Multisystemic resilience: Learning from Youth in Stressed Environments

Abstract

Youth resilience is the product of multiple systems. Still, the biological, psychological, social, and environmental system factors that support youth resilience are incompletely understood. How these factors interact, and the situational and cultural dynamics shaping their interconnectedness, are also under-researched. In response, we report a multi-site case study that is instrumental to understanding multisystemic resilience. It draws on the insights of 52 youth from stressed, oil and gas communities in South Africa (13 young men; 8 young women; average age: 20.28) and Canada (19 young women, 12 young men; average age: 20.77). Deductive and inductive analyses show that youth resilience is informed by a biopsychosocial-ecological system of interacting resources that fit situational and cultural dynamics. This has implications for society's championship of youth adaptation to stressed environments, including less emphasis on individual resources and more on contextually responsive, systemic changes that will facilitate meso- and macro-system resistance to significant stress.

Keywords: multisystemic resilience; promotive and protective factors and processes; situational and cultural context; stressed oil and gas community; youth

Introduction

The concept of multisystemic resilience is attracting significant attention in the literature (e.g., Doty et al., 2017; Masten & Cicchetti, 2016; Masten & Motti-Stefanidi, 2020; Ungar, 2021; Ungar & Theron, 2019). That literature challenges conceptualizations of youth resilience as a purely psychological phenomenon (e.g., Block & Block, 1980; Rutter, 1985). Instead, it shows that the human capacity to adjust well to significant stress is a process that is informed by promotive and protective factors and processes (PPFPs) associated with multiple interacting systems (Masten & Cicchetti, 2016). "Promotive" factors facilitate positive outcomes regardless of risk exposure level, whereas "protective" factors operate when risk exposure is high (Sameroff, 2000).

Psychological wellbeing under stress is affected by multiple PPFPs at multiple system levels, including the biological, psychological, social, and environmental (Ungar & Theron, 2019). To illustrate: youth adjustment to the COVID-19 pandemic may be facilitated by close relationships (i.e., social system PPFPs within the social system), personal capacity to maintain health or regulate media consumption (i.e., PPFPs at the biological and psychological level), and health facility capacity to meet escalating healthcare demands (i.e., PPFPs within the built environment) (Chen & Bonanno, 2020). Despite the emerging discourse on PPFPs at different systemic levels, there are calls to advance our understanding of PPFP interconnectivity and PPFP sensitivity to culture and context. Masten and Motti-Stefanidi (2020), for example, have asserted that "much more focus is needed on the processes that connect systems and foster positive multisystem cascades of resilience" (p. 9).

In response, we designed the Resilient Youth in Stressed Environments (RYSE) study to explore resilience among youth in environments under stress (Ungar et al., 2021). Following the

multisystemic resilience literature, RYSE defines resilience as an adaptive, multisystemic process that supports positive outcomes (e.g., school/work engagement; positive contributions to household or community; wellbeing) for youth who are significantly stress-exposed. In this article, we report a multi-site case study to advance understanding of multisystemic resilience as explained by youth living in communities impacted by the economically and socially turbulent oil and gas industry (O&G). Our objectives are to showcase (a) how PPFPs at one systemic level interact with those at different levels to facilitate youth resilience, and (b) how situational and cultural contexts nuance the dynamics of multisystemic resilience.

Brief Review of the Multisystemic Resilience Literature

PPFPs at each systemic level cannot be viewed in isolation. Rather, disturbances in one system (whether positive or negative) can impact the adaptive capacities of adjacent systems (Masten & Monn, 2015; Patterson et al., 2010; Ungar, 2021). For instance, a parenting intervention demonstrated increased attachment levels, improved behaviour, and better regulated stress responses among program participants' children (Fisher et al., 2006). In other words, a positive disruption at the social system level (family) was associated with positive changes at both the psychological (behaviour) and biological system levels (stress response). Doty et al. (2017) identified similar dynamics across systems levels. Their cascading resilience model (CRM) demonstrated that building parenting self-efficacy positively impacts the parent-child relationship (social system), while also enhancing the child's coping capacity (psychological system). Interestingly, PPFPs in the built or natural environment are seldom included when cascade effects are reported.

The PPFPs at various systems levels, and the pathways through which they influence one another, are relative to contextual realities and cultural norms (Ungar, 2008). While there are

universal PPFPs, like self-efficacy or ethnic identity, their perceived importance and relative influence are contingent upon a social ecology's cultural and contextual parameters (Masten & Motti-Stefanidi, 2020; Ungar, 2019a). The International Resilience Project, which spanned 11 countries, illustrated the potential of cultural norms to influence which resources are privileged at which systemic levels to promote resilience in different contexts. For instance, an adolescent girl in Sheshatshiu (Indigenous Canadian community) largely attributed her coping to personal agency, whereas a same age peer in Delft (South Africa; SA) relied on her faith and the religious organization she attended (Ungar, 2008).

