Evaluating the impact of public open spaces on the prevalence of lifestyle diseases among the youth living in the Central Business District of eThekwini.

by

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ABSTRACT

The advent of industrial revolution created economic opportunities in urban centres. People flocked to the cities in search of economic opportunities to improve their lives. Urbanisation escalated social problems such as overcrowding, poor sanitation, diseases, and pollution in urban centres. With the chaos that followed industrial revolution, city authorities developed comprehensive master plans as instruments to manage social problems and mitigate against the adverse effects of urbanization (Batty & Marshal, 2009).

Comprehensive master plans became a planning instrument with which to physically structure city development and to influence how people lived in and interacted with the environment in industrial cities. By adopting master plans, lawmakers assumed that they would solve the many social and physical problems that plagued industrial cities following the industrial revolution (Batchelor, 1969). Elements of comprehensive planning included zoning controls, which proposed the separation of incompatible land uses for the public good. For example, allocating space for residential, recreational, commercial and industrial land uses. It was hoped that, by spatially ordering land uses the negative impacts of overcrowding, pollution and noise levels on city dwellers would be minimised. That, interventions such as zoning controls, would improve the quality of life for urban dwellers (Kostof, 1991; California Law Review, 1921).

Zoning enabled affluent urban residents who could commute by car between their homes and the city centre, to live in suburbs. The suburbs were designed with better planned public amenities such as community parks and playgrounds, which played a significant role in promoting a healthy lifestyle in the neighbourhood. Low-income earners and other minority communities resided in the bustling central business district (CBD), which in many instances was afflicted by crime, grime, noise and overcrowding (Thompson,2007).

Like the suburbs that enjoyed better amenities, the CBD required similar amenities to make it appealing to city dwellers. The provision and maintenance of social amenities such as squares, parks, gardens, and playgrounds would enable city residents to enjoy a better quality of life. Public open spaces play a positive role in nurturing a healthy lifestyle of a community; they create spaces for social and physical interaction. Places where people live have an impact on human health and well-being. Health-related lifestyles of individuals were likely to be affected by their environment. The living conditions in the urban environment

are important to the health and well-being of its people (Lestan, Erzan & Golobic, 2014; World Health Organization, 2013).

A passive lifestyle and sedentary behaviour were associated with the prevalence of risk factors such as smoking, excessive alcohol drinking, physical inactivity and unhealthy diets that cause lifestyle diseases among young people living in urban areas (Oosthuizen, Jinabhai, Terblanche & Beck, 2008). The study sought to indicate that public open spaces , as a town planning intervention, can be a catalyst to address the incidence and prevalence of lifestyle diseases among the youth living in eThekwini.

The study drew on linkages between the prevalence of lifestyle diseases and the built environment to highlight the spatial dimension as a critical intervention to address health concerns. Also, to highlight the fact that the configuration of space can yield positive or negative outcomes on the incidence and prevalence of lifestyle diseases among the youth. It further sought to highlight that policy interventions on the provision, accessibility and management of public open spaces would encourage their use to reduce the prevalence of lifestyle diseases. The study found that social barriers such crime from homeless people "*amaparah"*, inaccessibility and distance of public open spaces from places of residence negatively affected the use of the public open spaces by the youth. It further found that behavioural factors such as access to technological devices (television and smartphones) encouraged young people living in the urban core to engage in sedentary lifestyles and deprived themselves of the health benefits associated with being physically active outdoors.

The main research question was to evaluate whether policy makers made adequate provision for public open spaces when developing urban regeneration plans. This study hypothesised that configuring the built environment would have positive health outcomes on the health and wellbeing of the youth demographics (age and gender) in the central business district (CBD) of eThekwini.

Keywords: Youth ,Lifestyle diseases; Public open spaces; Physical (in)activity; Suburb; Zoning, Central Business District.

DECLARATION

I, Nkululeko Pedro Nzuza hereby declare that, with the exception of the referenced work and the acknowledgements indicated in the text, the research work on which this dissertation was based is my original work. According to my knowledge, there is no concurrent submission of this dissertation wholly or partially for another degree at the University of KwaZulu-Natal or another university.

Signature :  .....

Date :.....

DEDICATON

I dedicated this dissertation to:

- my mother, Mrs Elizabeth Nzuza *nee* Zwane: “Thank you *Mangethe, Ntsosho,* for keeping the family together during difficult times even when your health and age took their toll on you”.

- my children: “Thank you for understanding that I had to miss some playtime with you to pursue this academic path so that you may have a brighter future”.

- the memory of my father, Mr Jerry Nzuza *“Nozishada kaMaqhoboza, umanqe adlani ngale kwaleziya ntaba”*, who, despite a humble background showed determination and tenacity throughout his life and career and placed a premium on education and personal development which became my inspiration to look beyond the mirage and to persevere “through it all”.

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LIST of ABBREVIATIONS

BEI	Built Environment Index
BMI	Body Mass Index
CBD	Central Business District
CBE-OUT	Built Environment Outdoor Checklist
COURAGE	Collaborative Research on Aging in Europe
D'MOSS	Durban Metropolitan Open Space System
EMA	Ethekwini Municipal Area
GDP	Gross Domestic Product
GIS	Geographic Information System
GPAQ	Global Physical Activity Questionnaire
HCBD	Health Canada by Design
HSRC	Human Sciences Research Council
IDP	Integrated Development Plan
MRC	Medical Research Council
NCD	Non-Communicable Disease
NDP	National Development Plan
NGO	Non-Governmental Organisation
WHO STEPS	WHO STEPwise approach to NCD Risk factor surveillance
WHO	World Health Organization

1.1 Introduction

The connection between town planning and health concerns date back to the origins of the town planning profession in the 19th century. Town planning controls, such as zoning schemes were developed to separate incompatible land uses such as industrial, commercial, and residential land uses to reduce the spread of infectious diseases. Zoning became a crucial tool with which to protect the health and welfare of citizens. The use of planning controls to make provision for dirty and clean land uses bears testimony to the historical linkages between town planning and health concerns (Wells, Evans & Yang 2010; Barton, 1978).

To an extent, zoning controls were effective in reducing the spread of infectious diseases. The spatial separation of land uses and availability of affordable liquid fuels in the 20th century enabled the development of energy-intensive cities. As a result, many cities became dependent on the motor car for transport (Capon, 2015:597). Extensive road networks had to be constructed to accommodate people who owned motor cars, many of whom lived in residential suburbs. The suburbs had better amenities than the dense and noisy inner city and offered access to nature and public open spaces. As a side effect, the dependency on motorized transportation reduced the time available for walking and other forms of physical activity. Unintentionally, it seemed the separation of land uses had contributed to the emergence of a passive lifestyle (Frumkin, 2002:201).

Lifestyle choices are linked to the global increase of lifestyle diseases. According to the World Health Organisation (WHO,2018:7), lifestyle diseases are the “leading causes of death globally and carry a huge socio-economic cost that extends beyond health to trap people in poverty, deny them a life of dignity, undermine workforce productivity, and threaten economic prosperity”. The main types of lifestyle diseases include cardiovascular diseases, chronic respiratory disease, stroke, diabetes and certain cancers. Primarily, lifestyle diseases are conditions that result from people’s daily habits, behaviours and a combination of factors including environment, genetics and physiology. The habits prevent people from physical activity and push them towards a sedentary routine. They are linked to a number of adverse health issues that can lead to chronic non-communicable diseases that have near life-threatening consequences (Tabish, 2017:2).

The distribution of public spaces seems to disproportionately favour the suburbs. This observation is supported by (Wolch, Byrne & Newell, 2014), who state that access to public spaces appears to follow demographics such as income, age, gender, racial and other differences. Minorities and low-income earners reside in the inner city where public open spaces were scarce or poorly maintained. To this end, planning policies need to address such discrepancies and be responsive to the greater population and ensure that there is equitable distribution of and access to the public spaces. The health and well-being of minority groups and vulnerable communities should be an integral part of the planning process as opposed to being an afterthought (Ellis, Hang & Mannion, 2010). Similarly, the WHO (2018) found that lifestyle diseases were becoming a huge socio-economic threat by creating enormous disparities of opportunity, wealth, and power. Their impact on low-income and lower middle-income countries was a key challenge. In most countries, the poorest and most vulnerable populations were at high risk and the least likely to have access to the services they need to detect and treat lifestyle diseases. These findings suggest that planning policies need a review strategies that improve health outcomes for the low-income and minority groups.

To mitigate against the health concerns, urban planning strategies must be responsive to urbanisation in a manner that promotes healthy living and discourages the dependence on motorised transportation. The strategies need to reconfigure space to favour walkability and physical activity. Walkable public open spaces in urban areas need to be available and accessible in close proximity to homes and places of work. Urban regeneration strategies such as development of pedestrian and bicycle-friendly movement corridors and provision for public transportation should feature prominently in integrated development strategies (Bornstein, Pate & Pratt, 2009).

The National Development Plan (NDP,2013:101-109) states that South Africa needs to prioritise policies that improved the capabilities and chances of its large youthful and working age population on areas such as better health, food security, skills, and labour market entry. This observation affirms the notion that investment in youth health was crucial for the country's economic development. Similarly, a survey conducted by the South African Institute of Race Relations (2013) found that two-thirds of South Africa's population was urbanised. According to the survey, the main causes of urbanisation include higher economic growth in urban centres and free movement since the democratic dispensation in 1994. Evidently, metropolitan cities such as Durban, also known as eThekwini, were attractive to the youth for the economic opportunities. The city has a variety of studying and employment opportunities, and at least four universities and a host of vocational colleges.

As a port city, Durban has diverse economic sectors that include manufacturing, services, telecommunication, and logistics. These factors make eThekwini an attractive economic hub for the youth seeking to further their studies and better employment prospects (eThekwini Municipality,2016:48).

This introduction discussed the historical connection between health concerns and town planning and showed that planning policies may have inadvertently contributed to passive lifestyles that have attributed to the prevalence of lifestyle diseases such as dependence on motorised transport which reduced time available for walking. The discussion also revealed that the distribution of public open spaces was disproportionate against low-income groups in cities. As a result, the discrepancies worsen the socio-economic threat of lifestyle diseases on the vulnerable population groups. The introduction set the scene for the study and showed connections between town planning and health concerns. The study seeks to indicate that configuring the built environment, as a town planning intervention, can be a catalyst to address the incidence and prevalence of lifestyle diseases among the youth living in eThekwini.

The following section would discuss the background for the study and the problem statement. It would further discuss the aims, objectives, the main research question, and hypothesis that were the basis of this study.

1.2 Background

Comprehensive planning, which was based on the assumption that "physical and social challenges would be addressed by physically manipulating the built environment, marked the earliest coordinated reactions to the urban chaos of the industrial revolution". In the 19th century, comprehensive master plans that were based on physically restructuring space, assumed to provide the cure for the socio-economic problems that plagued communities living in the industrial cities (Batty & Marshall, 2009:551-553; Hirt, 2002). The growth of the industrial towns, perceived as out of control by city administrators, resulted from the influx of people, migrating from countryside to work and live in the cities. Social challenges such as overcrowding, unsanitary conditions, industrial noise and air pollution escalated. In response to the urbanisation caused by the industrial revolution, masterplans developed from the top-down for transportation systems, sewer plans, housing designs and open spaces were implemented to alleviate unhealthy conditions that prevailed in industrial cities (Perdue, *et al.,* 2003:1390).

To be effective, town planning needed to impact people where they lived and worked. Therefore, comprehensive planning sought to ensure good governance on a level closest to the people, to oversee the provision of adequate sewage systems, paved and well-lit streets, clean drinking water, wholesome air and safe playgrounds for children to play in (Crawford, 1910:287). These considerations have shaped town planning since the industrial revolution. From inception, the health and well-being of urban communities were the cornerstone of town planning.

