

INFORMAL HOUSING, GENDER, CRIME AND VIOLENCE: THE ROLE OF DESIGN IN URBAN SOUTH AFRICA

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Violence and crime in countries such as South Africa are shaped by deep socio-economic inequalities; however, the spatial designs of urban areas and housing also play a role, but often in differing ways. There is little qualitatively derived research published on the design realities of poor informal housing where the hyper-permeability of housing structures directly shapes residents' experiences of crime, often in gendered ways. This paper speaks to the wider literature on Crime Prevention through Environmental Design (CPTED) and applauds its recognition of the role of wider social factors in shaping crime and prevention, arguing that socio-political factors are critical too in the South African case. However, this paper calls for a fuller analysis of the particular material and design realities of informal housing, realities that are ever-present across the global South, which in practice can undermine efforts towards target hardening.

Key words: informal housing, design, violence, gender, South Africa

Introduction

Emanating largely from debates in the global North over the role of physical design in reducing crime, the body of literature now labelled Crime Prevention through Environmental Design (CPTED) has evolved following criticism of its over-focus on physical and environmental factors shaping crime and prevention. Much recent work incorporates stronger social awareness alongside its analysis of neighbourhood design. Yet, despite authors (see [Armitage 2006; 2013; Poyner 2006](#)) employing the term 'house' or 'housing' as a key site of focus, the nitty-gritty material properties of houses, including target-hardening measures, are now seldom assessed, instead the interface between houses and public space is more often the focus. This emphasis overlooks the significance of the housing realities of millions across the world who live in informal or slum conditions where housing standards vary enormously and where the particular material properties of housing do fundamentally shape experiences and prevention of crime. Conceptualizing this material reality as hyper-permeability, this paper argues that the permeability of much informal housing facilitates criminal access. Experiences of crime are further mediated by social differences, particularly gender and age, revealing the differentiating significance of identity in crime and violence vulnerability and experience across society. This argument is advanced alongside full recognition of the critical roles of politics, poverty, patriarchy, inequality and police repression and capacity in shaping crime, but the focus here is on the specifics of housing materiality. Placing informal housing at the centre of analysis, within the context of these wider socio-political realities, supports the principles of 'Southern Criminology' as advanced by [Carrington et al. \(2016\)](#), which define such an agenda as 'adding new and diverse

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perspectives to criminological research agendas to make them more inclusive and befitting of the world in which we live' (Carrington *et al.* 2016: 2). The hyper-permeability of informal housing offers one such diverse and inclusive perspective.

This paper aims to contribute to the CPTED literature from the perspective of an urban geography of the global South employing both a qualitative and visual analysis. This paper's particular contribution is in thinking through debates about design or material conditions in the context of informal and poor homes in the global South, specifically South Africa, where violence and crime levels are very high and where much urban space is designed informally rather than by the state or formal market, although these both intersect with informal design. These more informal elements of urban spaces have received less attention in the literature, although there is growing work on the analysis, application, adaptation and revision of CPTED and related principles in global South contexts (see Kruger 2005a; 2005b; Landman and Kruger 2009; De Souza and Miller 2012; Monday *et al.* 2013). The second key contribution is to think through the role of the specific elements of the house, and housing design (in contrast to a broader focus on public space or external space) in this set of debates, in particular, elements shaping target hardening, as arguably this is currently a less common focus. The paper's final key contribution is its attention to social differentiation and the intersection between design, experiences of crime and violence, and gender in particular, encouraging a questioning of violence within the home as part of a wider CPTED focus.

The paper opens with a brief analysis of some relevant principles within CPTED literature, analysing the dominant focus on 'external space'. It turns then to three key concepts, namely criminalization, crime and violence and hyper-permeability to foreground the connections between informal settlements and crime more broadly to account for the complex political and spatial realities of informality, which often bear witness to high crime levels. It then discusses crime levels in South Africa, foregrounding the extent of gender-based violence as a key feature. The body of the paper explores the connection between experiences of crime and housing in relation to core elements of the informal house, including building materials, density, size and lack of services among others. This analysis reveals the need to incorporate detailed analyses of the materiality of the home in CPTED work. Throughout the above analysis, the paper considers the ways in which the intersections between design and crime are gendered, as well as possessing particular challenges for the young.

Designing out Crime: Key Principles and Debates in the Literature

The field of CPTED draws on the historical work of C. Ray Jeffrey (1971) and Oscar Newman (1973). Writing in the 1970s, both men identified the complex interrelationships between crime and built form in an effort to understand rising crime levels in urban America and the links between design and behaviour, devising the term 'defensible space' (Newman) and CPTED (Jeffrey). Their work has been highly influential in research and policy terms, particularly Newman's (Cozens *et al.* 2001a) but has also yielded much criticism. Since their publication, the CPTED debate has mushroomed (Cozens *et al.* 2001a), with one element of critique focusing on the lack of attention to social factors shaping crime. These debates are acknowledged here, recognizing that a broadened understanding of key elements shaping CPTED include the social (Cozens

et al. 2005: 329) namely neighbourhood capacity, cohesion, community culture and connectivity (Cozens *et al.* 2005: 342) and that ‘factors such as unemployment, poverty, social stress and bad management simply cannot be designed out’ (Stollard 1991: 84). Such observations have global purchase, evidenced by the international CPTED literature and its wide impact on responses to crime. However, these critical social elements (arguably political and economic ones too) are not the focus of this particular paper, which instead, explores the physical elements of housing in the global South, recognizing of course that socio-physical processes intersect. Wider social processes are critical in shaping crime experiences and prevention in informal housing elucidated through the work of Monday *et al.* (2013), De Souza and Miller (2012) and Meth (2009; 2010; 2011), which illustrates the various impacts of health inequalities, histories of racial inequality, unemployment, political party-politics, patriarchal structures, policing, community policing forums, and vigilantism alongside ongoing poverty and inequality, on violence, crime and crime management. The significance of these factors is paramount, supporting Carrington *et al.*’s (2016: 3) call for recognition of the role of state violence, armed conflict and alternative criminal justice practices (among others) in shaping criminology research; however, they are not the contribution of this particular paper.

