standards for Reporting Qualitative Research reporting guidelines.[24] We invited key stakeholders offering hypertension services and patients with hypertension to participate in the Nominal Group Technique (NGT) workshop in Khomas region, Namibia. The study was part of a multi-phase study aimed to determine factors influencing the implementation of interventions to promote adherence to hypertension in Namibia[25-27]. We employed the Nominal Group Technique (NGT) method. The NGT method, commonly referred to as the consensus method, is a highly structured face-to-face group interaction that empowers participants by providing an opportunity to have their voices heard and opinions considered by other members.[28, 29] The aim is to achieve a general agreement or convergence of opinion around a particular topic to solve a problem, generate an idea, and, especially in the health sector, develop guidelines and identify research priorities.[30, 31] Nominal Group Technique consists of four key steps: Silent generation of ideas, round-robin where participants discuss individual ideas, clarification of ideas, narrowing exhaustive idea list into key themes and voting (ranking or rating), scoring respondents' perceptions for importance or preference.[30, 32] The scoring is usually done on a maximum five-point scale, which we applied in our study. The workshop took place at Unam Hage-Geingob Campus, Windhoek - Khomas region, on 27 November 2021.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Study participants and sampling

The principal investigator (ON) invited the key stakeholders, including blood pressure patients, via email by means of invitation letters and purposely sampled twelve (12) key stakeholders. We defined key stakeholders as subject matter experts (SMEs) in NCDs, including primary health care professionals, family medicine, and representatives of our target population (hypertensive patients) who have an interest in the implementation of the most acceptable hypertension package in Namibia. All the key stakeholders included in the study were over 18 years and above and resided in Windhoek, Khomas region. The key stakeholders included an NCD expert from the WHO, public and private healthcare professionals, an academic, a Medical Scientist, a Field Epidemiologist, and patients with hypertension.

The researchers informed the participants that their participation is voluntary, and in the event of refusal/withdrawal of participation, the participants will not incur penalty or loss of treatment or other benefits to which they are usually entitled. The data collected was kept safely on a computer with a password to which the principal investigator only had access. The information was only shared with authorized research team members. No harm was intrigued to participants as no human sample was collected.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Patients

The patients or participants were recommended for the study by community health workers who work closely with them. Interest in the study was then discussed with a prospective participant in person and through a phone call by the Principal Investigator (PI). During recruitment, the PI considered patients' demographic characteristics, including age, marital status, employment, place of residence, and facility ownership (public or private), to ensure a balanced representation. Four participants were considered part of the stakeholders, two from public health facilities and two from private facilities. The study information sheets were sent to interested participants, and signed consent was obtained prior to the workshop.

Other key-stakeholders

Potential participants were approached in person or via phone call by the PI. We also used the snowball or chain referral technique to recruit suitable stakeholders. During recruitment, the PI considered stakeholders' demographic characteristics, including age and employment, to ensure a balanced representation. We included eight subject matter experts in the study. The study information sheets were sent to interested participants, and signed consent was obtained prior to the workshop.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Eligibility criteria

We included individuals aged 18 years and above who met one of the following inclusion criteria:

- Health professionals working in Khomas region in the domain of family medicine or primary health care division for at least three months
- Health professionals employed in Khomas region at NGOs such as WHO with a focus on non-communicable diseases
- Health professionals employed by a clinical reference laboratory and involved in testing for biochemistry analysts
- A senior academic whose research interest is in non-communicable diseases, including hypertension
- Patients with hypertension residing in Khomas region who have at least completed a 6 month cycle of hypertensive medication
- Individuals who are able to communicate in English language

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Exclusion criteria

- Personnel who work in pharmacies and health insurance companies
- Patients who are taking other chronic medication apart from hypertension
- Individuals who are mentally challenged to give consent to participate in the study

Workshop program

The nominal group process [33] was conducted in three phases in a highly structured group discussion to achieve a group consensus on the priorities in response to our specific research questions. Phase 1: Consensus on the prioritization of barriers that influence hypertension adherence. Phase 2: Consensus on the prioritization of enablers that currently influence hypertension adherence Phase 3: Consensus on the prioritization of the most acceptable hypertension intervention strategies to address the barriers and enablers.

- Phase one: What are the barriers to hypertension adherence?
- Phase two: What are the enabling factors for hypertension adherence?
- Phase three: What are the most acceptable strategies for the proposed barriers and enablers to promote hypertension adherence?

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

During the nominal group process, we arranged the participants into four sub-groups of 3, ensuring that each group contained one representative of the target population and two SMEs. The principal investigator served as the convener and moderator for the group.

Phase one: We requested key stakeholders to share their views on barriers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes according to the severity of hypertension barriers. The ranking score was between one and five.

Phase two: We requested key stakeholders to share their views on the enablers to hypertension adherence. Upon instructions from the facilitator, stakeholders independently grouped their suggestions into themes. The PI (ON) listed the themes in a voting form to enable voting through ranking. Participants were then requested to rank the themes based on the most important enabler for hypertension adherence. The ranking score was between one and five.

Phase three: During this phase, we requested key stakeholders to suggest the most acceptable strategies for hypertension adherence based on the barriers and enablers proposed in phases 1 and 2. The PI listed the themes in a voting form to enable voting through ranking. Participants were asked to rank the themes according to the effectiveness of promoting hypertension adherence. The ranking score was between one and five, with one being the least effective and five being the most effective strategy.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

After the workshop, a report presenting the results of NGT was compiled by the principal investigator (ON) and shared with key stakeholders for comments. The transcripts from the qualitative component of this study are available in Supplementary File 1.

Data management and analysis

For the quantitative data gathered during the ranking step in the nominal group process, the total importance score for each barrier was calculated by summing the participants' scores; for phase 2, a total importance score for each enabler was summed up based on the most important enabler for hypertension adherence. In phase 3, a total importance score for each strategy was calculated to indicate perceived effectiveness to help address the barriers and enablers identified in phases 1 and 2. The ranking scores were between one and five. We analyzed the qualitative data using thematic content analysis to inductively identify the themes that emerged from the data presented during the discussion using NVivo 12 pro software, QSR International. The data analysis was based on the naturalistic paradigm, with conventional content analysis [34] in which coding categories were derived directly from the text data to reduce bias as a result of preconceived ideas or other theoretical views. The first and fifth authors performed data analysis.

Patient and public involvement

Patients or members of the public were not involved in the research design nor dissemination of the findings; however, because patients were part of the stakeholders, they were involved in the analysis and interpretation of the results. Provincial managers and Supervisors at the Ministry of Health and Social services were involved in recruiting key stakeholders. The data will be shared with the public through publication; and presentations.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

RESULTS

We recruited 8 SMEs and 4 representatives of the target population aged between 33-59. The participants were equally distributed in terms of sex: males 6 (50%), females 6 (50%). All the participants were employed. The SMEs represented as follows: a specialist in non-communicable diseases from WHO, two internal medicine specialists who are practicing privately; two key stakeholders employed in primary health care in the state; Medical Scientist; a research expert in chronic diseases from a higher institution, and the last key stakeholder was a Field Epidemiologist who also works closely with the fishing industry. Refer to Table 1 for the characteristics of the study participants.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table 1. Characteristics of the participants

ID	Sex	Age range (years)	Highest qualification	Title	Designation
1	Male	40-45	PhD Epidemiology	WHO consultant (NCD specialist)	SME
2	Male	50-55	MBBch, DA	Physician/ Health Former Minister	SME
3	Male	50-55	MMED (Internal medicine)	Physician Internal medicine	SME
4	Female	45-49	Postgraduate BNSc advanced practice	Diabetes nurse educator	SME
5	Female	45-49	Diploma in Nursing& BA community and health psychology	Registered nurse: SHPO-FH, PHC	SME
6	Male	42-45	MSc Field Epidemiology	Medical scientist Epidemiologist	SME
7	Male	31-36	PhD Physiotherapy	Academic researcher lecturer	SME
8	Female	30-35	MSc Field Epidemiology	Registered nurse Epidemiologist	SME
9	Male	31-36	Grade 12	Community health care worker	Target population representative
10	Female	35-39	Grade 12	Self employed	Target population representative
11	Female	40-45	Grade 9	Self-employed	Target population representative
12	Female	54-60	Diploma in Economics	Sales manager	Target population representative

Footnotes: SHPO- Senior Health Programme Officer – Family Health, PHC- Primary Health Care, SME- Subject Matter Experts

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholders' perspective on the barriers to hypertension adherence

The stakeholders reported 14 factors as barriers to hypertension adherence. The voting results showed that lack of knowledge on hypertension (57 scores) was voted as the most barrier; shortage of hypertension medication emerged second position (53 scores), followed by not having a social support system (47 scores). Having to take multiple medications emerged last (27 scores). Figure 1 shows barriers to hypertension adherence.

Stakeholders' perspective on the enablers to hypertension adherence

The stakeholders reported 14 factors as enablers to hypertension adherence. The voting results showed that patient education scored first position (57 scores); availability of drugs emerged second position (53 scores), followed by having a support system (47 scores). The provision of a national health fund emerged last (27 scores). Figure 2 is submitted in the figure file attached, and the legend at the end of the manuscript shows enablers to hypertension adherence ranking results.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's perspective on the most suitable intervention package for hypertension adherence

All 12 participating stakeholders were requested to suggest hypertension strategies based on the suggested barriers and enablers and rank them according to their potential effectiveness. Table 2 shows 17 suggested hypertension strategies in ascending order of their ranking score. Key stakeholders ranked continuous patient education from initiation of treatment as the most desirable (54 scores) strategy to help promote hypertension adherence, followed by setting up of a national dashboard to primary monitor medication stock (52 scores) and community support groups for peer counselling (49 scores)

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Table 2. Proposed hypertension strategies to promote hypertension adherence

Proposed strategies for hypertension adherence	Summing by votes 1= less effective 5=highly effective					Total number of voting scores (weighted sum = number of votes × ranking score)
	1	**2**	**3**	**4**	**5**	**60**
Enabling community health care workers to refill	2	2	4	1	3	37
Creating common low-cost community transport	2	2	2	5	1	37
Family support to the BP initiation treatment		6		4	2	38
Sports interventions to target man	1	3	3	2	3	39
National health fund –critical pillar for Universal Health Coverage		5	2	1	4	40
Construction of health facilities		3	3	5	1	40
Change in health workers attitude towards patients	1		7	2	2	40
Employment opportunities	1	2	3	3	3	41
Collaboration of hypertension program and fishing industry		3	3	2	4	43
Appropriate measures to regulate prophetic Churches and so called healing medicines	1	1	3	3	4	44
Simplification of regimes		2	2	4	4	46
Mobile clinics- Provision for hypertension outreach programmes			4	5	3	47
Involvement of social worker in adherence counseling		1	2	5	4	48
Patient reminders			4	4	4	48
Community support groups-peer counseling		1	2	4	5	**49**
National dashboard- stock availability		1	1	3	7	**52**
Patient Education			1	4	7	**54**

