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Health through human settlements: Investigating policymakers' perceptions of human settlement action for population health improvement in urban South Africa

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ABSTRACT

Informal settlements, characterised by inadequate living conditions and high disease burdens, continue to grow in response to rapid urban development in the Global South, and international health agendas call for intersectoral action to address the social determinants of health. However, little is known in these contexts about policymakers' knowledge of social determinants of health. Exploring policymaker perceptions can provide insight into possible barriers and facilitators for intersectoral action.

Individual semi-structured interviews were conducted with 24 local and provincial government officials, experts and policy implementers in Cape Town, in the Western Cape Province of South Africa. Perceptions of interactions between health and its determinants were investigated within the context of informal settlement living environments. Building on an existing conceptual framework, categories of health determinants (hard and soft, direct and indirect) were used to explore perceived interactions at varying geographic scales.

Findings highlighted a greater emphasis on hard characteristics of informal settlements that directly impact health. Respondents also alluded to varying scales of place, as proximal factors of the built environment were most often emphasised by respondents as key determinants of health. The importance of terminology around concepts of health and informality was elucidated, particularly highlighting the need for changing perceptions and shifting discourses on informality, human settlements, and definitions of health in the Global South. Furthermore, there was dissonance identified between existing reactive, siloed approaches and the understood (and in policy documents, expressed) need for proactive, intersectoral interventions to be imagined and implemented for improving urban health and wellbeing sustainably.

A greater awareness of soft, indirect and proactive aspects of health interventions among policymakers is needed. In addition, the disconnect between the proactive approach rhetoric and governance structures which remain sectoral, highlights the importance of development of intersectoral governance structures and accompanying performance measures aligned for proactive intersectoral action for health.

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1. Introduction

Public health and urban planning fields were once closely aligned, particularly when adverse health conditions began emerging alongside rapid industrialisation in the Global North (AbouZahr & Boerma, 2005; Corburn, 2004; Marco et al., 2015). However, with advances in health technology, the global public health agenda shifted to focus on pathogens and drug research while urban planning took a new approach, separating residential areas from industry (Corburn, 2004; Irwin & Scali, 2007). In 1986, the Ottawa Charter for Health Promotion (World Health Organization, 1986) contributed to a public health shift towards promoting healthy policies across sectors, including housing, and to once again promote the development of healthy environments. A new public health movement arose which placed increased attention on the social determinants of health (SDOH) (Irwin & Scali, 2007). The SDOH are multidimensional underlying social and structural factors, and their interactions, that contribute to health and wellbeing, including the conditions in which people are born, grow, work and play (Commission on Social Determiants of Health, 2008). Today, global health and urban planning agendas identify addressing urban health and its determinants as a key priority in the Global South (Commission on Social Determiants of Health, 2008; World Health Organization/UN-Habitat, 2010; World Health Organization, 2016).

African cities did not experience the same urban and economic development trajectory as the Global North. In fact, African cities experienced economic stagnation and a shortage of formal employment, despite high levels of urbanisation (Fox, 2012; Smit & Parnell, 2012). The unequal distribution, availability and ownership of urban resources, entangled in a history of colonialism, contributed to a rise in informal settlements and slums in many African cities (Roy, 2005). Moreover, colonialism influenced the early healthcare systems established in many African countries, as these largely aligned to the curative and biomedical agenda of the Global North, and few serviced informal settlements and slums (Irwin & Scali, 2007). The economic stagnation despite urbanisation, as well as the lack of consideration for the urban poor highlight an oversight of the underlying social, economic and structural complexities and interactions that shape the urban fabric of African cities and health of urban residents. Today, Africa continues to experience urban growth and the majority of the urban poor now live in slums or informal settlements (UN-Habitat, 2015). Not only are the informal settlements of developing countries characterised by poor housing conditions, unhealthy natural environments, and inadequate infrastructure and services, including insufficient healthcare; they are also associated with an increased risk of disease and poor wellbeing (World Health Organization, 2016).

Achieving the goals and aspirations of the New Urban Agenda (UN-Habitat, 2016), African Agenda 2063 (African Union Commission, 2015) and the Sustainable Development Goals (United Nations, 2017) for sustainable and healthy human settlements will require addressing the SDOH through strategic collaborative efforts across sectors and at multiple geographic scales (Commission on Social Determiants of Health, 2008). However, the impact on, and consequences of the urbanisation process (including policy implications) on the multidimensional SDOH in local African contexts need to be understood to effectively intervene (Smit et al., 2011). In addition, addressing the SDOH and their interactions will require strategic intersectoral collaboration interventions, supported by long-term investment, political commitment, capacity and training, as well as appropriate infrastructure; all of which may be limited in many African contexts (Commission on Social Determiants of Health, 2008). It will be important to investigate the availability of these in low-to-middle income settings in Africa.

This article will explore the theoretical underpinnings that support the concept of SDOH, and will use the case of South Africa, an upper-middle income country, to explore the gap between policy that endorses intersectoral collaboration for sustainable human settlements and practice.

1.1. Theoretical underpinnings of health and health determinants

Oni et al. (2016) present a conceptual framework, based on a socio-ecological model for public health, for facilitating interdisciplinary urban health research for the African context. While previous health research primarily focused on individual health and risk factors such as obesity, smoking and physical exercise, this framework underscores important epistemic developments for urban health research, in which the wider SDOH, and their associated upstream (meso- and macro-level such as policies, distribution of wealth and power, natural and built environment) and downstream (e.g. individual-level risk behaviours such as eating habits and alcohol consumption) factors, are also considered (Koh et al., 2010; Oni et al., 2016; Shankardass et al., 2012). This conceptual understanding can be further supported by assemblage theory (Deleuze et al., 2004), and has contributed to urban studies research by drawing attention to multi-scalar interactions that occur between components of the urban environment (Kamalipour & Peimani, 2015). This theory stipulates an assemblage as a whole entity comprising interacting parts (Kamalipour & Peimani, 2015; De Landa). However, the whole entity has unique properties that cannot be reduced to the properties of its individual elements (Kamalipour & Peimani, 2015; De Landa). For example, the success of a government intervention to provide basic water supply to a community will be influenced by environmental (availability of a water reservoir), infrastructural (existing pipe infrastructure), social (crime and vandalism), and political (service provision mandate of local government) factors and their interactions with each other. Within the context of urban health, these interacting urban factors may ultimately shape and determine health risks and outcomes.

