

Neighbourhood satisfaction in established suburban council rental housing estates in South African cities: A case study of Kenneth Gardens, Durban

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Abstract: This study on neighbourhood satisfaction questions the efficacy of planning to respond to the challenges emanating from local government management and services provision deficits at a neighbourhood scale. Using the case study of Kenneth Gardens Council Rental Housing Estate in Durban, South Africa, this investigation critiques neighbourhood satisfaction in established post-apartheid social housing estates that are defined by diversity of tenants and relatively good neighbourhood amenity environment. A household survey was conducted on a sample size of 140 household apartments focusing on the profile of respondents, household characteristics, and households' satisfaction with neighbourhood attributes such as access to different neighbourhood facilities and perceptions about pollution and crime. Qualitative open-ended interviews were also conducted with key informants and role players in the neighbourhood such as officials from the eThekweni Municipality Housing Department and ward committee members in Kenneth Gardens. Qualitative thematic analysis, descriptive statistical tabulations and inferential cross-tabulations were used for data analysis. The findings revealed that on average most households are satisfied with access to facilities, and that most households agree that pollution and crime are neighbourhood challenges. In addition, a causal association between household characteristics and neighbourhood attributes points to a predisposition of certain households to a lack of satisfaction with specific neighbourhood attributes. The paper recommends neighbourhood planning policy initiatives that address the special needs for the vulnerable and minority population groups in multi-racial and socio-culturally diverse public housing estates.

Keywords: council rental estates; neighbourhood environment; neighbourhood facilities; neighbourhood satisfaction; residential satisfaction; social housing

Introduction

Kenneth Gardens Council Rental Housing Estate is located in the Umbilo suburban neighbourhood in the city of Durban, South Africa. The estate was established during the apartheid era as a subsidised council rental housing initiative exclusively for the 'poor' working White class population group. This was in line with the broader apartheid political doctrine of spatial segregation along racial lines. Since the Kenneth Gardens housing initiative was earmarked for vulnerable members of the White population group, it was located in an area which was largely a White group area according to apartheid spatial geography. In this instance it was the Umbilo suburban area which had relatively easy access to the city and different neighbourhood facilities.

With the dawn of democracy in South Africa in 1994, the estate became more inclusive and started to accommodate beneficiaries from all the four population groups (Coloured, African/Black, Indian and White). The selection of beneficiaries to stay in the estate is based on the following criteria: they must be South African citizens from any population racial group that are married or single with dependents, whose household monthly income ranges from R3500 to R7500, and who are not property owners. Thus as South Africa transitioned from apartheid, the Kenneth Gardens Council Rental Housing neighbourhood became culturally more diverse in terms of the racial composition of the beneficiaries. At the same time the neighbourhood also became synonymous with environmental pollution, which is clearly visible as a result of the illegal dumping of solid waste in and around the neighbourhood. In addition

crime has also been identified as a serious neighbourhood challenge. This paper sought to establish the extent to which households in the neighbourhood of Kenneth Gardens are satisfied with their neighbourhood environment.

The research contributes towards a further understanding of the how the deficits in local planning initiatives are expressed in resident's satisfaction of a neighbourhood and provides a barometer on residential satisfaction within a long-standing state modernist housing solution. The research also sought to contribute to the ongoing theoretical debate on ways to inclusively and optimally provide services for city residents. From the past to the present, it has been widely acknowledged that city neighbourhoods provide services to their residents (Smith et al, 2016: 1575). However, regardless of this, there is no theoretical consensus with regards to the best approach to the provision of services in cities when it comes to the service provider, quality, and the quantity of services. By focusing on the satisfaction with the neighbourhood environment in a typical multi-cultural and diverse low-income social housing South African city neighbourhood, this investigation contributes to the ongoing theoretical debate on service provision in cities. The paper is divided into five parts: the first section of the paper is the introduction and overview of the topic; the second section is a brief literature review that focuses on the conceptual and theoretical framework of the paper. The third and fourth sections present the methodology and findings respectively. Lastly the paper provides a discussion of findings and conclusion.

Literature Review

Understanding neighbourhoods

According to Kallus and Law-Yone (2000: 815), the concept of neighbourhood introduces clear physical definitions, organised local institutions, and a communal pattern of activities. A neighbourhood is therefore a relatively localised area where there is shared provision of services and facilities and where community members engage in various socio-economic activities. Strategic planning documents tend to draw on orthodox understandings of space provisions in the constructs of planning for neighbourhoods. This is evidenced in the review of historical planning documents informing the delivery of planning standards and services on the Berea neighbourhoods, in the City of Durban, including the Kenneth Gardens housing estate. These tension behind pinning down an understanding of neighbourhoods fall between orthodox and relational understanding of space. The notion of a neighbourhood as an organising frame and building block for the urban structure of an area, is derived from traditional spatial theories. These early spatial theories include work by Von Thünen (1826) on land value (Knowles, Shaw and Docherty 2008: 11), land use in Burgess' concentric model (1925) (Rodrigue, Comtois and Slack 2013: 200), and the work by Christaller (1933) on central place theory (Herbert and Thomas 1997: 64). The conceptualisation of cities developing as central places was a significant contribution from central place theory, particularly the size, significance and spatial distribution of cities or settlements against the background of their function to provide goods and services (Hansmann 2020). Furthermore, concepts such as range, the distance travelled to access a service, the threshold, the number of households to support a service, are implicit in spatial theory (Christaller 1966). The concepts of range and threshold that underpin planning standards form part of the orthodox planning tools still applicable to practice (Hansmann, Lincoln and Musvoto 2018: 13). In keeping with neighbourhoods as a planning instrument, the application is evident in the history of planning on the Berea through to the current set of Spatial Development Plans. The term neighbourhood is applied in relation to planning standards and comprises the population to support the 'range of land uses and services such as shops, restaurants, offices, banks, post office, community centre, municipal offices, hospitals, clinics, institutions, station, bus/taxi stops, garages, parking areas and/or public spaces/facilities' (South Africa 2020: 391-392). Based on the eThekweni planning documents, neighbourhood are also associated by the ideal range or distance required to access services through local nodes of 400 metres and higher order nodes of 800m (South Africa 2020: 391-392). Although neighbourhood scale is loosely associated with local scale, in a planning sense, the Umbilo neighbourhoods scale falls between the local and walkable range, and the overarching district of the Berea.