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Reported barriers and enablers versus proposed strategies

Our results show a relationship between the identified barriers and enablers to promote hypertension adherence. Patient education has been proposed as the most important strategy that could help address barriers due to lack of knowledge concerning hypertension medication, social stigma, lack of proper diet, and adverse side effects resulting from medications or non-adherence. It will also help understand enabling factors on hypertension assessment interventions that are culturally appropriate. Table 3 is informed by the WHO model of medication adherence guidance.[35]

For peer review only

Table 3: Matching hypertension barriers and enablers to promote hypertension adherence with proposed hypertension strategies

Barriers	**Enablers**	**Strategies**
Expensive finances, transport issues	Duration of hospital stay reduced, money or financial resource	Enabling community health care workers to refill
Expensive finances, transport issues	Money/Financial resource	Creating common low-cost community transport
Lack of social support	support system, perception of hypertension	Family support for blood pressure initiation treatment
Social stigma	support system, perception of hypertension	Sports intervention to target man
Expensive finances	Money/Financial resources, national health fund	National health fund as a critical pillar of Universal health coverage
Shorter waiting period at the health center	Shorter waiting period at the health center, hospital environment improved	Construction of health facilities
Forgetfulness, Adverse side effects	A good relationship with healthcare providers/proactive health workers	Change in health workers' attitudes toward the patients

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Expensive finances	Money/financial resources	Employment opportunities
shortage of drugs	political will	Collaboration of hypertension program and fishing industry
Prophetic church influence	Patient education, Political will	Appropriate measures to regulate prophetic churches and so-called healing medicines
too many daily medications	National health fund	Simplification of regimes
shortage of drugs, lack of knowledge, transport issues	A shorter length of refill	Mobile clinics- Provision for hypertension outreach programs
Lack of social support	Experience/witness of a person who has undergone hypertension complication	Involvement of social worker in adherence counseling
forgetfulness	Availability of drugs at Primary Health Care, Shorter waiting period at the health center	Patient reminders on the phone
Lack of social support	Experience/witness of a person who has undergone hypertension complications, stroke clinics	Community support groups-peer counseling
shortage of drugs	Availability of drugs at Primary Health Care	National dashboard- stock availability
lack of knowledge, social stigma, proper diet, adverse side effects	study interventions of blood pressure assessment that are culturally appropriate	Patient Education

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Feedback from stakeholders on proposed strategies

All 12 participants (P) from the workshop were requested to comment on the proposed strategies to promote hypertension adherence. They all read the report and agreed with the results.

Major responses from the top 3 hypertension strategies proposed:

Patient Education: The key stakeholders suggested patient education as one of the key strategies that can be employed to promote hypertension adherence, emphasizing continual education by healthcare workers, including community health workers, from the initiation of treatment. Health Education should focus on hypertension, its signs and symptoms, treatment, reference ranges, side effects, complications due to non-adherence, and the importance of counseling sessions in relation to hypertension. Promotion of a healthy diet, physical activity, religion, and beliefs should all be part of the package. Stakeholders also suggested that patient education be conducted in local languages through different media platforms such as radio and TV as well as community leaders. Spouses of patients with hypertension were suggested to be part of patient education. Some of the participants indicate that:

``I think every time patients go to the hospital; they should get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how hypertension is treated; what are the side effects; consequences of a lack of adherence to the medication). All this information should be well explained to the patients. Hypertension is physiological; hence patients need to be reminded and explained what it means if they default when hypertension is controlled, and they no longer see signs and symptoms and what they need to do in terms of taking medication. Patients need to fully understand the importance of adherence that moment

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again`` (P1).

``Education is an ongoing process with every follow-up. Ongoing education on diet and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When dealing with NCDs there is a broad spectrum of NCDs; therefore, we need to capacitate and strengthen community health workers. From nurses to pharmacists. Hypertension is a silent killer, hence Education`` (P7)

``This whole patient education should be from day one, it is not just at the beginning, it has to be every day, when they come to the hospital, the health care workers must check in the patients log books if they are taking their medication. Patients must see a counselor first and be explained hypertension figures and what they mean; we do not even know what some of the values of the figures mean. Information is power`` (P4)

`` Educate patients on the implications of nonadherence and what hypertension is. . Patients need to be congratulated/be encouraged when they are adherent as well`` (P7)

``Health education is key and must address the aspect of religion because it is a common challenge. Yes, God will save you, but the same God who will save you is the one who provided knowledge to the health workers and scientists to come up with the medication; therefore, one needs to adhere ``(P8)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

``Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved, especially outreach. Capacitate our health workers`` (P 7)

``There are so many ways that can be used to spread information on adherence. We can use media, TV presentations, adverts, and community awareness, for example, church pastors, traditional leaders, and the heads of households, key members of the community who influence our decisions; all those people are extremely important. Your own husband can be a barrier to taking your medication, maybe he disapproves of you taking your medication, so maybe we need to use quite a number of platforms`` (P 6)

``Information sharing should be done at least twice a month in local languages. If the person could not be available for the first broadcast, they will have another chance on the next Everything must be explained, even me the medication that I am taking, I cannot even read that name (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you cannot read it``. (P 4)

National dashboard- stock availability

The National dashboard was suggested with the primary aim of monitoring medication stock shortage which is an issue in state hospitals. Additionally, minimize unexpected out-of-pocket expenses, prevent stealing medication in the state facilities, and avoid unnecessary transport costs and wrong prescriptions. Some of the participants indicate that:

``If we have the national dashboard where authorized persons have access to it, this way you will have many people looking at the dashboard, and if there are flags, someone will be able to

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees even steal the medication; therefore, the dashboard will help with this. `` (P 11)

``We need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less, then you need to add. Stock-outs are a result of poor planning`` (P7

``The person responsible for ordering the drugs should ensure an ever availability of the drugs, and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and the way this pharmacist is responding to you, that there is no medication, they are very rude. Imagine sitting there the whole day, and when you come to the pharmacy, the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there``. (P4)

`` Proper procurement at the hospitals should be exercised to have a batch of drugs available at all times and should be treated as an emergency. If we have run out of stock, there must be a way where the medication can be procured because patients need the medicine`` (P1)

``In Namibia, we have a tendency of a bottleneck, you already have two or more committees to the procurement, then later you still want to add another committee, and this committee there will be a middleman that needs a share from the tender, so the only way is to shorten the process of buying this life-saving drugs. `` (P2)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3 *``The national dashboard should be able to cater to the people who work in the sea to help the*
4
5 *Fisherman, that way they are not left out`` (P 10)*
6
7
8
9 **Community support groups-peer counseling**
10
11
12 The key stakeholders suggested community support groups as one of the strategies that can be
13
14 employed to promote hypertension medication. This is to avoid stigma and forgetfulness;
15
16 patients are most likely to adhere when a fellow patient has gone through, for example, a stroke.
17
18 Some of the participants indicate that:
19
20
21 *`` We need to have support groups for hypertension in the community just like we have for HIV*
22
23 *and TB. We are putting so much on tertiary treatment and not primary prevention. Our focus is*
24
25 *more on once they have had the stroke is when we start putting them in a group, we are not*
26
27 *really proactive enough in preventing hypertension in developing into a stroke, so more*
28
29 *emphasis is needed on putting them in groups, let them share ideas, interact, because one of the*
30
31 *major causes of a stroke is defaulting, so I believe maybe if you put more resources into primary*
32
33 *prevention, by actually implementing some of these techniques within the community may, or*
34
35 *even, within hospital set ups``(P1)*
36
37
38
39 *``When you are diagnosed with hypertension at 35 years of age, for instance, instead of having*
40
41 *doubts about whether you will leave long enough (participants laugh), when you are introduced*
42
43 *to a fellow patient who has been having hypertension for years and is surviving for many years,*
44
45 *you might be encouraged to adhere to medication and build hope. And then the issue of having*
46
47 *children, some will tell you I have been on medication before I got married, now I have my 7*
48
49 *children (all participants laugh), so when you are being told by someone who is a living*
50
51 *example, it really encourages and helps you. (Other participants concur) ``(P2)*
52
53
54
55
56
57
58
59
60

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

``Encourage people with hypertension to join support groups in the community and also support from the family. People with the same diseases join and do activities together like poultry farming, and gardening and encourage each other. Just like the ones for HIV programs. The clinic in charge should encourage patients with hypertension or community health workers to set up support groups in the community. Every community health worker can form in a village where they are allocated`` (P10).

``Community support is important. You could have your family's support, but the community members are still looking down on you. There is a need for community sensitization of what hypertension is, how these people are supposed to survive or live within the community because some people discriminate, like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well`` (P 2)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

DISCUSSION

This study presents the consensus of key stakeholders' most acceptable intervention package for promoting hypertension adherence in Namibia. The stakeholders reported multiple barriers and enablers to the uptake of antihypertensive medication and proposed compressive integrated strategies to address the barriers and enablers. The findings from the current study are in coherence with WHO guidelines for medication adherence.[35] Lack of knowledge in taking medication, shortage of drugs, and lack of social support were identified as the top three barriers and, at the same time, enablers to hypertension adherence, which means that the top 3 enablers identified in this study were comprehensive patient education, availability of drugs at PHC, and having a social support system. Our findings on the most severe barriers and enablers identified corroborate with many studies conducted across the globe.[14, 36-39] A scoping review qualitative study on factors contributing to medication adherence in patients with a chronic condition revealed that information and knowledge of diseases and their treatment, communication, support, and adequate resources appeared to be the critical barriers and facilitators in medication adherence.[14] Similar findings were reported from a study conducted in Malaysia which concluded that a lack of knowledge on targeted blood pressure levels has led to poor blood pressure monitoring among the participants.[36]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Contrary to our findings, a study conducted in Nigeria indicated that the availability of affordable health insurance was considered one of the most important resources for providing high-quality hypertension care to the local, primarily poor, population.[40] The findings from Nigeria may have differed from ours because they included primary health care providers and insurance managers as opposed to our study, which included the target population, hypertensive patients. Nonetheless, our findings, including those on medication availability, interestingly agree with factors that were identified as predictors for hypertension in Namibia, which include supplying enough medication, support of friends/family, and maintaining scheduled follow-ups.[21, 22] This shows how much the barriers and enablers, as identified earlier, are significant to hypertension management and adherence.