1.2. Housing and health

The connection between built environment and health components has been well described (Commission on Social Determiants of Health, 2008; Corburn & Sverdlik, 2017; Govender et al., 2011; Krieger et al., 2002). The World Health Organization (WHO) has recently released a set of guidelines based on evidence from systematic reviews highlighting how health and wellbeing are greatly influenced by crowding within living spaces, indoor air temperature, the safety aspect of the house, and its accessibility (World Health Organization, 2018). Given the inadequate living conditions of informal settlements, the specific connections between housing and health outcomes are important to explore.

Shaw (2004) describes how living environment characteristics are either directly or indirectly linked to health. Shaw's (2004) framework further categorises characteristics of the living environment into four categories of factors: *hard-direct*; *hard-indirect*; *soft-direct*; *soft-indirect*. *Hard-direct* factors could be described as physical characteristics of the immediate living environment, such as the house structure, that can directly impact on health. For example, exposed electric cables and limited space for cooking can contribute to child-related burns and injuries in informal settlements (Parbhoo et al., 2010). Conversely, examples of *hard-indirect* factors include the availability of basic services close-by, the quality of healthcare provided in the area, and financial or socioeconomic factors that can indirectly improve health through access to treatment, and enabling healthier lifestyles. *Soft-direct* factors that can directly influence health include levels of crime and violence within the area, noise and feelings of insecurity which can increase risk of injury and levels of stress and anxiety (Smit et al., 2016a), while examples of *soft-indirect* factors include the availability of social networks, social cohesion, and general social dynamics within communities. Inadequate social networks and cohesion within communities are likely to affect mental health by increasing feelings of alienation, hopelessness or neglect (Shortt & Hammett, 2013). However, these soft-indirect factors are likely to be slow in contributing to health, and specific health outcomes may take time to manifest.

The need for incorporating health considerations into global policy

for addressing hard and soft characteristics is being increasingly recognised. For example, UN-Habitat encourages healthy urban planning that also improves social cohesion and inclusion (UN-Habitat, 2018; UN-Habitat, 2015). However, there is a need to better connect the hard/soft and direct/indirect factors with measurable, not merely assumed, health outcomes. While public health literature has explored the link between the built environment and health, available evidence that measures the impact of certain housing characteristic interventions on key health outcomes (i.e. how and to what degree illness or disease improves or deteriorates in response to intervention) remains low (World Health Organization, 2018) in general and especially in African cities.

1.3. Health considerations in national human settlement planning policy: the case of South Africa

South Africa adopted a new position in 2004 on the development of integrated "sustainable human settlements", which aligned with the Millennium Development Goals and the Habitat Agenda (Habitat II) (Croese et al., 2016; Republic of South Africa Department of Human Settlements, 2009; Smit et al., 2016b; UN-Habitat, 1996). Moreover, the national Department of Human Settlements' Review highlighted that sustainable human settlement development should incorporate wider health and wellbeing components into human settlement design, over and above healthcare services (Gibberd, 2010). The literature proposed wider factors to be considered, including daylight factor levels, views, ventilation, and exercise and recreation infrastructure (Gibberd, 2010). This shift in South African human settlements policy was reflected in the renaming of the national Department of Housing to the Department of Human Settlements in 2009 (The Housing Development Agency, 2014). At a subnational level, the Western Cape Government's (WCG) Living Cape Human Settlement Framework, endorsed in 2019, steers development towards holistic integrated planning and development for human settlements and is not solely targeted at the Human Settlements sector (Western Cape Government Department of Human Settlements, 2019). The framework highlights the wide range of sectors and government departments that contribute to the development of sustainable human settlements (Western Cape Government Department of Human Settlements, 2019). This framework is further supported by the WCG's Whole of Society Approach which seeks to support integrated management across all spheres in the WCG for strategic collaborative action for human development (Western Cape Government Department of the Premier, 2019).

Given this national and subnational policy push that reflects global priorities for equitably improving population health and wellbeing, it is essential to assess the extent to which decision-maker's attitudes and perceptions align with this paradigm shift, particularly around concepts of intersectoral collaboration. A research study in Mexico exploring the feasibility of implementing intersectoral policy approaches to address SDOH found that the concept of the SDOH was not widely acknowledged in policy or by policymakers, and that social factors were underestimated as determinants of health (Martinez Valle, 2013).

However, little is known about decision-makers' knowledge of SDOH as well as the barriers and facilitators for intersectoral action in rapidly growing cities in the Global South grappling with changing environmental exposures that influence health.

The aim of this study was to explore possible barriers and opportunities for intersectoral action through investigating the knowledge and perceptions of provincial and local policymakers across selected sectors on health, SDOH, and the health impact of the human settlement policies and interventions in Cape Town, South Africa.

There have been a few studies exploring similar policymaker perceptions on intersectoral collaboration, however these have been conducted primarily in developed countries, such as Canada (Brassolotto et al., 2014; Raphael et al., 2015) and in Europe (Larsen et al., 2014; Taylor-Robinson et al., 2012). While studies have explored the existence of intersectoral collaboration within the context of Africa (Okello et al., 2014), to our knowledge this is the first study in Africa to investigate policymaker perceptions and attitudes towards intersectoral approaches to address the SDOH within the context of informal settlements in Sub-Saharan Africa.

2. Methodology

2.1. Study setting

Cape Town is the second largest city in South Africa with a population of approximately 4 million (Small, 2016). The population growth rate was 2.5% between 2001 and 2011, with increasing proliferation of informal areas. The City of Cape Town (CCT) is one of the 30 municipalities in the Western Cape Province and yet is home to 235 of the 440 informal settlements in the province (Western Cape Government Department of Human Settlements, 2016). Although "informal settlements" can be defined in various ways, the generally accepted definition in South Africa is that they are settlements where residents do not have legal security of tenure and do not have dwellings that comply with planning and building regulations, and which therefore generally lack adequate infrastructure and services, such as water, sanitation, roads and storm water drainage (Cirolia et al., 2016). The WCG Department of Human Settlements is mandated to provide housing opportunities for the urban poor and the most vulnerable population groups, and has committed to upgrading informal settlements by providing basic services. In South Africa, the state has a constitutional obligation to assist the poor in the realisation of their right to adequate housing (South Africa Department of Housing, 1994), yet the country has a significant housing backlog, currently reported at 2.1 million units (Brand & Cohen, 2013), due to the growing number of urban inhabitants, particularly within informal settlements, and the demand for housing is far greater than the housing supply. State subsided formal housing is delivered at scale as the State's response to a significant shortfall in adequate housing. However, the quality of the state-provided formal housing is reportedly inadequate as building codes and regulations are deficient in strategies that seek to measure and mitigate the health risks associated with informal settlements (Govender et al., 2011).