Much of the current literature on designing out crime in the context of residential areas focuses predominately on the spaces external to the house or those that relate the house to external space, namely the relative positioning of the property, the public urban realm, pathways and mobility corridors. For example, Armitage provides a checklist of the key factors shaping residential security, which include road network; access (to footpaths etc.); awareness space (volume of pedestrian/vehicular traffic); parking features, traces (alarms) and social climate (e.g. evidence of graffiti or vandalism) (Armitage 2006), and later she identifies three key factors in ‘house design’ shaping levels and fear of crime: the type of property (detached, terraced etc.), the orientation of the property and the position of the property relative to the development as a whole (Armitage, 2013: 115). The origins for this ‘external’ emphasis on design and layout are partly explained by Poyner (2006: 1) who argues that the focus in the early 1980s within the United Kingdom on the ‘target hardening’ of properties (where doors, windows and locks are strengthened) was subsequently proved to be less significant in deterring crime than housing layout and design entrenching a focus on the spaces exterior to the house, albeit where the house is central to the consideration. Target hardening encompasses physical elements of the house, which limit or prevent access: ‘such as fences, gates, locks, electronic alarms and security patrols’ (Cozens *et al.* 2005: 338). Stollard points to the role of housing layout in reducing crime on public housing estates in the United Kingdom (Stollard 1991) and using the work of Winchester and Jackson (1982), Poyner (2006: 2) explains that how housing is designed and its setting (detached or semi, long or short terraces etc.) are arguably stronger determinants of risk of crime.

As a function of context (the global North), house-building standards are currently at an all-time high (double glazing, security features etc.), hence the significance of target hardening as an aim has declined. For example, the ‘Secured by Design Scheme’ in the United Kingdom has positively contributed to crime reduction through the integration of security features at the construction stage (Cozens *et al.* 2005: 339). Yet the argument about housing layout and the role of public space and pathways also points to explicit (contextually specific) assumptions about how neighbourhoods are designed and settled, how housing is built and the role played by the presence or absence of roads and

pathways: Poyner's (2006) argument reveals how context dependent an understanding of crime and violence must be but also how much criminological research employs 'referents' 'derived from the geopolitical specificities of the metropolitan centres of the global North' (Carrington *et al.* 2016: 4). Formalized housing design processes and 'layouts' are not necessarily present or are very distinct in cities in the global South within informal settlements where building is often incremental, organic, unplanned, not necessarily shaped by pre-existing roads or pathways and often more individually constructed (i.e. not part of an integrated multihousing development). Interestingly Poyner (2006: 33) discusses 'informal layouts' of modern developer-built housing in the United Kingdom, linking reduced observability to burglary risk, thus identifying some parallels with informal settlements.

The meaning of target hardening is also context specific. Poyner (2006: 20) discusses 'conventional security measures' in the United Kingdom and identifies 'security lighting, burglar alarms, window shutters and even closed circuit TV'. These are abundantly evident in South Africa but are usually beyond the reach of the urban poor, so too are the alarm systems that Poyner (2006: 21) describes in developing country contexts based on UN data, which obviously at the very least require electrification. The 'dull' significance of windows and locks must not be overlooked and indeed Poyner (2006: 21) agrees that 'there does seem to be something fairly fundamental about the need for basic security for dwellings'. Given the levels, and the nature, of crime in South Africa, along with residents' testimonials, it is contended, along with Landman and Kruger (2009: 6) that 'target hardening' (more broadly and also basically construed) or 'basic security' is still a critical issue in shaping experiences of crime in the case presented below, suggesting that the literature on CPTED needs to maintain an understanding of design properties specific to the house, as well as those of informal housing more generally.

What constitutes residential crime is also significant. Poyner's arguments reveal the need for more gendered insights into crime and violence in the context of the CPTED literature. Employing data on a range of crimes occurring in or around the home in England and Wales (1982–2002), he argues for consideration of 'all potential residential crime' (Poyner 2006: 2) including violent crime. He explains '[t]he biggest change ... [is] greatly increased recordings of violence, but this is a category with very limited implications for residential crime' (Poyner 2006: 8) reinforcing his earlier statement that '[v]iolence is not seen as a major issue in residential crime. The figures ... are for domestic disputes which while certainly taking place in the home are probably not likely to be resolved by design improvements' (Poyner 2006: 7). This is a highly complex issue and not one that can be adequately addressed in this paper. Design is deemed an inappropriate response to domestic violence as it is too crude, usually focused on public space and considered unable to address its social complexities (Whitzman 2007: 2722). Yet the gendered analyses outlined below aim to partly address this debate revealing that the design characteristics of homes do shape such violence in small but relevant ways. This supports Whitzman's concerns about 'mainstream crime prevention[s]' inability 'to include violence committed within families and households' (Whitzman 2007: 2715).

The significance of visibility, surveillance and territoriality in deterring and shaping crime, identified in the CPTED literature, are critical to experiences in informal settlements in the global South. Drawing on the intersections between house and public

space/private external space in their logic, territoriality refers to ‘... a design concept directed at reinforcing notions of proprietary concern and a ‘sense of ownership’ in legitimate users of space’ (Cozens *et al.* 2005: 331). It concentrates on elements such as fencing, landscaping etc. to ‘separate public, public–private and private space’ (Cozens *et al.* 2005: 331), whereas the concept of surveillance draws on features of the house (such as windows) to effect observation (Cozens *et al.* 2005). Yet the enactment of territoriality is clearly dependent upon land rights and rules, practices of possession and the physical expression of ownership. Again context matters, as in informal settlements, a lack of legal status, alongside organic settlement, unclear or variable processes of authority over land use, together with a frequent inability to precisely demarcate territory results in processes of territoriality occurring differently.

