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## Understanding gendered challenges of noncommunicable diseases in the slums of India

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# Chapter 7

## Discussion and Conclusion

*What do you expect from us?*

- Participant

Confronting NCDs in the slums of low- and middle-income countries (LMICs) requires policy responses that take account of the unique demands that the context places upon its residents. The previous chapters have aimed to understand the presence and manifestation of NCDs in slums, and to explore how individuals experience NCDs and risk factors. The first chapter of the thesis presented the background that motivated the study, as well as the concepts that guided the research and the methods adopted to answer the research questions. Chapters 2 to 6 looked at various aspects of NCDs and their risk factors in the slums, from reframing the lens of the social determinants of health (SDH) to identifying the gendered association of NCD risk factors, followed by an examination of the aspects of slum dwellers' lives where NCDs and their risk factors show a marked influence. This concluding chapter synthesises the findings in relation to answering the research sub-questions, followed by addressing the central research question. Finally, the chapter ends with a discussion on the validity and future directions of research.

### 7.1 Conclusions from the study questions

In each chapter, the research sub-questions have been examined and addressed. The following section is structured into three parts following the sequence of research activities: Part 1 identified the pathways through which NCDs and their risk factors emerge in slums; Part 2 determined the prevalence of NCD risk factors in a slum and considered the influence of gender on these associations, and; Part 3 explored the narratives of slum residents as they confront NCDs and their risk factors. Each part, and the relevant research sub-questions they address, are resolved below.

#### 7.1.1 Part 1

*Research sub-question 1: How do slum conditions influence the occurrence of NCDs and their risk factors?*

The literature review in Chapter 2 showed that NCDs and their risk factors in the slums are currently understood through the SDH, which extends the typical biomedical perspective of disease by emphasising the contribution of behavioural, socioeconomic, political and cultural structures in the development of NCDs and their risk factors (Mendenhall et al., 2017; Marmot 2006; Vellakal et al., 2013; Subramanian et al., 2013). As yet, however, the pathways through which social determinants, risk factors and NCDs interact and manifest are unresolved, particularly in slums. To this end, the literature review identified four themes strongly associated with NCDs and slums – scarce clean water, low education, lack of physical activity and lack of transport – and through root cause analysis (RCA) organised these themes, NCD risk factors and social components of disease based on their causal relationships. The RCA demonstrated the complexity of connections between these factors, bred by slum conditions, which create the circumstances for NCDs to evolve. Unlike infectious diseases that have clear causal patterns, the propagation of NCDs in slums can be subtle; a multitude of deeper causes (e.g. social expectations) left unchecked over time can lead to the development of more symptomatic risk factors (e.g. physical inactivity).

Current studies on NCDs in slums focus on their prevalence and that of risk factors. These show that NCDs are major sources of disease in slums, identifying, for example, high hypertension prevalence in slums in Brazil (Unger et al., 2015) and Nairobi (Werner et al., 2015); high CVD burden among the poor in India (Singh & Dixit, 2017); and high rates of obesity and overweight among women in Jakarta (Khusun et al., 2016) and men and women in India (Saji et al., 2017). These studies demonstrate the shortcomings of the association between wealth and NCDs. In reframing the SDH towards slums, the RCA illustrated the significant contribution of context – and the responses it generates in residents – towards the propagation of NCDs. The interaction between slum residents and the conditions they experience is pertinent to their burden of NCDs. For this reason, policies cannot be developed using measures of prevalence alone because they are not based on an understanding of slum conditions, their culture, politics, poverty, economics and actions.

### **7.1.2 Part 2**

*Research sub-question 2: How prevalent are NCD risk factors in slums of Chennai, India?*

This chapter corroborates other studies finding similarly high prevalence of NCD risk factors in slums (Anand et al., 2007; Joshi et al., 2011; Singh et al., 2012). The research also showed that NCD risk factors in slums are gendered. This means that men and women, although exposed to similar conditions in the slums, are more or less susceptible to NCD risk factors based on their gender roles. Although the behavioural risk factor of an unhealthy diet was observed in both men and women, women were more prone to physical risk factors of overweight and obesity. The

seclusion of women in their home and the corresponding lack of opportunities for physical activity have been linked to this gendered association in the literature (Anand et al., 2007; Wagner et al., 2017; Yadav et al., 2008). Contrary to this, the study found that women reported a high volume of physical activity, which is believed to comprise household work. These findings suggest that higher rates of obesity in women may be determined by a multitude of factors, of which an unhealthy diet forms a part. Interestingly, women's long hours of household work (Ko et al., 2007) have been previously linked with higher obesity rate, as well as stress (Mohan et al., 2016) and urbanization (Manjrekkar et al., 2016).