In 2019, South Africa had the sixth highest incidence of Tuberculosis (TB) in the world (520 per 100 000) (World Health Organization, 2019) with an estimated 450 000 new cases of TB annually (SANAC, 2017) with poor communities and slums at higher risk due to crowded living conditions, poor nutrition – both strong TB risk factors – and the associated exposure to air pollution (World Health Organization, 2019). The CCT has a high burden of TB, which was estimated to approximately 646 per 100,000 population in 2016 (Western Cape Government., 2016). In addition, the city experiences outbreaks of diarrhoeal disease, with 25, 000 to 30,000 cases a year (Musengimana et al., 2016) predominantly impacting children in informal settlements, due to sub-optimal access to water and sanitation (Groenewald et al., 2015; Musengimana et al., 2016).

This study was co-designed in partnership with the WCG's Department of Health and Department of Human Settlements to investigate opportunities for intersectoral collaboration to positively impact population health. Key colleagues from both departments assisted in the formulation of the research question, assisted with identifying and approaching possible officials, experts and policy implementers for interviews, and continued to meet with the lead researchers to discuss findings and strategies for disseminating information and integrating evidence into policy.

2.2. Data collection

Individual semi-structured interviews were conducted with 24 government officials, experts and policy implementers from a range of government departments in the WCG and the CCT between July and

October 2017. This study sought to engage with policymakers and implementers who are familiar with the WCG or CCT human settlements, health or related strategic frameworks or who have relevant technical expertise within their field while having sufficient knowledge of government strategies. Therefore, a purposive sampling strategy was initially used to target key people of relevance to the study. This was supported by snowball sampling in situations where participants strongly recommended certain colleagues for interviewing based on their expertise and/or roles within government. The study participants were selected to ensure varied levels of seniority, expertise and government roles, and were not limited to the health and housing sectors.

Interview guides (available on request) were based on the questionnaire used by Martinez Valle (2013). The questions sought to explore the following themes: local examples of SDOH in the context of informal settlements; perceived impact of policies on SDOH; existing or planned intersectoral collaboration efforts; the perceived role of the Department of Health and the Department of Human Settlements; intersectoral collaboration barriers and facilitators; and attitudes towards collaboration. Interviews were conducted in English by the author A.W. supported by an expert qualitative research consultant. Two pilot interviews were conducted with colleagues in the WCG to test the interview guides and the interview procedure, which were further refined prior to official commencement of the study. Interviews were conducted in a private meeting room or location of the participant's choosing, and were audio recorded. Ethics approval was granted by the University of Cape Town Human Research Ethics Committee (HREC Ref no: 121/2017).

2.3. Data analysis

Data analysis was conducted between October 2017 and July 2018. The transcripts were coded using QSR International's NVivo 11 Software (2017) by two researchers. Four transcripts were double coded and intercoder reliability (ICR) was measured to assess the percentage agreement between the two coders in order to increase the robustness of data capture (Cho and Lavrakas, 2011). While there is no agreement within the literature on the baseline level required, a percentage agreement of 80% or higher is suggested to indicate acceptable levels of agreement (MacPhail et al., 2016). The four codes most relevant to the study objectives were used to measure ICR across the four double coded transcripts. Out of the 16 measures in total, 13 achieved an ICR greater than 80%. In a transcript, if the code did not achieve an ICR of 80% or higher, the coding was reviewed. In these 3 instances, the two researchers found that these discrepancies were largely caused by one researcher including more contextual text in the selection, or due to a slight difference in interpretation in which each researcher applied a different, although appropriate code, to the text. For example, in one transcript, a large amount of text was open to interpretation as it included practical advice for collaboration that one researcher coded as 'opportunities' and the other research coded as 'practicalities'. As these codes were planned to be analysed together, this discrepancy was not a cause for concern. However, the researchers agreed on using the 'practicalities' code for subsequent coding of similar text. During this double coding process, the two researchers were constantly in communication and discussing ways to improve coding accuracy. Data analysis was started during the data collection phase as this enabled the researcher to identify questions for refinement in the interview guide and allow for richer responses in subsequent interviews.

3. Results

A total of 32 government officials were approached. One official declined and seven did not respond to an invitation to be interviewed. Building onto Shaw's (2004) conceptual framing of the direct and indirect, and hard and soft ways in which housing can affect health, we categorised the ways in which health was broadly perceived to link to the living environment using four categories: hard-direct (physical disease or illness); hard-indirect (the availability of facilities or clinics in an area, which can indirectly influence health); soft-direct (broader concepts which describe a mental or psychological response or behavioural coping mechanism response to the perceived living environment, such as stress or anxiety, or substance abuse), and soft-indirect (the sense of holistic wellbeing due to other social or cultural needs being met). We further examined the role of terminology (related to health and informality) in perceptions and discourse on this topic and identified scales of geography through which aspects of the living environment may influence health. These scales ranged from proximal factors, which have the most direct and prompt impact on health; the immediate neighbourhood environment, which includes the state and perceptions of the surrounding built and natural environment; community structure, which is the broader area in which the neighbourhood is located and which usually includes facilities, such as health and recreational facilities, which residents would regularly use; to the scale of the entire human settlement, which takes into account the social fabric and which comprises factors that have the most indirect and delayed impact on health. Lastly, we explored perspectives in strategies for action to improve health.

3.1. Hard versus soft characteristics of health and its determinants

3.1.1. Understanding of social determinants of health

During the interview, respondents were asked to describe characteristics of informal settlements that they perceived to influence people's health, positively or negatively, within the context of Cape Town or the Western Cape. These results are summarised in Fig. 1, depicting examples of responses given by participants which vary in degrees of hard and soft characteristics, health impacts (ranging from direct to indirect impacts), health intervention categories (ranging from interventions for addressing physical disease to broader holistic health), and scales of geography.

3.1.1.1. Hard factors impacting health. Regarding informal settlements characteristics that are perceived to influence health, water and sanitation were most often referred to, particularly in relation to physical disease and illness, with many references made to the lack of maintenance of the infrastructure resulting in broken and clogged toilets and the pooling of wastewater. Inadequate refuse and solid waste management were also named as negative health determinants. The quality and characteristics of formal and informal housing structures were also referred to, albeit less often than water and sanitation issues. Environmental factors such as flooding, the location of some informal settlements being on old landfill sites, temperature changes and environmental pollution, particularly relating to rivers, were also mentioned. The availability of nutritional and affordable food through both formal and informal food markets was also suggested to be a determinant of health. The availability of clinics and health facilities near the informal settlement was also mentioned by a few respondents, and one respondent mentioned recreational facilities. These hard factors vary on the degree to which they are likely to have a direct or indirect impact on health. However, the results from respondents allude to different ways in which these factors link to health. For example, factors such as inadequate water and sanitation could promptly increase the risk of physical disease or illness (hard-direct); while access to healthcare may result in a more delayed health impact.