Literature that focuses on crime and violence within informal or slum contexts, some of which explicitly draws on CPTED-like concepts alongside concepts sensitive to the impact of the environment on crime (situational prevention), is highly valuable for this paper, but does not always address the particularities of informal houses, impermanent in form (UN 2003: 211), covered below. De Souza and Miller’s (2012) work examines the situational nature of homicide in a favela in Brazil, testing the statistical significance of areas of drug selling, bars, alleys, windows onto the street, stores and traffic on their association with homicide, with the first three variables proving to be critical across different calculations (799, 2012). Monday *et al.*’s (2013) work examines a slum in Adamawa State in Nigeria and analyses the environmental characteristics of the slum in relation to crime. Poor availability of public toilets, and waste collection, the lack of motorable access to compounds and the limited availability of access to security and fire personnel are key issues underpinning vulnerability to crime (Monday *et al.* 2013: 140–1). Asl *et al.*’s (2014) work in the slum Islamabad in Zanzan, Iran, examines the role of land use, availability of police stations and high residential density in shaping crime hot spots. Yet few papers examine the very detailed physical properties of housing within informal settlements or slums in relation to crime. Landman and Kruger (2009) and Kruger’s work (2005a; 2005b) are a relative exception as questions of target hardening are included in relation to the design of houses in poor and informal settlements in the South African context (see their 2009 paper in particular), although their work does not explore the specifics of informal housing in much detail.

Finally, principles of CPTED have been explored, critiqued and adopted by several research and policy organizations in South Africa, such as the Institute for Security Studies Africa and Council for Scientific and Industrial Research (see Landman and Kruger 2009). The country is also the recipient of international attention (in the form of funding and research) on this issue. The current in-vogue Violence Prevention through Urban Upgrading (VPUU) German-co-funded programme based in Cape Town is one key example of the use of expanded CPTED principles to effect crime prevention. Cooke (2011: 2) argues that the VPUU is producing such ‘tangibly good results that political parties are fighting to claim ownership of it’. The VPUU has been implemented in areas with informal housing, but its outcomes are less directly relevant here as the interventions are largely in relation to public spaces not individual’s houses (VPUU 2012).

This brief review of literature illustrates that context is key, as the specifics of housing design, build, materiality and layout are not globally consistent. Recognizing the centrality of social processes shaping crime and prevention, the physical and material

elements of urban housing, and more significantly, those shaping informal housing, evident in the global South, lack emphasis in the current CPTED literature. In order to contribute to these debates, the paper turns first to a discussion of informality and insecurity in order to identify key analytical concepts.

Informality and Insecurity: Criminalization, Crime and Violence, and Hyper-permeability in Informal Settlements

The materiality of informal housing¹ and surrounding neighbourhoods, which shape their defensible capacity, are theorized here in relation to three key concepts: criminalization, crime and violence and hyper-permeability. Informal settlements are not neutral spaces but rather foster particular sets of political and legal practices, which shape how crime unfolds and is negotiated and hence how security is affected. Below, crime and violence in South Africa is specifically considered, but first the links between crime and violence and informal living are examined. Informal settlements are often criminalized spaces, and their residents often criminalized by association. By definition, most are or were illegal in both the occupation of land and the formation of non-standard structures. Writing in the Brazilian context, Caldeira explains ‘Excluded from the universe of the proper, they are symbolically constituted as spaces of crime, spaces of anomalous, polluting, and dangerous qualities’ (Caldeira 2000: 79). She goes on to argue that ‘[p]redictably, inhabitants of such spaces are also conceived of as marginal. The list of prejudices against them is endless’ (Caldeira 2000: 79). This criminalization shapes the notion that informal settlements are spaces of crime: ‘It is commonly alleged that an anti-establishment, or oppositional, culture prevails in slum areas, which is broadly supportive of all kinds of illegal activities. There is a lack of visible law and order; roaming teenage gangs, muggers, drug dealers, prostitutes and the indigent are evident, and marginal activities take place with impunity’ (UN 2003: 76). Globally, this criminalization of informal settlements has worked to justify aggressive state-led practices of their eradication from cities, rationalized in developmental terms. In South Africa, Huchzermeyer (2011: 57) reveals the increasing use of private security to effect eradication, control growth and manage informal settlements and Beall and Goodfellow (2014) classify forced slum clearances as a form of civic conflict which they argue ‘ultimately result from the state’s failure to cope in the face of specifically urban issues such as the provision of adequate housing...’ (Beall and Goodfellow 2014: 21). More measured responses to perceived levels of crime in informal settlements include urban upgrading and poverty alleviation, and Muggah (2012) argues that these responses are believed to impact positively on safety and security, although the evidence around outcomes is mixed. Mike Davis (2006) reminds us, however, that the criminalization and crimes of informal settlements are more complex. He points to the prevalence of criminal cartels acting as property developers of informal housing on state-owned land (Davis 2006: 41) through the bribery of officials, as well as the

¹Informal housing encompasses extensive debate over its process, definition, politics, representation and economics including related pejorative and enabling consequences. This paper recognizes the complexities of the term, and that there is evidence of well-constructed middle-class informal housing across the globe (UN 2003), but focuses here on what are commonly accepted poor living environments evident across the global South.

prevalence of highly vulnerable residents in such settlements, including those fleeing war and conflict. Such residents, particularly the youth, are highly vulnerable to inclusion in street gangs and other violent organizations such as paramilitaries (Davis 2006: 49). The UN concur but also argue that organized social control is evident in such settlements (UN 2003: 83). In South Africa, vigilantism as well as religion, is employed by residents to manage crime, in the absence of effective formal justice mechanisms (Meth 2009; 2013). Understanding crime in informal settlements necessitates accounting for this complex array of factors. The areas are in and of themselves criminalized, and crime and violence is often a function of resident frustration and grievance over their poor living conditions. Focusing on African cities, Raleigh (2015: 104) explains ‘violence risks are [linked] ... to the conditions of unplanned and underdeveloped urban spaces within African states’.