Likewise, the situational context could heighten the enabling value of specific PPFPs. When youth live near nature (e.g., Indigenous Arctic youth), or in cities with purposefully built green spaces, they report access to the natural environment as resilience-enabling (e.g., Flouri et al., 2014; Ulturgasheva et al., 2014). However, in densely populated and structurally disadvantaged communities (as is often the case in urban African contexts), youth seldom acknowledge protective natural environment spaces. Instead, safe urban spaces or quality housing have protective value (Makinde et al., 2016; Mosavel et al., 2015).

In summary, closer attention to the interconnectedness of PPFPs associated with biological, psychological, social, and environmental systems is overdue. A deeper understanding of how situational and cultural context nuance such interconnectedness is similarly delayed. Such inattention does not augur well for society's capacity to optimally champion youth resilience.

Methods

Research Paradigm

We utilized a qualitative case study approach. Case studies facilitate an in-depth understanding of complex phenomena in real-world contexts (Crowe et al., 2011). As we are interested in understanding multisystemic resilience, as explained by youth in real-world contexts, we conducted a multi-site case study that was instrumental to advancing that understanding.

A social constructivist paradigm informed our approach. This paradigm, which questions notions of a universal truth (Green & Thorogood, 2004), complements social ecological understandings of resilience as a contextually responsive, multisystemic process (Ungar & Theron, 2019). The paradigm also fits with the understanding that PPFPs are relative to the lived experience of youth and their perceptions of the society within which they operate (Masten & Motti-Stefanidi, 2020; Ungar, 2019a).

Researcher Characteristics and Reflexivity

We (the authors) acknowledge that our interpretations of participant narratives cannot be divorced from our own constructed realities (Berger, 2015). It is, therefore, critical to situate ourselves when studying 'others' (Mauthner & Doucet, 2003). As seasoned adults, we have cultural, historical, and temporal understandings of our worlds that distinguish us from the youth participants (Smith, 1999). For example, technological advances, generational cultural differences, our familiarity with the resilience literature, and preferred understanding of resilience (i.e., a multisystemic process) widen the gap between our social constructions as researchers and the experiences of our participants. Still, our long-term engagement with Canadian and South African youth helped us identify subtleties in the data that may have been missed by less experienced researchers (Berger, 2015).

Context

Maple Hill (Canada) and eMba (SA) are communities that are reliant upon and affected by O&G. Because of dramatic fluctuations in the price of oil, O&G is characterised by a transient workforce and steep 'booms' and 'busts' (Tokic, 2015; Mohaddes & Pesaran, 2017). Economic busts are associated with unemployment risk, poverty, youth mental health challenges, and reduced supports (Graves et al., 2009; Virtanen et al., 2016). Conversely, boom periods introduce other stressors, including pressure for youth to leave school and enter the workforce, family separation as a result of long work hours, and increased substance use and crime (Markey et al., 2015; Ruddell & Ortiz, 2015; Von Simson, 2015).

Maple Hill, located in Canada's largest oil-producing region, houses approximately 7,000 people. Much of its workforce is employed by O&G. The town has experienced several boom-bust cycles, with the most recent bust spanning the past six years. eMba is adjacent to the world's largest coal liquification plant. This plant, which produces synthetic oil, requires many manual labourers. Most of them reside in eMba. In addition to housing around 120,000 people, eMba is challenged by structural disadvantage, rampant youth unemployment, and a degraded natural environment (Theron & Ungar, 2019).

Typically, eMba youth are socialised to embrace traditional African values of respectful interrelatedness or 'Ubuntu' (Theron & Ungar, 2019). 'Ubuntu' teaches that "an African is not a rugged individual, but a person living within a community" (Mandidzidze & Kusemwa, 2018). As communal beings, individuals anticipate a supportive collective (i.e., material/psychological support from relatives and non-relatives). Simultaneously, individuals have a commitment to the collective, even when that comes at a cost to the self (Mhlongo, 2019). Still, there are concerns

that modern African youth are distancing themselves from traditional, interrelated ways of being (Ramphele, 2012) and concomitant fears for the moral fabric of society (Mhlongo, 2019).

Caucasian Canadian youth are generally considered to be more individualistic (Russell et al., 2015). While these youth appreciate the support of family and friends, they typically exhibit much independence, largely fuelled by their competitive environment that privileges agency over collectivism (Ungar et al., 2021). Canadian culture at large, while pluralistic, is dominated by an emphasis on the individual, and of personal responsibility for one's actions (Ungar., 2008). This is amplified in Maple Hill, where O&G culture stimulates a sense of individual survival (Ungar et al., 2020).