The most important key strategies identified by the current study were the promotion of patient education through different delivery platforms, having a national dashboard, and encouraging community support groups-peer counseling. In our study, stakeholders suggested that health professionals give continuous education in local languages through platforms such as radio and Television and community awareness through the leaders in the community. The stakeholders added that education through platforms such as Television should be done at least twice a month so that if a person is not available for the first broadcast, they will have another chance on the next broadcast. Our findings agree with similar studies conducted in South Africa, Bangladesh, Pakistan, Sri Lanka, and South Korea, which demonstrated that educational interventions, organizational interventions aimed at delivery care, and SMS reminder systems could effectively manage chronic medication adherence.[41-44] Additionally, one of the Lancet commission's articles on hypertension agrees with our findings on hypertension health promotion and strengthening of the care system.[45]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Similar findings were reported in a study conducted in China which found that Interactive education workshops may be the most effective strategy in community-based health promotion education programs for hypertensive patients.[46] Similarly, a qualitative study , where knowledge was found to be a barrier, suggested that developing a more personalized approach to education and communication could be effective.[47] Similar findings on the involvement of health practitioners including nurses, pharmacists, and community health workers in giving educational sessions and disseminating information are supported through a systematic review study, [48] Our study suggested a national dashboard to monitor medication stock so that patients do not run out of medication and end up paying ``out of pocket``. The stakeholders in our study believed that this method worked very well in countries such as Zimbabwe with HIV and TB programs. Similar results on the national dashboard were reported in 5 Indian states, which found that an adaptive strategy of community-based drug distribution through community or social workers and home delivery appears feasible and may help improve access to hypertension care.[49, 50]. In Namibia community based strategies have been reported to be successful with for example Directly observed treatment (DOT) on Tuberculosis and community-based antiretroviral therapy (C-BART).[51, 52]The dashboard monitors the drugs and identifies patients at risk of potentially hazardous prescribing.[53]

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Social support was identified as the third most important strategy in the current study. Similar findings were reported by a study conducted in Nigeria, which indicated that adherence clubs for hypertension control are feasible and led to a statistically significant and clinically meaningful improvement in self-reported medication adherence, resulting in BP reduction.[54] Similar results were also stated in a study conducted in China [55] Group hypertension education classes are an effective way to care for patients.[56]

The collaboration with stakeholders on perceptions of the most suitable hypertension strategy resulted in multiple strategies and how to implement them, especially in the current setting and Namibia at large. Therefore, we propose conducting a Discrete Choice Experiment (DCE) with patients with hypertension to determine Namibia's most acceptable hypertension package. The stakeholders recommended a multifaceted educational intervention package that targets patient and healthcare system factors. Since education is paramount, we recommend that the package incorporate continual reminders on hypertension information, including the importance of medication adherence, and the consequences of not taking medication throughout an organizational- drug reminder system. Reminders can be sent once, weekly.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

CONCLUSIONS

Hypertension key stakeholders in Namibia perceived patient education as the most acceptable intervention package to help promote medication adherence for their population. Therefore, it presents the most common recent barriers and enablers to hypertension adherence which will offer an opportunity to implement a strategy for promoting adherence to hypertension therapy consequently reducing cardiovascular outcomes. Before implementing the proposed intervention, we recommend a follow-up study to determine the most preferred hypertension strategy by different population groups from different regions across Namibia.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Acknowledgments

We would like to thank and acknowledge all the stakeholders who participated in this workshop. A special thanks to Dr Shumba Washington for co-moderating the workshop and Ms Esther Muhepa who assisted with recording and transcribing. We would also like to thank the NCD coordinator and Primary health Care Supervisors at the Namibia Ministry of Health and Social services (MoHSS) for their assistance with recruiting some of the workshop participants. A special thanks to the University of Namibia for providing a venue to conduct the workshop. The authors would also like to thank the University of KwaZulu-Natal (UKZN) for providing the platform to set up and conduct this research study.

Competing interests

None declared

Funding Statement

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors

Ethical approval and consent to participate

This study has been ethically reviewed and approved by two institutional review boards: The Namibia MoHSS National Ethics Committee (Approval number: (17/3/3 ON), and the University of Kwazulu Natal Biomedical Research Ethics Committee (Approval number: BRE/00000944/2020). All participants received an information sheet explaining the study background, objectives, and procedures and signed a consent form prior to the study.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Authors' contributions

The study has been conceptualized and designed by ON, BS, and TPM-T. Data collection was done by ON and TW-S. ON and TPM-T performed data analysis assisted by TW-S and TD. All authors reviewed and approved the final draft of the manuscript.

Data availability

All data relevant to the study are included in the article and uploaded as supplementary information.

Data Set

None

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

REFERENCES

1. WHO. *Hypertension: Key facts*. 2021 [cited 2022 26 June 2022]; Available from: https://www.who.int/news-room/fact-sheets/detail/hypertension.
2. Mills, K.T., et al., *Global Disparities of Hypertension Prevalence and Control: A Systematic Analysis of Population-Based Studies From 90 Countries.* Circulation, 2016. **134**(6): p. 441-50.
3. World Health, O. *World Health Rankings Live Longer Live better*. 2020 [cited 2022 26 June 2022]; Available from: https://www.worldlifeexpectancy.com/namibia-hypertension.
4. Burnier, M. and B.M. Egan, *Adherence in Hypertension.* Circulation Research, 2019. **124**(7): p. 1124-1140.
5. Kostova, D., et al., *The cost-effectiveness of hypertension management in low-income and middle-income countries: a review.* BMJ Glob Health, 2020. **5**(9).
6. Edward, A., et al., *Patient and healthcare provider perspectives on adherence with antihypertensive medications: an exploratory qualitative study in Tanzania.* BMC Health Services Research, 2021. **21**(1): p. 834.
7. Barker, P.M., A. Reid, and M.W. Schall, *A framework for scaling up health interventions: lessons from large-scale improvement initiatives in Africa.* Implementation Science, 2016. **11**(1): p. 12.
8. O'Donnell, A.J., et al., *Stakeholder Perspectives on Changes in Hypertension Care Under the Patient-Centered Medical Home.* Prev Chronic Dis, 2016. **13**: p. E28.
9. Shrestha, A., et al., *Stakeholder engagement in a hypertension and diabetes prevention research program: Description and lessons learned.* PLoS One, 2022. **17**(10): p. e0276478.
10. Choudhry, N.K., et al., *Medication Adherence and Blood Pressure Control: A Scientific Statement From the American Heart Association.* Hypertension, 2022. **79**(1): p. e1-e14.
11. World Health Organisation, *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
12. Heinert, S., et al., *Barriers and Facilitators to Hypertension Control Following Participation in a Church-Based Hypertension Intervention Study.* Am J Health Promot, 2020. **34**(1): p. 52-58.
13. Dhungana, R.R., A.R. Pandey, and N. Shrestha, *Trends in the Prevalence, Awareness, Treatment, and Control of Hypertension in Nepal between 2000 and 2025: A Systematic Review and Meta-Analysis.* International Journal of Hypertension, 2021. **2021**: p. 6610649.
14. Kvarnström, K., et al., *Factors Contributing to Medication Adherence in Patients with a Chronic Condition: A Scoping Review of Qualitative Research.* Pharmaceutics, 2021. **13**(7): p. 1100.
15. Tavakoly Sany, S.B., et al., *Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: a randomized controlled trial.* BMC Health Services Research, 2020. **20**(1): p. 60.
16. Morton, K., et al., *Qualitative process study to explore the perceived burdens and benefits of a digital intervention for self-managing high blood pressure in Primary Care in the UK.* BMJ Open, 2018. **8**(5): p. e020843.
17. Hamrahian, S.M., O.H. Maarouf, and T. Fülöp, *A Critical Review of Medication Adherence in Hypertension: Barriers and Facilitators Clinicians Should Consider.* Patient Prefer Adherence, 2022. **16**: p. 2749-2757.
18. Elnaem, M.H., et al., *Disparities in Prevalence and Barriers to Hypertension Control: A Systematic Review.* Int J Environ Res Public Health, 2022. **19**(21).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

19. He, J., et al., *Effect of a Community Health Worker-Led Multicomponent Intervention on Blood Pressure Control in Low-Income Patients in Argentina: A Randomized Clinical Trial.* Jama, 2017. **318**(11): p. 1016-1025.
20. Innab, A. and A. Kerari, *Impact of Behavioral Interventions on Patient Activation in Adults with Hypertension: A Systematic Review and Meta-Analysis.* INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 2022. **59**: p. 00469580221090408.
21. Nakwafila, O., et al., *A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale.* International Journal of Environmental Research and Public Health, 2022. **19**(7): p. 4416.
22. Nashilongo, M.M., et al., *Assessing Adherence to Antihypertensive Therapy in Primary Health Care in Namibia: Findings and Implications.* Cardiovasc Drugs Ther, 2017. **31**(5-6): p. 565-578.
23. MoHSS, *National Multisectoral Strategic Plan For Prevention and Control of Non-Communicable Diseases (NCDs) in Namibia 2017/18 – 2021/22* T.M.o.H.a.S. Services, Editor. 2017: Namibia.
24. O'Brien, B.C., et al., *Standards for reporting qualitative research: a synthesis of recommendations.* Acad Med, 2014. **89**(9): p. 1245-51.
25. Chauke, G.D., et al., *Factors influencing poor medication adherence amongst patients with chronic disease in low-and-middle-income countries: A systematic scoping review.* Heliyon, 2022. **8**(6): p. e09716.
26. Nakwafila, O., et al., *Effectiveness of Interventions to Enable Hypertension Medication Adherence in Low-And Middle-Income Countries: A Systematic Review and Meta-Analysis.* SSRN Electronic Journal, 2021.
27. Nakwafila, O., et al., *A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale.* International Journal of Environmental Research and Public Health, 2022. **19**.
28. Jones, J. and D. Hunter, *Consensus methods for medical and health services research.* Bmj, 1995. **311**(7001): p. 376-80.
29. Tully, M.P. and C. Ja. *The use of the nominal group technique in pharmacy practice research: processes and practicalities*. 1997.
30. *GROUP TECHNIQUES FOR PROGRAM PLANNING: A GUIDE TO NOMINAL GROUP AND DELPHI PROCESSES Andre L. Delbecq, Andrew H. Van de Ven, and David H. Gustafson Glenview, III.: Scott, Foresman, 1975. xv plus 174 pp., $4.95, paperbound. INTERPERSONAL CONFLICT RESOLUTION Alan C. Filley Glenview, III.: Scott, Foresman, 1975. 180 pp., $4.95, paperbound.* Group & Organization Studies, 1976. **1**(2): p. 256-256.
31. Allen, J., J. Dyas, and M. Jones, *Building consensus in health care: a guide to using the nominal group technique.* British Journal of Community Nursing, 2004. **9**(3): p. 110-114.
32. Dening, K.H., L. Jones, and E.L. Sampson, *Preferences for end-of-life care: a nominal group study of people with dementia and their family carers.* Palliat Med, 2013. **27**(5): p. 409-17.
33. Bartunek, J.M. and J.K. Murninghan, *The Nominal Group Technique: Expanding the Basic Procedure and Underlying Assumptions.* Group & Organization Studies, 1984. **9**(3): p. 417-432.
34. Krippendorff, K., *Content analysis: An introduction to its methodology*. 2018: Sage publications.
35. World Health, O., *Adherence to long-term therapies : evidence for action / [edited by Eduardo Sabaté]*. 2003, World Health Organization: Geneva.
36. Tan, C.S., et al., *A qualitative exploration of hypertensive patients' perception towards quality use of medication and hypertension management at the community level.* Pharm Pract (Granada), 2017. **15**(4): p. 1074.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