For male slum residents, the study found they disproportionately engage in travel-related physical activity compared to women. Adlakha, Hipp, and Brownson (2016) reported that travel activities were the major source of physical activity for people from lower classes, thus this study qualifies this point showing men as highly mobile compared to women in the slums. This difference in mobility has been attributed to the social exclusion experienced by Indian women (Mandelbaum 1993). Alongside this, the prevalence of smoking and alcoholism was much higher among men. The different patterns of risk factor association could suggest that life experiences in slums are distinct for men and women. While the study could not demonstrate causality in this regard, policies or programmes designed to mitigate NCD risk factors must be cognizant of the gender-associated social, behavioural and physical risk factors. Combining multiple interventions or health promotion programmes provides greater scope for addressing NCDs in slums, and ensures that men or women are not overlooked by interventions targeting a single risk with a strongly gendered association (e.g. smoking).

### **7.1.3 Part 3**

*Research sub-question 3: What are the underlying factors that contribute to treatment non-adherence in the slums?*

Studies have shown the link between treatment adherence and the benefits received by patients, with weaker benefits also conferred on society (Bhandari et al., 2015; Osterberg & Blascke 2005; Sabate 2003). Following this logic, the pervasiveness of non-adherence to treatment in both developed and developing countries is counterintuitive. In fact, treatment non-adherence occurs more frequently and severely in LMICs. Yusuf et al. (2011), in a prospective survey, found that only 3% of CVD patients in India are adhering to secondary medications that are crucial in controlling their condition. Chapter 4 aimed to fill the gap on factors underlying treatment non-adherence in slums. The cross-sectional, mixed-methods study found that women, the elderly, and homemakers were at higher risk of treatment non-adherence. Through interviews, homemakers (all of whom were women) described the long hours of housework that drained them physically and mentally as part of the rationale for their non-adherence. Given the demands of their chores, they did not give priority to taking medication. Elderly residents, however, spoke

of their dependence on family – particularly sons – for support. Their financial security, along with the lack of welfare support in India, prevented treatment plans from being followed correctly. Alcoholism was also an ascribed factor underlying treatment adherence. While it is almost only men in the slums who consume alcohol, affecting their adherence to treatment, women were also affected by the loss of disposable income caused by their husband's habits. Finally, doctors were seen to possess a key role in the adherence to treatment given their revered status in Indian society. Information provided by doctors regarding the importance of treatment played a significant role in reversing non-adherence and presents an opportunity for policy makers.

Although the costs of medication would seem prohibitive in ensuring treatment adherence for many poor communities, the literature has shown that there are a multitude of other contributory factors. Herrero et al. (2015) found the transport costs of transport and health were the primary reasons for non-adherence to TB treatment, whilst Kagee et al. (2014) emphasised the role of politics and other institutional structures. Wells (2015) reported that denial of the illness, lack of education, and cultural beliefs were significant factors affecting non-adherence to dialysis among Mexican Americans. For some diseases, such as HIV (Kamaradov et al., 2016; Turan et al., 2017) and mental health illnesses (Hajda et al., 2016; Subramaniam et al., 2017) stigma is cited as a significant determinant of patients' non-adherence to treatment. The research in Chapter 4 extends the understanding of treatment adherence in the context of slums. It shows that identifying characteristics of patients at higher risk of non-adherence to treatment and addressing the underlying reasons for this are necessary steps in policy or programme development.