For reasons of poverty, the threat of eviction, temporality and lack of resources, informal housing is often poorly built but the materiality of informal housing does vary across contexts and time. One aspect of ‘slum housing’ as defined by the UN is impermanence and ‘about half of the housing in least developed cities is made of non-permanent materials of various kinds...[likely] ... to last for less than ten years’ (UN 2003: 112). Within South Africa (wider Africa and Asia too), most informal housing is constructed from relatively basic, temporary, non-weather-proofed materials (namely cardboard, mud, plastic, wooden boards and metal) and usually single storey. This housing form contrasts greatly with the ‘end-point’ kinds of informal housing one might observe in Latin America where housing, albeit informal, illegal, irregular or slum, may initially be constructed from very basic materials, but commonly goes through a process of consolidation, constructed from brick or concrete (using relatively formal materials) and may constitute four or five floors of vertical space. Reinforcing evidence of global difference in the material qualities of informal housing, the UN argues that ‘[t]he continent-wide data demonstrates how prevalent impermanent and non-complying housing is, *especially in Africa and Asia*’ (UN 2003: 112 emphasis added). These more impermanent housing structures are the focus of this paper and to which the notion of hyper-permeability is offered here as a way of conceptualizing the multiple ways in which properties can be permeated and accessed by criminals, often a function of the property’s materiality. Hyper-permeability is an extreme form of indefensible housing. It encapsulates housing that present multiple forms of permeability, where apertures lack glazing, where construction materials cannot withstand force, walls and roofing are water-permeable, and basic construction elements such as joists, beams, insulation, and structural integrity are often not present, meaning elements of housing are poorly secured, and liable to easy removal. Housing with these material qualities (see Figure 1) ease criminal access.

Violence and Crime in South Africa

For decades South Africa has struggled with exceptionally high levels of violence and crime, underscoring Carrington *et al.*'s (2016: 6) observation that ‘there is a glaring contrast between the different worlds of violence to be found in [the global] North and South’. According to a national household survey, housebreaking or burglary rates were experienced at least once in the previous year by 4.7 per cent of the population in



FIG. 1. Informal housing in Cato Crest, Ethekwini.

2013–14 (SSA 2014: 41), with many experiencing repeat victimization. Rates of reporting such break-ins to the police varied significantly across the country with only 57.7 per cent of affected households reporting on average (SSA 2014: 43). In the region of KwaZulu Natal where this research is based, 39.6 per cent and 39.7 per cent, respectively, of households reported that burglars entered by ‘smashing the door’ and ‘through the window’ (SSA 2014: 58), with these two methods being the most significant by far. The location of crime is also telling [although the 2014 survey no longer utilizes ‘open space’ in their analysis which proved significant in earlier reports as a key site for sexual assaults (34.2 per cent) in 2012 (SSA, 2012)], in 2013–14, 22.6 per cent of all assaults occur in the home (the most dominant location by far) (SSA 2014: 61) and 49.3 per cent of all sexual assaults occur in the home, followed by 15.4 per cent in someone else’s home and 21.3 per cent in streets, parks or fields (SSA 2014: 61). These statistics are returned to later.

Police statistics show that murder rates have declined since 1994, but remain high in comparative terms: 30.9 per 100,000, which is 4.5 times higher than the global average (Gould *et al.* 2012: 4). Statistical evidence of other forms of interpersonal violence is highly problematic, with questionable spikes and dips in police records over the past 10 years (Gould *et al.* 2012: 5) meaning that ‘In short, the police assault figures are inaccurate indicators of actual levels of interpersonal violence in South Africa’. This lack of reliable evidence exacerbates the masking of the gendered (and racialized) nature of violence, where much grievous bodily harm appears to be targeted at young black men, and domestic and sexual violence, largely, but not exclusively, affecting black women. Yet the absolute lack of consistent statistical data, disaggregating sexual violence by the category of gender (Gould *et al.* 2012: 8), means that understandings of gender, violence and crime are limited and trends cannot be monitored. Jewkes *et al.*’s (2009: 1) research on rape perpetration revealed that a large proportion of men, namely 1 in 4, admit to having raped and that the trends show that sexual violence is increasing. The state’s role in perpetuating crime and violence is evidenced in KwaZulu Natal: deaths at the

hands of the police are very high and this region (1 of 9 nationally) accounted for 29 per cent of police-related deaths between 1997 and 2008 (Bruce 2010: 15).

There is recognition in the urban design and crime prevention literature of the gendered differences in both experiences of crime and fear of crime, as well as differences experienced by ethnic minority groups for example. Trends in South Africa in some ways map the global prevalence of young (black) male vulnerability to violence (see Caldeira 2000 on Brazil) often in public spaces, as well as female vulnerability to sexual violence and domestic violence. Yet places such as South Africa are also relatively distinctive in their sheer levels of very violent crime, so that crime, and fear of crime, is pervasive (see Meth 2009). High levels of crime and violence (and conditions of informal housing) have impact then on safety conceptions in public and private spaces. The urban design elements of housing are gendered in complex ways but so too are the norms and practices shaping use, protection and design of public space. In contexts such as the United Kingdom where safety in public space is relatively high for women (despite women's fears of such spaces relating to how they are socially constructed, as well as real experiences of crime), it is accepted that the home is a far higher site of vulnerability for women. Different forms of public space then may be feared by different groups of women but are relatively safer than the home. This finding is not applicable however for women who live in contexts of high crime and violence levels in informal settlements. Both present an extensive array of direct challenges, and unlike in the United Kingdom, women are highly vulnerable to actual violence, including sexual, both in the home and in the public space, and men are vulnerable to violence in public spaces but also at times in the home. This pervasive nature of crime, crossing private–public boundaries, informs subsequent discussions in this paper.