This view is supported by the articulation of planning from by its pioneer in the formative years. Howe (1912:590) argued that, "*like all basis of life, the basis of the city is physical. The health, comfort, convenience, and happiness of its people is connected with the material side of the city*". Similarly, Patrick Abercrombie, a pioneer of town planning in the 20th century succinctly described ''*the principles of planning as beauty, health, and convenience*" (Abercrombie, 1959). These principles speak to creating a cities that support healthy living, where squares, parks, and playgrounds were essential building blocks for the wellbeing of city inhabitants. The planned settlements, road and rail networks provided convenience and ensured connectivity for the city life. Evidently, the principles of town planning reveal an understanding of the built environment as an instrument with which to provide spatial solutions to make positive outcomes on the health and wellbeing of city inhabitants.

It is clear from the background that comprehensive master planning played a significant role in ordering the chaos of the industrial cities; and remedy the public health concerns such as overcrowding and poor sanitation in the 19th century. The introduction of zoning regulations to the town planning toolkit was an important milestone, which added another dimension to planning. The regulations empowered city lawmakers to control the physical structure of the city, districting it into land uses and controlling the use of real property within their boundaries. Zoning regulations permitted the division of the city or town into zones or districts; enabled the regulation of businesses deemed detrimental to health. The construction and use of buildings in each district were regulated by zone specific land-use plans.

Through the zoning plans, achievement of a healthy community became central element of planning, especially for the vulnerable communities living in the bustling and overcrowded inner-city business districts (H.L.W., 1920). The inner city was characterised by high residential densities, and good public transport. The proximity of residential and working areas enabled walkability to local supermarkets. Motor vehicles were not necessary, inner city living provided health benefits because recreational and cultural facilities were within walking distance and easily accessible. Living in the city had its share of challenges. Heavy traffic caused air pollution, also made walking unsafe.

Space limitations made cultivating and accessing healthy food difficult (Thompson, 2007:159). The zoning regulations further enabled the creation of a pleasant living environment in the cities. This was achieved by the separation of unfavourable land uses.

Improvements in commuter trains and motor vehicles in the 19th and 20th centuries accelerated the development of commuter suburbs. The prevalence of motor vehicle ownership led to the expansion of city boundaries and continued development of suburbs on the urban fringes. To accommodate suburban dwellers, extensive highways were constructed. Owning a motor vehicle, which began as a necessity to commute from home to work, later became a status symbol that even the insignificant trips such as going to buy a newspaper, required driving a car (Frumkin, 2002:201-202). Evidently, living in the suburbs created a lifestyle change and afforded affluent people mobility to commute between home and work, to escape the squalor of living in the bustling central business district. Seemingly, the mobility marked the start of dependence on motorised transport to move around for household necessities.

The structure of the suburbs, characterised by low-density residential settlements, narrow roads and poor public transport encouraged the use of private motor vehicles. Typically, the dependence on motor vehicles would have health implications on individuals. For example, Salis & Glans (2009:128) argued that living in walkable neighbourhoods encouraged walking and cycle more for transportation.

Residents in such neighbourhoods were more physically active than those who lived in suburbs designed to be dependent on automobiles. Lear, *et al*., (2014:258) supports the argument that countries with high-income levels have the highest ownership of household devices such as motor vehicles, television and computers. Ownership of these devices is associated with increased sitting and reduced physical inactivity. These behaviours are known to increase the likelihood of lifestyle diseases such as obesity, metabolic syndrome, high blood pressure, excess body fat around the waist and, abnormal cholesterol levels and type-2 diabetes mellitus. Clearly, the popularity of the motor-centric mobility and suburban lifestyle, fuelled by changes in socio-economic conditions such as high-income levels and social class, contributed to passive lifestyle on city inhabitants. These factors point towards personal or individual dimensions of health, that is, factors that are within the sphere of control of the individual.

There appears to be a connection between an increase in income levels and lifestyle changes. Ashakiran & Deepthi (2012:7) argued that urbanisation was responsible for the lifestyle changes, which affects eating habits to the extent that urban dwellers consumed high calorie fast foods.

A study by the World Bank (2016) supports this view and argued that due to urbanisation a growing share of the global population was urbanised. The study attributes the growth of the middle class to the social and economic changes that are happening in cities. Further noting that urbanisation is not unique to developed countries. The rapid development and industrialisation of developing countries is accelerating the rate of urbanisation.

A technical report by the South African Medical Research Council (MRC, 2006:71) on chronic diseases of lifestyle revealed that increased urbanization in South Africa was associated with the adoption of a more westernized diet, which was higher in fat and has less carbohydrate and fibre than a traditional diet. The report state that diet was likely to be a major contributing factor to the high prevalence of obesity in the South African population, particularly those living in urban areas. These studies indicate that people in developing countries, like South Africa, would experience similar health challenges that confront developed countries. Inevitably, with urbanisation and high-income levels, there would be an increase in ownership of household devices, physical inactivity and changes in nutrition in favour of high calories fast food. Factors such as income levels, lifestyle changes and dietary choices all point to individual's lifestyle choices as determinants of health.

Other factors that affect health were beyond the individual's control because they are spatial in nature (Barton, 1978; Capon, 2015). For example, the urban environment in which people lived influences their lifestyle. Investigation of the spatial dimension should look at how the urban environment placed limitations on people and its effect on the levels of physical activity that people can enjoy. The spatial dimension such as the public open spaces has an influence on human behaviour. Lachowycz & Jones (2010:183-184) argued that to address the lifestyle diseases, the focus should expand beyond individual determinants of health to include socio-ecological factors. These factors would investigate how the environment in which people lived influences their lifestyle.

Socio-ecological factors look at green open spaces in the neighbourhood environment and its accessibility, as valuable resource for physical activity. "The neighbourhood environment is the geographic area near the place of residence, its quality and accessibility to support positive health outcomes such as physical activity". This argument is supported by Buck, *et al*., (2015:2-3), who argued that "environmental factors in the urban neighbourhood can positively affect health outcomes such as obesity, hypertension and other cardio-metabolic conditions by encouraging physical activity".

The neighbourhood scale or locality at which the individual benefit from the urban environment is of importance in evaluating the environmental factors. Variables such as availability of green open spaces, distance, and walkability of the neighbourhood scale count as positive environmental factors. Also, the opposite can be the said. That the absence of these factors in the neighbourhood environment would count negatively for assessment of the neighbourhood for positive health outcomes. Effectively, the urban environment may comply in terms of availability and walkability for positive health outcomes but remain inaccessible and of inferior quality.

Giles-Corti, *et al*., (2016) indicated that there was a disproportionate access to public open spaces by minority and low-income groups. An equity criterion should be integrated in assessment toolkits to enable accessibility of the built environment. The evaluation criteria for the environmental factors should not only be physical in nature. Access and quality criteria define the spatial equity dimension of the socio-ecological environment. That is, amenities may be available but be of inferior quality and inaccessible to certain persons or communities. To ensure general access to and quality of the socio-ecological environment, an enabling policy framework must be in place. In the 21st century, planning policy under the [1]integrated development planning model (IDP) is based on a collaborative planning approach. It may be argued that the (IDP) policy model represents the 21st century version of the comprehensive master-planning toolkit that seeks to address the spatial and socio-economic challenges facing urban communities.

In the South African context, the [2]Constitution provides a broad framework for municipal (town) planning. Section 153 (a) and (b) prescribes the development duties of municipalities with regards to administration, budget, and planning processes. The [3]Municipal Systems Act provides further direction on the orientation of municipal planning. According to the Act, the Integrated Development Plan (IDP) has a five-year planning horizon, which the municipality must implement to meet the socio-economic needs of its citizens.

[1] "A participatory approach to integrate economic, sectoral, spatial, social, institutional, environmental and fiscal strategies in order to support the optimal allocation of scarce resources between sectors and geographical areas and across the population in a manner that provides sustainable growth, equity and the empowerment of the poor and the marginalised" (Forum for Effective Planning and Development,1995).

[2] **Act 108 of 1996** (Section 153) "A municipality must- *(a)* structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community, and to promote the social and economic development of the community; and *(b)* participate in national and provincial development programmes".

[3] **Act 32 of 2000** (Section 23) " (1) A municipality must undertake developmentally-oriented planning so as to ensure that it: (a) strives to achieve the objects of local government set out in section 152 of the Constitution; (b) gives effect to its developmental duties as required by section 153 of the Constitution; and (c) together with other organs of state, contribute to the progressive realization of the fundamental rights contained in sections 24, 25, 26, 27 and 29 of the Constitution".

Ideally, the municipal (town) council develops the IDP after consultation with stakeholders living within its jurisdiction. Stakeholders such as established business sector, organised labour, youth and civil society represent diverse and sometimes competing interests that must feature equitably in the IDP.

This background discussion provided insight about town planning, how the planning practice evolved since inception from the centrist-orientated, top-down approach to a collaborative, bottom-up planning approach. The background indicated that low-income earners and other fringe communities who reside in the central business district (CBD) did not enjoy spatial equity and access to spatial infrastructure. As a result, this urban community was susceptible to lifestyle diseases and other socio-economic challenges. The vulnerability of minority communities and low-income earners, especially the youth in the city challenges policymakers to design responsive spatial policies.

Essentially, planning policies should cater for the fringe communities with regard to social amenities such as community parks and walkways to enhance their quality of life. Interventions of integrated development planning should alleviate and not contribute to health concerns of the urban youth. Finally, the background revealed that due to urbanisation, increase in income levels and changing lifestyle patterns of city inhabitants, there was likely to be an increase in the prevalence of lifestyle diseases. In this regard, the study sought to understand impact of open spaces on the prevalence of lifestyle diseases among the youth by evaluating:

- If the planning policy was sensitive to the spatial limitations faced by the youth;
- Accessibility of public open spaces to the youth to encourage positive health opportunities;
- How the youth used public open spaces to achieve positive health outcomes;
- If using a spatial dimension as a policy intervention would to reduce lifestyle diseases on young people;
- The behavioural patterns of urban youth and their effects on the prevalence of lifestyle diseases;
- Whether the youth participated in planning decisions that affect their wellbeing.

1.3 Problem Statement

Lifestyle diseases arise from and are connected to the way people conduct their lives. Their occurrence is based primarily on the daily habits of people and inappropriate relationships they have with their environmental surroundings. Also called non-communicable diseases (NCD's), lifestyle diseases cannot be passed from person to person (Sharma & Mujumdar, 2009).

From this assessment, it can be hypothesized that there is a causal association between people's lifestyle and their immediate environment, and it further suggests that the environmental conditions could be a catalyst for positive or negative health outcomes.

At the turn of the 21st century, the 53rd World Health Assembly convened by the World health Organization (WHO) warned that the rapid increase of non-communicable diseases represented one of the prime health challenges to global development. "Lifestyle diseases threaten economic and social development including lives and health of millions of people" (WHO,2000:1). According to the Country Profile Report on non-communicable diseases, lifestyle diseases are the leading causes of death globally, killing more people annually than all other causes combined. The report states, "of the 57 million deaths reported in 2016, NCD's caused 41 million deaths, an equivalent of 72% of the global death toll". Annually, 15 million people between the ages of 30 and 69 years die from non-communicable diseases. Over 85 % of these deaths occur in low- and middle-income countries, which would result in cumulative economic losses of US$7 trillion over 15 years.