37. Magadza, C., S.E. Radloff, and S.C. Srinivas, *The effect of an educational intervention on patients' knowledge about hypertension, beliefs about medicines, and adherence.* Research in Social and Administrative Pharmacy, 2009. **5**(4): p. 363-375.
38. Konstantinou, P., et al., *Barriers, facilitators, and interventions for medication adherence across chronic conditions with the highest non-adherence rates: a scoping review with recommendations for intervention development.* Translational behavioral medicine, 2020. **10**(6): p. 1390-1398.
39. Tsiantou, V., et al., *Factors affecting adherence to antihypertensive medication in Greece: results from a qualitative study.* Patient Prefer Adherence, 2010. **4**: p. 335-43.
40. Odusola, A.O., et al., *Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers.* Glob Health Action, 2016. **9**: p. 29041.
41. Bobrow, K., et al., *Mobile Phone Text Messages to Support Treatment Adherence in Adults With High Blood Pressure (SMS-Text Adherence Support [StAR]): A Single-Blind, Randomized Trial.* Circulation, 2016. **133**(6): p. 592-600.
42. Jafar, T.H., et al., *Community based lifestyle intervention for blood pressure reduction in children and young adults in developing country: cluster randomised controlled trial.* BMJ (Clinical Research Ed.), 2010. **340**: p. c2641-c2641.
43. Park, Y.-H., et al., *The effects of an integrated health education and exercise program in community-dwelling older adults with hypertension: A randomized controlled trial.* Patient Education & Counseling, 2011. **82**(1): p. 133-137.
44. Ogungbe, O., et al., *Medication Adherence Interventions for Cardiovascular Disease in Low- and Middle-Income Countries: A Systematic Review.* Patient Prefer Adherence, 2021. **15**: p. 885-897.
45. O'Brien, E., *The Lancet Commission on hypertension: Addressing the global burden of raised blood pressure on current and future generations.* J Clin Hypertens (Greenwich), 2017. **19**(6): p. 564-568.
46. Lu, C.-H., et al., *Community-based interventions in hypertensive patients: a comparison of three health education strategies.* BMC Public Health, 2015. **15**(1): p. 33.
47. Jolles, E.P., et al., *A Qualitative Study of Patient Perspectives about Hypertension.* ISRN Hypertension, 2013. **2013**: p. 671691.
48. Dineen-Griffin, S., et al., *Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice.* PLoS One, 2019. **14**(8): p. e0220116.
49. Kunwar, A., et al., *Interventions to Ensure the Continuum of Care for Hypertension During the COVID-19 Pandemic in Five Indian States-India Hypertension Control Initiative.* Glob Heart, 2021. **16**(1): p. 82.
50. Campbell, N.R.C., et al., *Monitoring and evaluation framework for hypertension programs. A collaboration between the Pan American Health Organization and World Hypertension League.* J Clin Hypertens (Greenwich), 2018. **20**(6): p. 984-990.
51. Kibuule, D., et al., *Effectiveness of community-based DOTS strategy on tuberculosis treatment success rates in Namibia.* Int J Tuberc Lung Dis, 2019. **23**(4): p. 441-449.
52. Katirayi, L., et al., *Taking care to the patients: a qualitative evaluation of a community-based ART care program in northern Namibia.* BMC Health Services Research, 2022. **22**(1): p. 498.
53. Jeffries, M., et al., *Understanding the utilisation of a novel interactive electronic medication safety dashboard in general practice: a mixed methods study.* BMC Medical Informatics and Decision Making, 2020. **20**(1): p. 69.
54. Isiguzo, G.C., et al., *Adherence Clubs to Improve Hypertension Management in Nigeria: Clubmeds, a Feasibility Study.* Glob Heart, 2022. **17**(1): p. 21.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

55. Pan, J., et al., *The Effect of Social Support on Treatment Adherence in Hypertension in China.* Patient Prefer Adherence, 2021. **15**: p. 1953-1961.

56. Meredith, A.H., et al., *Group education program for hypertension control.* The Journal of Clinical Hypertension, 2020. **22**(11): p. 2146-2151.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Legends