Sampling Strategy

We used purposive and snowball sampling to recruit participants. To be eligible, youth had to be 13 to 24 years old; live in Maple Hill, eMba, or surrounding areas; and consider themselves affected by the O&G. The eligibility criteria excluded a positive outcome, as we did not wish to confirm participant resilience. Instead, we were intent on learning from youth in stressed environments about the PPFPs they considered to be protective. Youth who struggle to achieve/maintain functional outcomes, or whose knowledge about protective factors is observational (rather than personally experienced), can still contribute valuable insights to resilience theory (Harvey & Delfabbro, 2004; Phillips et al., 2019). Further, Maple Hill and eMba are environments associated with atypically high exposures to adversity, and so youth ability to function normatively in these environments implies resilience (Ungar, 2019a). All participating youth spontaneously referred to normative functional behaviours (e.g., engagement in education and/or employment; contributions to family/community), and/or spontaneously referred to themselves as 'resilient'.

Local Advisory Committees (LAC), comprising adults and youth, assisted with recruitment. They distributed flyers or placed recruitment posters in locations frequented by youth and referred those who expressed interest to the research team. Youth were then contacted via email/telephone by a research team member to assess eligibility. Existing participants also recruited other eligible participants from their social networks. Such snowball sampling was particularly helpful in eMba where informal housing arrangements complicated youth recruitment.

Participants

In eMba, 21 participants were interviewed (13 young men; 8 young women). They identified as Black or African. Their age range was 17 to 23 (average age 20.28). Whilst their mother tongue was isiZulu, Sesotho, or isiXhosa, they were schooled in English. Four were completing secondary schooling; eight were in further education or training; and nine were seeking full-time employment.

Thirty-one Maple Hill participants were interviewed (19 young women, 12 young men). They were 17-23 years old (average age 20.77). Three were in secondary school; seven were in post-secondary education or training; and 22 were employed (full-time or part-time). Three were neither in school nor employed. Participants were not asked to self-disclose race/ethnicity, but the research team observed that the vast majority appeared Caucasian.

Ethical Issues Pertaining to Human Subjects

Prior to data collection, the RYSE study was approved by the Health Sciences Research Ethics Board at Dalhousie University (2017-4321), and the research ethics committees of the Faculty of Health Sciences and Education at the University of Pretoria (UP17/05/01). Caregiver consent and participant assent were obtained from participants younger than 16 (Canada) or 18 (SA). All

other participants provided written informed consent. Pseudonyms were used to protect

participant identity. Participants were modestly compensated for their time.

Data Collection Methods

Data were collected between February 2018 – March 2019 in Maple Hill and November 2017 –

March 2019 in eMba. A trained researcher conducted one-on-one semi-structured interviews in

agreed-on, secure locations. Interviews lasted 45-60 minutes. Although eMba participants could

be interviewed in English or their mother tongue, they generally communicated in both.

Data Collection Instruments and Technologies

To advance cultural and contextual fit, interview guides were developed in collaboration with the

LACs. Interview questions addressed youth participants' conceptualizations of health (e.g.,

"thinking about health and wellbeing, what is most important to you?"), PPFPs (e.g., "what helps

you overcome challenges you face?"; "what resources currently support youth in the community

to overcome challenges?"), and risk factors (e.g., "What are the biggest challenges for youth in

[site]?"). All interviews were audio-recorded.

Data Processing

Audio-recordings were transcribed verbatim and translated as necessary. Translations were

independently verified by SA researchers who were fluent in English and the language of the

interview. Transcripts were de-identified and uploaded into ATLAS.ti (qualitative data analysis

software).

Data Analysis

We first conducted deductive content analysis. Following Stuckey (2015), once we had

familiarized ourselves with the data, we independently generated initial codes that were

deductively based on a multisystemic resilience framework (Ungar & Theron, 2019; see Table

1). To that end, we purposefully searched for data that included PPFPs associated with

biological, psychological, social, and ecological systems and labelled them accordingly. In the

interests of providing saturated, focused accounts, we considered which PPFPs were most

prominent (i.e., mentioned by all/most participants) at each system level for each site (see Figure

1).

Table 1

Deductive Coding Framework for Multisystemic Resilience

Coding Category	Description
Biological System	Factors and processes relating to physiological make-up (e.g., sex assigned at birth) or condition (e.g., physical strength, illness, etc.)
Psychological System	Factors and processes relating to psychological functioning (e.g., agency, meaning-making, self-efficacy, self-regulation, etc.)
Social System	Factors and processes relating to the social environment (e.g., relationships, social networks, formal services, opportunities for financial independence, social expectations/gender stereotypes, etc.)
Built Ecology	Factors and processes relating to the built environment (e.g., housing, walkability, specific facilities frequented, etc.)
Natural Ecology	Factors and processes relating to the natural environment (e.g., green and blue space, etc.)