The WHO warns that, if "business as usual attitude" continues, the total annual number of deaths from non-communicable diseases will increase to 55 million by 2030 (WHO, 2018:8). The Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013-2020, identified four major non-communicable diseases as cardiovascular disease, comprising 48% of NCD's, cancer (21%), chronic obstructive pulmonary disease (12%) and diabetes (2.5%). These chronic diseases share common preventable and modifiable risk factors related to lifestyle such as tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol (WHO, 2013:7). These reports illustrate that lifestyle diseases are a global phenomenon with huge social and economic consequences if they are not controlled. The threat from these diseases is more alarming because they affected the economically active population groups.

It is hereby argued that global agencies cannot champion the fight against these chronic conditions alone. To make a meaningful impact against the plight of non-communicable diseases, regional and national agencies need to mount similar strategies. In 2007, the African Union (AU) developed the first Africa Health Strategy 2007-2015, with a subsequent revision that extended it from 2016–2030. Among the key focus areas of the Strategy, were to strengthen national health systems to enable achievement of universal health coverage; support research and development of medicines and technologies to address both communicable and non-communicable diseases. One of the strategic objectives was to prioritize programs that address risk factors and premature mortality from diabetes, cancer, cardio-vascular

diseases, respiratory infections, mental health, and other non-communicable diseases with a particular focus on combating tobacco use, substance abuse and other risk factors.

One of the priority programs of the Africa Health Strategy is focus on the most productive sections of society such as women, youth, adolescents, children, and persons in vulnerable positions. The Strategy proposed approaches such as:

- Multi-sectoral partnerships that address socio-economic and environmental determinants of health and enabling improved health sector performance, and
- Investing in adolescents and youth, as a morally correct and rational economic intervention with a high return on investment. "Youth were better equipped to reach their full potential if they were healthy and well-educated. Strategic investments in adolescents and youth will position Africa to reap the demographic dividend" (African Union, 2016:24).

The Strategy emphasised the importance of focusing on the health challenges facing the youth and prioritising the risk factors for non-communicable diseases. There was also realisation that any intervention is incomplete without socio-economic and environmental determinants of health because the youth are key to the economic development of the continent.

Nationally, South Africa convened a Summit on the Prevention and Control of Non-Communicable Diseases in 2011.It adopted a Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2013-2017 to decrease premature death from NCD's by 25% in 2020. The Strategic Plan "acknowledged the devastating effect from the NCD's and regarded them as a development priority rather than a health only concern" otherwise, the mortality rate from noncommunicable disease will not reverse (Department of Health, 2011:4-5). The South African government acknowledged the importance of collaboration between various stakeholders to reverse the national mortality and burden from non-communicable diseases. A Global Status Report on NCD's for South Africa found that non-communicable diseases and injuries accounted for 49% of mortalities. At least 40% of NCD premature deaths were among men and 29% women and affected people below 60 years.

In 2013, over 38,000 South Africans died from cancer-related causes. The prevalence of hypertension in South Africa is at 25.2%, and diabetes at 12.9%, and 25% of adults are obese, half (50%) are overweight, and half (50%) are physically inactive (WHO, 2016:13). These findings mirror similar studies on non-communicable diseases. A Technical Report by Medical Research Council found that more than 25% of the youth surveyed reported watching more than 3 hours of television per day. The disease patterns in

South Africa are characterized by a combination of poverty-related diseases together with the emerging chronic diseases associated with urbanization, industrialization, and a westernized lifestyle, which is higher in fat and less carbohydrate and fibre than traditional diet. The Report identified three common elements of unhealthy lifestyle that predisposed the onset of chronic non-communicable diseases. The long-term use of tobacco, lack of regular physical exercise and consumption of an unhealthy diet exceedingly high in salt, cholesterol, alcohol, sugar, and energy intake, very low in fibre and vitamins (Steyn, Fourie & Temple, 2006:1).

These studies indicate that more men than women die from NCD's. The age demographic illustrates that most fatalities affect the economically active age groups, which is people below 60 years. In addition, youth behavior appeared to be a contributing factor in the prevalence of NCD's within this age group. Other studies support this observation. For example, Peer, *et al*., (2013:5) argued that food-marketing companies directed their advertising at the youth, encouraged 'obesogenic' lifestyles, unhealthy dietary habits, and less physical activity through indoor activities such as watching television. Similarly, Ashakiran & Deepthi (2012:7-8) state that "globalisation and increasing urbanization have affected eating habits such that high fat and salt intake were likely to increase among young people". The studies indicate that cconsumption of diet high in salt and sugar, and lack of exercise are major contributors to the non-communicable disease burden. Youth living in urban areas have easy access to public transport and were unlikely to walk longer distances to school, college, and shopping centres.

These observations imply that the youth was predisposed to risk factors such as unhealthy diet and physical inactivity by virtue of the design of the environment they reside in. Consequently, the youth are vulnerable to food marketing companies who target them for their fast-food campaigns.The risk factors for NCD's are adopted early in life but are modifiable and preventable. It is reported that smoking onset, regular use, and dependence among most adult smokers usually began during adolescence around 10-18 years, wherein 37% of men, 7% of women aged 15 years and older smoke or use other tobacco products (Statistics South Africa, 2016:37). Evidently, habits adopted at adolescence open pathways to addiction into adulthood. Oosthuizen, Jinabhai, Terblanche & Becker (2008:70-71) argued that the risk of contracting pneumonia was 3.4 times higher for an ever-smoker and three times higher for someone living with a smoker in the same house. Initiation to alcohol use, at pre- and early adolescent years, increased the susceptibility to alcohol use disorders later in life. Linkages also exist between the length of exposure to alcohol and its harmful effects on the body.

The Country Cooperation Strategy for South Africa 2016-2020 (WHO, 2016:13) revealed that smoking prevalence and harmful use of alcohol was at 27.1 litres per person per year, which were among the highest on the African continent at 16.2%.

Regarding smoke, men at 26.5% and youth at 12.7% smoke daily. Effectively, young people start experimenting with tobacco and drinking alcohol at a young age. The statistics suggests that adopting risk habits, such as smoking and drinking, at young age usually becomes a lifestyle that tracks into adulthood. At which point it worsens due to changes in socio-economic status. Therefore, it can be deduced that human habits create favourable conditions for the onset of chronic non-communicable diseases at an early age.

The evidence suggests that a multi stakeholder approach would be more effective to address the challenges from NCD's. Government alone cannot carry the costs to deal with the burden of the chronic diseases. Collaboration among the private sector and civil society is required to support government efforts. Steps must be taken to counter the prevalence of lifestyle diseases. From the global statistics, it is evident that NCD's affect a large proportion of the youth and people who fall within the economically active age groups. Similarly, the morbidity trends in South Africa followed the global patterns.

It was further revealed that the social status and conditions in the built environments shaped lifestyle and ultimately, health outcomes. Therefore, managing lifestyle diseases should not be viewed through the medical lens only. Interventions should take a multi-sectoral approach and take into consideration the effects of spatial configuration on economic choices that people make to survive. Duncan, *et al*., (2014) argued that addressing limitations in the built environment improved its accessibility. Furthermore, access to recreational open spaces can influence leisure time physical activity. The spatial limitations act as a deterrent to physical activity. For example, high traffic volumes in the immediate vicinity of homes could inhibit physical activity. Busy roads become a physical barrier and walking in high traffic density areas was unsafe. Similarly, Hayward, *et al*., (2015) argued that the built environment influenced behaviors and health outcomes. Given the limited availability of supermarkets and recreation areas within walkable distances, and increased exposure to crime and traffic in urban neighborhoods was associated with increase in obesity. Because accessing neighborhood amenities entail walking long distances, which was discouraging or required access to and use of motor vehicle. If the streets or sidewalks become crime hotspots, then residents would be discouraged from using sidewalks for exercise.

These studies support the assumption that features of the built environment can aid or disable physical activity. Inaccessible facilities are, in fact, self-defeating and not helpful to the community's wellbeing. The neighbourhood and its roads should be designed for walkability and be pedestrian-friendly, with ease of access to shopping and recreational facilities. Addressing anti-social behaviour such crime would make neighbourhoods attractive and user-friendly.

The social and spatial limitations to the enjoyment of environmental benefits raises spatial justice concerns. As users of neighbourhood amenities, the community should participate in addressing local concerns. For example, decision-making on upgrading of local infrastructure, such as installation of speed humps to calm traffic around schools and shopping centres. Jennings, Gaither & Gragg (2012:2) argued that minority and low-income communities were likely to live in "riskscapes", which are dangerous neighbourhoods, due to inequitable access to amenities such public open spaces. Risks associated with dangerous neighbourhoods deny communities the psychological, economic, and cultural benefits of open spaces, and subject residents to imbalances in land use practices. The unequal access to the health benefits of green spaces promote ecological health inequalities. Low-income groups were the most at risk of spatial injustice . Wolch, Byrne & Newell (2014:235) state that low-income earners usually occupy areas in the urban centre where green space was either scarce or not maintained. Reasons behind the unequal distribution of green spaces included historical land development policies, evolving ideas about leisure and recreation, and histories of class and ethno-racial disparity and state oppression.

These studies support the argument that social and spatial limitations create unpleasant environments for the disadvantaged, low-income communities. Consequently, exposing residents to risk factors linked to lifestyle diseases. Other studies revealed that open spaces offered tangible health benefits. For example, Andrews & Wolf (2015:4) argued that open spaces offer noticeable physical, mental, and social health benefits, and unique resources that encouraged healthy behaviours and lifestyles.

It has been demonstrated that open spaces offer a wide range of health benefits, from physical, psychological to social wellbeing. These environmental benefits support the hypothesis that accessibility of open spaces can address the prevalence of lifestyle diseases, and that medical interventions alone were inadequate to deal with the burden of disease caused by lifestyle diseases. Therefore, health and wellness of the community cannot be defined in medical terms only. The definition needs to be broadened to

include social and environmental elements. The WHO Constitution[4] offered a holistic definition of health. It stated that “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946:1). The definition broadens the understanding of health and wellness and draws linkages from the medical and social elements, and that without other pillars, one element was not enough to support social wellbeing.

Literature point to multi-sectoral approaches in policy design and strategy formulation to deal with the burden of disease posed by the lifestyle diseases. The problem statement highlighted the effects of urbanization and socio-economic environment on the prevalence of lifestyle diseases, their negative impact on the young and economically productive age groups. The distribution of lifestyle diseases across the age and gender demographics revealed that young people in urban areas, mostly males were at higher risk. Low and middle-income groups in advanced and emerging economies were most susceptible to the severe effects of lifestyle diseases. The statement also revealed that the lifestyle diseases were preventable through the reduction of the main four risk factors, namely tobacco use, harmful use of alcohol, unhealthy diet, and physical inactivity. The literature also revealed that the built environment provided pathways to address non-communicable diseases. This study focused on public open spaces as a spatial intervention to address the prevalence of non-communicable diseases among the youth.

1.4 Aim of the Research

The aim of this research was to:

- Evaluate whether the built environment in the Central Business District of eThekwini encouraged passive lifestyles among the urban youth.

1.5 Objectives of the Research

The objectives of the research were to:

- evaluate whether the built environment in eThekwini CBD enabled or limited physical activity.
- Assess the if levels of physical activity among the youth were adequate.
- evaluate whether youth lifestyle exposed them to risk factors linked to lifestyle diseases.
- Evaluate the prevalence of lifestyle diseases among the youth living in the CBD;

[4] The Constitution was adopted by the International Health Conference held in New York from 19 June to 22 July 1946, signed on 22 July 1946 by the representatives of 61 States.

- Assess whether the youth participated in urban regeneration plans.

1.6 Main Research Question

The main research question was to find out:

- What effect did the built environment in the Central Business District of eThekwini have on the lifestyle patterns of the youth?