Relational understandings of space recognise the everyday lived practices as inseparable from the defined, measured approach to neighbourhoods. Lefebvre identifies "*(social) space as a (social) product*" that as indistinguishable from mental space and physical space (Lefebvre and Nicholson-Smith 1991: 26) and ultimately develops a relational approach to space based on social praxis. Lefebvre (1991), in what he terms a '*conceptual triad*', distinguishes spatial practices from representations of space and representational space (Lefebvre and Nicholson-Smith 1991: 285). Lefebvre emphasis on the lived, everyday experiences and practices in space, as distinct from representation and meaning of space, captured some of the temporal issues that are important in relational notions of space in planning. However, these nuanced understandings of space become intrinsic to a specific place and difficult to generalise neighbourhood typologies. Therefor while recognising that planning embraces an incomplete conceptualisation of

neighbourhoods, historically applied blunt instruments for space provisions within neighbourhoods, the study questions the relative impact on residential satisfaction at a neighbourhood scale.

Cities experience differential processes of agglomeration drawing people and economic activities into geographic proximity, nowadays more than at other stages of history. Roy (2016: 7) points towards a postcolonial approach for thinking about space and argued that universal definitions depict insufficiently understandings of the impact of present-day global capitalism on urban futures and processes. The relevance for this research is that the legacy of historical investment networks and access to resources impact on the current development trajectories. Kenneth Gardens provides a case where historical investment in the neighbourhood are posited as a factor in neighbourhood satisfaction.

Neighbourhood satisfaction

Hur and Morrow-Jones (2008: 620) note that neighbourhoods remain the most basic environmental unit in which social lives occur and affect the quality of life of residents. They define neighbourhood satisfaction as the evaluation of features of the physical and social environment. It is widely acknowledged that satisfaction with one's neighbourhood is an integral part of residential satisfaction and life satisfaction in general (Yin *et al.* 2016). An understanding of the level of residents' contentedness with the different attributes of a neighbourhood environment is central to appropriately targeted neighbourhood planning and development initiatives. Yin *et al.* (2016: 2) argue that considering the performance of neighbourhood attributes helps in identifying priorities for neighbourhood improvement. Therefore, residential satisfaction is critical in determining the quality of life, housing improvement proposals and adequate housing policies (Caldieron and Miller 2010: 12). This is in view of the fact that neighbourhood characteristics and how they appeal to different groups in society have been observed to influence residential choice. Calderon and Miller, (2010) point to a study that notes that home price and safety are important neighbourhood characteristics for both homeowners and renters compared to land use and transportation systems.

The findings from Chapman and Lombard (2006: 769) indicated that respondent age and the lack of knowledge of crime have the largest positive impact on how the residents rated their neighbourhoods. In this American study, gender was not identified as found to be a significant variable in neighbourhood satisfaction (Chapman and Lombard 2006: 773). Conceptually the study informed the design of the residential satisfaction project by isolating attributes related to individual household characteristics (age, race, education, gender and relationship to household head, household income, presence of children, length of tenure in housing unit, and tenure status) from neighbourhood quality characteristics (physical environment, access to various activity nodes, local services and facilities, and the neighbourhood's sociocultural setting) (Chapman and Lombard 2006: 773). When looking at the relative importance of neighbourhood satisfaction to a sense of community and belonging, Hur and Morrow-Jones (2008: 619) found that in the context of unsatisfactory areas of the Franklin County, Ohio safety and social problems were much more significant influences than physical factors in neighbourhood satisfaction. In thinking through the qualities of place and what is considered unsatisfactory, or an unresponsive urban environment (Bentley 1985), a modernist estate would qualify in terms of the separation of individual blocks, unclear definition of semi-private courtyard spaces and retreat from the street. Hur and Morrow-Jones (2008) related such qualities to typical post-war suburbs, with "*curvilinear streets and cul-de-sacs, large lots, wide streets, a hierarchical street system, limited pedestrian access, strict separation of land uses, and heavy dependence on the automobile*".

It should be noted that researchers and policy makers may be of the opinion that the quality of a given environment is incompatible and unbearable, whilst residents of the neighbourhood may feel otherwise (Caldieron and Miller 2010: 13). This argument applies more in the context of informal settlements and shanty towns. Findings from residential satisfaction studies can therefore be applied to community and neighbourhood preferences in terms of the design and layout of neighbourhoods. At the same such indicators highlight community needs and challenges that policy makers and professionals may overlook. Such an approach is valid in the developing countries, where informality and complexity define shifting housing processes and where residential satisfaction studies have not been popular among researchers (Caldieron and Miller 2010: 14). Similarly, Erdogan *et al.* (2007: 127) argued that most research studies on residential satisfaction are restricted to Western countries, with hardly any comparison to developing countries where there is rapid urbanisation and challenges with regard to housing. Erdogan *et al.* (2007: 129) highlight the complexity in pinning down the meaning of residential satisfaction. The implicit fluidity relates to specificities of place, time, purpose and ideological persuasion of the assessor. They note that studies on residential satisfaction have to consider personal, physical, demographic and socio-economic characteristics of households and residents in a neighbourhood. Therefore, household and demographic characteristics have an impact on satisfaction with different attributes of a neighbourhood environment. Furthermore, Erdogan *et al.* (2006: 129) identified specific neighbourhood

services and amenities as integral to residential satisfaction. Such services include the standard of garbage collection, local services and the number of and range of facilities available. Erdogan et al (2006) argue that housing satisfaction is influenced by perceived living conditions (LC) which are related to satisfaction with the physical surroundings, satisfaction with social relations (SR), satisfaction with the performance of local authorities (LA) and the perceived quality of facilities. This argument is underscored by Yin et al (2016), who reviewed studies by David and Fine-Davis (1881) and Hur and Morrow-Jones (2008), and highlighted the centrality of public transportation, vandalism, safety and social problems as central to neighbourhood satisfaction. Ultimately it should be emphasised that attributes that are associated with neighbourhood satisfaction are divided into two categories, namely individual household characteristics and neighbourhood characteristics. This means that the person (P) and the environment (E) can be combined into person–environment characteristics (PE) in order to comprehensively comprehend the neighbourhood facet of residential satisfaction (Kahana *et al.* 2003). From this perspective Kahana et al (2003) argued that residential satisfaction researchers have managed to extrapolate salient influences on residential satisfaction based on personal characteristics and historical antecedents.