> "I think the one that jumps out immediately and that is quite a persistent conversation is around sanitation and, and poor sanitation and poor access to sanitation, uh, and water in general. And the obvious links to health there - most, you know, pressingly with children." – Interviewee 13982

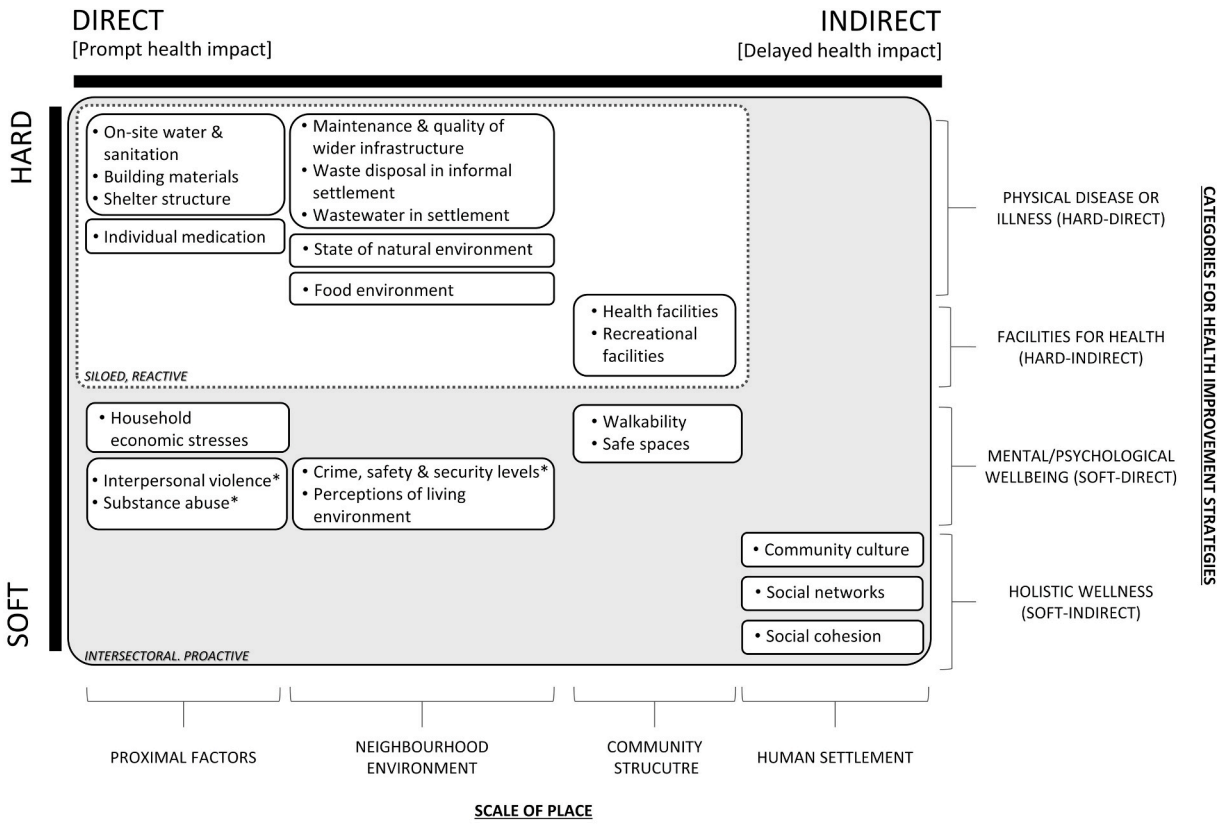

Fig. 1. Variations of responses for the link between living environments and health relating to the degrees of hard and soft characteristics, health impact (direct and indirect), associations with health and scales of geography.
Adapted from Shaw, M. (2004). Housing and public health. Annual Review of Public Health, 25(1), 397–418. Republished with permission of Annual Reviews, Inc., from Housing and Public Health, Shaw, M, 25, 2004; permission conveyed through Copyright Clearance Center, Inc.

> "But education and health [sectors] are too busy trying to fix people now and their infrastructure lags behind sometimes up to 10 years of where people are actually physically located. Which means that schools and hospitals are hard to get to for people, especially people in informal settlements." – Interviewee 16497

3.1.1.2. Soft factors influencing health. Soft factors comprise the non-material and social characteristics of living environments. As illustrated in Fig. 1, they may vary in degrees of health impact, ranging from a prompt-direct impact to a delayed-indirect impact on health. Respondents viewed informal settlements within Cape Town as spaces in which safety and security are large concerns, where women are particularly at risk of injury and harm from interpersonal violence (soft-direct). Interpersonal violence can be aggravated by substance abuse, which was identified as a possible coping mechanism of people living in informal settlements, due to household economic stresses amongst other factors. Both substance abuse and stress have direct and fairly prompt impacts on physical and mental health. In addition, it was suggested that a low satisfaction with, or a negative perception of, the surrounding built environment may reinforce perceptions of poverty and feelings of hopelessness, and therefore impact on mental health through negative self-efficacy perceptions, or the perceived ability to succeed. This, in turn, was suggested to influence behaviour, and therefore health.

> "The whole issue of, um … gender-based violence … when communities are stressed like that, high levels of stress … gender-based violence, depression, you know …" – Interviewee 14735

> "But, the psychological resilience of a community is something we don't give a lot of attention to in our health environment. And I understand why, but I think it's something that if we paid more attention to that, we may land up with better actual physical health realities." – Interviewee 16497

A more contested characteristic of informal settlements relates to the availability of social support and social networks, which can be characterised as soft social factors that broadly have a delayed health impact and that contribute to shaping holistic wellness. One respondent suggested that social networks are more established in informal settlements compared to state-subsidised formal housing, as people are able to position their informal dwelling near relatives and friends. However, another respondent argued that the constant cycle of in-migration and government-ordered relocation in informal settlements is likely to break these social networks, particularly during government interventions, therefore affecting community cohesion.

> "Then there's social or psychological aspects … threats to safety. It's very crime ridden as you know - poverty does that to people […]. Poor social networks – many of them told me that they don't know who lives next to them … they don't even know their names … 'the social networks are fragile and fragmented', because every now and then it doesn't exist because you keep on losing the people you've just got to know and who can help you upgrade and they are replaced by people coming in from mainly the Eastern Cape [Province]" – Interviewee 15142

"It's quite an interesting dynamic for informal settlements because often you have ironically a much more concrete social fabric from people who've chosen to live somewhere together as opposed to being placed somewhere … So there's actually quite a different social interaction between your established informal settlements and the formalised portions or semi-formalised portions of those." – Interviewee 16497

3.1.2. Scales of place: notion of housing versus human settlements

In addition to the hard/soft tension mentioned above, another related tension emerging from the interviews was the spatial scale of interest within the living environment (scales of place), by which one may consider and address health. Scales of place ranged from proximal factors in the immediate living space that could promptly and directly alter the health of individuals, such as the availability of on-site water and sanitation or interpersonal violence, to the all-encompassing 'human settlement' scale which covers a larger geographic area and includes a broader social fabric that may have a delayed and indirect impact on health (Fig. 1).