1.7 Research Sub-Questions

The research endeavoured to answer the following sub-questions:

- How did policymakers evaluate the built environment at eThekwini Municipality for health impact when reviewing urban regeneration plans?
- How were public open spaces prioritised when developing urban regeneration plans?
- What were the concerns about using public open spaces in the CBD ?
- How accessible were public open spaces?
- What risk factors were the youth predisposed to in relation to lifestyle diseases?
- What were the benefits of engaging in physical activity in public spaces?
- How were urban regeneration plans reviewed for health impacts?
- What considerations informed the distribution of public open spaces in the city?
- What caused discrepancies in resourcing public open spaces?

1.8 Hypothesis

This hypothesis for the study was to assess whether:

- The configuration of the built environment influenced the prevalence of lifestyle diseases among the urban youth and if adding a spatial dimension in policy design can have positive health outcomes.

1.9 Motivation for the Study

The youth is an asset for a developing country like South Africa. Their health and wellness was crucial to the political and economic stability of the country. Unless the youth was healthy and productive, the country would suffer economically, and the future would be bleak. According to the Draft National Youth Policy (2015:6), "*youth are faced with peculiar challenges in the 21st century and should be empowered through effective policies to overcome conditions that disadvantage them*".

The researcher's wish to find solutions to the challenges facing the youth and propose a reconfiguration of the built environment to reverse the burden of disease from the lifestyle diseases motivated the study.

South Africa, like other developing countries was faced with many socio-economic challenges that require the allocation of scarce financial and human resources. The common practice for developing countries would be to channel available resources towards alleviating the primary challenges of poverty reduction, HIV/AIDS, and inequality. Given the scarcity of resources, alleviating lifestyle diseases would be relegated to secondary or even tertiary challenges.

This view was compounded by the fact that focus on the built environment as the strategy to combat the prevalence of lifestyle diseases was not prioritised in developing countries. These conditions are recognised as a burden to the South African economy (National Development Plan, 2013). There were limited case studies in South Africa that analysed the role of the built environment and its connection to lifestyle diseases. And ,it seems this approach is not about to change when observing the state of the built environment locally.

The current approach on combating non-communicable diseases in developing countries was based clinical interventions, which by their nature were focused on the diagnosis and treatment of symptoms than addressing the causes of disease or ill-health. Such interventions are do not have a population-wide impact because they are case specific. Compounding this challenge was the fact that most people do not present themselves for early screening of lifestyle diseases.

Despite the fact there was credible theory and evidence that linked the built environment to health and well-being (Northridge & Freeman, 2011:557). The built environment could play a vital role in mitigating the prevalence of lifestyle diseases among the youth. From the planning of neighbourhoods, transportation systems to designing and allocation of public open spaces for outdoor recreation.

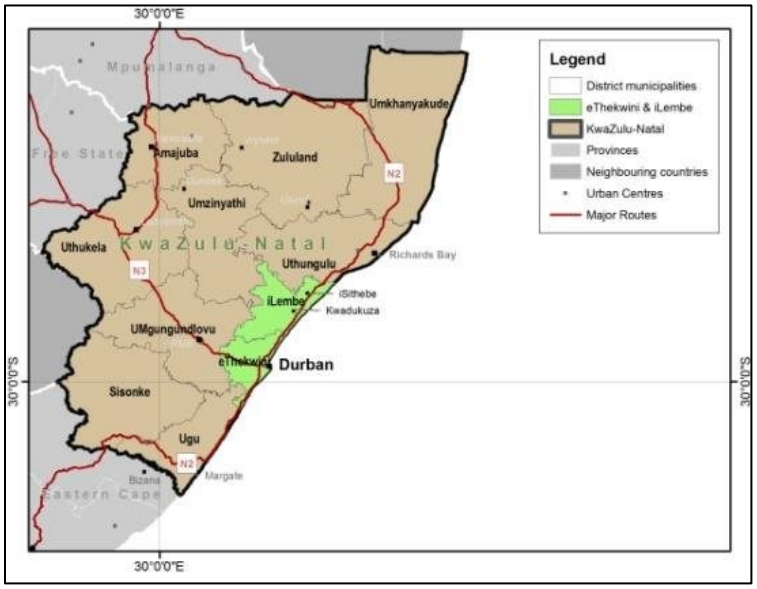
The study highlighted that configuring the built environment could have positive outcomes for the youth and the economy of the country. Lastly, the study sought to add intellectual capital to the body of knowledge and to encourage interdisciplinary collaboration to make cities less obesogenic and truly liveable.

1.10 The Study Area

The study area is located in the city of eThekwini, formerly known as Durban, in the province of KwaZulu-Natal. EThekwini is located on the east coast of KwaZulu-Natal Province, South Africa. It is the third most populated city in South Africa and the largest city in the province of KwaZulu-Natal (figure 1). eThekwini covers a land area of 2,297 square kilometres.

The city has an estimated population of approximately 3,5 million people, and accounts for 34.7% of the total population of the KwaZulu-Natal province. At least 30% of the population is under the age of 15 years, and 63% of the population is below the age of 35 years. The population grew by 1.08%. from 2011 (Statistics South Africa,2011).

Figure 1. Province of KwaZulu-Natal



Source: ResearchGate,2020 (Accessed May 2020)

Figure 1 shows KwaZulu-Natal province, and eThekwini as the major economic hub with major national routes (N2 and N3) connecting the city to the rest of the country.

The city's apartheid past was central to the numerous challenges that shaped its development, which include the spatial marginalisation of various communities from transport access and their places of work (United Nations Habitat,2019).

1.11 Scope of the Study

The youth living in the Central Business District of eThekwini was the target population for the study . The study sought to evaluate if adding a spatial dimension such as public open spaces as an intervention strategy to combat the incidence and prevalence of lifestyle diseases on the youth would have positive health outcomes.

To achieve this objective, the study evaluated attributes of the built environment such as public open spaces and used qualitative methods to assess the levels of physical activity among the target population. For ethical reasons, the study relied on self-reported accounts about state of health and levels of physical activity from the target population. Data was collected from the target population using semi-structured interviews (Annexure 1 and Annexure 2). No personal medical records were accessed to generate data for the study. Observation data was gathered using an observation schedule (Annexure 3), from three observations sites located in the CBD, namely Albert Park, Bulwer Park, and Durban Country Club Beach.

1.12 Structure of the Dissertation

The dissertation is organised into six chapters. The first chapter provided the introduction and background to the study. It outlined the problem statement by discussing the rapid increase of non-communicable diseases which threatened economic and social development. It revealed that a multi-sectoral approach was required to review the limitations in the built environment which influenced behaviours and health outcomes. The chapter also described the aims and objectives for the study. It discussed the main research question, outlined research sub-questions, and discussed the motivation for the study. It further provided a scope of the study and a brief description of the study area.

The second chapter reviewed literature in developed and developing countries. The chapter described the built environment and its linkages to health behaviours. Open spaces, as an important quality of the built environment that encourages physical activity, was discussed. The chapter highlighted global debates on the built environment as a strategy to address non-communicable diseases. Developed countries such as Finland, Poland and Spain developed tools to evaluate both the objective and subjective attributes of the built environment. The tools were necessary to assess the relationship between the built environment and physical activity in developed countries. The chapter further discussed that few studies investigated the built environment and health outcomes in developing countries, perspectives on non-communicable diseases and provided status of non-communicable diseases nationally.

The third chapter provided the theoretical and conceptual frameworks that underpinned the study. It examined principles such comprehensive rationality, physicalism, and top-down approach in relation to modern planning . The concepts of inclusivity and participation, diversity, consensus, and spatial justice chapter were discussed in relation to the communicative rationality (collaborative planning) theory.

The fourth chapter discussed research methodology. A qualitative research approach was used to generate research data. The study used a purposive sampling strategy to select the study population. Primary data was generated from semi-structured interviews (Appendix 1 and Appendix 2) and an observation survey (Appendix 3).

The fifth chapter described the study area with regards to demographics, population structure and age profile. It provided a profile of the study participants and key informants, and an overview of the observation sites . It discussed the consumer behavioural profile of the target population. The chapter presented the research findings and analysed the data. It provided a thematic analysis of the data collected from interviews with key informants and the target population. The chapter also provided a synopsis of the research findings.

The sixth chapter made various recommendations on policy framework, planning with communities, accessibility of public open spaces ,assessment of physical activity and configuring the built environment as a catalyst for active lifestyles. It discussed contribution of the study to knowledge and made suggestions for further study. The chapter also summarized the key findings of the study.

1.13 Summary

This chapter provided the introduction and background to the study. It outlined the problem statement and described the aim and objectives of the study. The chapter discussed the main research question, outlined research sub-questions, and discussed the motivation for the study. It further discussed the scope of the study and a brief description of the study area. The following chapter will review literature.

2.1 Introduction

In this chapter, the review of literature would identify global and regional debates and emerging thinking about the built environment as a strategy to address non-communicable diseases (NCD's). The review would look at various strategies that developed countries use to address the prevalence of chronic non-communicable diseases and identify spatially aligned strategies to achieve positive health outcomes for their populations. Literature has revealed that developed countries such as Canada, Europe and United States apply multi-sectoral approaches to reduce the incidence and prevalence of risk factors related to chronic non-communicable diseases.

Coghill, Valaitis & Eyles (2015:3) state that public health practitioners integrate environmental determinants of health such as the built environment characteristics to address physical inactivity and obesity. The policies look at land use planning and transportation to encourage physical activity and reduce obesity. This argument is echoed by Racioppi, Dora & Rutter (2005:303) who argued that, addressing concerns of physical inactivity required development of new partnerships and multi-sectoral policies from diverse sectors, particularly those in transport, land-use and urban planning, education, and environment to provide conditions that enable people to choose more physically active lifestyles and integrate physical activity into their daily lives. It is becoming apparent that health and wellness can be enhanced by creating liveable built environments. By extension, town planning can contribute to population health where there are collaboration efforts from various disciplines.

The following section would discuss the concept of built environment; how developed countries measure its attributes and use its value adding qualities to support positive health outcomes to decrease the prevalence of chronic non-communicable diseases. The discussion would look at how developed countries design their built environments to stimulate positive health behaviours in their populations to minimize adverse health effects from the built environment. Secondly, it would look for lessons that developing countries can adopt and policy frameworks that can be replicated by developing countries to design responsive and liveable built environments for their populations.

2.2 Built Environment

The built environment includes land-use patterns and all buildings, spaces and elements that people construct or modify. This covers homes, schools, workplaces, parks, recreation areas, green spaces, business districts and transport systems (Edward & Tsouros, 2006:5). studies have found that there was a connection between the built environment and health outcomes of communities. For example, (Bennett, Wolin & Duncan, 2008:342) argued that social environment and neighbourhood characteristics are important social determinants of health, and that it is not possible to explain the pattern of distribution for most conditions by only focussing on individual behaviours and health practices. The built environment can increase leisure physical activity like walking and exercise which can decrease obesity. Globally, obesity among young people is one of the serious public health concerns that affect large populations. This argument suggests that neighbourhood surroundings influence individual health. Similarly, Duncan, *et al*., (2014:1359) supports the argument that people who reside in neighbourhoods with recreational open spaces were likely to be physically active and have less body weight compared to living in neighbourhoods with scarce recreational open spaces. Living adjacent to parks was also associated with increased physical activity during leisure-time. Land use mix such as walkability and residential density contributed to transportation physical activity.