It is also important to emphasise the importance of cultural homogeneity among residents in the satisfaction within a particular neighbourhood environment (Choudhury, 2005). Choudhury (2005) argues that culturally homogenous neighbourhoods tend to have relatively high levels of satisfaction with their neighbourhood environments since there are relatively few internal conflicts and contradictions among residents. This contrasts with culturally heterogeneous neighbourhoods. Culturally diverse neighbourhoods tend to have internal contradictions among residents because of different preferences in relation to different neighbourhood attributes, as such variances and sometimes low levels of neighbourhood satisfaction (Choudhury 2005).

The South African city neighbourhood context

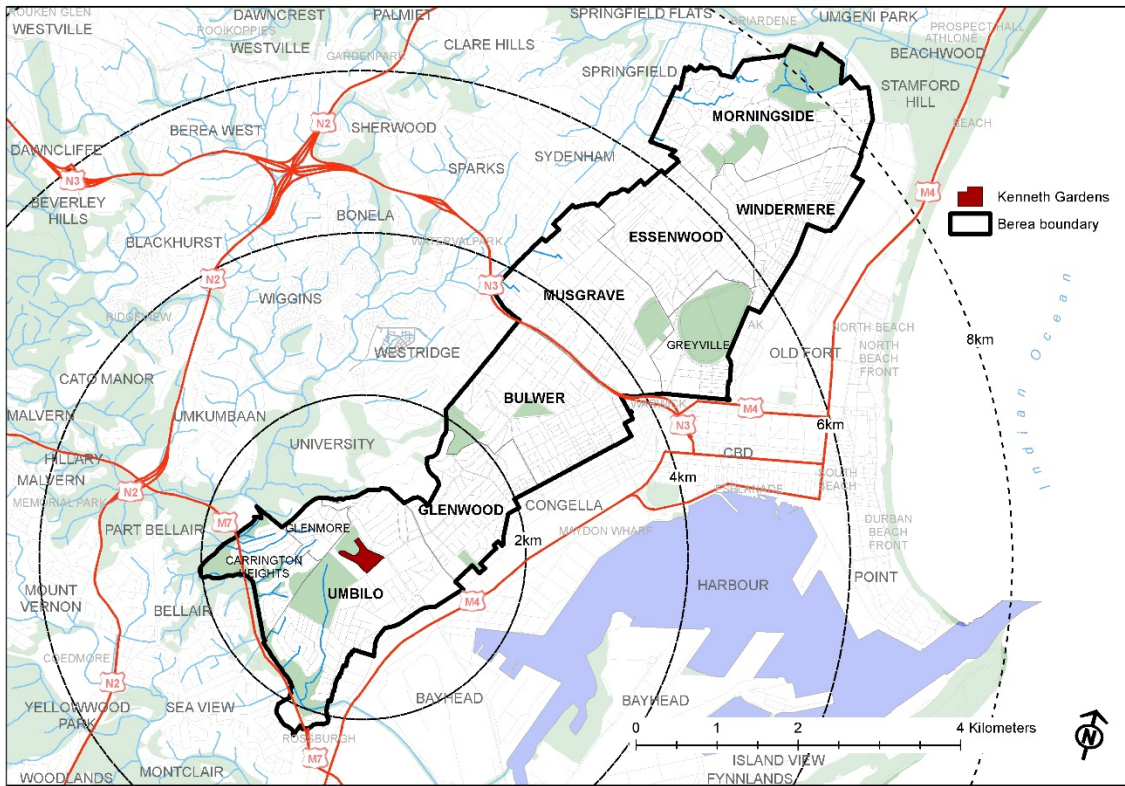
Historically, within South Africa there is a gap in ascertaining the responsiveness of planning and housing intervention initiatives to the contentedness of residents and beneficiaries to housing policy initiatives. The mid 1980s saw the unravelling of the Apartheid state and within this context witnessed a policy thrust towards the privatisation of state-owned public housingⁱ neighbourhoods (Marais *et al.* 2014: 62). The shift was characterised by the sale of council-owned rental apartments to sitting tenants. Erwin (2015) also noted how these forms of subsidized municipal housing estates have mechanism to protect tenants from eviction. A massive sale of state-owned council rental apartments was witnessed in and around South African cities. However, some of the council rental stock, as in the case of Kenneth Gardens, have remained in the ownership of local authorities. At the same time they transformed into more diverse housing estates, which has presented neighbourhood challenges.

Charlton (2003) in her reflection on post-apartheid integrated housing delivery in Durban identified numerous obstacles to scaled state housing processes. In contrast with low rise flats, much of the delivery was driven by greenfields projects within a rigid housing delivery framework of a single unit per plot model (Charlton 2003: 274). Apart from the drawbacks of limited funding, targeted at nuclear families, with dependents, in a fixed low-income bracket, the overall outcome was not to the satisfaction of politicians, beneficiaries and council officials in Durban. Evidenced by local government studies at the time, beneficiaries to these new projects, frequently sold the site and returned to informal settlements (Charlton 2003: 273). In part these strategies were driven by the relative value of the selling land in favour of retaining a fixed asset. Discriminatory and racial policies saw the apartheid government use a largely top-down model of spatial planning and housing development, where residential agency and locational choices were insufficiently privileged over the standalone structure. Although there has been improvement in planning and housing development policies in post-apartheid South Africa with regard to reducing housing backlogs, encouraging home ownership and broadly encouraging the creation of sustainable human settlements, residential satisfaction studies to evaluate the efficacy of these policy initiatives from a bottom-up beneficiary perspective have remain scant. This study therefore sought to evaluate the neighbourhood environment for households in subsidised council apartment rental housing using the case study of Kenneth Gardens Council rental housing estate in the city Durban.