Figure 1. Barriers to hypertension adherence

Figure 2. Enablers to hypertension adherence

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

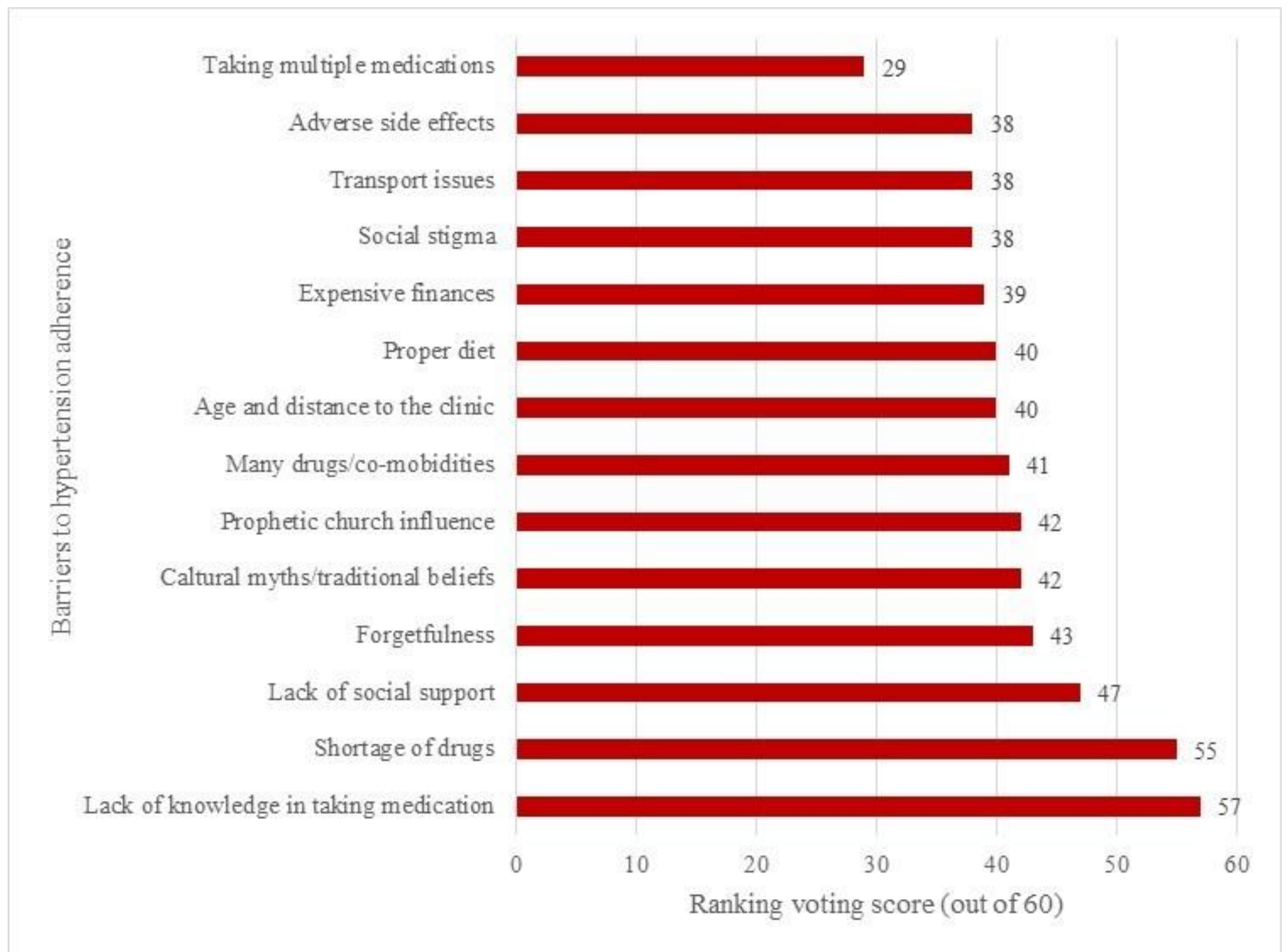

Figure 1. Barriers to hypertension adherence

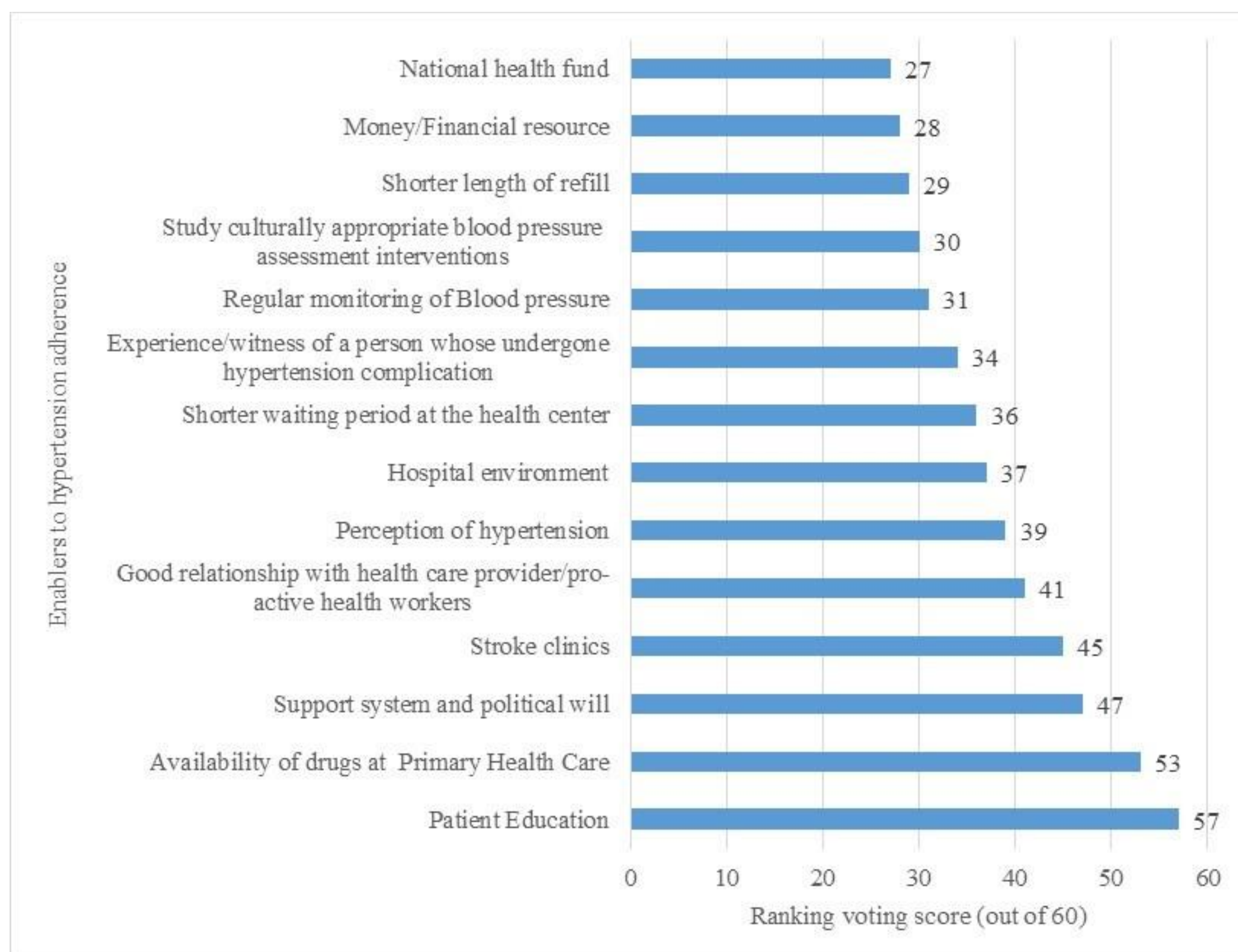

Figure 2. Enablers to hypertension adherence

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafadzwa Dzinamarira[5], Tivani Phosa-Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: onakwafila@unam.na

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Interview Transcripts

Moderator: Once again, thank you for agreeing to participate in this important study. I believe we all know that we have challenges of hypertension blood pressure specially here in Namibia. I'm going to take you through the procedures, how we are going to be discussing throughout the session.. The first question we want to find out about what barriers hinders people from taking high blood pressure drugs. We also want to find out about the enables or what helps people to adhere to hypertensive drugs .We move on to the next question, where we are asking for strategies how to adhere to the hypertensive drugs.

The first question is, what are those in your own experience as a patient or as a community health worker, or as a key stakeholder from your own experience what do you think hinders people who take hypertensive drugs? Secondly, What helps or facilitates people to adhere to hypertensive drugs? We will give you 10 minutes so that you write down what you think hinders people from taking hypertensive drugs and what helps them to adhere. After that, you get in 4 groups of 3 each. After you finish, you discuss your thoughts and choose a group leader.

The group leader's purpose is to put the thoughts together so that we have one set and don't have duplicates. After that we ask you to come to one group, just the way we are seated and then each group presents their findings. We write the findings of group one and findings of group two. After that we discuss the findings together. After we get back in our groups again and rank or vote on the findings we got. Then we will be done with the first face of barriers and facilitators.

Next stage we get in our groups and find the solutions. We discuss again and vote for the solutions. But as we go we will always be explaining, if there is anyone with a question, you are free to ask. We will be helping each other as we go feel free to express yourself. We printed out papers where you have to write, on one side it's the enables, what helps you to adhere to take in hypertensive drugs. On the other side you write what hinders or what are those barriers that challenge taking of hypertensive drugs. Before we divide you into groups there is a concerned form attached behind. The form is like you are agreeing to participate and then you sign it.

We will start with group one and explain what you discussed in your groups and then move to group two,three, and then last group four. In that sequence.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1. Groups presentation on barriers to Hypertension Adherence

[Group 1 reported barriers]

Moderator: I think we are all ready, Group 1, you may start presenting the barriers that you have identified.

Participant 1: The first barrier is Lack of knowledge on hypertension medication – What we mean here is patients need to be educated about hypertension itself as well as the medication. What causes it? What happens in case of non-adherence? Most of the patients default because they do not know and understand the complications due to non-adherence because they are not educated about it.

Participant 2: When you go to the hospital, and your blood pressure is high or low, and you are going there for the first time, you might not know, it's always good to study the meaning of the blood pressure, what are the numbers that represent that the blood pressure is high. For example, if your blood pressure is 120, you know the meaning of it.

Participant 1: Medication is very important and it should be taken every day. My neighbors would complain about dizziness after consuming medication, so they hide it, and they don't take it. So one day I saw one of them had swollen feet, I asked what's wrong, and if they are taking their medication, they said no, then I asked then why do you go and get the medication if you are not drinking it, they said We sometimes just go to the pharmacy to have that record on the hospital cards, to avoid a reaction from the doctors on the next follow-up., laughs

Participant 3: See it all comes down to Education. Sometimes you just do it to please the doctors and not get into trouble

Participant 1: Another barrier we discussed is diet. The medication has strong effects on the body and if a patient does not have enough food at home for breakfast, lunch, and dinner, they will not take the medication to avoid unwanted reactions of the body. Sometimes, you will collapse if you take the medication without eating.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 2– You need a glass of milk to have enough calcium in your body to avoid blockage of veins in the body. The blood will not flow properly, and sometimes the food that contains this are expensive and they are needed, and the supplements that contain calcium.

Moderator: Ouk… What you are saying is patients do not take their medication because they do not have money to buy food..?

Participant 1: Yes, the healthy food is very expensive

Participant 1: Alcohol is also a problem. When you are on medication and you drink alcohol, you might forget to take your medication. Especially when you are taking medication for hypertension, instead of drinking your medication with water, you will end up taking it with just alcohol. So too much alcohol will hinder you from taking your medication.

Moderator: So in other words, alcohol can shift either way. If it is becoming too much, it will hinder you from taking your medicine. If you are advised not to take alcohol, it will enable you to take your tablets

All participants agree…

Participant 1: Which brings us to our 4th barrier which is not having someone to remind you to take your medication. That, can lead to non-adherence.

Moderator: Lack of a support system…Can you elaborate on that..?

Participant 3: What we mean is at least you need someone to remind you to take medication. It could be a family member or spouse. It is always good to have someone by you to remind you. Especially with age, a ``katekulu``(grandchild) can be of great help)..participants laugh

Participant 1– Usually, if the patients who are on hypertension drugs, a large number of such patients are also taking medication of high cholesterol and a good number of diabetes medication. So many patients become exhausted and feel burdened with taking too many drugs, so The costs of buying the tablets are also high, especially for patients with unemployment status. And also, for the state patients, sometimes when they come and get their medication, they only had that transport

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

money, now they must come back again when there is stock in the hospital, so finance is also an issue.

Participant 2: The only issue I have is the new immerging Companies offering ``Forever-Living products``, ``Herbal Life``, and they are all curing hypertension, products that are advertised everywhere, and by nurses as well doctors, which is marketed to provide speedy recovery instead of life-long medication from hospitals encourage patients to avoid taking their tablets. And when one has a condition you are looking for answers, it makes it difficult for the patients to take their medication for life because they feel there is herbal life or forever-living product that can cure it. (all participants laugh)

Participant 1: Social stigma also plays a large role in patients taking their medication as patients are afraid of being criticized because of their hypertension and medical status. So sometimes, when one is told hypertension is a killer disease, the person will sometimes shy away and not want to talk about their condition. It's just like when I meet a beautiful girl when I approach her, I will not tell her, hi, how are you, I want something with you, but I am on hypertension medication, she will obviously say, no this one can go, he is going to die (all participants laugh) so because of that stigma, one is not going to adhere, so if I go to her every weekend, that means I will not take my medication. (Participants continue to laugh)

Participant 2: Just to add on that, our African population we have a mistrust and misbelief on adverse medical issues that might be brought about during the period a patient will be taking hypertension medication. And some drugs end up causing a lack of blood circulation, causing sexual impotence with some people, and causing a lack of sexual drive in many people; this can drive you crazy sometimes

Moderator: The medication have an effect on sexual dive?

Participant 1: Yes, it does, in the long run, especially when you are aging. Also hospital accessibility, hospitals being far from the people, so at the end of the day, you debate, should I go, or should I not go, do I have transport money to go get the medication, and also because of poverty, there is no many things we priorities in the African context, so the medication will be part of them. And there is also a shortage of drugs, and the drugs these patients take is quite expensive, and sometimes you might not have the money to buy the drugs, and sometime the public hospitals

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

might not have the stock. Also, the elderly, when it comes to issues of not understanding why they should take the medication, they will tend to forget, and we also spoke about social support, if you do not have anyone to help you as well, there is no one to inspire you, or encourage you to take the medication, it makes it a barrier, even if you have the money, to buy the medication, And you do not have anyone to remind you, you will tend to forget.

Moderator: Okay…Thank you group 1, great discussions!

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: Let us move on to group 2

[Group 2 reported barriers]

Participant 4: Our barriers are similar to those of group 1. The first one was Lack of Education. Patients need to be educated on what hypertension is, implications of non adherence. Education is key. From initiation of treatment, Education must be continuous

Participant 5: Most of the barriers we discussed are around Education

Moderator: Yes, go ahead…

Participant 4: Exercise and alcohol is another point we discussed.