Furthermore, Blay, Schulz & Meritz (2015:138) found strong linkages between neighbourhood characteristic and health behaviours. That, people living in neighbourhoods with adverse built environment conditions had reduced levels of physical activity, and increased tobacco and alcohol use compared to those living in neighbourhoods that support physical activity. The studies suggested that positive characteristics of the built environment could enhance physical activity such as walking and exercise. Furthermore, living closer to open spaces or neighbourhoods that have such facilities was likely to influence positive health outcomes. The inverse is also true, that communities suffer adverse effects, with the risk of multiple chronic diseases when the built environment has adverse conditions. from the above studies, it is evident that understanding the relationship between built environment and physical activity is crucial to mitigate the chronic non-communicable diseases. Equally important is identifying the specific features of the built environment that support or limit people from living active lifestyle.

Effectively, personal behaviour and health outcomes are a reflection of the neighbourhood people live in. By reference, the prevalence of chronic lifestyle diseases would follow a similar pattern as the neighbourhood characteristics.

2.3 Measuring the Built Environment in Developed Countries : Finland, Poland and Spain Case Study

Appropriate tools are required to measure the suitability and responsiveness of the built environment for positive health behaviours such as physical activity. Whatever tool are available or designed, they need to enable objective and perceived or self-reported measurement of the built environment. Huston, *et al*., (2003:68) state that self-reported perceptions of the neighborhood environment rely on the individual assessing their neighborhood. The validity of the perceived assessments of the built environment measures are largely unknown. In essence, the personal views and experiences from users of the built environment amenities form the basis of these measures. However, such experiences would be subjective because they differ from person to person, lack consistency and therefore have limitations. Lucas (2018:3) supports this view and argued that such measures were ideal if the objective is to capture the individual's evaluation of their environment and measure the quality of personal life. These measures can clarify which individual-level characteristics were critical ingredients of their lifestyle. Effectively, individual assessments of the neighborhood characteristics appear to be inadequate.

Given the limitations associated with using perceived assessment, built environment measures need to be objective to reduce subjectivity. McGinn, *et al*., (2007:3) argued that evaluating both objective and perceived measures of the built environment were necessary when assessing the relationship between the built environment and physical activity. Objectively, the built environment is measured using field surveys to obtain details about sidewalk continuity, street connectivity, ease of street crossing and block length. Costs and time limit this type of assessment, which make the use of field surveys restrictive. Therefore, using objective measures can result in small study areas or sampling of a fraction of streets within a neighbourhood, which create potential sources of bias. Alternative tools such as Geographic Information Systems (GIS) can be used to objectively measure the built environment over large study areas. From the foregoing, it is evident that both objective and perceived measures have limitations. Measuring the built environment requires tools that combine both measures and that would ideally overcome the limitations.

Quintas, *et al*., (2014:204) argued that a tool should allow for the assessment of the built environment in both objective and self-reported formats and for data comparability across countries and populations, and which takes disability and accessibility into account. The tool would create the opportunity to link objectively gathered information with individuals' perceptions and experience with their built environment.

This argument is supported by Ellis, Chang & Mannion (2010:7), who argued that the planning system could become a critical tool in securing the long-term well-being of communities. The environment in which people live has a real impact on how they live, work and ultimately how they interact with others around them. An evidence-based tool that planners and policymakers can understand and appreciate is important to deliver healthier outcomes in planning and development. Essentially, this arguement support the notion of measurability of the built environment in order to enhance health outcomes of communities. Although subjective, the community's experiences with their neighbourhood should link with objective assessment tools to add value.

2.3.1 Built Environment Outdoor Checklist

To measure built environment attributes, European countries (Finland, Poland and Spain) participated in a Collaborative Research on Ageing in Europe (COURAGE) project to conduct research on healthy living and ageing. An analytical tool called the Built Environment Outdoor Checklist (CBE-OUT) was designed to record qualitative measurements. Unlike the genetic and clinical conditions that affect ageing, the Built Environment Outdoor Checklist is based on the technical measurement of the modifiable built environment attributes that are critical in the ageing process.

The CBE-OUT checklist identifies 128 items, grouped into nine categories to evaluate key attributes of the built environment known to impact on healthy living and ageing. The categories to be evaluated included streetscape, walkways, bikeways, and street-crossing/intersections, parking facilities, public facilities, site decay /urban blight and street activity. Attributes such as walkways, bikeways and public facilities on the street were found to encourage physical activity and participation in other social interactions (Vojnovic, 2006). The checklist included a section that described the general surroundings of the environment under evaluation. For example, the description of the site in relation to its historical context, whether it was urban or rural, and if the data was gathered on foot or driving a vehicle; whether there was presence of water, rubbish or other characteristics on the walkable areas that may limit walkability.

The CBE-OUT checklist enabled the combination of objectively collected information about the built environment characteristics with the individual's perception and experience about the built environment. The information is collected using the Built Environment Self-Reported Questionnaire, which together with CBE-OUT make it possible to confirm evidence about the attributes of the built environment. According to Gray, Zimmerman & Rimmer (2012), the CBE-OUT instrument can be analysed in segments or by total scores.

Indicators on sections were used to predict the health and ageing trends of the neighbourhood or the general population. Essentially, the possible effects of the neighbourhood on its population can be predicted by evaluating its elements and implement strategies to mitigate their effects. Figure 2 depicts the European countries that participated in the COURAGE program.

Figure 2. Map of Europe

Source: Google Maps,2016 (Accessed 17 October 2016)

The map depicts the geographic location of the European countries that participated in the COURAGE CBE-OUT project. The countries are spread out across the North and South Europe, an indication that the CBE-OUT tool can apply to different countries that are not necessarily adjacent. Table 1 below shows the analysis of the CBE-OUT checklist for Finland, Poland and Spain revealed the differences in how the built environment in developed countries was planned and organised.

Table 1. COURAGE in Europe Built Environment Outdoor Checklist (Finland, Poland and Spain)

General information—type of site	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
Historical	1 (0.4)	28 (2.9)	86 (7.0)
Urban	73 (29.8)	588 (60.5)	861 (69.7)
Suburban	116 (47.3)	84 (8.6)	167 (13.5)
Rural	58 (23.7)	308 (31.7)	162 (13.1)
Nature (forest, mountains, sea, lake and river)	26 (10.6)	52 (5.3)	100 (8.1)
Streetscape	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
2 lanes road	153 (62.4)	439 (45.2)	404 (32.7)
1 lane road	27 (11.0)	458 (47.1)	624 (50.5)
Transit stops	55 (22.4)	423 (43.5)	173 (14.0)
Planted vegetation	66 (26.9)	525 (54.0)	352 (28.5)
Planted trees	57 (23.3)	595 (61.2)	569 (46.1)
Street light	195 (79.6)	895 (92.1)	1148 (93.0)
No traffic	81 (33.1)	72 (7.4)	318 (25.7)
Light traffic	129 (52.7)	390 (40.1)	540 (43.7)
Moderate traffic	33 (13.5)	356 (36.6)	249 (20.2)
High traffic	2 (0.8)	154 (15.8)	128 (10.4)
Posted speed limit not visible	91 (37.1)	383 (39.4)	763 (61.8)
Limit ≤30 Km/h	37 (15.1)	114 (11.7)	173 (14.0)
Limit 31–50 Km/h	94 (38.4)	396 (40.7)	251 (20.3)
Limit > 50 Km/h	23 (9.4)	79 (8.1)	30 (2.4)
Inexistent traffic calming devices	194 (79.2)	628 (64.6)	791 (64.0)
Speed bumps	30 (12.2)	174 (17.9)	232 (18.8)
Traffic circles	10 (4.1)	75 (7.7)	150 (12.1)
Curb extensions	10 (4.1)	64 (6.6)	25 (2.0)
Other traffic calming devices	7 (2.9)	93 (9.6)	60 (4.9)
Walkways	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
Sidewalk present	172 (70.2)	798 (82.1)	1,142 (92.5)
Sidewalk on one side	44 (25.6)	231 (28.9)	58 (5.1)
Sidewalk on both sides	39 (22.7)	497 (62.3)	750 (65.7)
Sidewalk on both sides >1,3 m	31 (18.0)	317 (39.7)	498 (43.6)
Sidewalk continuous within each segment	25 (14.5)	212 (26.6)	473 (41.4)
Walkways poorly maintained	36 (14.7)	322 (33.1)	188 (15.2)
Permanent obstructions on walkways	20 (8.2)	157 (16.2)	313 (25.3)
Trees on walkways	7 (35.0)	86 (54.8)	152 (48.6)
Poles on walkways	0 (0.0)	96 (61.1)	117 (37.4)
Temporary obstructions on walkways	13 (5.3)	162 (16.7)	252 (20.4)
Garbage/waste containers on walkways	2 (15.4)	39 (24.1)	69 (27.4)
Illegal parking on walkways	5 (38.5)	95 (58.6)	105 (41.7)
Construction sites on walkways	4 (30.8)	39 (24.1)	73 (29.0)
Street crossings/intersections	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
Presence of pedestrian crossing	128 (52.2)	688 (70.8)	917 (74.3)
Painted lines	59 (46.1)	156 (22.7)	262 (28.6)
Zebra stripes	63 (49.2)	588 (85.5)	681 (74.3)
Curb cuts/kerb ramps	60 (46.9)	99 (14.4)	293 (32.0)
Traffic lights	19 (14.8)	228 (33.1)	350 (38.2)
Stops and yield signs	33 (25.8)	200 (29.1)	486 (53.0)
Info signs (e.g., pedestrian crossing)	76 (59.4)	391 (56.8)	344 (37.5)
Site decay/urban blight	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
Litter cans	10 (4.1)	186 (19.1)	134 (10.9)
Abandoned cars, bikes	7 (2.9)	3 (0.3)	11 (0.9)
Noise	14 (5.7)	66 (6.8)	88 (7.1)
Partially undeveloped site	8 (3.3)	159 (16.4)	156 (12.6)
Abandoned buildings	7 (2.9)	53 (5.5)	89 (7.2)
Properties with vandalism	4 (1.6)	148 (15.2)	161 (13.0)
Vacant lots	1 (0.4)	67 (6.9)	327 (26.5)
Animal droppings	6 (2.4)	185 (19.0)	466 (37.7)
Street activity	Finland—*n* (%)	Poland—*n* (%)	Spain—*n* (%)
People walking swiftly	90 (36.7)	472 (48.6)	483 (39.1)
People walking slowly	44 (18.0)	517 (53.2)	621 (50.3)
People walking with dogs	45 (18.4)	483 (49.7)	47 (3.8)
People doing sport activities	27 (11.0)	229 (23.6)	107 (8.7)
People doing recreational activities	6 (2.4)	59 (6.1)	14 (1.1)
People talking, chatting	26 (10.6)	595 (61.2)	691 (56.0)

COURAGE = Collaborative Research on Ageing in Europe.

Source: Quintas, *et al.*, 2013 (Accessed 15 July 2016)

Table 1 shows the different attributes and settings of the CBE-OUT checklist, and how each of the participant countries were scored.

The project found that the built environment in Finland had a negative impact on physical activity. The barriers identified in built environment were streetscapes, walkways, street crossings/intersections, public facilities, visibility along the street and street activity. Comparatively, the built environment in Spain and Poland had enabling features when similar elements were assessed.

Regarding walkability of the different countries, sidewalks were present in all three countries. However, Spain and Poland had more sidewalks at 92.5% and 82.1% respectively, on both sides of the road and more than 1.3 m wide. All three countries had trees. Illegal parking and constructions sites as the main permanent or temporary barriers obstructing the walkways. Poland had a 61.1% presence of poles as permanent obstructions, which caused limitations on walkability. Using the CBE-OUT checklist as an instrument for data gathering, features of the built environment on walkability can be studied objectively. Policy makers can extract data from the checklist to design appropriate policies that address shortcomings in the built environment, enhance health, and encourage age-friendly neighbourhoods (Quintas, *et al*., 2012).