Methodology

The study was based on the case study of Kenneth gardens social housing residential estate that was formerly for the exclusive occupation of the white racial group during the apartheid era. Kenneth Gardens Council Rental Housing Estate is located to the west of the harbour in the Umbilo suburban neighbourhood in the city of Durban, South Africa (Refer to Figure 1). The estate was established during the apartheid era as a subsidised council rental housing initiative exclusively for the Whiteⁱⁱ working-class population group. Although there was documented concern with working class flat development within the well-resourced Berea suburban, the development was in line with the broader

apartheid political doctrine of spatial segregation that designated Berea as a White area. The Umbilo suburban area and the Kenneth Gardens estate in particular, had relatively easy access to the city and different neighbourhood facilities. The locality of the study area in the context of the city of Durban is shown in Figure 1.



an prepare a locality that shows Kenneth Gardens with the Berea boundary, main roads and place names like Umbilo, Glenmore, Glenwood, Musgrave, Morningside, etc.

Figure 1: Locality of Kenneth Gardens in Durban

The areas adjacent to Kenneth Gardens provide significant locational and amenity value to the residents of Kenneth Gardens. Kenneth Gardens occupies an 8,49Ha site with approximately 22% covered with two storey buildings and an estimated 288 dwelling units averaging 65m² (Refer to Figure 2). Residential amenity is a key attraction to the area, and the following facilities are accessible within 2km from the site, namely cemetery, two hospitals, library, public pool, six primary schools, eight secondary schools, twenty-four local parks, five regional parks and public bus transportation to the boundary of the site.



Figure 2: Kenneth Gardens Site Plan, 2020

With the dawn of democracy in South Africa in 1994, the estate became more inclusive and started to accommodate beneficiaries from the apartheid designated population groups (Coloured, African, Indian and White) where an estimated 1500 to 1800 residents (Erwin 2015: 190) are accommodated in Kenneth Gardens. The selection of beneficiaries to stay in the estate is based on the following criteria: they must be South African citizens from any population racial group that are married or single with dependents, whose household monthly income ranges from R3500 to R7500, and who are not property owners. Thus, as South Africa transitioned from apartheid, the Kenneth Gardens Council Rental Housing neighbourhood became culturally more diverse in terms of the racial composition of the beneficiaries. At the same time the neighbourhood also became synonymous with environmental pollution, which is reflected in lack of local government management and removal of illegal solid waste dumping in the neighbourhood. In addition, crime including domestic abuse has also been identified as a serious neighbourhood challenge. A survey was therefore conducted on the neighbourhood, to establish the extent to which households in the neighbourhood of Kenneth Gardens are satisfied with their neighbourhood environment. A survey of was conducted on a sample of 140 household apartments that were drawn conveniently from a sampling frame of 216 apartments. The sample was informed by the Cochran formula of calculating sample size at the alpha level priori at 0, 05 (error 5%), suggesting a confidence level of 95% to replicate these results.

The questionnaire design reflected thematic questions related to the profiles of the interviewees, household characteristics, levels of satisfaction with neighbourhood facilities and perceptions about crime and pollution in the neighbourhood. Survey questions intended to gauge satisfaction with the neighbourhood environment were designed along the lines of Likertⁱⁱⁱ style survey questionnaires. Field workers were planning graduates and were trained and used to pilot the survey, after which revision of the questionnaire was done.

Data that were collected by means of questionnaires was processed through tabulation and statistical analysis using the Statistical Package for Social Sciences (SPSS). The main focus was on descriptive statistical analyses of the data and inferential statistics. Inferential statistics based on cross tabulations were used to conduct a chi-square test, analysis of variance (ANOVA) and to draw correlation coefficients between interviewee profiles, household characteristics and level of satisfaction with access to neighbourhood facilities and also perceptions about the neighbourhood environment. In addition to the quantitative survey, qualitative key informant qualitative interviews were conducted with ward committee members in Kenneth Gardens and officials from eThekweni Municipality Housing Department.

Analysis Of Findings and Results

The analysis of findings and results focused on the profile of respondents, household attributes, and level of satisfaction with neighbourhood facilities, as well as causal associations between variables and factor analysis. The themes and indicators for each of them are shown in the Table 1 below.

Theme	Indicator
Profile of respondents	Gender
	Age Group
	Population group
Household attributes	Number of years staying in current house/dwelling
	Type of household
	Gender of the household head
	The population group of the household head
	Age group of the household head
	Source(s) of income for the household head
	Estimated monthly income of the household head
	Size of household
	Age groups of the different household members
	Number of household members who are employed
	Number of household members unemployed and looking for employment
	Number of household members who are school going or doing some skills training courses
	Level of satisfaction with access to neighbourhood facilities
Access to health facilities	
Access to social facilities	
Access to public service facilities	
Access to public open space	
Neighbourhood Environment	Access to sports and recreation facilities
	Crime
	Noise pollution
	Environmental pollution

The demographic profile of respondents is shown in Table 2. Most of the interviewees were woman (57.1%) while males were 42.9% of the interviewees. The population group of respondents in descending order was African/Black (58.6%), Indian (20.7%), White (12.9%) and Coloured (7.9%) respectively. Age groups of respondents ranged from age category of 15 to 20 years through to over 60 years of age. However a significant number of the respondents (26.4%) were from the above 60 age group. This provides an indication of the relatively high number of pensioners in the neighbourhood. The majority (74 %) of the respondents have been living in the Kenneth Gardens residential estate for more than 10 years and approximately 26% have been living there for less than 10 years.