Moderator: So if you are taking exercises, how does it help you take your medication?

Participant 4: It is very important for health professionals to continuously educate on the importance of exercise and to avoid excessive alcohol intake. If you exercise and you have hypertension, it reduce high blood pressure, it can reduce hypertension, don't just come from the car, and you go sit, and when you exercise the blood pump properly. Patients also need to be educated that in order to take their medication on time, they should not drink too much alcohol. This will also help them not to forget

Moderator: So Forgetfulness was also another barrier identified

Participant 4: Yes

Participant 5: To add on exercise, If you are doing exercises and you are hypertensive, you are encouraged to continue taking walks as it will reduce hypertension, and the blood in the veins circulates all over the body and the heart pumps faster when you do heavy things. It is recommended to exercise at least daily.

Participant 6: When you exercise, it is another way of treatment as it puts your blood pressure on the desired level.

All in agreement…

Moderator: Is that all from Group 2…Well, thank you very much group 2.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 3 reported on Barriers]

Moderator: Lets continue with the discussion: Group 3 can you present the barriers you have identified..

Participant 7: Walking long distances to collect the drugs. As opposed to the availability of cars here in Windhoek, should you find yourself somewhere far at the villages were there are rarely cars, when a patient has to go collect their medication and go for a follow-up and they take the distance into consideration they might change their mind on going for the follow-up.

Participant 7- Some cultures are based on traditional medication and believe that God will heal you without taking your medication, as well as prophets' teachings during church services. Some cultures believe they can use their traditional medicine, that is another barrier.

Moderator: Do you have any idea of a tribe that prohibits people from taking their medicine?

Participant 8: Can I add on that?

Moderator: Yes, please

Participant 8: Some prophetic churches are the ones that can say don't take your medicine.

Participant 7- Yes, But you also have to think to yourself, God will heal you but you must also take your weapons, its just like when someone tells you that you must not eat anymore, will you stop eating, if you stop obviously you will be starving. (Laughs)

Moderator: So the barriers here are distance, Lack of transport, cultural beliefs, and prophetic churches. Is that right?

Yes… all participants concur

Participant 7 - Another barrier we identified is the Unavailability of medication at hospitals: It is a stressful matter in Namibia - When you go for your follow-ups at the hospitals, you might wait from 8 am to 5pm and when you reach the queue at the pharmacy, they at times tell patients that they have ran out of hypertension medication, and by the time you are going to run to the pharmacy, the pharmacy is closed , and sometimes you do not have money, you didn't budget to go to the pharmacy, it's really frustrating us, and they don't even put a notice to say that there is no medication today, They give no prior communication from the staff there and personally when I

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

find myself experiencing low-blood pressure and I am referred to counseling. You will be told to go see the doctor instead, and doctors will eventually offer no help; and it is a waste of time as doctors tell you to go buy the medication from private pharmacies and not all of us have money to afford that medication, because you already used the transport money to come there.

Moderator: I understand…

Participant 7: That's about it from our group

Moderator: Great! Thank you group 3

[Group 4 reported barriers]

Moderator: We are almost there. Group 4, Can we discuss the barriers you have written down.

Participant 9: Education, just like the rest of the group members we listed it as a barrier. Perhaps what we can add which have not been mentioned is patients who take multiple medications.

Moderator: Ouk, Can you explain on that?

Participant 11: Yes, of course when taking a lot of medication can be discouraging. In the private facilities, we have what we call combination medication. However, these are expensive, not everyone can afford them. So perhaps the state can subsitise on this type of medication so that patients do not end up so many medications.

Participant 12: I agree…

Male Speaker 10: Otherwise, all the other points are the same, we agree with what other groups have discussed

Moderator: Okay, thank you, group 4

[End of recording]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

2. Groups presentation on enablers for Hypertension Adherence

[Group 1 reported enablers]

Moderator: Group 1, can we go to the Enablers. Lets go aheard and discuss the enablers

Participant 1: Education, There are so many factors that we named about hypertensive-patients. What is hypertension; Signs and symptoms; the type of medication that they are supposed to take and why they are taking that; The side-effects of the drugs. Those factors maybe that will probably improve the adherence to of the drugs. And we thought that the most important thing is the health workers explaining the condition to the patient about why it is important for them to take their medication and adhere…including education on Herbal life as well, (participants laugh)

Participant 3: on the point of taking medication – If the patient understands how the medication works in their body and what will happen if they do not take their medication, they will likely adhere

Participant 1: The second point is having a support system: If you got a very good social, support system or home support system there is a high chance that you have someone who is going to remind you to take your medication. So, if I am a granny with hypertension and I go to the hospital with my little daughter, for example. My daughter can actually help me remember that I am supposed to take my medication at 7 o' clock every day. So good.

Moderator: Ouk…Can other participants add…

Participant 2: Yes, another important enabler with regards to sticking is having a social support system by mmeans of stroke clinics at various public healthcare services that offer this medication. You can have a day when stroke patients or patients with hypertension come to meet and interact. So, that social interaction can motivate other patients who are not adhering to their medication to start doing it. So maybe having stroke clinics at our hospitals may act as an enabler.

All participants in agreement…

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: There must also be an availability of the drugs, accessibility of the hospitals, disclosure of BP by patients, sharing of hypertensive status with friends and community members. If there can be support groups, this will really assist the patients

Participant 2: In ensuring that medication is available, the hospital environment must be welcoming as well when the patients go to collect their medication. especially when they are sacrificing the whole day to come and collect their medication.

Moderator: Ouk, So in other words you are saying there should be a good rapport between patients and Health Care workers?

Participant 2: Not only that, I mean if you go in our state facilities there is no privacy, it is congested. Is just that many of us in Namibia we are Christians however you find in some certain religion like Muslim they don`t allow to be just undressed in the open. So that need to change

Participants agree

Participant 3: Medication should always be there, should be enough stock, so when there is a guarantee that the medication is at the hospital and you will not miss a day or two,

Moderator: Good…, Can we go to the next points?

Participant 1: Accessibility to the health facilities., are the hospitals accessible to the people because some of these patients leave very far from the hospitals, do they have transport to take them to the clinic and so forth, and also encouraging patients to disclose their status, sharing your hypertension status with your close friends,

Participant 2: To add, usually, patients do not take their medication when there are people around whom they have not disclosed their statuses with, and if there are always people around, they will never take their medication.

Participant 2: Also, Marital status favors adherence to taking medication. When you have a partner, the chances of him/ her reminding you to take your medication is there, and also the level of education.

Moderator: Do this only favor those that are married or also those that are staying together (cohabitating)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Male speaker 1: As long as there is someone to offer that support, that reminder that you are supposed to take your medication, reminding them what the side effects are, what are the importance of taking their medication**.**

All participants agree

[Group 2 response to enablers]

Participant 4: Education on the importance of exercise and the need to avoid alcohol when taking medication. Checking the trend of your BP also helps you to adhere – If you do regular check-ups of your blood pressure, and when it is high that will help you to adhere to taking the tablets.

Participant 4: Proactive health workers actively involved in reminding the patients on taking their medication because of old age of many the patients, could be helpful as well. If Dr's and nurses are actively reminding patients maybe a social visit, or digital reminders, they can maybe send them SMS's,

Participant 5: I agree as well, Education and being active is key, Is vice versa with the barriers
…Participants agree…

Moderator: Thank you group 2

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

[Group 3 responses to the enablers]

Moderator: I know that most of the barriers and enablers are similar. Group 3, can you go ahead and discuss the enablers that you have written down:

Participant 7: One of the enablers we discussed is to have nearby clinics in the villages to avoid long distances. Also to have community health workers to assist with distributing hypertension medication.

Participant 8: Another thing we need to understand is that Education is very important when it comes to changing patients' negative belief of the medication to avoid going to prophets .

Participants agree…

Participant 8: ….Go ahead participant 7, just wanted to add on that point

Participant 7: Another enabler we discussed to help with the accessibility of medication is for the hospitals to learn how to plan and control stock so that the medication can be available

Moderator: How can we ensure the availability of medication at all time?

Participant 8: Develop something to monitor the medication stock, Also announce on the different media platforms on when medication will be available to also avoid patients from traveling long distances when there is no medication

Moderator: Good, Is there anything else…?

Participant 7: That is all for now

Moderator: Ouk, Thank you group 4

For peer review only

[Group 4 Reported Enablers]

Moderator: Group 4 can you comment on the enablers

Participant Male Speaker 9: The enablers we discussed is for the Health professionals to educate patients on hypertension and the consequences of non-adherences. Health professionals must also educate themselves on non-communicable diseases. You might find that a patient will be diagnosed as hypertensive as a first timer already; however, it could be just that that day maybe they were going through something that put their pressure up and not necessarily that they have high blood pressure.

Participant Female speaker 9: Yes...So education for all health professionals involved in hypertension care

Participant Male Speaker 10: Perhaps the government can come up with some sort of solution to meet the patients halfway so that the number of state patients' medication can be reduced to avoid defaulting.

Moderator: Well, Ouk, thank you group 4

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

A discussion is going on about which enablers and barriers will be added to the respective lists.

A discussion is going on about how to rank the barriers and enablers.

(The final list comprises 14 Enablers and 14 Barriers).

3. Groups presentation on the strategies for hypertension

[Participants responses on Strategies]

Moderator: Thank you so much, we are done with this round. The next round we are not going to get into ranking but we are just going to discuss more on the solutions that can help patients to adhere. We want to explain further on these items and the strategies thereof).

(A discussion is going on about the accumulative results, other possible factors that can be added to the list and a further analysis of the listed factors)

Participant 2: I just wanted to speak on the period of refill, if it can be shorter, like for example if it can be maybe two weeks rather than 3 months, so the issue of forgetting and remembering also plays a role, if you do not see your physician for a long time, you tend to forget, unlike when you go to them more often, they will be able to see that you don't look so good, so when they go there often they kind of adhere better. When you go to the Dr after a week, its easier for you to remember, rather than if you go once after a long time.

Participants ranking the barriers and enablers from a scale of 1- being the lowest, and 5 being the highest

The participant writing down the most important strategies.