Findings of the CBE-OUT tool indicate that European countries had varying degrees of accessibility. In Spain and Poland, the built environment attributes enabled physical activity such as walking, therefore contributed to positive health behaviours. Whereas in Finland, similar features were found to cause movement limitations, and therefore not adequately accessible to encourage the use of the built environment for physical activity. The findings also revealed that historical contexts influenced how the built environment was structured, considering the different levels of accessibility and obstructions encountered from the various features. This suggests there were variations in past policies that dealt with the built environment in the different countries. Lestan, Erzen & Golobic (2014:2) confirm these views and argued that built environments with accessible amenities and their availability in immediate surroundings supports physical activity and can greatly improve the quality of life.

The capabilities of the CBE-OUT tool to integrate many elements of the built environment in a single measuring instrument enabled analysis and comparability of data to inform better policy design. Different countries, with variable economies, can adapt the CBE-OUT tool because it is versatile to assess a wide range of attributes in the built environment and it is responsive to diverse populations. The tool makes it possible to identify limitations of the built environment on physical activity because it allows capturing objective and self-reported observations. It can be used to anticipate the health outcomes of specific communities and neighbourhoods and plan interventions. Policymakers can adopt the framework as a non-medical preventative strategy for chronic non-communicable illnesses.

Inclusion of self-reported observations in the tool gives communities a voice in plan making and encourages a bottom-up approach in decision-making. Accessibility, quality of life and safety are the underlying themes that can be drawn from the built environment tool that developed in Europe countries adopted.

Noting that the CBE-OUT tool can measure built environment features in different countries, even geographically apart. Its use can be adapted to measure the built environment features in developing countries. This would enable such countries to design planning policies and develop built environment infrastructure that encouraged physical activity. The following section would discuss tools that developing countries use to measure the built environment to encourage positive behaviours.

2.4 Measuring the Built Environment in Developing Countries : Brazil Case Study

Brazil (figure 3 below) is the largest country in both South America and Latin America and is the world's fifth largest country by area and population. It shares borders with Uruguay to the south, with Argentina and Paraguay to the southwest, Bolivia and Peru to the west and with Columbia to the northwest. Brazil has a coastline of 7,491 kilometres and borders all other South American countries except Ecuador and Chile (Britannica, 2019).

A large part of Brazil is sparsely settled with a population density of 24.66 people per square kilometre. Sao Paulo is the largest city with over 11.9 million residents and an urban population of 21.1 million. The capital, Brasilia, has a population of 2.8 million (World Population Reviews ,2019). Brazil has an estimated population of over 207 million, with a life expectancy of 71 years for males and 76 years for females. A large percentage (83.75 %) of the population is urbanised. The south-east region is the most populated, with a population of 80-million people. Portuguese is the country's official language (World Bank, 2019). The statistics indicate that females live longer than males and the population of Brazil was concentrated in major urban centres.

Given the rural-urban migration, Brazil is expected to show a high prevalence of lifestyle diseases. The purpose of this section is to review how Brazil, as a developing country, measure the built environment attributes; and what tools were used to improve health outcomes of the urban population.

Figure 3. Map of Brazil

Source: Google Maps, 2016 (Accessed 15 July 2016)

The above map illustrates that Brazil covers 47.3% of the land area in South America and is dominated geographically by the Amazon River, which is the world's largest rain forest (Britannica, 2019).

2.4.1 Built Environment Index

A majority of the studies on the association of the built environment and health originate from developed, high-income countries such as the United States and European countries. Few studies have investigated the built environment and health in developing countries (Dendup, *et al*., 2018). Studies in developed countries revealed that features of the built environment have an impact on numerous health behaviours that affect health outcomes.

For example, Melis, *et al*., (2015:2) state, "urban built environment is one of the potential determinants of health and health disparities that need consideration when formulating policy. Built environment characteristics such as housing, traffic, environmental pollution and safety can be assessed for their impact on population health".

In Brazil, studies identified a relationship between the neighbourhood characteristics, health-related behaviours, physical activity and health outcomes. Belon & Nykiforuk (2013:2) argued that "places where people live, study and work created opportunities for or limitation to engage in healthy lifestyles". This suggests that people's surroundings influence their lifestyles. The increase in the prevalence of chronic diseases globally and the limited effectiveness of individual-based interventions in long-term behavioral change have stimulated a renewed interest in the built environment and drawn attention to the influences of structural and environmental conditions on health behaviors (Cohen, Scribner & Farley, 2000). The primary focus of the studies on built environment in developing countries measured residents' perceptions of their living environment and objective assessment of the quality of the built environment. McGinn, *et al*., (2007) and Ellis, Hang & Mannion (2010) have demonstrated that people's perceptions of their neighbourhood may be subjective and would therefore need to be supported by objective review of their built environment.

The study in Brazil used the Built Environment Index (BEI) and self-reported characteristics of the home and neighbourhood environments to evaluate the health outcomes. Although the study focused on the elderly population, characteristics of the built environment that influenced various behaviours are not age specific and share common modifiable risk factors. For example, physical activity, which is a major modifiable risk factor linked to cardiovascular disease, type II diabetes, osteoporosis, some cancers, anxiety, and depression is a characteristic of the built environment (Haskell, *et al*., 2007:1423).

Using the Built Environment Index, health related behaviours such as physical activity, stress (associated with crowding and inadequate living conditions) and housing conditions were investigated. Attributes in the built environment included refuse collection, water supply, sewer supply and street lighting. The Index comprised eight self-reported indicators to evaluate the household and neighbourhood environments. Each variable was coded (0=presence; 1=absence) of a condition in the household or the neighbourhood. To produce an overall score of the built environment, the number of positive responses from the interviews were added. Scores ranged from zero to eight (0-8), where the high scores indicated negative effects in the built environment.

Table 2.Demographic and Built Environmnet Index Attributes,Brazil

Characteristic	%
Gender	
Female	66.0
Male	34.0
Age category	
60-69	56.7
70+	43.2
Education	
<4 years	66.0
≥4 years	33.7
Income	
Low income	62.1
Higher income	34.7
Physical activity	37.5
Use of tobacco	18.7
Use of alcohol	10.5
Perceived self reported indicators built environment	
Sewer	62.7
Proper sleeping arrangements	86.1
Public water support/indoor plumbing	92.8
Shower or toilet at home	92.8
Street lights	94.7
Garbage collection	95.5
Indoor electric supply with meter	95.9
Type of residence: room/slum	1.7
Medical conditions for which treatment was sought in the previous 6 month	
Hypertension	49.2
Heart problems	28.2
Varicose veins	17.3
Stroke	3.6
Diabetes	11.0
Bronchitis	27.7
Pneumonia	6.5
Back problem	43.2
Osteoporosis	15.1
Arthritis	43.3
Urinary infection	17.6
Renal problems	12.9
Visual impairment	24.3
Hearing impairment	15.4
Gastrointestinal problem	18.3
Dermatologic problem	10.5
Headache*	32.4
Cancer	1.4
Depression	21.0

Source: Blay, Schulz & Mentz, 2015 (Accessed 10 July 2016).

Table 2. above illustrates the different dimensions that were evaluated using the Built Environment Index.

Other demographic indicators such as sex, age, level of education, health behaviour were included in the survey. Certain indicators have been linked with mental wellbeing. For example, Melis, *et al*., (2015) have argued that socio-demographic variables such as education, housing tenure and employment showed linkages with mental health and use of antidepressants. The mental health was compounded by the accessibility and urban density of the built environment. Enquiry into whether respondents were physically active; used tobacco and alcohol; and about their health conditions and whether treatment was sought in the past six months included conditions such as hypertension, heart problems, stroke, and diabetes. These dimensions were coded either yes or no depending on the responses.

In relation to health conditions, a higher built environment index was associated with adverse health. The increase in the number of adverse built environment features correlated with a surge in multiple chronic health conditions such as hypertension and respiratory conditions. Northridge, Sclar & Bisnas (2003:562) support this view, argued that "poor housing may affect physical health causing greater risks of injury and violence, which increased levels of respiratory disease and gastrointestinal problems associated with cold, damp conditions and mold growth". Essentially, poor characteristics of the built environment in the case of human settlements, poor street lighting and refuse collection had a negative effect on health of the neighbourhood.

Regarding health behaviours, the Index found that among the respondents who reported three or more adverse built environment conditions. Only 33% were likely to report participating in any form of physical activity compared to those who did not report any adverse conditions in the built environment. Furthermore, those reporting adverse conditions in the built environment were likely to report the use of tobacco and/or alcohol. These findings suggest that the use of tobacco and/or alcohol increased among residents when their neighbourhood environment had more barriers to physical activity. Thorpe, *et al*., (2013:9) support this view and state that tobacco use, and excessive use of alcohol were prevalent among people that were physically inactive, because they resorted to such substances as coping mechanisms for stressful situations.

Limitations of the Built Environment Index as a tool to measure the built environment included the fact that the information on health conditions depended on self-reporting by respondents. Without an objective assessment of health conditions, there is a possibility that respondents could have understated the information about their health conditions. The Index suggest that in middle-income, developing countries there was inadequate investment in policies that focused on the impacts of the built environment on health and wellbeing.

These countries would need to develop multi-sectoral approaches that include a built environment dimension. It was demonstrated that lifestyle diseases share common risk factors, so the approach in developing countries should mirror the practice from developed countries. The other challenge in developing countries was the limited information that examined the connection between the characteristics of the built environment and health of young people. It creates a gap in planning practice and policy direction.

However, regardless of the developed or developing status of the country and size of its economy, without appropriate measuring tools to assess the prevalence of lifestyle diseases on the population; their socio-economic impact would be tragic in developing countries. Having identified tools that can measure the built environment characteristics, from this premise it would be possible to measure physical activity, which is one of the critical risk factors linked to lifestyle diseases. The following section would discuss physical activity and acceptable levels of physical activity that are expected daily per individual from different built environment settings.

2.5 Physical Activity

Physical activity has numerous health benefits that include reduced risks of coronary heart disease, diabetes, colon cancer, hip fractures, high blood pressure, and obesity. However, a study in the United States revealed that a large proportion of American youths did not partake in adequate vigorous or moderate exercise. Data from the 2003 Youth Risk Behaviour Survey revealed that 33.4% of high-school students did not engage in either satisfactory (at least 20 minutes on three or more of the past 7 days) vigorous physical activity or enough (at least 30 minutes on five or more of the past 7 days) moderate physical activity (Powell, *et al*., 2006). Effectively, the study revealed that more than a third of American youth were inactive, that they cannot spare at least 20 minutes for three days a week to partake in moderate physical activity. This is an alarming statistic on the face of increasing prevalence of chronic lifestyle diseases among young people. Individual level reasons may be subjective and may not draw a clear picture for possible reasons why there were low physical activity levels among the youth. It was worthwhile to look at the neighbourhood characteristics for objective reasons on why the youth was less physically active.

The Global Age-Friendly Cities Guide states, the built environment needs to appeal to users with different needs and capabilities, and not solely be designed for the average person. Therefore, creating a liveable and age-friendly city stressed enablement for all ages.

The built environment should allow confident mobility, healthy behavior, social participation, and self-determination across population groups. Any limitations in the built environment would create fearful isolation, inactivity, and social exclusion". The built environment should have green spaces, equipped with outdoor furniture, safe pedestrian crossings and secure walkways are important for positive health outcomes (WHO, 2007:72).

Essentially, the Guide described characteristics that would create a pleasant and clean built environment to encourage rather than discourage mobility and physical activity. These observations highlight the importance of ensuring that the built environment has enabling features for a broader community to support physical activity and achieve positive health behaviours.