A Brief Comment about Methodology

The analysis draws on various qualitative studies conducted in the city of Ethekwini (formerly Durban), South Africa, between 2002 and 2013, focusing largely on the previously informal settlement of Cato Crest within Cato Manor. Studies drew on a mix of qualitative methods namely open-ended questionnaires, focus group and life history interviews, interviews, solicited personal diaries, photography and drawing. A multifaceted project in 2002 examined the links between private and public violence, gender, housing and women's management of violence. Alongside work at criminal courts, the focus was on three spaces of poor housing quality, i.e. an informal settlement (Cato Manor), a street market (Warwick Junction) where traders slept insecurely (see Meth 2003) and a township (KwaMashu) with much informal infill alongside formal housing, and revealed the significance of housing design in experiences of crime and violence. A narrower study followed in Cato Crest in 2006–7 with 20 men exploring their experiences of violence, place and gender (see Meth and McClymont 2009) revealing the omnipresent nature of violence for men (Meth 2009) and the centrality of the home in violence encounters. A pilot study in 2011 examined recent upgrading efforts in Cato Crest and their relationship to experiences of parenting and violence (Meth 2013). Finally, in 2013 a pilot project in Cato Crest examined housing formalization and domestic violence, exploring intersections between state policy, housing form, violence and gendered inequality (Meth 2015). The methodological challenges of doing violence

research and the advantages of employing a qualitative mixed-methods approach for this have been considered (Meth and McClymont 2009). Photography either by the participants or by the researcher supports the qualitative data and provides a visual insight and analytical tool into questions relating to spatial and environmental factors.

This paper employs empirical data from all the projects, and the vast majority of quotations and images (unless otherwise stated) are from the area known as Cato Crest, part of the substantial previously informal settlement Cato Manor, which is located about 7 km from Ethekwini's centre. Since the 1990s, the whole settlement was earmarked for state-funded upgrading, much of it through the provision of formal housing to poor residents. Redevelopment is occurring slowly, and waiting lists for housing are long and highly politicized. Delays signify families living for 20+ years in informal housing. The area is an ANC strong-hold (the ruling party) with a Ward Committee, Community Policing Forum and multiple street and area committees. Policing is present but is a frequent source of tension as residents complain about corruption, ineffectiveness and excessive rights for suspected criminals. Unemployment rates across the wider city of Ethekwini are high (30.2 per cent and 39 per cent for youth unemployment) (SSA 2011) and HIV/AIDS prevalence rates across the wider province are the highest in the country, between 20 and 40 per cent (Ramjee *et al.* 2012: 2062). The area has had a very troubled past (high violence levels and political tension) but the recent state intervention in upgrading has significantly improved much of the wider settlement, although it has been the site of recent (2013) violent clashes with the police over the housing delivery process. It also contains a high number of *shebeens* (illegal drinking taverns) argued to contribute to crime and violence, and the focus of recent efforts by police to curb their operations. Indeed Landman and Kruger (2009) identify two particular crime hot spots in the settlement, namely the White House Tavern and a pedestrian bridge, both of which were identified in the research as significant. This work is built on below, paying particular attention to the home as a site of crime.

Informal Housing and Crime—Key Design Elements

Different elements of living informally shape experiences of crime and violence, at times in contradictory ways. Key elements discussed below include materiality, density, lack of security features and services, size, surrounds and ease of construction. The qualitative and visual analysis employed reveals the significance of the intersection between particular housing design qualities (building materials etc.) and perceptions and experiences of crime and violence, thereby broadening the notion of 'target hardening' through identifying the hyper-permeability of such housing. The relationship between housing form and crime pertains to domestic violence and general crime and violence, evidenced through sensitivity to gendered and age-related experiences of housing and crime.

The materials of informal housing

Building materials of informal housing in South Africa significantly enhance vulnerability to crime extending Cozen's notion of 'indefensible space—incapable of being defended' (from Cozens *et al.* 2001b: 237) to that of 'hyper-permeable' spaces. As detailed earlier, this term refers to the multiple ways in which properties can be permeated and accessed by criminals,

often a function of the property's materiality. Roofs can be lifted for access into properties, windows and doors smashed with relative ease: 'Our homes are made of boards and mud, criminals carry their own hammers, and they remove the nails from the boards and get in' (♀ Focus Group 2, 2002). Housing often lacks internal walls, rooms to hide in and doors with locks meaning criminals simply 'kick and enter' (Andile,² ♂ Focus Group 2, 2007).

The threat of fire is significant, with arson a common reality, particularly in domestic violence cases: A 58-year-old victim of family violence from her daughter explained that she 'does not feel that her *mjondolo*³ is protective because she [the daughter] can just kick the thing, it can fall and she can burn it' (Respondent 7, 2002). Respondent 20 (2002) aged 39 was suffering violent abuse at the hands of her boyfriend and was forced to move into her mother's brick house because he threatened to burn her shack. 'We had an argument, he had a bottle of paraffin, he told neighbours that he wanted to burn it...'

Mud, as a building material, is identified as significant to residents' vulnerability, but is also a cheap and traditional element of construction used alongside other materials such as corrugated iron (♀ Focus Group, 2011). Mud is more durable than poorer building materials commonly used in shack construction such as cardboard (as explained by Bolina, ♀ Focus Group, 2011) and mud is often easily accessible from local sites and rivers, which also provide water for building. In the case of South Africa, many residents described experiences of crime and violence in relation to living in mud housing where this constituted the housing form of their 'farm/rural/traditional home' property to which many migrated for holidays, maintained their relatives and planned their retirements. These proved to be significant spaces for urban residents and were part of their accounts of crime but also for some, their safety.