Table 2: Demographic profile of the respondents	
Participants Characteristic	Frequency (%)
Gender	
Female	80 (57.1 %)
Male	60 (42.9 %)
Age Group (Years)	
0 – 14	1 (0.7%)
15 – 20	12 (8.6%)
21 -25	16 (11.4%)
26 – 30	15 (10.7%)
31 – 35	12 (8.6%)
36 – 40	12 (8.6%)
41 – 40	4 (2.9%)
46 – 50	7 (5.0%)
51 – 55	11 (7.9%)
56 – 60	13 (9.3%)
> 60	37 (26.4%)
Ethnic Group	
Asian/Indian	29 (20.7%)
Black	82 (58.6%)
Coloured	11 (7.9%)
White	18 (12.9%)
Years staying in current house/dwelling	
0 -2 Years	6 (4.3%)
3 – 5 Years	12 (8.6%)
6 – 10 Years	17 (12.2%)
11- 15 Years	12 (8.6%)
> 15 Years	92 (66.2%)

Household characteristics are shown in Table 3. The dominant household types were the nuclear and extended households which contributed 45,0% each to the total number of households in the neighbourhood, reflecting previous tenant allocation policies. A one-person household and composite households contributed 3,6% and 6,4% respectively. Males were the dominant household heads (57.1%), compared to women headed households, who accounted for some 42.9% of the households. The racial composition of the household heads in descending order was African/Black (57,1%); Indian (20,0%); White (15,0%) and Coloured (7,1%). The most frequent household head age category was the above 60 age group (31,4%) and this was followed by the 56 to 60 age group (14,3%). The 36 to 40, 51 to 55, and 31 to 35 age groups contributed 13, 6%; 10,7% and 8, 6% respectively. The remainder of the household head age groups were relatively less eminent. The source of income for most households was formal employment

(44,3%) and government grants were the source of income for 30,7% of the households. Informal and other sources of income were relevant to 5,0% and 19,3 % of households respectively. Level of income per month per household shows that 48,6% of the households had an income of less than R4800 per month and 20% of households had an income between R4 800 and R9 600 per month. Interestingly, 25% of the households had an income level of between R9 601 and R38 000 per month.

Table 3: Household characteristics	
Household Characteristic	Frequency (%)
Household members staying in your current house/dwelling	
< 2 people	6 (4.3%)
2 – 5 people	100 (71.9%)
6 – 10 people	32 (23.0%)
11- 15 people	1 (0.7%)
Type of your household	
One person household	5 (3.6%)
Nuclear Household	63 (45.0%)
Extended Household	63 (45.0%)
Composite Household	9 (6.4%)
Gender of the household head	
Female	60 (42.9%)
Male	80 (57.1%)
Ethnic group of the household head	
Asian/Indian	28 (20.0%)
Black	80 (57.1%)
Coloured	10 (7.1%)
White	21 (15.0%)
Other	1 (0.7%)
Age group of the household head (Years)	
0-14	1 (0.7)
21 -25	2 (1.4%)
26 – 30	7 (5.0%)
31 – 35	12 (8.6%)
36 – 40	19 (13.6%)
41 – 40	11 (7.9%)
46 – 50	9 (6.4%)
51 – 55	15 (10.7%)
56 – 60	20 (14.3%)
> 60	44 (31.4%)
Source of income for household head	
Formal employment	62 (44.6%)
Informal employment	7 (5.0%)
Government Grants	43 (30.9%)
Other(Specify)	27 (19.4%)
Estimated monthly income of the household head	
R 1 - R 4 800	68 (49.3%)
R 4 801 - R 9 600	28 (20.3%)
R 9 601 - R 38 200	35 (25.4%)
R 38 201 - R 76 400	6 (4.3%)
R 76 401 - R 153 800	0 (0.0%)
R 153 801 - R 307 600	1 (0.7%)
> R 307 600	0 (0.0%)
Size of household	
< 2 people	6 (4.3%)
2 – 5 people	100 (71.9%)
6 – 10 people	32 (23.0%)
11- 15 people	1 (0.7%)

Income per household per month therefore indicates that the majority of households in the Kenneth Gardens residential estate are in the low-income bracket. The dwelling unit occupancy rate indicates that most households (71,4%) had between 2 and 5 members and these were followed by 22,9% which had between 6 and 10 members. Households with less than 2 and between 11 to 15 members were 4,3% and 0,7% respectively. The employment status of different household members is shown in Table 4.

Status	Frequency (%)
Employed household members	
None	25 (18.0%)
1 – 2	98 (70.5%)
3 – 5	14 (10.1%)
> 5	2 (1.4%)
Household members are unemployed and looking for	
None	86 (61.9%)
1 – 2	48 (34.5%)
3 – 5	5 (3.6%)
Household members who are school going or doing some	
None	43 (30.9%)
1 – 2	75 (54.0%)
3 – 5	19 (13.7%)
> 5	2 (1.4%)

Most of the households (70,0%) indicated some 1 to 2 household members who were employed. This was followed by 10,0% of the households that had almost 3 to 5 members who were employed. 61,9% of households had no household members who were employed and were looking for employment, whilst 34,3% had 1 to 2 members who were unemployed and looking for employment. Only 3,6% of the households had 3 to 5 members unemployed and looking for employment. Households with 1 to 2 school going members or doing some skills training were 53,6%, whilst 30,7% had none. Households with 3 to 5 and more than members in school or skills training were 13,4% and 1,4% respectively.

The findings on the level of respondents' satisfaction with the neighbourhood environment are summarised in Tables 5 and 6. Respondents were asked to indicate their level of satisfaction with different neighbourhood facilities on a Likert scale that had five categories, namely strongly dissatisfied, dissatisfied, neutral, satisfied and strongly satisfied, numbered from 1 to 5 respectively. In addition, respondents were also asked to indicate their level of agreement in relation to crime, environmental pollution and noise pollution as serious neighbourhood problems based on Likert scaled responses, namely strongly disagree, disagree, neutral, agree and strongly disagree, numbered from 1 to 5 respectively.