The proximal factor scale and the neighbourhood environment scale were important and often alluded to first, as these constitute the immediate living space and were thus perceived as most likely to contribute to health. Respondents also referenced other spatial categories for intervention, namely the wider community structure in which interventions determine the availability, diversity and quality of community services and assets; and the broader human settlement area, which encompasses the social and cultural contexts.

"Urgent repairs and maintenance to the formal sewerage system and repairs to broken or blocked infrastructure inside the houses [are needed] … I'm not here saying who's responsible for what, but for goodness sake, get the plan going so that who is responsible, does it." – Interviewee 15142

"It's not your built structure but it's your built environment that's going to impact on you. So that house must be seen within a community setting - a contextual environment." – Interviewee 11918

While all scales were emphasised, there was a greater emphasis placed on the health determinants within the immediate living environment (proximal factors and neighbourhood environment), apart from discussions around primary healthcare facilities located in communities. When acknowledged, the broader social fabric of the human settlement spatial level was often indirectly referred to as a health determinant.

Of note, the responses of at least three respondents alluded to an interesting perception, specifically that the degree of intersectoral collaboration that was occurring, or that would be required to improve health and wellbeing in the built environment, would directly correspond to the geographic scale of interest. These respondents suggested that it was not enough to focus on proximal factors such as the housing unit itself, which falls under the responsibility of a single government sector. Instead, collaborative efforts should target the community and human settlement levels through an area-based, whole-of-society approach.

"Over the last while there's been a shift away from housing as the final development objective, to human settlements. And part of that shift is trying to say that there're other outcomes that you want in these new developments beyond just having a house. They are integrated with other services, with education and health […] Now what hasn't really transferred, as far as I can see - although it might be on that trajectory – is how you then assess whether your Human Settlements are delivering those additional things apart from houses." – Interviewee 11498

"So, the irony is that we've been trying to say we need to spatially target areas. So come at it as a kind of whole-of-society response to something, going, 'if we're going in here, we need to do everything and deliver there'." – Interviewee 16497

"So I think, at a high level, at a strategic level, there's very good cross-discussions starting. It hasn't penetrated yet into the actual operations of most of the departments, so the sort of worker bees of our … busy carrying things out, aren't necessarily getting the transversal or transdisciplinary thinking. Uh, they're pretty much delivering the way they're used to deliver. […] But there isn't actually a comprehensive integrated response to Human Settlements, recognising that they have this incredibly complex outcome if you get it wrong." – Interviewee 16497

3.2. Terminology in discourse on health and informality

3.2.1. Health versus wellness/wellbeing

The use of language around the concepts of 'health' and 'wellbeing' was another emerging theme from the interviews. Respondents tended to use the term 'health': to describe physical health, and curative and clinical health aspects; to refer to the reactive treatment of illnesses; and was used in association with the concept of primary healthcare, including healthcare facilities. In a few situations, respondents suggested that health could be influenced by the degree of stress or anxiety experienced as a result of the built environment, or the level of satisfaction with their living environment. One respondent suggested that 'health' is likely to be perceived by other sectors as the sole responsibility of the Department of Health, and therefore the use of this term may discourage intersectoral collaboration on projects that seek to improve health. Conversely, respondents often used the terms 'wellbeing' and 'wellness' to describe holistic and preventative health, with one respondent suggesting that wellbeing includes meeting people's social and cultural needs. The same respondent argued that wellness and wellbeing are viewed as a universal responsibility within the WCG, as evident through the recent adoption of a multidisciplinary Whole of Society Approach across the WCG - not as the sole responsibility of the Department of Health.

"No, no. The only engagement that I'm aware of with Health, and even that is only very recent is around infrastructure. […] But, yah so it's about like if we're building a new development and there's gonna be a new clinic required – there might be engage on that level …" – Interviewee 14063

"The focus is health but it's also with wellness - I would not say Heath in All Policy - to me it's too limiting because health becomes a clinical model. It becomes 'giving medicine', I don't believe in that. […] It should be like Wellness in All Policy." – Interviewee 14735

"So, I think you know, that's what we need to get a much better handle of, is that, health is physical, but it's also that sense of resilience and sense of social health and wellbeing, um, that we often exclude from the pure physical state of someone." – Interviewee 16497

"We're still trying to just keep sick people … make sick people slightly more healthy, and the rhetoric has shifted towards wellness, the rhetoric has shifted to an acknowledgement of, you know actually, until we start dealing with the upstream factors … we're never really going to be able to actually tackle the monster that is the endless burden of various kinds of health challenges." – Interviewee 13982

A few interviewees noted that within both the WCG's overarching Provincial Strategy and the WCG Department of Health's strategies, there is a shifting rhetoric away from a "*hard*" focus on primary

healthcare and towards a focus on a combination of both "*hard*" and "*soft*" health and wellbeing factors. One interviewee mentioned that the broader Provincial Strategy has intentionally included several wellness indicators that seek to measure upstream health determinants. However, the interviewee believed there is still a disconnect between policy and practice in this regard, and suggested that funding and organisational capacity are not supporting this rhetoric shift towards enhancing wellness and wellbeing. Moreover, several interviewees noted the need for an accompanying shift away from viewing health as merely the physical presence of disease or illness and more towards the appreciation of a wider sense of health, including social health.

> "Because if you going to go down the policy of "Health In All", you will immediately alienate social development, you alienate health in housing, you alienate the Department of Transport, you alienate Urban Agriculture, you just do … because this is Health. That's the reality, because there's no Department of Wellness but if you say its Wellness in All Policy, Wellness in Housing Development - that's different." – Interviewee 14735

> "So that's the whole PSG3 (Provincial Strategic Goal 3) – that's the whole point – people are reporting back on wellness indicators instead of treatment indicators. But, none of the money and none of the capacity is following those reporting lines and so even though people want to be doing something differently, they keep getting forced back into a box that is quite traditional … quite old school." – Interviewee 13982

3.2.2. Negative and positive aspects of informality

The interviews revealed a difference in terminology used when respondents spoke about '*formal*' and '*informal*' dwellings and settlements. 'Informal housing' or 'informal settlements' were usually described with negative language and had negative connotations. In addition, many negative SDOH, falling into both hard and soft categories, were used to describe the living environment of informal settlements.