Despite its good qualities, mud housing is highly vulnerable to fire and questionnaire respondent 24 (2002) explained that her's was burnt down by her attacker injuring a neighbour's son in the process. Securing mud constructions was a significant challenge. Respondent 43 (2002), a 28-year-old women, trying to escape her father's violent abuse explained that her hut had 'no burglar guards and some of the windows had no glass. Corrugated iron was used to close the holes that were supposed to be windows'. Mud huts offer little resistance to gunfire as respondent 56 (2002) illustrates. Her boyfriend, a police officer, threatened her family by shooting repeatedly at their hut. She explains 'I never felt safe because as he was shooting, the house used to fall down on the side that he was shooting'. The properties of mud housing can preclude the presence of various design forms, which assist in crime deterrence, especially relatively impenetrable walls, burglar guards and some (albeit limited) resistance to fire. They also offer limited soundproofing that in situations of verbal abuse can exacerbate experiences of harassment. A 50-year-old grandmother was suffering verbal insults by her daughters-in-law, who claimed she was a witch who had bewitched her sons causing their untimely deaths (such allegations can lead to murder in South Africa). She explains that although she felt safe in her house 'It does not stop me from hearing what my daughters-in-law are saying about me, in case they decide to shout' (2002).

Ease of access into informal housing is also an issue for male residents, who also suffer and witness violence in the home. The rape of women and children, in their presence, significantly undermines men's identities as fathers and 'husbands':

²All names of all participants are pseudonyms.

³*Mjondolo* is the local term for shack.

The[re are] cases of the criminals enter in your house sleep with your wife in front of you and also the children. I don't know I can survive under that situation as a head of the household. The family cannot trust [that they] ...are protected if they with you, as [a] man you lost the dignity. No one can respect you as a man. (Bongani ♂ Diary, 2007)

Lack of security features

Many households are inhabited by women only, a common feature of informal settlements and they spoke of their utter fear of break-ins, and subsequent rape and murder. This fear is compounded by the relatively poor security features of their informal homes, particularly their locks, the presence, or more commonly, the absence of burglar guards and/or a fence surrounding the property. The lack of security features contributed towards the hyper-permeability of the housing. Residents used a range of techniques to maximize their security, although probably the most standard, where feasible, was the integration of steel burglar guards into a shack or mud property, as [Figure 2](#) illustrates. Roofs were secured down using heavy items (rocks or tyres), also a measure against foul weather. The houses then represent a real mix of design materials (and residents' initiative) as they use natural and scrap materials alongside the purchase and use of more formal products such as doors or burglar guards.

Locks were a significant security concern. Their absence from internal doors (of structures with more than one room) was noted and at least five questionnaire respondents detailed their locks as broken and hence useless in securing their properties, affecting vulnerability to both opportunistic criminal violence and domestic violence.

Doors in informal houses are often formed from scrap materials, which lack proper locks or even materials for reasonable door closure (such as latches) on them. Balungile contrasted this with her new formal house: '...it is different to the informal settlement

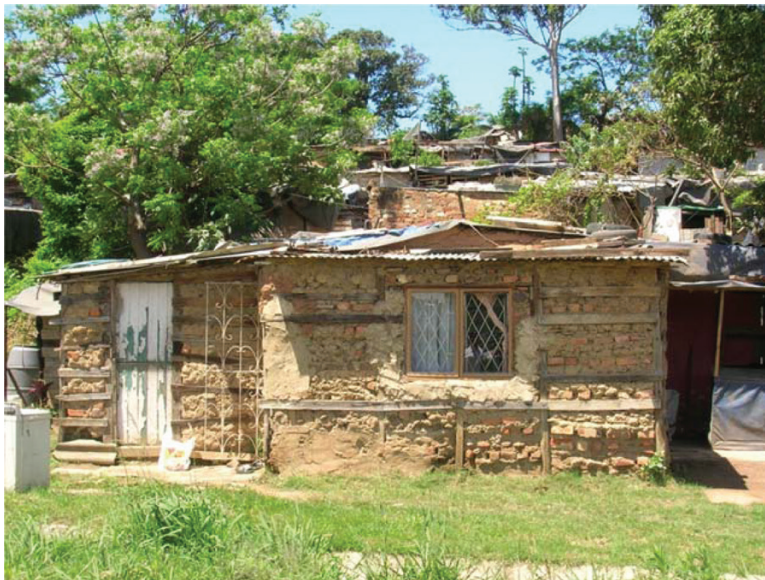


FIG. 2. Photo showing integrated burglar guards.

because if you are going somewhere you can ask your child to close the door. Previous time children were getting raped because it was not easy to leave your child in the shack if you are going' (Q Focus Group, 2013). Fortunate residents with 'proper' doors may secure them with an external padlock, which is cheaper than an integrated lock. Yet this arrangement presents difficulties, demonstrating to those passing by whether anyone is home or not, given that the external and visible location of the padlock. Residents also, at times, lock their children in their homes during the day while they go to work. This means that residents cannot secure their properties in an invisible manner when they are out, and it can signal the presence of 'unguarded' children, and this significantly undermines the 'access control' (Cozens *et al.* 2005) of housing. This is illustrated in Figure 3.

Finally, residents identified methods (relating to the house design) employed by thieves to access properties without disturbance, namely to dangle and then burn a CD through an open window or through a hole in the roof, bearing in mind the ease of access through the roof given the lack of formal fixed materials (see Figure 4). The burning CD allegedly drugs residents allowing a crime to occur without disturbance:

I was sleeping at home. I'm not a person who likes to sleep because of the crime in this area of Cato Manor ... The criminals if want to [steal] all your property were burn the cd, once the smoke of that cd smell, you cannot hear anything [you are] like a dead person, you will sleep until [they have] finished [packing your possessions]. They burn that cd out of your house once the smoke starts, then [they] push it inside the house. In my home we experienced that incident. The criminals come and theft TV, and Hi Fi My dad heard but it [was]like [he was] in dream. We saw in the morning everything is gone. We failed even to wake up for the work. We saw that cd which was burning (drugging) us. (Vusi, ♂ Diary, 2007)

This anecdotal evidence reveals a distinct dimension of hyper-permeability unaccounted for in the wider literature and brings the roofing spaces of properties into the foreground of analyses of physical elements of housing in need of target hardening. Roofing must be analysed alongside apertures (windows and doors). In national analyses of the manner in



Externally visible padlock, revealing that the residents are not at home (or that children are possibly home alone).