International studies revealed that the built environment could impact the health outcomes of individuals in different forms. For example, William & Allen (2012) state that built environment can affect a person's disability through its impact on mobility and access to infrastructure. Hayward, *et al*., (2015:6) echoed similar views, that social elements such as unsafe pavements and roads have a negative effect on health behaviours. And, crime hotspots created unsafe spaces and limited opportunities for outdoor activities. Selecting design strategies that promote higher density neighborhoods, passive surveillance, mixed-use development, and elimination of vacant buildings would reduce opportunities for crime to occur. The following section would discuss a tool used globally to measure the acceptable levels of physical activity.

2.5.1 Global Physical Activity Questionnaire

The World Health Organization developed the Global Physical Activity Questionnaire (GPAQ) as a viable approach to monitoring eight key [5]risk factors for non-communicable diseases particularly in developing countries. This was a WHO STEPwise initiative to Chronic Disease Risk Factor Surveillance (STEPS). The identified risk factors included tobacco use, harmful alcohol consumption, unhealthy diet (low fruit and vegetable consumption), physical inactivity, overweight, obesity, raised blood pressure, raised blood glucose, and abnormal blood lipids and its subset raised total cholesterol. The STEPS approach offered low and middle-income countries an entry point to initiate programmes in NCD prevention and control activities (WHO, 2008). Effectively developing countries are empowered with readily available and accessible monitoring tools to address chronic lifestyle disease for their populations.

[5] A 'risk factor' refers to any attribute, characteristic or exposure of an individual that increases the likelihood of developing a chronic non-communicable disease (World Health Organization, 2005:5).

The GPAQ provides reproducible data and contains 19 questions grouped to assess physical activity undertaken in different behavioral settings such as work, transport and discretionary (leisure or recreation). Within the work and discretionary settings, questions assessed the frequency and duration of two different categories of activity defined by the energy requirement or intensity (vigorous-or moderate-intensity). In the transport domain, the frequency and duration of all walking and cycling for transport were captured but no attempt was made to differentiate between the activities. An extra item assessed was time spent in sedentary activities. Results indicated that GPAQ was a suitable and acceptable instrument for monitoring physical activity in population-wide health surveillance systems (Bull, Maslin & Armstrong, 2009:771).

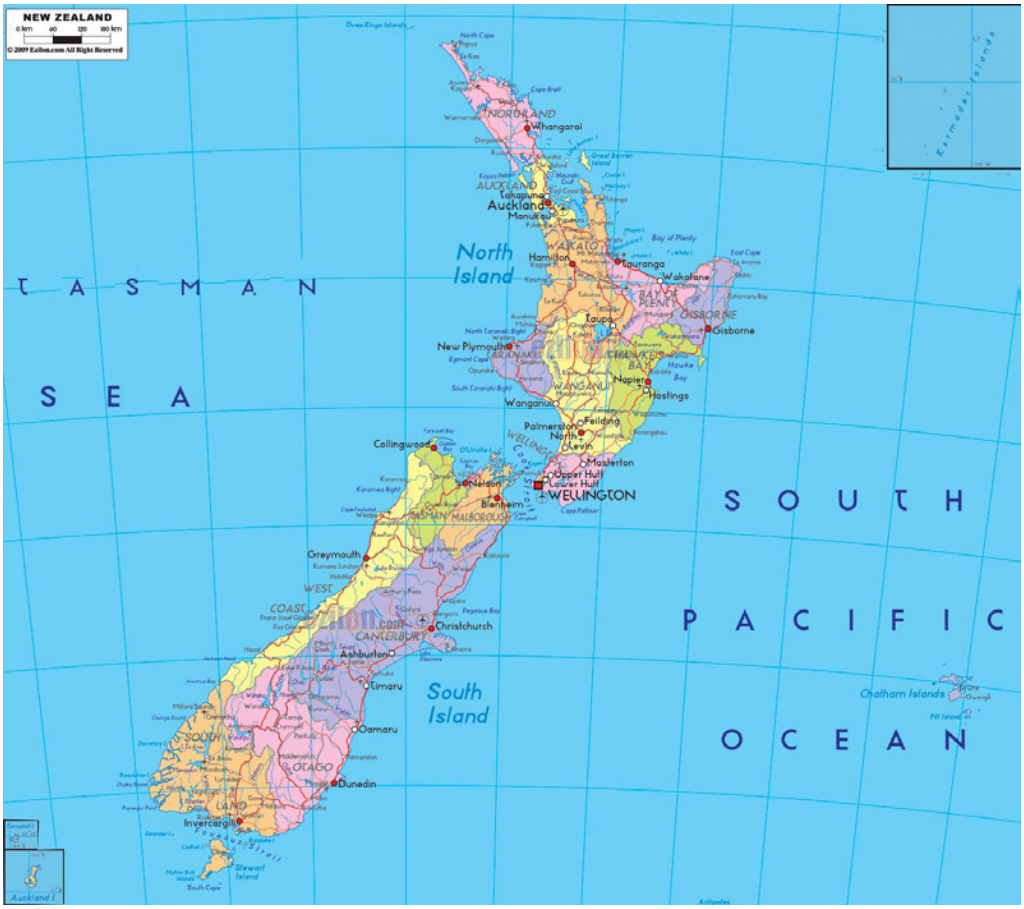
Limitations were identified with the use of the GPAQ tool. For example, a possibility for respondents to over-report or over-estimate intensity and/or duration of activity in questionnaires due to the social desirability of responses, was identified in the analysis. Another observation was that the tool had not been tested in all geographic regions where cultural and religious beliefs affected levels of physical activity. For example, in Africa and Asia, low levels of physical activity among women trying to gain weight partly explained by the need to conform to a traditional aesthetic standard (Guthold, *et al*., 2018). It was found that several countries involved in using the GPAQ tool, vigorous sampling in urban, peri-urban and rural populations was inconsistent. The feedback from respondents highlighted the importance of using quality, culturally appropriate show cards when working with sensitive demographic groups.

While the Global Physical Activity Questionnaire tool addressed the poor measurement and lack of comparable data internationally, it also revealed a need for a standardized measure of physical activity that countries in different regions can use. The tool offers policymakers an objective tool with which to influence positive health outcomes of their populations. Achieving population-wide control of lifestyle diseases is made possible by the inclusion of the built environment when designing policy. Healthcare expenses and the choice by older people to live and age in familiar neighbourhoods strengthen the case for policies that identify and eliminate limitations to physical activity from the built environment.

2.5.2 Physical Activity in Developed Countries: New Zealand Case Study

New Zealand is an island nation situated in the south-western Pacific Ocean. It is about 1600 kilometres south-east of Australia, across the Tasman Sea. Geographically, the country is comprised of two mainland masses: North and South islands and other smaller islands (see figure 4).

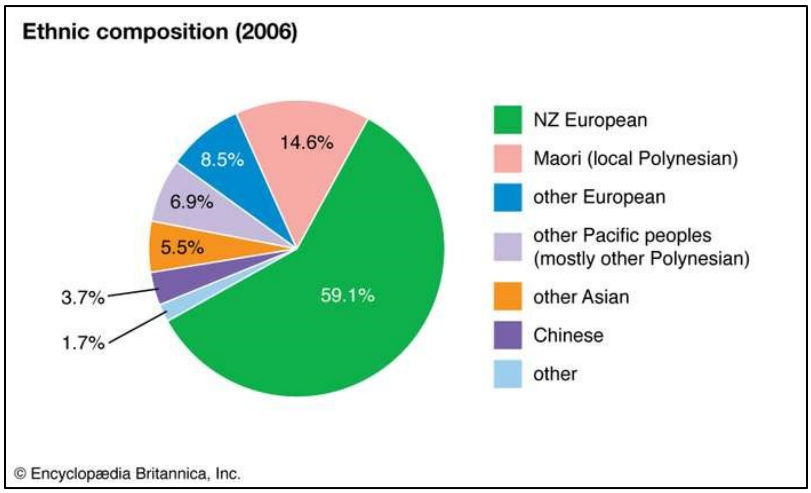
Figure 4. Map of New Zealand



Source: Google Maps, 2016 (Accessed, 15 July 2016)

New Zealand has an estimated population of 4,597 million people. Over 72% of the populace resides in the main urban centres and 53% inhabits the four largest cities (Auckland, Christchurch, Wellington, and Hamilton). The majority of New Zealanders live in the North Island. The countryside is sparsely populated. There are many small towns with populations of up to 10,000 and various provincial cities of more than 20,000 inhabitants. Some of the smallest towns and villages were deserted when people migrated to the bigger towns and cities. People of European descent are the majority and a large minority of Maori. Smaller numbers of people are from the Pacific Islands and Asia. Asians were the fastest growing demographic group in the early 21st century (Encyclopaedia Britannica, 2017).

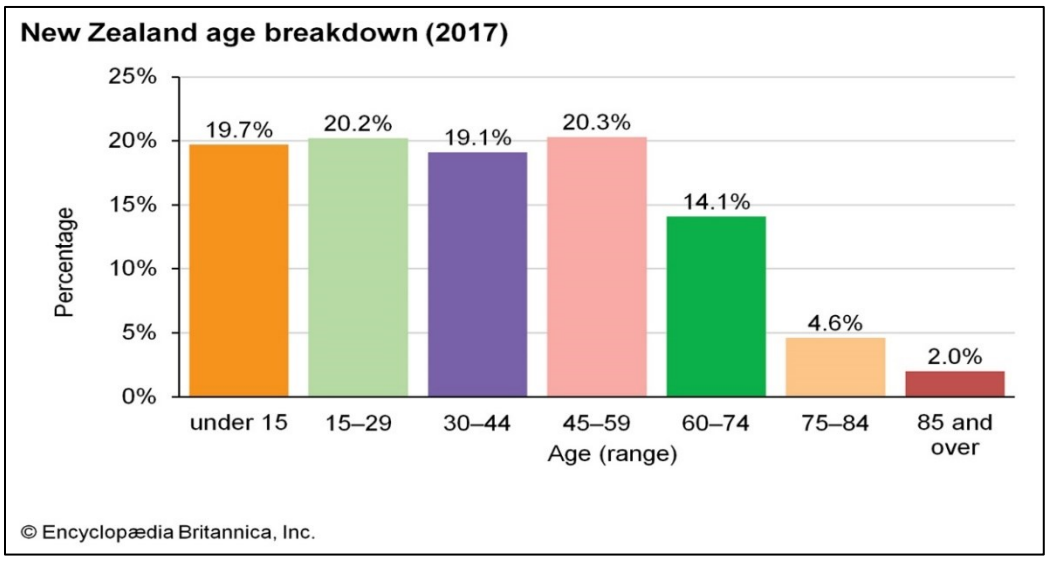
Figure 5. New Zealand Ethnic Composition



Source: Encyclopaedia Britannica, 2017 (Accessed, 15 July 2017)

New Zealand has a young population, with about 20% of the citizens 14 years or younger. The country has a life expectancy of 84 years for females and 80 years for males (see figure 6). It is much lower for Maori than for non-Maori. Despite the high life expectancy, mortality rate from heart disease was high in New Zealand. Annual population growth fluctuates but was low, compared to other industrialized Western countries. The natural rate of increase was highest among Maori and people of Pacific Island heritage (Statistics New Zealand, 2018).