Neighborhood facility	Level of satisfaction				
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
Education facilities	1 (0.7%)	4 (2.9%)	0 (0.0%)	112 (81.2%)	21 (15.2%)
Health Facilities	4 (2.9%)	11 (8.0%)	0 (0.0%)	115 (83.3%)	8 (5.8%)
Access to social facilities	1 (0.7%)	4 (2.9%)	0 (0.0%)	128 (92.8%)	5 (3.6%)
Public service facilities	0 (0.0%)	5 (3.6%)	0 (0.0%)	128 (92.8%)	5 (3.6%)
Public transportation	2 (1.4%)	5 (3.6%)	1 (0.7%)	112 (81.2%)	18 (13.0%)
Public open space	5 (3.6%)	10 (7.2%)	0 (0.0%)	117 (84.8%)	6 (4.3%)
Sports and recreation facilities	13 (9.4%)	14 (10.1%)	0 (0.0%)	108 (78.3%)	3 (2.2%)

	Level of agreement				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Do you consider crime a serious problem in this neighbourhood?	3 (2.2%)	18 (13.0%)	0 (0.0%)	34 (24.6%)	83 (60.1%)
Do you consider noise pollution a serious problem in this neighbourhood?	2 (1.4%)	52 (37.7%)	0 (0.0%)	55 (39.9%)	29 (21.0%)
Do you consider environmental pollution a serious problem in this neighbourhood?	4 (2.9%)	8 (5.8%)	0 (0.0%)	53 (38.4%)	73 (52.9%)

The modal response from Table 5 shows that most respondents were satisfied with access to the different facilities in the neighbourhood. However, from Table 6 it can be noted that most respondents strongly agreed that crime and environmental pollution were serious problems in the neighbourhood and most agreed that noise pollution was a problem in the neighbourhood.

Analysis of causal associations

Cross tabulations were used to determine the significance of association between independent and dependant variables of the study. Independent variables comprised the profile of respondents (gender, age group and population group) and household attributes (years staying in current dwelling, type of household, gender of the household head, population group of the household head, age group of the household head, sources of income for the household head, estimated monthly income of the household head, size of household, age groups of the different household members, household members and who are employed/unemployed). The dependant variables were households' satisfaction and perceptions about different neighbourhood attributes as well as perceptions about crime and pollution. A summary of results from cross tabulations showing only statically significant Chi-test results with a p-value between 0.000 and 0.005 is shown in Table 7.

In Table 7, the significant causal association between the gender of respondents and whether crime was regarded as a serious problem in the neighbourhood (p value 0,014) is noted. From the descriptive statistics more, woman respondents compared to men, strongly agreed that crime was a serious problem in the neighbourhood. In total 40,7% of the woman respondents strongly agreed that crime was a serious problem in the neighbourhood, together with 18,6% of woman respondents who strongly agreed.

Table 7: Statistically significant Chi-test results

Independent Variable	Dependent variable	P-Value
Gender of respondent	Crime is a serious problem in the neighbourhood	0.014
Gender of respondent	Environmental pollution is a serious problem in the neighbourhood	0.020
Age group of household head	Level of satisfaction with access to education facilities	0.000
Age group of household head	Level of satisfaction with access to health facilities	0.000
Age group of household head	Level of satisfaction with access to social facilities	0.000
Age group of household head	Level of satisfaction with access to public transportation	0.000
Age group of household head	Crime is a serious problem in the neighbourhood	0.000
Age group of household head	Noise pollution a problem in the neighbourhood	0.000

Population group of respondent	Satisfaction with access to public transportation	0.002
Years staying current dwelling	Level of satisfaction with access to public open spaces	0.000
Years staying current dwelling	Level of satisfaction with sports and recreational facilities	0.000
Years staying current dwelling	Crime is a serious problem in the neighbourhood	0.000
Years staying current dwelling	Environmental pollution is a serious problem in the neighbourhood	0.000
Employed household members	Level of satisfaction with access to education facilities	0.000
Employed household members	Level of satisfaction with access to health facilities	0.000
Employed household members	Level of satisfaction with access to social facilities	0.000
Monthly household income	Level of satisfaction with access to education facilities	0.000
Monthly household income	Level of satisfaction with access to health facilities	0.000
Monthly household income	Level of satisfaction with access to social facilities	0.000
Monthly household income	Crime is a serious problem in the neighbourhood	0.000
Monthly household income	Noise pollution a problem in the neighbourhood	0.000
Household size	Level of satisfaction with access to education facilities	0.000
Household size	Level of satisfaction with access to health facilities	0.000
Household size	Level of satisfaction with access to social facilities	0.000
Household size	Level of satisfaction with public transportation	0.000
Household size	Level of satisfaction with access to public open spaces	0.000

The total percentage of woman and male respondents that agreed that crime was a serious problem in the neighbourhood was 8,6% and 15,7% respectively. Therefore, a clear causal association between gender of the respondent and the perceptions about the prevalence of crime in the neighbourhood was established. Women consider crime more strongly as a neighbourhood challenge compared to men, reflecting woman's gendered experiences of crime and violence. This trend is also similar to the causal association between the gender of respondents and whether environmental pollution was regarded as a serious neighbourhood environmental problem, where the p value was 0.020. More women strongly agreed that environmental pollution was a serious problem in the neighbourhood. On the other hand more male respondents disagreed that pollution was a serious environmental problem compared to women, reflecting a gendered use of space.

The degree of association between the age group of household head and the household satisfaction with access to education facilities, health facilities, social facilities, and public transportation was significant (p value 0.000). This is also shown in Table 7. Descriptive statistics as shown in Table 5, show that regardless of the household head's age group, most of the respondents were satisfied with access to education, health, social and public transportation facilities. It was however notable from cross tabulations that most households that were strongly satisfied with access to education were headed by people aged between 36 and 40 years. It was also notable that households that were dissatisfied with access to health facilities were headed by those aged between 36 and 40, and 41 and 45 years. These comprised 2.1% and 2.1% of the total respondents respectively.

Table 7 also shows that the age of the household head also had a significant association with whether crime and environmental pollution were considered serious neighbourhood environmental challenges. Descriptive statistics indicate that the majority of the household heads regardless of their age group agreed that noise pollution and crime were serious neighbourhood environmental challenges. However, on average, from cross tabulations, it was discerned

that most of the households that either agreed or strongly agreed that noise pollution was a serious neighbourhood environmental challenge were headed by the elderly, aged between 56 and 60 and also above 60 years. At the same time, the household heads who disagreed that noise and crime were challenges were from households headed by the relatively youthful heads, aged between 36 and 40. Thus households that are headed by a relatively youthful population do not consider noise a serious neighbourhood problem relatively those households headed by a relatively elderly populace.