Moderator: Explaining on the strategies of the barriers and enablers. Patient Education, how can it help the people to adhere to their medication to hypertension?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Participant 1: I think every time, when the patients go to the hospital, every time, if they can get brochures indicating (What is hypertension; what are the signs and symptoms of hypertension; how is hypertension treated; what are the side effects; what are the consequences of a lack of adherence to the medication) and this are explained to the patient's every time they go to the hospital, because you know adherence is also physiological, because now I will need to be reminded or know, why am I taking this medication, like when the patient default, they default after six months or so when the blood pressure is now controlled by the medication, then when the blood does not go up anymore, then they stop taking the medication, because they are no longer seeing the sign and symptoms, so all this things need to be explained, so that they fully understand the importance of adherence, the blood is not controlled by the medication, the moment you stop taking your medication, your heart loses the ability to control the blood, so the problem will still come back again even if you stop taking the medication. So this whole patient education should be continual, from day one, it's not just at the beginning, it has to be every day, when they come to the hospital, the Dr or the nurses must check on their log book if they are taking their medication, they must see a counsellor first, and explain this figures, what they mean, some of this figures are not explained to them, we don't even know what some of the values of this figures mean.

Participant 12: Highly educated people are highly likely to adhere. More knowledgeable tend to be adhere and also individual attitudes, beliefs, which is influenced by knowledge. Their belief is. Most people are not used to taking medication for life. Health education is very important for knowledge and therefore will be a good strategy for medication adherence. Again on knowledge, if you know the consequences and complications you ware likely to adhere.

Participant 4*:* Yes, I think at the hospital, when you go there for the first as a hypertension patient with high blood pressure, the nurses do not give some sort of counselingE prior to the patient receiving the medication. Like for me I was just informed, you have high blood pressure, go to the pharmacy, you are not informed if your blood is low, then you are okay, or if it's at this stage, it's too high.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 6: If you diagnose a person with hypertension and you don't educate the person on what is hypertension, what are the contributing factors to hypertension,is likely that the patient will not have information and adherence will be very low. Most of the patients they are just told you have high blood pressure. Right? And you are going to be on medication. Lack of knowledge on the bases of the patients. Both nurses and doctors. Education is an ongoing process with every follow up. Any barriers the patient is facinf. Constant Education on diet, and exercise. Sometimes there is a shortage of manpower the clinics are overcrowded. When you are dealing with NCDs is a broad spectrum of NCds so we need a guide education. Make use capacitate and strengthen community health workers. From nurses to the pharmacies. Hypertension is a silent killer, the fourth month they default because they feel fine hence Education. Some people default because of money issues, because of Lack of knowledge. Education is the most strategy that you can use, if you are not educating, the people will not adhere. Educate all the stakeholders involved especially outreach. Capacitate our health workers

Moderator: Who should be accountable for this patient education, is it the health workers only?

Participant 1: All health workers are mandated to give health education to the patients, on the key issues that is affecting their health, it could be the nurse, it could be the medical doctor, it could be the community health workers, as long as they are known legible about the health condition, so information is power.

Moderator : Is there another way, apart from pamphlets that this information can be disseminated to the people?

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 6: There is so many ways that can be used, we can use media, you can make presentation, tv presentations, adverts, community awareness, like example what she said, we can use the pastors, because like how are you going to influence the church, you have to find a way on how to engage the community, especially the key members of the community of who they influence our decisions, the traditional leaders, the heads of households, all those people are extremely important, because sometimes, your own husband can be a barrier to taking your medication, maybe he does not approve to you taking your medication, so maybe we need to use quite a number of platforms.

Moderator: How often do you think the information should be disseminated, like the example on the radio?

Participant 1: Quite often.

(The aforementioned questions are being further explained and discussed in depth)

(A discussion is going on about how often the nation needs to be educated on hypertension on the radio)

Participant 1 : At least twice a month. If the person was not able to available for the first broadcast, then they will have another chance on the next broadcast. And it should be done in certain languages, in all the local languages. And they must always explain, even myself that medication that I am taking, I cannot even read that name, (all participants laugh) it's true, I cannot read it, (other participants concur with her) Even if you want to do some research on the medication, you cannot because you can't read it.

Participant 2 (On a side note) : Contrary to the past, I have been receiving my medication every month and now I feel much better. So now the question I have been asking myself, should I stop taking my medication, because the doctor did not tell me when to stop, even though my blood pressure has been low. (Participants giggle)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 3 (Adding to the above point) : Sometimes you might experience high blood pressure for a while but later the level becomes lower again when you go back to the doctor. So the hospitals should offer more Education on what causes high blood pressure and what can increase it, hypertension can be caused by different things, sometimes it can be generational inherited, or stress can cause hypertension.

Participant 2: (Adding to the point of Education and causes of hypertension)

They are kind of modifiable facts. Patients need to be educated on lifestyle changes to improve their condition, to understand why they need to change improve their diet and lifestyle when they see improvement in their condition, once educated they can make their adjustment, because when they take their medication, they will see change. unlike when you are on medication, but you are still drinking alcohol, eating too much fat, you will not see any change. (Other participants concur).

Moderator : (A probing discussion is going on about the support system)

(The community and family need to support hypertensive patients)

(There should be support groups for hypertension, as there are for other medical conditions and diseases)

Participant 1: There should also be community support, it could be that you have your families support, but the community members are still looking down on you. There is need for community sensitization of what hypertension is, and also how this people are supposed to survive or live, within the community because come people discriminate, because like some people will say how am I going to employ you if you are hypertensive, so I think it's a spectrum on community sensitization, the community support up to the family support as well. (other participants concur).

Moderator: Do we have support groups for hypertension in the community? So we only have for HIV, TB. Respondents (all together).No, there are no support groups.

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1 : So I think that is where the problem is, because they are putting so much on the tertiary treatment, and not primary prevention if we do have clinics that cater for this patients before they actually have a TI or a stroke, but our focus is more on once they have had the stroke is when we start putting them in a group, but we are not really proactive enough in prevention hypertension in developing into a stroke, so more emphasis is needed on putting them in groups, let them share ideas, let them interact, because one of the major causes of a stroke is default, because if we do not address the adherence to the medication now, that is going to result into a stroke,, so I believe maybe if you put more resources into primary prevention, by actually implementing some of this techniques within the community may, or even, within hospital set ups. (We as a nation are not proactive enough and focus more on treatment of hypertension than the prevention thereof, to prevent the development of hypertension leading to strokes)

Participant 2: When you are diagnosed of hypertension at 35 years of age for instance, instead of having doubts about whether you will leave long enough (participants laugh), when you are introduced to a fellow patient whom has been having hypertension for years and is surviving for many years, you might be encouraged to adhere to medication and build hope. And then the issue of having children, some will tell you I have been on medication before I got married, now I have my 7 children (all participants laugh) so when you are being told by someone who is a living example, it really encourages and helps you. (other participants concur)

Participant 1: There should be good rapport between health workers and patients, changing their attitude towards the patients and providing care to the patients, medical staff, they need to develop an interested in the patients wellbeing.

Moderator: How do we make them change?

Participant 1: Attitude change I think, the training on professional issues, ethical issues, because this is a job you are giving, you are rendering a service to somebody, basic training on how to handle a patient, because you are rendering a service, sympathy, empathy, the ubuntu kind of spirit, humanistic approach to someone in need, so all that should be included in our training,

Moderator: Are there any challenges experienced by health workers when providing a good environment for patients, is caused by staffing, money issues?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: I am sure it has nothing to do with staffing. You do not need all the proper equipment to engage well with patients as merely kindness and show of care will bring about an open environment around the patients, just sitting with the patient and just asking if everything is okay at home.

Participant 1: There are 3 settings in the health sector, we have the government, when if you come and get your medication, you are just given medicine and you are told, okay, here is your medicine, you can go, (all participants laugh) and the then we have a hospital like lady pohamba, where they have a boss, so they have to act accordingly because, any complaint that happens and goes to top management, then they are in trouble, and then you find Shali there who is their own boss, for him its all about money, you get your medicine and go, but if you have a setting there where you ask, mam how are you doing, do you have any side effects, are you eating well at home, it will help the patient to adhere better because they know my Dr's are expecting this from me, unlike some health professionals when the patient comes to the office, then they are like, or are you back again, you are not dead, (all participants laugh) or this thing of calling people by their sickness, e.g you tate with high blood pressure go (participants continue to laugh) so if our health care workers can improve on that, and even at medical school I see this in our medical students, you are studying medicine, but the whole month your focus is just there in the bank, and thinking of what car to buy, and wanting to look like some models out there (all participants laugh) so if we can have a culture of saying, that you focus on your work, and whatever reward you get is based on that, and we treat humans, as humans, I think that will solve that problem, I mean a good health worker, where the Dr really cares about the patient, like going back in the days when we were small boys, nurses use to care for me more than my own mother, because when you go to the hospital the nurses really care more than my own mother, because with your mother even if you cut yourself she will be like you people like playing around, and then she hits you on the butt, (participants laugh) but if you go to the hospital, the nurses will be like, don't worry you won't feel any pain, it will heal in how many days, so we need such kind of health workers. Health care workers need to show better care and communication with patients, and treat patients with a sense of belonging and respect for their medical status.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: The availability of drugs at hospitals: what do you think can help us? What can you suggest to make the drugs readily available at pharmacies?)

National dashboard- stock availability

Participant 11: If we have the national dashboard where everybody who is in each and every region of Namibia, whose of course is authorized, have access to it, this way you will have many people looking at the dashboard and if there are flags someone will be able to alert the person at the central medical store that this region the stock is low, send some stock. Countries like Rwanda have a national dashboard. Instead of you working with those cards, they used to take stock, a very primitive physical thing. The National dashboard will be like a calendar for a Google meeting. Some of the government employees steal the medication.

Participants in shock…

Participant 7: Wow…, Also another thing, we need to prevent stock-outs of medication at the central medical store, stock control from the supplier, from Central medical store and local pharmacies. If you know your stock is less then you need to add. Actually, stock-outs are a result of poor planning``

Participant 2: The person responsible for ordering the drugs should ensure an ever availability of the drugs and they should at least announce on social media or on the radio in advance that there is no stock available on this date, and also the way this pharmacist are responding to you, that there is no medication, they are very rude, now image sitting there the whole day, and when you come to the pharmacy the person is very rude with you (all participants concur). At least if they can announce that we do not have high blood pressure medicine this month, it saves us from going there.

Participant 2 (Adding to the above point) : The hospitals should estimate the drug usage rate depending on an estimated increase of the rate of high blood pressure patients per month to maintain a certain number of drugs available at specific times. Additionally, proper procurement should be exercised to have a batch of drugs available at all times. And it should be treated as an emergency, if we have run out of stock, there must be a way where the medication can be procured,

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

because patients, need the medicine, e.g in Namibia, we have a tendency of bottle neck, you already have two or more committees to the procument, then later you still want to add another committee again, and this committee there will be a middle man that needs a share from the tender, so the only way is to shorten the process of buying this life saving drugs.