*Research sub-question 4: What are the responses of slum women in the face of NCDs?*

Research into women's health – beyond its reproductive facets – began in earnest three decades ago (Inhorn & Whittle, 2001; Ribiero et al., 2008). Studying the impact of NCDs on women in slums was driven by a growing awareness of the distinct lifestyles that men and women experience. Taking into account the different risk factor associations, the study sought to understand how women in slums experienced NCDs and their risk factors. The quantitative dimension of the study showed that women were at a high risk of developing NCDs given the prevalence of unhealthy diet, overweight, obesity and high waist-hip ratio. Interviews were then conducted to understand women's experiences of NCDs, finding that most of their knowledge regarding NCDs was obtained through experience, family members, friends or neighbours who had been diagnosed with NCDs. The knowledge that women have cultivated regarding NCDs was reported to produce two responses – fear and action. Regarding the former, the interviews suggest that self-directed stigmatization and a perceived lack of control to address NCDs has led women to become resigned, or to avoid engaging in health-related elements of their lives. In light of inadequate local health provision, however, some of the slum women interviewed had taken

action in developing coping strategies that addressed parts of their health needs. This included sharing health information and advice and caring for each other when someone in the community falls ill. These actions women take to support each other could be considered a valuable option to explore in addressing contextual NCD concerns.

Slum women have previously been reported to be at higher risk for developing NCDs, including in other Indian slums, such as Bengaluru (Gowda et al., 2015), as well as other contexts like Nepal (Oli et al., 2013) and Nairobi (Hulzebosch et al., 2015). An important consideration was raised by Bajaj et al. (2016) when finding that North Indian women were at higher risk of developing coronary artery disease (CAD). They noted that CAD symptoms manifested differently in women than in men, often leading to misdiagnosis. This emphasises the influence of gender in the manifestation of NCDs and, taken together with the findings of this chapter, illustrates that conflating treatment or prevention programmes for women and men could be highly ineffectual. Women's responses to NCDs, however, show both the urgency of their problems, as well as the existing opportunities in current slum practices, which could be explored further in the mitigation of NCD risk.

*Research sub-question 5: How have residents responded to the challenges presented by NCDs and their risk factors in slums?*

As illustrated in previous chapters, understanding the risk factors for NCDs in slums also requires due consideration of the social patterns of slum life and their influence on health. The social seclusion of women, for example, results in a greater risk of hypertension in wives than in husbands, owing to the stress and fear they apportion to their wife's mobility (Stroope 2015). The previous chapter identified some coping mechanisms women slum residents adopt to address their health needs. The research in this chapter sought to explore the social relationships in slums through which these responses manifest. Using interviews, the research identified networks within the slums that developed some practices related to NCDs and residents' health. Further, the social interactions seemed only to provide benefits, given the value residents attached to them. Actions to support one another in both the social and health domains appear to emerge from the shared experience of the slums. Thoits (1995) placed this dynamic in social networks, stating that the most effective caregivers were likely to be individuals who had shared a context or experienced similarly stressful circumstances. The social networks yield benefits to their members through their actions – such as in the provision of informational support or care for someone who is sick – while also serving as a means to cultivate social capital. The research proposed that opportunities to mitigate NCD risks lie in the strengthening of these networks in the slums.

The potential of social networks to transform health behaviours has been studied previously (Kim et al., 2015). There is evidence that social networks can have positive effects on treatment

adherence (DiMatteo, 2004), help-seeking (Starrett et al., 1990), giving up smoking (Palmer et al., 2000), and weight loss (Wing & Jeffery, 1999). On the issue of sanitation in slums, Shakya et al. (2015) recognised social networks as a promising vehicle to approach the underuse of latrines among the poor. In addition, the social aspects of networks also yield standalone benefits, such as in reducing loneliness, which is a risk factor for CVD (Valtorta et al., 2016). Social networks are acknowledged as necessary in assisting patients with mental health illnesses (Pachucki et al., 2015; Perry et al., 2015), and their positive impact has been highlighted in studies of stroke patients (Northcott et al. 2016) and other chronic illnesses (Dwarswaard & Bakker, 2016).

The research in this chapter found that when an individual develops a health or social need and this need is recognised by others in their network, their response does not seem bound to conditions or contract. The unspoken agreements shared between a network that ensure that homes are maintained while a person is sick immediately benefit members, but they also serve an alternative means to cultivate social capital. Thus, policy options lie in strengthening the positive features of slum networks, in a way that heightens the benefits through informational support, or in social capital, or caring practices. Alongside these practical implications, the study of slum networks also led to a discussion on the ethics of care demonstrated in the coping strategies adopted by residents. The care provided in the slum community held opportunities for reciprocity of respect and influence between the care provider and the receiver, which the care offered in public health facilities did not. The study suggested that the traditional ethics of care (Kittay, 2011) was absent in local health facilities, and a 'communal' ethics of care had arisen in the slums as a result. This reframing acknowledged that the marked dependencies between carer and receiver were based on sensitivity to a shared historical and material condition. Thus, the study encouraged further exploration into this framing of communal ethics of care given that the home-grown care initiatives developed in slums inscribe little on community practices compared to other interventions developed outside the slum context.