> "The informal settlements in Cape Town, where poverty, HIV and other vulnerabilities concentrate [are] highly politically contested spaces; there's no common understanding between the various role players; no coherent plan of action to overcome current problems …" – Interviewee 18178

> "Everywhere where there's an informal settlement that's sprung up, somewhere, you'll find an ever bigger growing circle denuded of firewood. It's just … they strip … they strip the area. So poor people are forced to deplete resources to survive … and this degradation for the impoverished is there. So, poverty, poor housing and degraded environments are linked to increased risks of many diseases." – Interviewee 15142

> "It is truly miserable. And as the weather gets warmer, the stench just gets a lot worse. And the worse times are probably after some rains … add some warm weather after the rains [laughs out of disbelief], it really stinks there. You walk through an informal settlement and you come home, and your clothes stink. And I ask myself, imagine living there!" – Interviewee 19823

> "The whole issue of, um … gender-based violence … when communities are stressed like that, high levels of stress … gender-based violence, depression, you know … so it's just about every single component of the burden of disease." – Interviewee 14735

However, positive language, primarily regarding soft social factors, was used in a few instances where informal settlements were described as places of resilience and good social networks. One interviewee suggested that informal settlement residents are likely to be valuable sources of knowledge and ideas for improving community health and wellbeing.

> "It's quite an interesting dynamic for informal settlements because often you have ironically a much more concrete social fabric from people who've chosen to live somewhere together as opposed to being placed somewhere […] And I think where we need to be quite careful is where we actually damage the social resilience of communities by moving people into formal housing away from their previous communities." – Interviewee 16497

> "The real people, with the real knowledge, the real answers are the true beneficiaries, or should be, and they are the community members." – Interviewee 11918

Finally, it was argued that a widely held perception in government is that informal settlements are constantly viewed as temporary or transitory settlements in which people settle to wait for formal housing opportunities, whereas some informal settlements have been around for decades, and it is unlikely that the government would be able to provide formal housing for all informal settlement residents. Therefore, respondents suggested this perception is unhelpful, particularly for collaboration, as sectors are not considering high quality and permanent services or sustainable housing interventions for these informal areas.

> "Basically, the City needs to stop seeing Informal Settlements as kind of transitory. Yah, because they are not[…] There are informal settlements that have been around for 20 years … so stop pretending that they are temporary" – Interviewee 14063

> "You know we are gonna get many more informal settlements. And they're gonna be with us always. And this notion of somehow, it's like a temporary period like we gonna deal with all these informal settlements … And then they're all gonna be living in nice houses … Meanwhile, you know it's fiction, and it's one we haven't quite dealt with as a country." – Interviewee 14498

An interesting finding was that while the terms 'formal settlements' and 'formal housing' were also used with predominantly negative language and connotations, there were also examples of positive language used. Respondents explained that the Department of Human Settlements' mandate is to improve housing opportunities, often through providing adequate formal housing to residents of informal settlements, and therefore was perceived to contribute to improving living environments and wellbeing. While a widely held perception was that formal housing is the preferred alternative for shack dwellings, several interviewees mentioned that the state-subsidised formal housing structures are often poorly built and thus present a new set of challenges for the beneficiaries, and therefore were not always perceived to improve wellbeing. Another mentioned concern was that many beneficiaries of state-subsidised housing take the opportunity to earn an income by renting out shacks within the backyards of formal houses. Although this is likely to provide financial benefits to the formal housing beneficiaries, this was suggested to contribute to the development of informal conditions within the newly formalised areas and thus was described as reintroducing slum conditions back into upgraded areas.

> "I think the new housing projects are definitely healthier places than where the people have been living" – Interviewee 14498

> "The level of services, the standard of the level of services in the areas where government has now built in the RDP houses or the BNG houses, that level of service is [often] higher than the level of service in the established, older areas in those [old, established] towns." – Interviewee 19823

> "The rehousing programme for the urban poor was undermined by the "shack in the backyard" phenomenon; the slum conditions followed the newly rehoused." – Interviewee 15142

> "Ya. I am a big believer in the … I think it's called the … yes, upgrading of informal settlements, where we're not building houses,

we are actually upgrading informal settlements, by putting in storm water, sanitation and all those things, as opposed to building these low-cost cheap houses which actually are exacerbating TB and social ills." – Interviewee 12114

3.2.3. Strategies for health improvement: from individual "reactive" healthcare to socioecological "proactive" intervention

Within the context of health improvement, respondents highlighted a tension between a focus on treating and improving individual physical health and the call to address and improve the socioecological factors within the built environment that influence and contribute to holistic health. Therefore, respondents' perceptions of interventions for health were categorised into four health categories (Fig. 1), namely interventions in the built environment that could address *physical disease or illness* (link to hard-direct factors); *facilities for health,* of which the availability and quality of health and recreational facilities (hard-indirect factor) in the community may indirectly influence general community health; interventions that specifically target factors relating to *mental or psychological wellbeing* (link to soft-direct factors); and those that seek to improve *holistic wellness* within the area (influenced by soft-indirect factors).

A few respondents referenced the health mandate which they suggested largely focused on curative healthcare (hard-indirect intervention), namely the treatment of physical illness and disease (predominantly caused by hard-direct built environment factors), and therefore they suggested the mandate was largely reactive and siloed in nature. Moreover, another respondent drew attention to the challenge of sectoral infrastructure and service delivery backlogs (hard factors), which are forcing built environment sectors to react in a siloed manner, themselves. This respondent gave the example that health and education service delivery is reportedly lagging behind human settlement sector interventions. It was implied that the urgent need to get basic health and education services into the already-developed human settlements provides little opportunity for proactive action.This 'reactive action' effect was believed to be exacerbated when sectors worked in isolation.

These respondents argued that instead of focusing on individual physical health that is primarily addressed through curative healthcare interventions, there is a need for proactive intersectoral considerations for addressing the wider socioecological components (hard and soft factors) within the urban environment that contribute to individual health. More specifically, there is a need to develop healthy and sustainable urban environments through improving not only the hard infrastructure, but also aspects such as walkability and perceptions of safety, that ultimately improve mental and psychological wellbeing (soft-direct), and encouraging lifestyles that contribute to achieving holistic wellbeing (soft-indirect), and subsequently holistic individual health.

One respondent stated that the shift towards proactive intersectoral approaches that address socioecological factors is already occurring, as there is increased awareness of the need for this approach to prevent illnesses such as TB. However, proactive intersectoral interventions to improve wellbeing may be hindered by the negative perceptions of informal settlements – perceptions which may further embed reactive, siloed responses. Nevertheless, whilst respondents recognised the tension, all respondents who engaged with this tension were convinced that the proactive approach should be prioritised.