The degree of association between the population groups of respondents and satisfaction with the access to public transportation was significant (p value 0,002). For the White population group, cross tabulations revealed that 1,4% and 9,3% were strongly satisfied and satisfied respectively with the level of access to public transportation in the neighbourhood. This is in contrast to the Coloured population group, where 1,4% and 5,0% were strongly satisfied and satisfied respectively. Within the African/Black racial group 10,0% and 55,7% were satisfied and strongly satisfied respectively with access to public transportation. For the Indian population group, 0,0% and 20,0% of the respondents were strongly satisfied and satisfied respectively with public transportation. It should be noted that those respondents who were strongly dissatisfied by public transportation came from the White population group.

A significant level of association between the years the respondent had been living in the Kenneth Gardens Estate, and satisfaction with access to public open space as well as sports and recreation facilities was apparent (p value 0.000). There was also a significant association between the number of years a respondent had been living in the neighbourhood and whether crime and environmental pollution were viewed as neighbourhood challenges (p value 0.000). This is shown in Table 7 below.

Descriptive statistics (Table 2) show that most of the respondents (65,7%) had been living in the neighbourhood for more than 15 years, followed by 12,1% that had lived there for between 6 and 10 years. 8,6%; 8,6% and 4,3% had been living in the neighbourhood from 11 – 15 years, 3 – 5 years and 0 – 2 years. On average, regardless of the number of years resident in the neighbourhood, most respondents were satisfied with their access to public open space and sports and recreation facilities. The same also applied to the perceptions about crime and environmental pollution in the neighbourhood. Most respondents regardless of the number of years resident in the neighbourhood, either agreed or strongly agreed that crime and environmental pollution were serious neighbourhood challenges. At the same time, it should be noted that respondents that were either dissatisfied or strongly dissatisfied with access to public open space and sports and recreation facilities had been living in the neighbourhood for more than 15 years.

The association between the number of employed household members and the level of household satisfaction with access to education, health and social facilities was significant (p value 0.000). This is shown in Table 7. From the descriptive statistics, one notes that regardless of the number of employed household members, most households were satisfied with access to neighbourhood facilities. However, from cross tabulations it is important to note that the relatively few households that were either strongly dissatisfied or dissatisfied with access to neighbourhood health, education and social facilities had either no employed household members or they only had 1 to 2 employed household members. Households with between 3 and 5 and more than 5 employed members were either satisfied or strongly satisfied with access to neighbourhood facilities.

The monthly income of the household head also had a significant association with satisfaction with access to education, health and social facilities in the neighbourhood (p value 0.000). On average, all households across the income levels were satisfied with access to these neighbourhood facilities (Table 7). However, it should be noted from cross tabulations that the few households that were either dissatisfied or strongly dissatisfied with the level of access to community facilities were in the low-income category, earning between R1 400 and R4 800. The monthly income of the household head also had a significant association with household perceptions about crime, noise pollution and environmental pollution in the neighbourhood (p value 0.000). A notable trend in this regard was that on average most households agreed or strongly agreed that crime, noise pollution and environmental pollution were serious neighbourhood challenges. It should also be noted that most households that disagreed that crime and pollution were serious neighbourhood challenges were in the low-income category.

The size of the household was also significantly associated with satisfaction with access to neighbourhood facilities and also perceptions about crime and pollution in the neighbourhood. On average, regardless of household size, most households were satisfied with the level of access to neighbourhood facilities and concomitantly, relatively few households that were dissatisfied with access to neighbourhood facilities. This trend was relatively more significant among bigger households with between 2 and 5 members and those with 6 to 10 members. Another notable trend was that most households with between 2 and 5 members and 6 and 10 members disagreed that noise pollution was a serious neighbourhood challenge.

In-depth qualitative interviews with key informants also indicated that pollution was a significant challenge in the neighbourhood due to illegal dumping of garbage and erratic collection of garbage in and around the neighbourhood. It was also noted from key informants that crime was also a serious concern in the neighbourhood especially for women and children who do not feel safe especially walking on foot at night in and around the estate. This was attributed to drug and substance abuse in the estate which leads to some youths engage in violent crime such as robbery and mugging. It was underscored that due to high rates of unemployment drug and substance abuse was a menace in the neighbourhood especially among youths. Lack of access control in and out of the estate was identified as a neighbourhood security risk by the local ward committee members. It was pointed out that the lack of semi-private space accounts for feelings of insecurity where outsiders have access to the estate. The landscape in and around Kenneth Gardens is shown in Figure 3.



Figure 3. Kenneth Gardens landscape

The landscape in Figure 5 shows a poorly secured perimeter fence and entry points to the estate. It is also evident that the landscaping is poor and there is evidence littering in some areas of the estate.

Results from the ANOVA on the effect of household income on satisfaction with the neighbourhood facilities are shown in Table 8. They showed that the levels of household income had differential associational effect on the levels of satisfaction with the neighbourhood facilities. The effect of household income levels on satisfaction with neighbourhood facilities showed significant difference (Refer to Table 8 where the p value is 0.005).

Table 8: Variations in the impact of household attributes

			Sum of Squares	df	Mean Square	F	Sig.
household head income	NeighborhodFacilities_FA	Between Groups	1,671	3	0,557	4,486	0,005
		Within Groups	16,511	133	0,124		
		Total	18,181	136			

A post-hoc analysis of ANOVA results revealed that the difference was between households earning between R1 and R4800 and those earning between R4801 – R9600; R9601 – R19600 and R38201 – R76400 (Refer to Table 9).

Table 9: Post-hoc analysis of variations in the impact of household profile

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Neighborhood Facilities_FA	LSD	R 1 - R 4800	R 4801 - R 9600	-.24130*	0,07912	0,003	-0,3978	-0,0848
			R 9601 - R 19 600	-.21068*	0,07330	0,005	-0,3557	-0,0657
			R 38 201 - R 76 400	-0,06443	0,15005	0,668	-0,3612	0,2324

Kenneth Gardens is surrounded by a range of public and private facilities. Despite this, difference was apparent on the impact of household income on the level of satisfaction with neighbourhood facilities. Households in the lowest income category unlike those in the relatively upper income groups have limited choices in terms of access because of their financial position. Poor households, regardless of the proximity of both public and private facilities normally rely on the cheapest options regardless of quality unlike the upper low-income, middle and upper income categories who can choose facilities based quality rather than cost considerations alone.