## **7.2 General conclusions**

The guiding research question of this thesis was:

*How do NCDs and their risk factors within slums affect the lives of residents?*

Central to answering this question was recognising the critical interaction between the slum residents' experiences and the demands placed on them by the slum context. This interaction was explored through theories that attempt to explain the predicaments faced by slum residents, combined with their own narratives as they ascribe meaning to their experiences with NCDs and risk factors. The following sections attempt to answer the main research question, first through a

discussion of how the SDH apply in the context of slums, followed by a synthesis of the field research findings.

The SDH initiated the comprehension of social, cultural and economic factors in disease (Carey & Crammond, 2015; Marmot et al., 2008; WHO, 2010; 2011). It lent researchers a new vocabulary to describe disease, but the connections between causal factors became more complex as a result. This is especially true of NCDs: aside from biomedical causes, intangible and subtle variables such as social expectations, cultural norms and the job market could all be influential in the presentation of disease. The research outlined in thesis highlights the importance of context, namely the slums, which produce unique circumstances through which risk factors and NCDs emerge. Various social determinants of NCDs arise from the slum context, while the context can also dictate how effectively individuals can manage other social determinants. Hence, applying the SDH in the context of slums throws up two important considerations. The first is the impact of the slums themselves in lending the conditions within which individuals are at higher risk of NCDs. The second is the unique interaction of the SDH when considered in the slum context, an example being the extra constraints placed on slum residents' mobility given the lack of public roads. This combination provides a means to understanding the increasing prevalence of NCDs and their risk factors in the slums. The SDH in slums reiterate the fallacy of assuming that NCDs are associated with greater wealth, yet extends the idea that as 'lifestyle diseases' NCDs have emerged in slums due to the unique features of the lifestyle associated with this context – namely, one of constraint. Thus, NCDs and their risk factors affect residents' lives through a variety of social determinants – one of which is the context itself – whose interaction and influence are markedly altered by the unique demands that slums make on residents.

In exploring NCDs and their risk factors during the field studies in the slums of Chennai, there were four focal points of research. These were the prevalence of NCDs in the slums, treatment non-adherence, women's experiences in the face of NCDs, and the responses devised by slum residents to address their health needs. The prevalence of NCDs and their risk factors in the slums are now a recognised problem (Heitzinger et al., 2014; Manderson et al., 2010; Prasad et al., 2014). The combination of rising NCDs and the prevalence of risk factors alongside the unabated informal settlements in LMICs presents a critical health, social and economic problem for policy makers. This thesis substantiates the understanding that the prevalence of NCD risk factors is contingent on the slum resident's gender. There are behavioural risks more frequently observed in men, such as smoking and alcoholism (Haregu et al., 2015; Murray & Lopez, 2013), while women had a higher association with physical inactivity and an unhealthy diet (Akinwale et al., 2017; Thankappan et al., 2010). This has led to the claim that men are more prone to hypertension (Vardulaki et al., 2000) and women to obesity (Yadav & Krishnan, 2008), but this thesis finds that physical inactivity inaccurately describes women's risks. In fact, both women and men engage in physical activity in the slums, but its forms differ, and thus so must policy responses aiming to reduce NCD risk.



In terms of treatment non-adherence in slums, this was associated with being a homemaker, elderly, or a higher consumer of alcohol. The high trust and confidence vested in doctors, however, has the potential to act as a means to reverse non-adherence. With the limited studies on treatment non-adherence in the slums, this research presents a profile of the slum residents who may be targeted in designing policies and programmes for treatment adherence. Since few studies on treatment adherence have focused on NCDs as opposed to communicable diseases (Kulkarni et al., 2013), HIV (Isaakidis et al., 2011), or mental illnesses (Sijbrandij et al., 2016), the research provides a guiding indication on the effectiveness of NCD treatment programmes in slums, while suggesting that health professionals are a valid source of health information that should be strengthened. Another main finding of the field research was that slum women are susceptible to NCD risk factors throughout their life. While previous research had identified an upsurge in NCD diagnoses in women during or following menopause (Sivasankaran & Thankappan, 2013), the implications of NCD risk in slums at a younger age vastly change the outlook for the effectiveness of NCD treatment or prevention programmes applied in this context.