"So, at the moment [the health] mandate is very passive - we wait for people to become sick and then we try and treat them as much as we can." – Interviewee 14472

"I mean previously, [the health sector has] kind of had the biomedical model where you are sick, pills, hospital, doctor. But now more and more we're realising that we need to have an ecological approach. For example, there is no way we can treat ourselves out of the TB [Tuberculosis] epidemic." – Interviewee 14735

"[…] So rather than necessarily just being interested in treating people, sick people, there could be a bigger concern in ensuring that urban environments are developed in a healthier manner … if you're going to have a walkable settlement, you want to feel safe, you want to have proper lighting. You want to have good urban design. You want to have good quality public open spaces and so there's a lot that makes sick versus healthy urban environments …" – Interviewee 13467

"So Human Settlements needs to have a much better handle on the health components of it as context to their planning; and health needs to have a much better idea of what human settlements is about, in order to plan better from their side. Because it tends to be, human settlements is often running ahead of everybody else […]. But education and health are too busy trying to fix people now and their infrastructure lags behind sometimes up to 10 years of where people are actually physically located […]. That's an almost impossible problem to deal with, because our backlog" – Interviewee 15563

"The way in which we've provided services before has been very much reactive in the sense that, we've provided health facilities – primary healthcare facilities – we kind of wait for you to get sick and get to the health facility." – Interviewee 14735

4. Discussion

In order to gain insight into the possible challenges and opportunities for intersectoral action to address the SDOH within informal settlement living environments, this study explored the knowledge and perceptions of sub-national policymakers on the topics of health, SDOH, and the perceived health impact of the human settlement policies and interventions in Cape Town, South Africa. Our results highlight the increasing awareness and appreciation of the SDOH among policymakers across sectors. We elucidated the importance of terminology used by policymakers for health, SDOH and informality on attitudes to intersectoral health creation. Lastly, we identified reactive realities that represent policy implementation challenges to proactive intersectoral approaches.

4.1. Awareness of, and attitudes towards hard vs soft health determinant factors in governance

Government policies can influence changes to both "hard" structural and "soft" non-material factors within living environments which, when implemented correctly, are able to address health and wellness inequalities. Our results suggest an increasing awareness of SDOH within local government and a broad acknowledgement of the influence that hard factors, or the physical and material characteristics of the environment and living conditions have on health (Dahlgren & Whitehead, 1992). However, there was less acknowledgement of the health impact related to "*soft*" factors, particularly within the neighbourhood, community and human settlement scales such as how the cultural and social community contexts could impact, or be leveraged to improve, health behaviours, as well as general psychosocial and mental wellbeing. Canadian research studies exploring policymakers perceptions of the SDOH (Brassolotto et al., 2014; Raphael et al., 2015) acknowledge differences in policymaker priorities toward these so-called "hard" structural and "soft" non-material health determinants. One of these studies further categorises these priorities into differing clusters or approaches to understanding the SDOH, namely *service-delivery oriented, intersectoral and community-based, and public policy or public education-focused* approaches, and suggests that these differing approaches may co-exist alongside each other (Raphael et al., 2015).

There is an opportunity to motivate and support collaborative proactive efforts to minimise the negative impact of the built environment on health through cross-sector communication and joint development of

policy and strategy interventions (World Health Organization, 2016). However, this collaboration may be hindered by policymaker perceptions of health and informal settlements in general, and limited by sector performance assessments and current sector mandates and policies. Performance assessments for service delivery sectors rely on measurable output indicators, which often report on the delivery of "hard" infrastructure and services. "Soft", non-material factors are more challenging to measure, and so are more likely to be ignored.

4.2. Implementation challenges and opportunities: reactive realities versus proactive advances

The reactive realities, such as health and housing service delivery backlogs, shape the key deliverables and output targets of both health and housing sectors, towards delivery on primarily "hard" infrastructure. However, in the context of informal settlement upgrading, this represents a missed opportunity to harness human settlements for health creation and disease prevention in the long term. To this end, study participants calling for an proactive approach that would see plans for informal settlements upgrading taking an area-based planning and holistic intersectoral approach are particularly important and encouraging. Nevertheless, there appears to be a misunderstanding around the concept of 'area-based planning' in relation to intersectoral collaboration. Policymaker responses alluded to the belief that the degree of intersectoral collaboration required would correspond to the spatial scale of interest. However, as depicted by Fig. 1, there are soft SDOH that fall within all scales of place that will certainly require intersectoral collaboration. These include interpersonal violence and substance abuse (proximal factors); crime and security (neighbourhood environment); safe spaces (community structure); and social networks and cohesion (human settlement level); all of which contribute to holistic health and wellbeing. Therefore, the use of the term 'area-based' policies may be misleading. While the notion of area-based policies may encourage some collaboration at broader geographic scales, reactive siloed responses that only seek to address hard-direct factors of the built environment may continue to occur at smaller scales, potentially jeopardising the opportunities for proactive interventions.

South African research exploring collaborative approaches for addressing climate change, strongly suggest that progress to address complex urban challenges will be impaired if action is limited to either a single geographic scale or a specific government sector (Leck and Simon, 2013, 2018; Simon & Leck, 2010). In a similar qualitative study conducted in a Danish municipality, key sector stakeholders suggested that the siloed vertical nature of government sectors will remain a challenge for intersectoral collaboration for health when there is no perceived incentive for collaboration (Larsen et al., 2014). The study (Larsen et al., 2014) suggested that this could be addressed through identifying common goals and priorities during the early phases of policy development, and through political support from local politicians. Therefore, the development of 'intersectoral proactive policies' that provide win-win solutions for all contributing sectors, and that have local political support, could provide opportunities for proactive planning at all scales of geography to improve holistic urban health. Of note, these would require evaluation of the impact of both *hard* and *soft* interventions on health outcomes. However, the uncertainty expressed regarding how this would be implemented within current governance structures highlights the importance of these structures in supporting the implementation of proactive intersectoral approaches.