Next, we conducted an inductive analysis by independently reconsidering the deductively

coded data segments for evidence of interaction between the prominent PPFPs. We used

inductive codes to capture what the interactions were and grouped similar interactions into

thematic categories (e.g., interacting biological, psychological and social resources). Through

this inductive process and cross-site comparison, we explored within- and across-system PPFP

interactions, as well as how they were shaped by the cultural and situational contexts of each

research site.

Trustworthiness

Through a series of meetings, LAC members (including youth) reviewed the interview guide and

recommended how to make the questions more contextually appropriate and useful to

communities. This approach advances a better understanding of the phenomenon of interest by asking the "right questions in the right way" (Elo et al., 2014; p. 4). As recommended by Schreier (2012), we independently coded our site's data against the deductive coding framework for multisystemic resilience (Table 1), before comparing coding to ensure consistent and meaningful use of the framework within and across sites. While there were no changes to the coding framework, we made occasional adjustments to our coding to ensure uniformity. Through regular check-ins with the research team (including graduate assistants whose age was closer to participants' age), we ensured that we were reflecting critically on the data and grounding our interpretation of participant narratives in the multiple realities of participants themselves, rather than in our own social constructions.

Findings

Participant narratives invariably acknowledged personal psychological resources (e.g., capacity for self-regulation or agency). Still, there was consistent mention of PPFPs at other systemic levels (see Figure 1 for most prominently reported PPFPs). As denoted by the elliptical sphere marked with multiple Xs (see Figure 1), the prominently reported PPFPs constituted a dynamic biopsychosocial-ecological system (Ungar & Theron, 2019). The identified PPFPs co-contributed to youth resilience.

The biopsychosocial-ecological system of resilience reported by Maple Hill and eMba youth (adapted from Ungar & Theron, 2019)
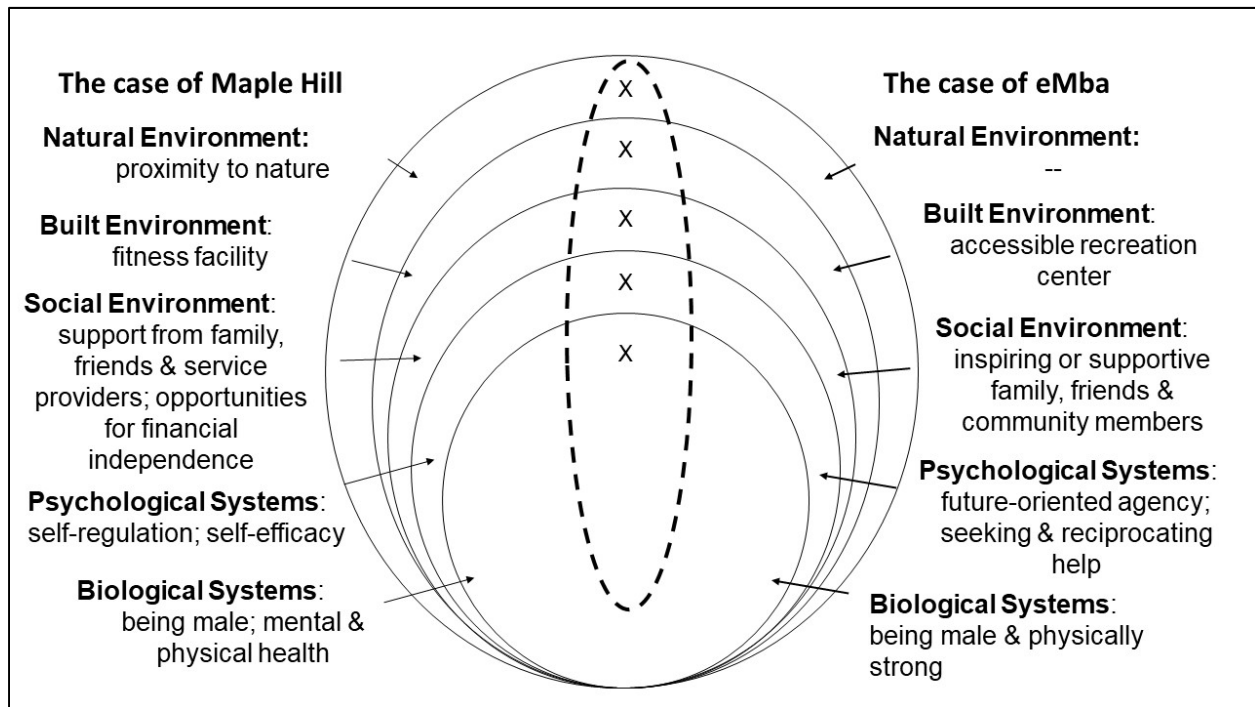
The Case of Maple Hill

As per Figure 1, self-efficacy and self-regulation were prominently reported psychological resources. In addition, Maple Hill participant accounts implicated biological, social, and ecological systems and associated PPFPs. Their interactivity is detailed next.