FIG. 3. Photo showing padlock.



FIG. 4. The permeable roofs of informal houses.

which burglars accessed properties, smashing doors and entry through windows were identified earlier as accounting for around 80 per cent of the ways in which access was gained in the province of KwaZulu Natal. ‘Other’ means account for 5.6 per cent of the total in this province, and in some provinces in South Africa this ‘Other’ reaches 12.8 per cent (SSA 2014: 58). Not including garage access, no further analysis is offered to determine what might be included in this category suggesting that more research is required to determine precisely how different elements of a house facilitate entry, including roofing structures.

Lack of services

In addition to the challenges of poor policing services identified earlier, within the informal settlement the only municipal services provided were the occasional external communal standpipes to access water and infrequently spaced communal pit latrine toilets. These always necessitated walking some distance from one’s home to make use of these services, a reality which is particularly problematic for women and children at night, and which is compounded by the lack of street or passage-way lighting and also the vigorous growth of vegetation. Fikile explained ‘It is hard as I’m an old granny to fetch water from the community tap and to walk at night to the toilet, [especially] if it is raining’ (♀ Focus Group, 2011). The distant location of toilets is highlighted by many residents as contributing to women’s vulnerability, increasing their risk of attack or rape. These issues are discussed further below in relation to women’s vulnerability to rape at night. The consequences for their children left alone in housing while women use external toilet facilities are not positive either:

In the past week a child was raped... She is only 4 years old. Their neighbour ... raped the child. Her mother left her inside the house. She ensured that all the windows were closed and went to the lavatory. He saw that she was left by herself and entered to rape her. (Nqobile, ♀, Diary, 2002)

In addition, communal external toilets are used by criminals as hideouts:

In the shacks the criminals were running and hide in your toilet or sometimes if your shack is open, they just enter and hide from the police. Even if you saw that person is hiding in your toilet it was not easy to tell the police because of the way we were living. (Neliswe, ♀ Focus Group, 2011)

The necessity for residents to venture outdoors for visits to the toilet or to collect water is a highly distinctive feature of informal housing and is a key element in the environmental characteristic of such housing. Conceptually this feature necessitates analyses of crime and violence that understand common domestic, residential and private practices to occur beyond the walls of the housing structures and to recognize that particular practices exacerbate women's vulnerability. For various biological and social reasons, women and girls are more likely to utilize toilets and water stands more frequently than boys and men over a 24-hour period.

Housing size, undeveloped land and ease of settlement

Housing size is identified by most residents as a serious challenge, and it also proves to be associated with crime and violence, but more specifically, domestic violence. Residents explained that smaller houses (sometime informal but not always) lead to greater tensions between couples, which could lead to violence. Earlier, crime statistics identified the home as the primary location for assaults, suggesting fully understanding the material characteristics (obviously alongside socio-economic) of the home was critical.

In the informal settlement if the relatives want to visit, [it] was creating problems as everything was in one room. If my partner wants to bath the relative have to go outside until my partner is finished dressing. Another example, if the pastor of my church visit [he] has a place to sit, in the informal settlement the pastor sit together with me on my bed and people interpret wrong and create violence. (Siyanda, ♀ Focus group 2, 2013)

Housing size often shapes housing layout and the reliance on fabric or curtaining to separate out spaces within a shack house. This lack of solid internal divisions again shapes experiences of domestic violence, as well as contributing to a severe reduction in privacy, is a key issue for adults in the context of living intimately with children (Meth 2015). Housing size also affects children's vulnerability to crime. With properties very small in size, children regularly play around the houses outside, or on the pathways or roads. This was a constant source of anxiety for parents living informally as their children risked exposure to various crimes.

Undeveloped land surrounding informal settlements provides an ideal location for crime to unfold. This is often the case as settlements are located in peripheral undeveloped parts of the city, or they are separated from formal, legal settlements through vegetative 'barriers'. Residents referred to the 'bush' as a space where rapes occurred, bodies were dumped and muggings took place, particularly after nightfall. Statistical evidence points to open spaces as being a key site for sexual assaults in South Africa. In addition, the dense nature of the settlement under focus here, and the lack of lighting meant that travelling in the early morning or evening was particularly dangerous, and many women described being attacked in public space at these times (Ethekwini's location means that even in summer it is dark by around 7 pm) and residents described the levels of crime as seasonal as a result.

The ease of settlement within squatter camps was a concern raised by various parents and residents more broadly. Parents worried about how easy it was for their teenagers to leave and establish independent homes in the settlement, often with young lovers, against their parent's wishes. Similarly, criminals enjoyed relative ease of movement into the settlement and property acquisition, in order to establish a criminal base. In

a now-formalized area of Cato Crest, Area Committee members distinguished current realities from previous challenges: ‘... no one can build the shack next to your house now. In the informal settlement the criminals were coming from other areas and build the shacks so that they can hide’ (Interview, 2013). Ease of settlement in informal areas entrenches the notion of hyper-permeability as the indiscriminate movement of people between housing, across parcels of undeveloped land and into new informal housing structures is extensive. This permeability of residents arguably also enhances vulnerability to crime.