While national human settlement policies in South Africa, and even those of the WCG, endorse the global agenda for intersectoral collaboration to proactively develop integrated sustainable human settlements, it is evident that this has not yet fully translated to sub-national practice. Possibly one of the greatest challenges faced at the local level is that the "softer" SDOH exist within broader social, economic and ecological systems that are not limited to any specific politico-administrative border or sector. This was a large challenge highlighted by literature on multi-scalar collaboration for addressing climate change in South Africa (Leck & Simon, 2018). Within the context of human settlements, the WCG's *Living Cape: A Human Settlements Framework* (Western Cape Government Department of Human Settlements, 2019) and *Whole of Society Approach* (Western Cape Government Department of the Premier, 2019) may provide useful momentum to address these complex urban challenges, and particularly for improving multi-scalar collaboration for 'area-based' interventions. Not only do these frameworks seek to develop transversal collaborations for a whole-of-government approach, but they also highlight the role that the WCG must play in empowering and supporting the CCT municipality in their own local interventions (Western Cape Government Department of Human Settlements, 2019; Western Cape Government Department of the Premier, 2019). The WCG have acknowledged the CCT's efforts to improve integration and collaboration to address human settlements living conditions, which could be further empowered through improved collaboration and support from the implementation of the WCG's Living Cape framework (Western Cape Government Department of Human Settlements, 2019).

4.3. The importance of terminology describing health and informality in intersectoral collaboration

Strategic policy documents of the WCG have strategically committed (Western Cape Government Department of the Premier, 2014)() to shift a focus away from curative health towards holistic health and wellbeing. Similarly, this shift has been expressed by local governments in other African countries including Nigeria, Tanzania and Uganda which have sought intersectoral action to address key health concerns (Okello et al., 2014). Our results, which would be relevant in these contexts, demonstrated that despite this expressed intention, the general perception of 'health' across government sectors remained largely within the "*hard*" categories, highlighting a disconnect between the perceived notion of health across sectors and the policy direction within the department of health. These findings are similar to findings from high-income contexts. A Canadian study found that while housing and social issues were both frequently referenced by public health unit interviewees as key SDOH, health was primarily viewed biomedically as the absence or presence of a disease, and the social issues were perceived to fall under the responsibility of individual non-health sectors (Brassolotto et al., 2014). In a study conducted in England which sought to interview public health decision makers regarding intersectoral collaboration for health (Taylor-Robinson et al., 2012), interviewees explained that these "hard" perceptions of health may be further enforced by public perceptions, which often focus on acute health service delivery and healthcare access. Collaborative partnerships that specifically mention 'health' may lose traction as they would be viewed as primarily a responsibility of the Department of Health or that the partnerships would be biased towards meeting the Department of Health's mandate. Therefore, in considering appropriate terminology for health, it is important that these are well-defined. If 'wellbeing' or 'wellness' are used in written material, this may not always result in a shift in individual mindset as these terms may not be well-defined. These concerns highlight the need for a review of terminology within government, both theoretically and practically, where perhaps a term such as 'holistic health' would be better suited to effectively encompass both "*hard*" and "*soft*" components of health.

We also identified differences in connotations embedded in the terminology related to informal settlements. In particular, where informal settlements are perceived or implied to be 'temporary' and 'transient' in nature, this can influence strategies implemented to harness these environments for health. This finding calls for an epistemic critique of the concept of informality; a finding that aligns with much of the emerging Global South urban theory (Roy, 2005, 2011). The often-negative language used in association with the term 'informal' highlights the apparent perceptions of informal settlements, including the perception that these areas are 'temporary', which may very well be deterring proactive, innovative and long-term solutions. However, it is important

to acknowledge the complex interactions between hard (e.g. infrastructure and basic services) and soft (resilience, social dynamics and strong social connections) factors that exist in these settings, considering the feedback loops and potential unintended consequences in strategies to upgrade these environments in order to ensure community strengths and resources are preserved.

5. Strengths and limitations

While there are a number of African countries implementing intersectoral strategies and policies for health (Shankardass et al., 2012), this study is the first in Africa to address the knowledge gap in exploring the knowledge and perspectives of policymakers on built environment intersectoral action for health through human settlements within a South African and Sub-Saharan African context. Findings from the study therefore represent a significant advance in the evidence base on this important topic from rapidly growing cities in Africa and the Global South with a high rate of informality, where built environmental changes are most fluid and the health challenges they pose most urgent. This study was co-designed and undertaken in partnership with health and human settlement officials from the WCG, thereby representing a collaborative research partnership between academia and government, as well as between the sectors of health and human settlements in order to contribute efforts to improve health through human settlements interventions. In addition, the project was able to initiate a conversation within government on the topic of informal settlement living conditions and the associated health risks, and the need for increased collaboration efforts for inclusive development.

Challenges for this project included the recent organisational restructuring of the local government, which resulted in a loss of government contacts and an unfamiliarity of the new organisational structure by both researchers and interviewees; as well as the length of time it took to gain permission to conduct research interviews with local government officials. Moreover, although the interviews were conducted confidentially, one cannot discount the possibility of social desirability bias, in which interviewees may be less inclined to raise sensitive matters that are politically unconventional or undesirable. Furthermore, the perceived connections between health and housing components, as identified by policymakers, need to be further explored to inform development of housing interventions that aim to explicitly and measurably improve specific health outcomes, and to inform future evaluation of the impact of such housing interventions on health outcomes of relevance to their contexts.

6. Conclusion

Globally, urban environments will ultimately shape and determine the health and wellbeing of urban dwellers. Harnessing components of the urban environment to positively influence health, particularly in the context of informality in the Global South will require proactive intersectoral collaboration between relevant sectors. The attitudes and perceptions of policymakers and policy implementers towards intersectoral approaches to health creation will ultimately play an influential role in the success of such proactive strategies. This study examined perceptions of policymakers on the SDOH within the context of informal settlements in Cape Town, South Africa – an upper-middle income country experiencing a rapid growth of informal settlements. Our findings, of relevance to similar contexts in the Global South, demonstrate that important considerations for intersectoral approaches to improve health through housing interventions include an awareness of the need for inclusion of both the 'hard' and 'soft' health determinants, and recognition of the role that the nature of terminology used for health and the notion of informality can play in informing attitudes towards health, SDOH and informality. These findings highlight policy opportunities in this South African context that can be harnessed for intersectoral action; and the need for robust governance structures to support proactive integrated approaches, and monitoring systems to measure the impact of previous, current, and planned human settlement interventions on health outcomes. There is a need for further research to grow the evidence base on this topic in cities across the Global South where these issues are most pertinent.

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NONE.

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Amy Weimann: Methodology, Formal analysis, Investigation, Writing - original draft. **Noxolo Kabane:** Methodology, Resources, Writing - review & editing. **Tracy Jooste:** Conceptualization, Methodology, Resources, Writing - review & editing. **Anthony Hawkridge:** Conceptualization, Methodology, Resources, Writing - review & editing. **Warren Smit:** Conceptualization, Methodology, Writing - review & editing. **Tolu Oni:** Conceptualization, Methodology, Resources, Writing - original draft, Supervision, Funding acquisition.

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