      Interacting Biological, Psychological and Social Resources. Being male was protective given the O&G industry's stereotypical preference for male workers. Heightened chance of employment advanced male access to resources. In turn, this reinforced stereotypical gender roles:

      This girl I was seeing one time, I got her pregnant and …. I didn't have support in the

      local town I was living in at the time… So, I did the best what I could… I picked up a

      third job at the time and I said 'Well, let's make this right' (Jeffrey, Male, age 19)

In comparison, when society advanced opportunities for young women's employment, they were less vulnerable. For instance, a young woman related how her capacity to regulate her relational self, was intertwined with gaining employment:

> I eventually got my own job and me and him, everything just dissolved. Once I became more independent …we couldn't fit together. The more I was dependent on him and the more I was that submissive person to him, the more our relationship worked. It didn't work with me being my true self (Darlene, Female, age 22)

Being encouraged to believe in themselves, also helped young women to manage challenges:

> My dad taught me I can do whatever I set my mind to and that I don't need a man to tell me, "You have this because of me. You only got here because of me." I got to where I am because I worked my butt off. (Emily, Female, age 22)

Interacting Psychological and Informal Social Resources. Having strong networks of supportive family and friends supported participants' ability to regulate their behaviour in ways that enabled/sustained their mental wellbeing. To illustrate:

> I have a good support system, like my family is very supportive, my friends are very supportive … my mom always taught us to be very independent as well, so I've got a good skill set that way … it's good when you're independent …you're able to tackle things, but when you also have a team, I think that really helps. (Trish, Female, age 23)
>
> I kind of like realized what my life was like without, you know, good…personal relationships and those with my family …after I stopped being involved in music, which was a huge part of my life for quite a few years…I wasn't in a good place. I think that not having those things in my life definitely contributed to that (David, Male, age 23)

Interacting Psychological, Informal, and Formal Social Resources. In addition to informal supports, the availability of institutional supports during a crisis – especially formal services delivered by health practitioners, social workers, psychologists, physiotherapists, and employment support workers – mattered for resilience. For instance, Tammy reported that her family facilitated her resilience throughout her cancer treatment. Implicit in her account is that the parental subsystem (specifically, the mother) was sufficiently emotionally and financially resilient to leave employment and care for the daughter. The availability of the cancer treatment also implicates Canada's publicly funded health care system that provides benefits untethered to employment status.

> I had cancer when I was 16... brain cancer … I had surgery…the biggest thing that got me through that was my family and my friends. Definitely my family. My mom was a huge support in all that, like she quit her technician job to help me through everything because I had surgery and then I had radiation (Tammy, Female, age 20)

Similarly, Anna's efficacy in protecting the wellbeing of her siblings, was co-facilitated by formal services:

> When I got my siblings taken from my mom, that would probably have to be the hardest thing I've ever had to do in my life … I was more terrified for my sister because there was a lot of extremely inappropriate things that my mom did to me and made me do. My sister was getting to the same age that it started when my mom did it to me…so I fought tooth and nail … my mom failed three drug tests and she got failure of complying and the kids were finally removed from her care (Anna, Female, age 21)

Occasionally, when participants recounted how formal supports strengthened their capacity to regulate their behaviour or be efficacious, they also reported a desire to reciprocate:

Like me and my grandma make clothes, and blankets and hats and toques for the

homeless and cancer clinics and that's a lot of time and we don't take any money for it …

that's kind of the stuff I like to do because I like to give back. Coz if it wasn't for

programs like this or Street Ties, I honestly can't say I would have quit doing drugs

(Anna, Female, Age 21)

Interacting Biological, Psychological, Built, and Natural Environment Resources.

Participants who were exposed to significant economic or relational stressors, focused on

regulating their responses. Being near green spaces helped with that: "There's lots of places like

to go out, like down by the river ... you can look over and sometimes you can see the

mountains… Its nice to be around, calming" (Matthew, Male, age 21). Recreational resources in

the built environment also supported emotional regulation and likely tempered biological

reactivity (e.g., elevated blood pressure):

I would get in crap from my dad… I get very frustrated with it, I want to punch

something - walls - but I don't do that…I just go to the gym…I think about squatting, I

don't think about stress. (Thomas, Male, age 22)

I find a lot of my stress gets relieved when I go to the gym… it helps … you get happy

endorphins going (Katherine, Female, age 22)

Despite their appreciation for the fitness facilities, some youth wished for more built

environment resources that were routinely accessible:

I'd like to see somewhere where the kids can go and enjoy ... like the pool, you got

certain days you can go… even with the skating rinks here, there are certain days that you

can't be there at all, like when it's blocked off. So, I'd rather see something that was like,

like a youth centre or something, so more kids could utilize that than going to drugs

(Alexandra, Female, age 18)

The case of eMba

As per Figure 1, future-oriented agency and seeking and reciprocating help were prominently

reported psychological resources. Although eMba youth were generally silent about PPFPs from

the natural environment, their accounts also implicated biological, social, and built ecological

systems. Their interactivity is detailed next.