The life narratives shared by participants, alongside observations of their practices, greatly developed the understanding of how NCDs and their risk factors are affecting them. Participants described and shared a life of difficulties and sadness. The additional burden of NCDs and their risk factors is something that they confront only out of necessity. NCDs add to their already taxing situation, such as engagement with inadequate local health provision, and the uncertainty of disease and its effect on their family and financial wellbeing. Studies have shown that there is a limited awareness of NCDs in the slums (Anand et al., 2007), yet this research identified a slum population that was knowledgeable about NCDs and risk factors derived from their experiences, family, friends and neighbours. This heightened awareness can generate fear in slum women that can lead to resignation or a refusal to engage in health-related aspects of their lives. Alongside this, however, there were practices adopted in the slums that addressed health needs in absence of, or to complement, NCD-related local health services.

Both Chapter 5 and 6 identified relations that were supportive of slum residents in confronting NCDs. Their shared context, or embeddedness, provides a common unique point around which supportive actions appear to manifest. These relations or networks provide direct and indirect benefits to slum residents. Direct benefits include informational or affective support, physical care or other supportive actions taken when a member of the network falls ill – such as cleaning their house. The indirect benefits are the heightened elements of social capital these relationships bring, such as greater reciprocity, belonging or trust. Both aspects lighten some of the burden borne by slum residents from NCDs and risk factors. These relationships also contravene more established social structures in the slums. Because of their perceived advantages, vertical relations (i.e. between individuals of different ‘power’) are influential social structures in slums (Berenschot 2011; Hariss, 2005) due to the direct benefits residents can gain.

Job referrals, loans, access to government institutions, and similar benefits are implicit in the vertical relations shared between slum dwellers and patrons or local leaders. In exchange for the assistance extended to slum dwellers, however, many patrons demand something in return, which in India, usually comes in the form of votes (De Wit & Berner, 2009). Yet, this research found that horizontal social networks act to address health or social needs of slum residents when they arise without conditions of debt or future payback. Given the inadequate system of health provision that currently exists between slum residents and local health facilities, the slum networks offer an alternative that is embedded within the community and confronts aspects of NCDs and risk factors in slums.

In health facilities serving the studied slum areas, the typical dyadic relationship between patient and provider, where each individual has equal ability to influence the other, does not exist for slum residents. The traditional 'ethics of care' breaks down given the undue influence that health providers exert over residents. In spite of this, a 'communal' ethics of care between slum residents in their networks offers the possibility of reciprocity and respect. Caring in the slums, which is particularly observed among women, stems from the collective experience of slums. The actions, which this experience motivates, are a license to help in any way possible i.e. it is 'being there' and providing the care needed at the moment without thought of immediate reward. Where local health facilities have responded poorly to both the health and non-health needs of slum residents, communal care ethics offers empowerment in relations.

The thesis illustrates that the prevalence of NCDs and their risk factors in the slums cannot be solely understood through descriptions of individuals susceptible to developing NCDs. It is also about the fear and uncertainty that slum residents face in their constrained environment. It is about the failure to adhere to NCD treatments due slum residents' lack of agency to consider their health needs. It is about the experience of exclusion and inadequate health institutions as they attempt to mitigate NCD risks. Yet, together with the slum residents, there are mechanisms of social support, based on reliable and ethical relationships that provide attentive care in a context, which has a growing need for actions in the face of rising NCD burdens and slum settlements.

## **7.3 Reflections on validity**

### **7.3.1 Internal Validity**

In conducting the research, two sources of bias were considered: researcher and respondent bias. Addressing the former, the potential of the lines between research and advocacy to become blurred – and thus cloud judgement – was frequently reflected upon during discussions with

members of the team. Through this reflection, the bias was seen as a mode of knowing, and the more pressing question became 'whose interests were served by one's work?' (Simon & Dippo, 1986, p. 196). This provided a guide for actions taken in the research in seeking an accurate representation of the impact of NCDs settlements.

Respondent bias was also addressed. While the actions and words shared by participants are an insight into their contextual practices (Simon & Dippo, 1986), the sensitivity of the concepts discussed was recognised, i.e. respondents may wish to present themselves as knowledgeable or in control of their NCD risk. Two strategies were adopted to mitigate the potential for this. The first was to build trust. The author lived within the community during the field research, and the ability to elicit information from slum residents was earned over time as confidence, trust and camaraderie were built. The second strategy involved member check; information collected during field research was checked by respondents to ensure it was representative of their views. Information was also crosschecked with village leaders without disclosing details that could identify any of the respondents.