Housing density and ‘poor legibility’

Density of housing is key for enhancing opportunities for criminals to commit crimes, resonating with current concerns within the CPTED literature on access and public space. Thandekile explained that the *mjondolos* are ‘a dark forest where criminals hide’ (♀, Diary, 2002) and Nester explained that ‘the shacks were congested and it was not easy to notice the criminals’ (♀ Focus Group, 2011). Comparisons of the area’s relative density with an adjacent formal housing settlement (namely Westridge) reveals that approximately 12 informal houses occupy an area of land equal to one formal lower middle income property. Furthermore, density, and the lack of any or navigable access routes for vehicles, also impacts on the ability of emergency services (the police, ambulances and fire engines) to access properties correlating with Monday *et al.*’s (2013) findings in Nigeria.

The high density and organic informal layout of the housing can result in confusion over the urban design and layout of the settlement and work to undermine navigation through the settlement. This poor legibility meant that residents worried about family and friends being lost in the settlement, heightening their vulnerability to crime:

If a person was to go outside and take a little walk, they then fail to recognize the *mjondolo* of his / her relative. It looks the same because the same materials are used, [and there are] no house numbers on the shack. One day I met a boy in between the shacks and he asked me ‘did you see which shack I came from, I am lost and I can’t see it’. I didn’t help him because I didn’t know the people he visited (Esther, ♀ Focus Group, 2011).

I think the problem is with our area, *mjondolo*. It’s not safe and there are neither house numbers nor proper streets (♀ Focus Group 2, 2002).

Density also affected the vulnerability of the houses to fire, with Dumisane explaining ‘If there is a fire it is not easy to take out all your stuff because the shacks are together and congested’ (♂ Focus Group, 2011). Dumisane’s concerns are underscored by multiple media reports of shack fires characterized by their rapid-spreading nature.

Conclusions

The paper has explored various material qualities of informal housing illustrating their hyper-permeability. This hyper-permeability is however not static. Earlier, in a discussion about informal housing and crime, the paper identified upgrading interventions as one key state-led response to poor housing conditions and concerns over crime and violence. The settlement under focus has indeed been partially upgraded over the past

decade, a process still incomplete. In terms of house break-ins, formal housing appears to be significantly more defensible than informal, but this may be partly a function of the ‘spatial displacement’ of criminals to other areas (Cozens *et al.* 2001a). Upgrading includes the provision of roads and infrastructure, including electrification and street lighting, and does appear to be producing tangible results in terms of crime reduction (Focus Groups, 2011). Formal designs meant residents were able to install burglar guards, and visibility between houses had improved, thereby facilitating surveillance. Legibility was enhanced through identifiable plots and ordered layout. The process of housing allocation, upgrading and development resulted in lower densities of housing, which residents claimed reduced the numbers of criminals able to live in the settlement, positively impacting on crime (for them). Nonetheless, crime was not eradicated and is obviously a function of wider social, political and economic realities, which have not improved through housing upgrading. However, vulnerability to crime is also related to poor building quality and the unaffordability of ‘target hardening’ making homes vulnerable and thus still fairly penetrable. Faulty door locks reduce residents’ safety and many of the older smaller formal houses⁴ also do not have internal walls or internal doors that, in experiences of domestic violence, can aid (although not always) a woman’s ability to protect herself (see Meth 2003).

More research is needed on the design qualities of new upgraded housing and their relationship to safety and crime reduction for children, women and men, focusing in particular on their internal design, their robustness and their relative ability to offer sanctuary compared with informal housing. This improvement is assumed by the state (in its policy briefings) but has not been fully tested. Stronger walls, durable materials, formal windows and burglar guards, internal privacy, internal toilets and sources of water, navigable pathways and walkways between houses and play spaces that offer surveillance would substantially contribute to residents’ safety. None of these are guaranteed in the upgrading process, although some have been delivered.

This paper set out to explore the realities of housing design and crime experiences and prevention in areas of informal housing. Contextualizing these concerns in relation to the relative criminalization of, and high crime and violence rates within, informal settlements, the paper has concentrated in detail on the relationship between housing materiality and experiences of crime and pointed to the relative hyper-permeability of informal housing in a context such as South Africa. Studies of urban and environmental design and crime prevention need to consider (or perhaps reconsider) the actual properties of the house, and specifically the informal house, in relation to the surrounding private/public outside spaces (bearing in mind the wider socio-political practices and relations). This intersection (between the material design of the house and its surrounding spaces) would build the global relevance of the CPTED literature through the addition of diverse perspectives’ (Carrington *et al.* 2016: 2), which does ostensibly concentrate on residential safety but which focuses largely on exterior or outdoor elements rather than housing design materials, including basic target-hardening elements. Within the discussion, some evidence of the efforts made by residents to secure their properties through design is also revealed, although more research should

⁴State-provided houses have increased in size over the past 20 years in response to changing housing policy, so that some houses built as part of older projects are 30 metre squared (or smaller), whereas newer houses (in 2011) are built at 40 metre squared (Interview Housing Manager, Msunduzi, 2011), allowing a more generous and formalized division of internal space.

be done on this to fully appreciate the innovative (as well as restricted) efforts that residents make and also the impact such efforts have on crime prevention.

The paper also explores the ways in which the design of informal houses shapes the security experiences of both women and men in varying but also complex ways. It briefly points to the experiences for children. For many women, vulnerability to domestic violence is enhanced through a number of material features of informal houses, and vulnerability to rape, theft and attack is heightened for many female-headed households. Arguably then, both domestic violence and rape are shaped by certain design elements, challenging debates around the relevance of design for violence within the home. This paper has not explored vulnerability to crime in street or other public spaces in much detail, and it is necessary to recognize that these are often spaces where young men are particularly at risk, and where, in informal settlements, the layout, density, poor access and lighting, and arrangement of housing can shape such vulnerability.

At a more general level, this paper is an encouragement for the CPTED literature to continue to turn its attention to the global South in its debates. This is not a call for the blind application of CPTED's concepts to urban contexts that are very different in form, history and process, but rather it is a call for an awareness of the significance of informal living for pushing further the CPTED debates, bearing in mind that informal housing accounts for the vast majority of housing worldwide, it is certainly *the most* significant design form.

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