      Interacting Biological, Psychological and Informal Social Resources. Physical

strength mattered, as employment opportunities were mostly for strenuous, manual work. Given

gender stereotypes, being an able-bodied man was advantageous:

      Most of the people working there [O&G] are men. They want men because they know

      that they are strong' (Nkosi, Male, age 21)

      You know, most jobs at [O&G] are about lifting heavy things. They do try to make it

      seem as if it's equal for men and women in the industry, but it's not. I mean it's known

      that men are stronger than women (Blessing, Female, age 19)

      For some young women, such gender discrimination sparked determination to 'work at

changing the record that it is mostly males that have prospered. So, now, girls are doing

whatever they want to do. They are telling themselves that I can.' (Mamello, Female, age 20).

Although this determination was generally phrased in ways that accentuated personal agency, it

was co-championed by community-based role-models from whom young women sought help. In

this regard, Mamello spoke of a local woman whom she admired:

She has a local business that she started herself. Now, in her business she allows young

people to come so that she can teach them to sew. Basically, it's like a school because she

gives certificates after 3 years; then after that you can go and open your own [business]

… it shows even if you don't have enough papers [qualifications]…anything is useful,

anything is *useful*. You can do anything to make your life prosper and be effective

enough to help you and other people.

Interacting Psychological and Informal Social Resources. Participants appreciated

their informal social system: mostly family (immediate and extended), friends, and faith-based

organisations. In short, youths' future orientation was intertwined with an informal social

ecology that stimulated hope and enabling ways of thinking about obstacles:

My grandfather told me that they didn't have school that much back in the old days, but

he learnt where he could learn …that helped him build his future. So, I take that example

and say "OK, I'm also here – it's difficult, but this won't stop me" (Siya, Male, age 19)

Here at our community, as bad as it is here... there is hope here and there. I am friends

with a lot of people that want to go somewhere in life … people like [name]… she

empowers everyone, especially young people and young women ... So, that's the path I

want to take. I really want to put this place in another level (Gugu, Female, age 17)

Interestingly, youth felt free to seek help because they perceived that support needs were

ubiquitous in eMba. As Mtho (Male, age 21) said, "Whatever I am facing, someone else is facing

more." Participants associated help-seeking from their social network with improved capacity to

manage material and psychosocial challenges:

> There's never [enough household income], so I have to do something to get food … I
>
> have connections; I know people (Thandi, Female, age 21)
>
> I have a very small circle of friends which I can share my problems [with] or ask if they
>
> can help resolve something. Maybe someone will tell me this and not that … I can use
>
> what they share to come out with a resolution (Simphiwe, Male, age 21)

Youth not only sought help. They reciprocated the help received and/or voiced the intention of doing so as soon as they were able to. Reciprocating included contributing materially (or committing to education or training that would eventually support material contribution), being emotionally available, and/or sharing advice. Often, these actions/intentions mirrored the help they had received and were experienced as personally enabling. Put differently, youth both benefitted from the resilience of their social system and contributed to its continued resilience.

> Knowing that other people are OK, makes me OK… … when you look at our family
>
> backgrounds, they aren't all good. So, every day you have thought of my mother didn't
>
> study and my father didn't study, but then you have this desire to study so that you can
>
> change the situation at home (Busi, Female, age 20)
>
> Each day there is always a new person who needs help… I help them … it helps me to
>
> say that I am doing a good thing … these people would have helped me … I do not want
>
> to see another person suffering what I have suffered (Mtho, Male, age 21)

Interacting Biological, Psychological, Social, and Built Environment Resources.

Despite their best efforts, participants seldom reported full-time employment or economic independence. Invariably this meant that youth were not gainfully occupied and consequently at risk. As P6 (Danny, age 23) explained:

People end up doing bad things because they are not busy with anything. When you

aren't busy you think of many things – even the wrong things seem right. If young people

were to keep busy with something, maybe sports, they wouldn't get into things that will

negatively affect their health and their wellbeing.

'Keeping busy' required more than participant volition. Whilst volition mattered, almost

all participants also referred to the resilience-enabling benefit of built or resourced space that

could be used for leisure or exercise purposes. The benefits included positive emotion and

interaction with family/peers who were committed to being healthy:

It [spaces to play sport] avoids young people to maybe smoke or have wild thoughts,

because when they come back from school, like maybe they eat and do homework and go

play sports … It really helps. Like you don't really get into the gangs of stealing because

you make friends that play soccer with you (Siyanda, Male, age 18)

One thing I do is exercise … on the grounds [of recreation centre] and I jog at [safe

street] … with my sister and with my friends and sometimes with my mom…It helps me

a lot! Jogging is sort of my meditation when I am tired or when I am over thinking things.