Participant 1: And also make the drugs available, at Local clinics should have the first-line medication, to avoid time-consuming queues and costs of transport fare. Decentralize the services to the local communities, where people can just walk to clinics and get their medication.

Participant 1 : I stay in Shandumbala, we have a clinic near Donderhoek. The staff there literally select a certain group everyday which they will assist on that specific day, without a timetable anywhere at the clinic stating the group that will be assisted every day, instead of announcing to the visitors in the queues. And sometimes they just look at your age and they will say, go to katutura, imagine now you have spent the whole day in the queue.

Participant 1 : You will be told while sitting there, imagine now sitting there for two to three hours and later you are told we are not assisting high blood pressure patients. If they see someone go in there for high blood pressure, they will come out and announce, if they cannot do the job, perhaps they can hire us, and we give service to our people living with high blood pressure (participants giggle).

Participant 1: One thing that can assist will be to have a registry of all the hypertensive patients, this data is quite helpful, which I think we do not have in Namibia, and also what kind of medication they are taking, that makes the availability so easier because you know what the people need, and it's easier to plan the decentralization of the medication to cascade down to, the local people.

Participant 8: People who work in the sea, the fisherman/ engineers. Most of the ship have doctors inside however BP medication is not available. For medicine control, you have to give after 3 months. The pharmacists are not authorized. You have a person going in the sea for 6 months and you have a person who is sik. Is a dilemma. There is no regulation to keep medication in the ship, you cannt keep it in the ship. This people most of the time their adherence is low

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Moderator: Disclosure of medical status, will be with the aid of support systems. and then money issue has to do with employment as a financial constraint amongst patients.

Participant 1: It is a perennial problem, we all struggle with money, When there is medication at the public health centers and hospitals, patients are forced to go to private health practitioners to buy the medication and it is costly, so the country has to subsidize, so there is a huge need for government subsidies, so that at least when people go and buy the medication at pharmacies it's a bit affordable, because when you go to the general practitioner, he is recommended to give you certain medication, but when you go to a private physician, he is a specialist, he will give you very expensive medication, I can give you an example of kajura, its very expensive, and you cannot find it in government hospitals, you will have to buy it for like N$ 700-00 dollars, and imagine its per month, that you need this medication, so it's going to be very expensive, and you may not have that money, so the government need to subsidize, or make the drugs available at public hospitals.

Moderator: With the demographic features, what strategies can we utilize to bring about improvement

Participant 1: Maybe patient Education, because this are non-modifiable.

Moderator: In terms of gender, there seem to be more women at pharmacies as men follow stereotypes surrounding certain medications).

Participant 1: More women are more courageous to soldier on when it comes to taking hypertensive medication. There is a requirement for more research on the topic)

Moderator: According to survey I did, most of the hypertensive people in Namibia are women but this is also due to the population differences in the country, according to statistics.

Participant 2: Men are more ignorant when it comes to taking medication and they are less easy to educate compared to women, because if you look at the statistics of the people that die of stroke, most of them are man, like we had a friend who had a stroke, so when we took him to the Dr, the Dr was like, is the guy not taking his tablets, then the people were like, which tablets? Later somebody found that prescription in his pocket, so he was diagnosed with hypertension like a

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

month ago, he did not go to any hospital after that, he did not did not go to the pharmacy, he will just go to the pharmacy to buy pain killers to control his headache, so its more of people thinking they are brave, and while we are on Education, what needs to be done, is some sort of tailor made, message for man, but with a better strategies on how to get them, because women they are easy to educate, they are easy to access, man they are very diverse, even the place you will find them, even if they are not doing anything productive, they are still busy for you to engage them, so if we are to engage them in terms of Education, one will really need to come up with a strategy that really target man, I don't know now whether it will have to go through some sort of sports or, whatever recreational activity that is being done, (other participants concur) .

Moderator: If we have a support system where the community and health workers engage in reminding patients about collecting their medications. For interest sake, how are you reminded that your time is up, for you to collect your medication

Participant 2: You will have to confirm with your health passport to remember when next you have to go collect your medication, you just have to make sure of the dates that are on your passport, and make sure you put it in your head, (participants laugh) and if you don't go, they will not even bother to call you.

Moderator : What if perhaps they can use this automated sms via mtc, and remind people over the phone, but that will now have to involve the government.

Moderator : I think that system is only in the private facilities, because I understand its quite expensive.

Participant 1: The government must be able to sacrifice. And also create a data base, because what is the point of taking my number if you don't even use it.

Participant 2: There should be a way where they can charge me on my phone.

Participant 1: The government should be able to do a cost benefit analysis, they are spending billions of dollars on stroke patients, why not use telecommunications, where they just send reminders to patients, to get their medication, and stopping the stroke from happening. So I think its just prioratasasion of resources there, as long as there is information that states the magnitude

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

of a problem, that you are dealing with, at stroke level, its so easy for us to channel the resources for prevention rather than treatment (participants concur).

A discussion is going on about how the government should intervene in reminding patients to go collect their medication once the period of the latest medication lapses. A discussion is going on about how alcohol and too much of it affects the patients, and exercises and length of refilling the patients' medication batch.

Participant 1*:* It will come back to lifestyle modification, its not only about taking medication that is involved with hypertension, so there is a lot of emphases not to take alcohol, you need to exercise, you need to drink a lot of water, (all participants concur)

Moderator: What strategies can be used for the medication refilling period, shorter or longer periods?) (A 3-month medication prescription period might be best)

Participant 1: The medication period should be tailored made as patients reside at different places, with different distances from the health care facilities, and also maybe the Dr's are not there all the time, I think its better to give them a 6 months' prescription, they take the medication once, then they go, and then they come back when the 3 months is gone.

Participant 2: The medication should be tailored made, I did a study on adherence in opuwo, there is an area during the census, and their political, and drought relief, is only assessed by helicopter, now if somebody is staying there, than definitely that person will need a longer period, you will then need to adhere to the medication, while those ones that are staying in town, for example Khomas region, if you see that they are having a challenge with adherence, then they need a shorter period, I think it needs to be tailor made depending from person to person.

Moderator: (The technology used to remind patients about their medication collection and other vital details for diseases like TB should be used comprehensively a means of communication for high blood pressure)

Participant 6: Medication follow up, when you give medication for too long they forget their next appointment. I see some people ant to give up to 6 months. There is no guideline, the only schedule available is the one available at the pharmacy. We don't have a system to help patients for scheduled follow up. Causes a lot of problem

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: Namibia should change the quantification methodology that has existed for years to move with what exists now. The is huge a need for research to understand the magnitude, because how do you argue with the politicians, the policy makers and the ministers, what you need to so, especially when you do not have data to prove.

Participant 2: The data is there, is just that people are still leaving in the past (participants laugh) during the 90's hypertension was not as much as it used to be, unlike the TB and malaria's where quite a lot, but now the NCD's are taking over from the communicable diseases, but the decisions and the policies are still based on those diseases, so if we are saying Namibia has a high preference of hypertension with 50%, which other disease has that high percentage, its not that much, its now a matter of quantifying the numbers and telling the decision makers that look, you need to change that. Currently most of the money is pumped into HIV and AIDS, and if you look at what's put into hypertension, its less, and the attention given is not that much maybe because that disease is not communicable, but in the end its going to ask a lot (participants laugh)

Moderator: How best can we resolve the problem with medical beliefs followed by prophetic churches?)

Participant 2 : There should be appropriate measures regulating how and what medical information can be shared and what consequences will be faced by culprits sharing the information contradicting the regulations. There should be policies in place, and if you are going to sell certain products, there should be policies that regulate this massage, and it should go through this body. Because in absence of that regulator, the person will go preach anything in the name of freedom of speech, because then if the person knows that if you are going to preach healing you are going to follow this rule, otherwise I can come up with a church and say, if you have hypertension, you can drink petrol and get cured (participants laugh) so there the authority there just need to stand up and say this are the rules and people will have to abide by this rules, especially when it comes to this companies selling supplements, they are becoming a lot, and they are taking people's money.

Participant 2: Other medications such as Herbalife have side effects and they comprise of many chemicals added. And about the churches, people should continue to go to churches but they should not concord with whatever the pastors and prophets preach about (participants concur).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Participant 1: We need to restore belief in our body systems and try to avoid products which are rumored to offer quick recovery. We must make our health system robust so that the drugs are there, the health workers are there, that way we restore faith in the health system, people don't have faith in the health system, people don't believe in the help that they get, they get at the clinic or the hospital, and worse of all you are putting me on this long term drugs, without proper Education.

A closing speech is going on, thanking all the participants and communicating what will be follow next as part of the workshop.

[End of recording]

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Stakeholder's Perspectives on Acceptable Interventions for Promoting Hypertension Medication Adherence in Namibia: Nominal Group Technique

Olivia Nakwafila[1, 2], Benn Sartorius[1, 3], Tonderai Washington Shumba[4], Tafazdwa Dzinamarira[5], Tivani Mashamba-Thompson[1, 6]

[1] Discipline of Public Health Medicine, School of Nursing and Public Health, University of KwaZulu-Natal, South Africa

[2] School of Nursing and Public health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

[3] Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK.

[4] School of Allied Health Sciences, Department of Occupational therapy and Physiotherapy, University of Namibia, Hage Geingob campus, Namibia

[5] School of Health Systems & Public Health, University of Pretoria, Pretoria 0002, South Africa

[6] Faculty of Health Science, University of Pretoria, Pretoria, South Africa

Corresponding Author: Olivia Nakwafila, MSc (Field Epidemiology)

Address: School of Nursing and Public Health, Department of Public Health, University of Namibia, Oshakati Campus, Namibia

Email Address: 219096337@stu.ukzn.ac.za

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

Title and abstract

	Page (s).
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2-3

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	5-7
Purpose or research question - Purpose of the study and specific objectives or questions	7

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	8
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	9-12
Context - Setting/site and salient contextual factors; rationale**	8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	9-10
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	34
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	10-12

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

For peer review only

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	10-12
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	13-14
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	12
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	12
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	12

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	15-20, Figures attached
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	20-26

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	27-30,32
Limitations - Trustworthiness and limitations of findings	28-30

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	4,32
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	32-33

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388

For peer review only