Discussion of Findings

The Kenneth Gardens case study has shown that most households in the subsidised council rental housing estate are on average satisfied with the level of access to facilities such as education, health, social, sports and public transportation. This is understandable since GIS mapping of the study area context confirmed the range of accessible facilities within a twenty minute (2km) walkable distance of Kenneth Gardens. Historically, the suburban neighbourhood of Umbilo in the city of Durban where Kenneth Gardens is located was a former White area under apartheid spatial geography. Therefore, it was privileged relative other group areas in terms of access to neighbourhood facilities. Nevertheless, although access to facilities was not an issue for most households, the quality of the services offered was noted as poor. A theme that consistently came up as a result of the qualitative follow-up questions was that the quality of health services was poor even though there is a major government hospital located less than 1 km from estate. Long queues and relatively long waiting times in order to obtain services at this facility were noted.

One key finding was also that on average, most households agreed that noise pollution, environmental pollution and crime were serious neighbourhood challenges. Linked to this is the fact that the findings from the Kenneth Gardens survey affirmed the findings from other researchers on the subject (i.e., Yin, 2016) that household characteristics have an impact on households' satisfaction with different attributes in a neighbourhood. For instance, households headed by the White population group tended to be strongly dissatisfied with public transportation compared to households headed by other racial groups. Other household characteristics that had an impact and significant association with dissatisfaction with some of the neighbourhood attributes include gender of respondent, gender of household head, household size, and employment status of household head. Most the woman respondents agreed or strongly agreed that crime was a serious problem in the neighbourhood. Woman-headed households were, relatively speaking, also more dissatisfied with access to public open spaces. Relatively larger households also had a greater disposition towards dissatisfaction with the public transportation in the area. More woman respondents compared to male respondents viewed noise pollution and environmental pollution as challenges in the neighbourhood. The elderly population group (>60) generally viewed noise pollution a problem in the neighbourhood compared to the other population groups. Most the respondents who were dissatisfied with access to health facilities had household heads who were unemployed.

The findings point to the fact that there are households that are vulnerable that at the same time have special requirements in terms of neighbourhood facilities and environmental quality compared to the rest of the households in the neighbourhood. These are evidenced in the desire of the elderly headed households to live in a relatively quieter

neighbourhood. Women also have safety and security concerns in the neighbourhood because they are afraid of crime. Linked to this is the lack of satisfaction among women regarding access to public open spaces in the neighbourhood. Unemployed households are also dissatisfied with the level of access to health facilities even though there is a major government hospital less than a kilometre from the Kenneth Gardens estate.

It was also discerned that an accurate evaluation of the neighbourhood residential environment would be mostly likely to come from households that had been living in a particular neighbourhood for a relatively lengthy time. Respondents from households that had lived in Kenneth Gardens for more than 15 years were able to give a historical account of how the Kenneth Gardens neighbourhood environment had deteriorated over the years. For instance, some residents who had lived in the estate for more than 15 years lamented how the adjacent tennis court had become dilapidated due to the lack of maintenance by the local authority. Figure 4 below shows the tennis court adjacent to Kenneth Gardens, dilapidated due to lack of maintenance by the local authority over the years.



Figure 4 Derelict tennis court adjacent to the Kenneth Gardens neighbourhood

Neighbourhood environmental attributes need to be redesigned to cater for the diverse needs of the different interest groups in multi-cultural government-subsidised estates like Kenneth Gardens. In the Kenneth Gardens case for example, although most households were generally satisfied with access to public transportation in the neighbourhood, it was apparent that the few households that were strongly dissatisfied with access to public transportation came from the White minority population group, and related to expectations on previous experience of service levels. The White population group is the second smallest population group among the survey respondents after the Coloured population group. This points to the need for neighbourhood developmental policy interventions that take cognisance of the more inclusive and improved local services.

Conclusion

Neighbourhood planning policy interventions for diverse and racially integrated public rental housing estates in South African cities must target the needs of minority and vulnerable groups in terms of population group, gender of household head, employment status of household head, household size and the age group of the household head. Crime and safety in South African cities remain a major challenge, manifested by relatively high violent crime rates including domestic abuse. However, more often than not, crime and safety have also taken on a gender-related dimension, especially in view of violent crimes against women and children that are committed in undefended public spaces. This resonates with the fact that most women headed-households in Kenneth Gardens feel that crime is a problem in the neighbourhood and are also not satisfied with access to public open spaces. In addition, the elderly population generally perceives noise pollution as a challenge in the neighbourhood, whilst unemployed household heads are generally unsatisfied with access to health facilities. This calls for neighbourhood planning interventions that address vulnerability and heterogeneity in established subsidised council rental housing estates that are located in the suburban areas of South African cities. In as much as access to neighbourhood facilities is not a serious challenge for these residential estates, the quality and affordability of services at these facilities must be addressed as some of the

households have household heads who are unemployed and cannot afford the services. Diverse and multi-cultural neighbourhood require a differentiated approach to the understanding of household neighbourhood environmental needs.

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ⁱ According to Marais (2016:62) the South African government announced in 1983 that state-owned housing units would be for sale at market-related prices. Subsequently due to the low uptake a further discount was introduced in the 1990s with houses being transferred free of charge to the tenants.

ⁱⁱ The racial classifications of White is derived from the Union of South African. 1950. Group Areas Act No 40 of 1950. The terminology of White, Native and Coloured from the Act is rejected and for the purpose of this research the term of Black is inclusive of subsequent apartheid constructs of Africa, Indian and Coloured people.

ⁱⁱⁱ According to Saunders et al (2012), Likert scaled survey questions and responses have scales ranging from 1 to 7 and can measure the extent to which respondents strongly disagree; disagree; are neutral; agree or strongly agree.