Immediately after I have taken a jog, I feel free. My mind opens up, it just becomes good

(Minki, Female, age 19)

Recreational space had to be accessible. Generally, this meant geographically proximate and

inexpensive or free. In this regard, O&G's provision of structural resources, such as a recreation

facility that included a community hall, a gym, and sports fields, was key:

There's the [name of O&G-sponsored recreation centre]. The gym provides for everyone

… you pay, but it's not that much. It's very affordable (Gugu, Female, age 17)

Discussion

In presenting the case studies of Maple Hill and eMba, our purpose was twofold. First, we sought to illustrate that youth resilience (i.e., youth capacity to successfully manage the challenges posed by their stressful environment) has multisystemic roots. Second, we were interested in how situational and cultural contexts nuance the dynamics of multisystemic resilience in young peoples' lives.

With respect to the first objective, the case study offers rich evidence that psychological capital was not a standalone protective factor, as suggested by earlier resilience studies (e.g., Block & Block, 1980). Instead, youth capacity to manage the challenges associated with their stressed environment was co-facilitated by multiple PPFPs found in co-occurring biological, psychological, social, and ecological systems. The youth-reported PPFPs denoted systems that were functional regardless of the stressors associated with the economically and socially turbulent O&G industry (e.g., although relentless stress correlates with negative health outcomes, participants were healthy enough to exercise). As theorised by others (Masten & Cicchetti, 2016; Masten & Motti-Stefanidi, 2020), these functional systems co-facilitated a cascade of ameliorative effects. For instance, opportunities for economic independence were associated with mutual benefits for youths' psychological wellbeing, as well as the wellbeing of those whom they were socially connected to (e.g., partners or families), and vice-versa. Gratitude for community-facilitated opportunities to acquire enabling skills was linked to youth intentions to reciprocate in ways that could benefit the broader community. Similarly, the support of formal services or industry co-occurred with reports of youth self-efficacy and/or agency, and improved family and community functioning.

Whilst there was no dominant pattern to PPFP interactivity across the cases of eMba and Maple Hill, psychological and social system supports featured most regularly. At times, youth accounts implicated only psychological and social system PPFPs. At other times, either biological or ecological resources were co-involved with psychological and social ones. The regular mention of psychological and social supports could reflect the youthfulness of the RYSE participants. Developmentally, youth are generally concerned with acquiring a coherent and meaningful sense of their psychological self (present and future) and with being connected to others (Arnett, 2014). Alternatively, it could be that youth more readily identify social and psychological resources because resources at other systemic levels are less obvious to them, or not as consistently available/accessible (Van Breda & Theron, 2018).

However, the regularity of psychological and social resources should not detract from the multisystemic nature of youths' adjustment to their stressed environment. Similarly, the more regular reporting of psychological and social resources should not eclipse the importance of ecological PPFPs. Social connectedness and the capacity for physical and psychological wellbeing (e.g., reduced biological reactivity, improved mood) were interconnected with resources in the built environment, with special emphasis on fitness facilities. It mattered that these facilities were accessible (i.e., financially affordable, geographically proximate, open seven days a week). In eMba, the local O&G's social corporate investment program (which sponsored the development of the local recreation center that housed fitness facilities) was key to such accessibility, suggesting that big business is a social system role-player with strong potential to "foster positive multisystem cascades of resilience" (Masten & Motti-Stefanidi, 2020, p. 9). Interestingly, youth were generally silent about the enabling potential of other built environment resources (such as affordable, quality housing; Makinde et al., 2016). Possibly, this silence

reflects that built structures that facilitated opportunities to "keep busy" or "get happy

endorphins going" were particularly important to them. Equally possibly, this silence implies that

their societies were doing too little to facilitate a resilience-enabling built environment.

Coming to the second objective, our engagement with two communities facilitated

exploration of how situational and cultural contexts nuance the dynamics of multisystemic

resilience in young peoples' lives. The most obvious difference between the resilience accounts

of eMba and Maple Hill youth was eMba youths' relative silence about formal supports. eMba

youths' readiness to seek instrumental and other support from informal social networks could be

in response to a defunct formal service system. Similarly, and like other African youth in densely

populated communities (e.g., Mosavel et al., 2015), eMba youth were silent about the protective

value of their natural environment. These silences fit with the situational context of inadequate

formal service provision across structurally disadvantaged communities in SA (Heinecken,

2020), and the degradation that characterizes eMba's natural environment (Langerman, 2019). In

contrast, Canada is a service-rich country (Duncan & van Draanen, 2013). Although recent years

have seen the natural environment in Maple Hill shrinking (Ungar et al., 2020), the rural

community of Maple Hill still offers youth opportunities to engage with nature. In short, it is

likely that contextual dynamics account for systems (the natural environment) or sub-systems

(e.g., formal social supports) that were absent from youth accounts.