Another obstacle to address in the qualitative research lay in the language barrier: information was divulged to a non-native Tamil speaker. The author was highly involved in both exploratory and in-depth interviews conducted in the communities to mitigate this shortcoming, and the length of time spent in the community provided opportunities to experience the society of slum life first-hand (Snow et al., 2003). Finally, triangulation was achieved by using at least three data-collection instruments during research. A combination of individual interviews, group interviews, and surveys made it possible to substantiate information retrieved through one method. Member checks were also used in this instance to validate the data collected.

### **7.3.2 External validity**

The external validity of the study relates to the extent to which its results may apply to other slum communities in Chennai, India or beyond. To enhance the external validity of the findings, some exploratory interviews were conducted with members of the community, NGOs, religious organizations, and public officials. Members of the community who had been residing there for a number of years were invited, with the aim of checking their familiarity with observed social practices in slums.

The research considered its lens on 'embeddedness' in the slums as a central tenet, which has both strengths and weaknesses as an approach. The shared experience of the slum conditions ties the residents together, and thus provides a means to consider the issues and concerns raised in this study as representative of slum dynamics elsewhere. At the same time, the unique aspects of slums, such as their power relations, gender roles and social practices can limit the

applicability of the findings. Nonetheless, the inclusion of a contextual analysis and a consideration of the embeddedness of slum dwellers enhance the scope to reproduce strategies advocated as a result of these findings in other slum contexts.

### **7.3.3 Future research**

Slum women were observed providing informal care among themselves. This informal care takes the form of sharing information, helping those who are ill with household work, accompanying them to clinics, and even referring them to doctors. These actions are provided without demand for payment – rather, it is a response to current needs and with a hope for similar treatment at some point in the future. It is proposed that this observed informal care could be transformed into an approach for monitoring, surveillance, caring, and information sharing in slums. This would organise the informal care as an accessible resource, and could be adopted elsewhere as a means to initiating NCD practices in slums. This approach is currently in development for the future.

Contrary to previous research, both slum men and women reported high levels of physical activity. The source of this physical activity however, is different for each sex. For women, their main source of physical activity is housework, which is not currently measured through the WHO STEPwise approach to surveillance (STEPS). This leaves a gap in the understanding of slum women's physical activities. Thus, it is first recommended that housework be incorporated into measures of physical activity, particularly for studies of prevalence with high populations of homemakers such as slums. Second, further research needs to establish how these high levels of physical activity in slums can be expanded, such that other elements of NCD risk are reduced. For example, providing spaces and opportunities in slums for residents to practise yoga would have both physical and mental benefits.

The higher frequency with which caring networks were observed among women than among men poses a problem for integrating the male population into programmes targeting NCD risk. In a patriarchal society, men are as constrained as women to follow social expectations. Equally, men's buy-in in slum communities is a crucial point for policy: their power over women has the potential to limit or prevent the launch of any such initiatives to strengthen social capital or networks. Thus, a strand of future research in slums needs to address how men and male relations can be incentivised to consider their NCD-related and general health needs. Some men were observed offering support to other members of the community, illustrating that the benefits of such networks can also be appreciated by men.

# Epilogue

## *Communal care: A light in the dark of NCDs and their risk factors in the slums*

The silent epidemic of NCDs, such as CVDs and diabetes, and their risk factors (e.g. tobacco and alcohol consumption, obesity, hypertension) knows no boundaries (Marmot 2006). Studies have highlighted the complexity of the issue (Adlakha et al., 2016; Bhojani et al., 2013; Ghosh 2011; Mohan et al., 2016). Meanwhile, slum settlements will continue to grow and will be the lived space and condition of over a billion people in the coming years. This situation is even made more desolate by the fact that NCDs, their risk factors and slums are prevalent in LMICs, where health and social infrastructures are ill equipped to handle the epidemic of NCDs.

Hence, the epidemic of NCDs and their risk factors in the slums is a gargantuan problem that all of us have to face. Chennai offers the perfect site for the study not only because of the reality of NCDs and their risk factors in India's slums, but more so because Chennai continuously attempts to come up with programmes and policies to respond to the needs of its slum residents.

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