Similarly, situational and cultural context can account for the prominence of specific

PPFPs. Maple Hill youths' limited reporting of reciprocated support fit with a culture of

individualism as reported for other Canadian youth (Russell et al., 2015). In comparison, eMba

youths' accounts reflected a culture that values interconnectedness and human dignity

(Ramphele, 2012). For instance, seeking and expecting assistance from informal social supports

suggested that eMba youth experienced their informal society as accepting of those requiring

support. Such acceptance could relate to the situational reality of widespread neediness (i.e., the

likelihood that all would require support at some point in time), and/or many township-dwellers'

continued valuing of cultural norms such as respectful commitment to the collective (Mhlongo,

2019). These same factors could explain youths' inclination to reciprocate support. On the other

hand, "reciprocal obligations" (Glanville & Bienenstock, 2009, p. 1514) are frequently reported

as pivotal to the resilience of *any* individuals and families who must rely on social capital to

survive adversities. In other words, the prominence of a PPFP (such as reciprocity in the case of

eMba) could be culturally normative and/or situationally meaningful.

Implications for societal championing of youth resilience

While our analysis highlights the interactions between systems that were associated with

accounts of resilience, this does not mean that participants themselves explicitly identified the

interactions between systems that influenced youth wellbeing. In some cases, participants tended

to emphasize the psychological aspects of their/others' individual coping even when their

interviews made reference to external resources. We expected this, given how much society

privileges rugged individualism (Ungar, 2019b). Similarly, despite disavowal of the need for

rugged individualism among Africans (Mandidzidze & Kusemwa, 2018), systematic reviews of

sub-Saharan resilience studies found that personal protective factors are pronounced in accounts

of African youth resilience (Theron, 2020a; van Breda & Theron, 2018).

Still, it is important to disabuse notions that youth resilience is solely or chiefly reliant on

psychological resources. Encouraging interventions at the social and ecological level, rather than

only/mainly the individual, would be a useful way for societies to advance understanding that

resilience is co-facilitated by the systems to which youth are connected. To that end, those who

train youth-focused service providers – be they teachers, mental health practitioners, social work

practitioners, or others – need to accentuate that resilience is complexly informed by a

biopsychosocial-ecological system and that youth enablement should be similarly systemic

(Theron, 2020b). Likewise, those who develop and/or maintain a society's built and natural

environment need to grow their physical ecology's capacity to provide youth with resources that

are temporally, financially, and logistically accessible.

Further, it will be necessary to advocate for systemic change that can prompt resilience-

enabling cascade effects. The cases of eMba and Maple Hill suggest that youth resilience is

invested in systemic change relating to employment opportunity, corporate social investment,

and facilitative values. Notably, stereotypical gender bias was common to both sites, regardless

of their divergent situational and cultural dynamics. This could be an artefact of women's

continued underrepresentation in O&G (Seck & Simons, 2019). It could, however, also suggest

that championing the resilience of young women in O&G communities will require purposeful

disruption of gender stereotypes, including society's assumption that being assigned female sex

at birth equals physical weakness.

Limitations

Given the dynamic patterns of the multisystemic resilience that we reported, and the economic

and social volatility associated with O&G communities, it would have been beneficial to engage

participants over time. Follow-up studies, with multiple time points, would support a rich

understanding of how systemic change, or stasis, impacts youth resilience. Similarly, it would be

useful to explore the multisystem nature of resilience as explained by youth from communities

that face challenges different from those of eMba and Maple Hill. Delimiting such follow-up

studies to 'resilient' youth (i.e., youth for whom positive outcomes are objectively confirmed)

might address the possible sampling bias in our study and provide further insights into the

multisystemic nature of youth resilience. Finally, even though the resilience of one system may

be at the cost of another system (Masten & Motti-Stefanidi, 2020), we did not enquire about

potential trade-offs. Going forward, it will be important to attend to the costs associated with any

co-occurring system's resilience-enabling contributions.

Conclusion

As our article shows, youth resilience is indeed "distributed across systems" (Masten & Motti-

Stefanidi, 2020, p. 5). The patterns of distribution reported in this article are instructive of the

inter-relationship between resilience-promoting resources at individual, social, and ecological

levels. Changes to regimes of behaviour at one systemic level open opportunities for change

across other systems, implying that youth wellbeing may have far less to do with individual

empowerment or self-help than systemic change which makes meso and macrosystems more

resistant to adversity. In this interconnected landscape of possibilities, it is likely that the

resilience of youth in stressed communities, like Maple Hill or eMba, will rely less on individual

choices and more on society facilitating resilience-advancing changes at multiple system levels.

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