Figure 6. Age Demographic Breakdown for New Zealand



Source: Encyclopaedia Britannica, 2017 (Accessed, 15 July 2017)

Like other developed countries, New Zealand has experienced an increase in the incidence of overweight among adults, children, and adolescents. Over half of the adults and one in twelve children (aged 2 to 14 years) were obese, and one in five overweight. The prevalence of convenience shops and fast-food outlets in urban centres and around learning institutions contributed to the spread of cheap, energy-dense foods, were identified as drivers of overweight and obesity among adolescents (Day, Pearce & Pearson, 2015:1; Lee & Cubbin, 2002:432). These views were consistent with findings by Swinburn, Egger & Raza (1999:569), that about 44% of New Zealanders ate hot chips at least once a week and approximately 135,000 tons of potatoes were consumed as hot chips annually. The debates support the notion that a section of urban population consumed high-energy foods and showed reduced levels of physical activity that drove the incidence of overweight and obesity.

A study conducted among the minority Māori communities, Pacific and other low-income communities to investigate the levels of physical activity found a relationship between socio-economic status and levels of physical activity. The Māori, Pacific and low-income communities continuously had poorer health results than European populations. The findings included all-cause mortality, the leading causes of death, most types of diseases and unhealthy behaviours. Leisure-time and moderate-to-vigorous intensity physical activity were found to be higher at the top of the socio-economic level compared to the bottom level (Pearce & Maddison, 2011). The study highlighted the health disparities between indigenous minority, low-income communities and affluent, high-income mainly European segment of the New Zealand population. Further, it revealed unequal prevalence of chronic non-communicable diseases and death to be higher within the minority communities, and that income levels determined access to leisure amenities and possibly to better healthcare.

A review of the impact of the built environment in New Zealand and its effects on health inequalities among the socially disadvantaged Maori and Pacific communities used open spaces and street connectivity as environmental determinants. Baker, *et al*., (2012) state that access to open spaces such as beaches was linked with the high levels of physical activity and lower Body Mass Index scores among children and adults. However, disadvantaged communities experienced poor locational access to open spaces due to poor planning decisions. As a result, positive environmental attributes such as walkability of their neighbourhoods was poor compared to the affluent neighbourhoods. The importance of location or neighbourhood features received attention in explaining geographical and social variations in health (Diez-Roux, *et al*., 1997).

The review looked at whether certain attributes of the built environment affected the health of low-income groups, independent of an individual's socio-demographic characteristics. An assessment of neighbourhood determinants for health concluded that "contextual factors were important in explaining variations in health outcomes and health-related behaviours" (Pickett and Pearl, 2001:116). Overall, the review confirmed that certain aspects of the physical and social environments where people live could enhance or inhibit health of the neighbourhood population.

The link between access to open spaces and physical activity in New Zealand confirmed what other international studies revealed. For example, the fact that location near open spaces encouraged residents of the adjacent neighbourhood to participate in physical activities such as walking, jogging, and cycling (Gidlow, *et al*.,2006). Essentially, this review confirmed that residents living in neighbourhoods with enabling built environment attributes, such as suburbs were more likely to engage in physical activity for exercise and recreation. Residents from the disadvantaged neighbourhoods experienced physical activity when walking for transportation.

Factors that drove low levels of physical activity vary and operate from different levels. These factors start at the individual level, neighbourhood to town or city scales. Ding, *et al*., (2013:2) state that neighbourhood design features, such as land use mix, street connectivity parks and exercise facilities encouraged physical activity such as walking leisure-time and overall physical activity. Neighbourhoods with a high street connectivity, have a road network that displays numerous intersections, small block sizes and few cul-de-sacs. A high degree of street connectivity has been found to reduce traffic speed; encouraged walkability and promote overall physical activity. Shorter trips to a variety of destinations such as shops, schools and parks were possible when neighbourhood connectivity was high. However, adverse features such as traffic, crime and aesthetics have negative effects on levels of physical activity.

Interventions that target individual activity levels in isolation of the built environment would have minimal effects. To address the low levels of physical activity, (Wendel-Vos, *et al*., 2008) suggest that strategies should range from individual-focussed interventions, targeting the individual exercise programs, to macro-level interventions that include built environment attributes that support transport and recreational physical activity. Evidently, the built environment is equipped with enabling attributes and is effective in addressing levels of physical activity of the neighbourhood population. In addition, neighbourhood scale interventions were effective than individual level factors to achieve population-wide physical activity.

2.6 Concept of Open Spaces

Like street connectivity, open spaces are one of the important qualities of the built environment that encourages physical activity. There is growing literature that confirms a positive connection between open spaces and the quality of life. Studies conducted in developed countries identified a connection between sedentary lifestyles, physical inactivity, and the prevalence of lifestyle diseases (Lee & Skerrett, 2001).

In April 2011 more than 90 Health Ministers attended the first Global Ministerial Conference on Healthy Lifestyles and Non-Communicable Disease Control in Russia. The conference declared that dealing with non-communicable diseases required a paradigm shift from a single focus on biomedical factors towards a multisectoral approach that would address behavioural, environmental, social and economic factors (WHO, 2011). The paradigm shift suggested that solutions lie beyond clinical interventions. Strategies should include spatial interventions such as open spaces to address the prevalence of lifestyle diseases. The following section would review case studies from developed countries in relation to open spaces and prevalence of lifestyle diseases. The discussion would look at the concept of open spaces in developed countries as a spatial strategy to promote physical activity in the fight against the prevalence of lifestyle diseases.

2.7 Open Spaces in Developed Countries : Canada Case Study

Canada is located in the northern part of North America (Figure 7). It is the second largest country in the world in area (after Russia). It forms the northern two-fifths of the continent of North America. The country covers a land area of 9.98 million square kilometres, extending from Atlantic to the Pacific Oceans and North into the Arctic Ocean. Canada's total land area includes thousands of adjacent islands, such as Newfoundland in the east and the Arctic Archipelago in the north. The Arctic Ocean forms border to the north, Greenland (a self-governing part of the Danish kingdom) to the northeast, the Atlantic Ocean to the east, twelve States of the United States to the south, and the Pacific Ocean and the U.S. state of Alaska to the west. A small Saint-Pierre and Miquelon (an archipelagic territory of France) lies off Newfoundland (Nations Online,2016)

Canada has ten provinces and three territories. Each province has distinct geographic and climatic features. The North remains one of the least settled and least economically exploited parts of the world. A considerable proportion of the population, about 80.7%, reside in urban areas (Britannica, 2016).

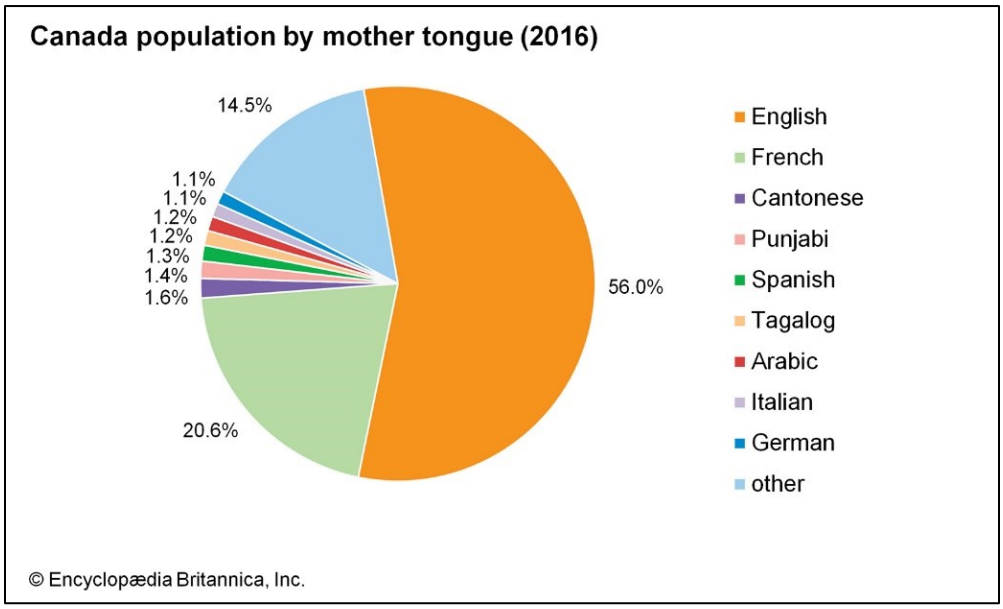
Figure 7. Map of Canada

Source: Encyclopaedia Britannica,2017 (Accessed 2 May 2020)

Ottawa is the national capital and is Canada's fourth largest city. Toronto and Montreal are respectively Canada's first and second cities in relation to population and economic, cultural, and educational importance. Vancouver, which is a centre for trade with the Pacific Rim countries, is the third largest city. Apart from the port cities, Canada's most densely settled areas and largest cities developed in the areas with good agricultural land. About nine-tenths of the population lives within a narrow strip of land along the U.S.-Canadian border, an area that constitutes only about one-tenth of Canada's total land area (Nations Online,2016).

The country is considered a model multicultural society. The Canadian population is a mixture of diverse national and cultural groups, with people immigrated from Europe, Southeast Asia, and Latin America (see figure 8). The mix of ethnic groups differs from province to province. More than one-third of Canadians identify themselves as being of mixed origins. Canada is one of the world's most sparsely populated countries with an estimated population of 34.8 million people. English is the main spoken language, but French is also an official language. The mother tongue of nearly one-fifth of Canadians is a language other than English or French. Most speak another European language especially Italian and German. The largest immigrant group spoke Chinese (Britannica, 2016).

Figure 8. Ethnic Groups in Canada

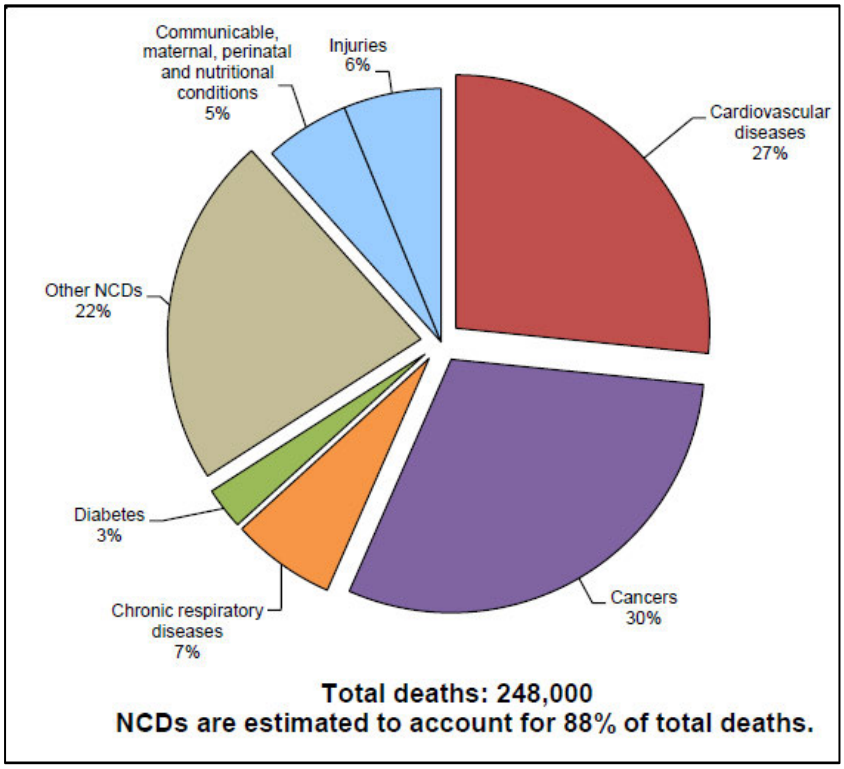


Source: Encyclopaedia Britannica,2017 (Accessed 2 May 2016)

Despite the many crucial benefits from open spaces, Canadians seemed to be spending less time outdoors. Studies have found that spending time outdoors offered numerous benefits for the individual. Sander-Regier & Etowa (2014:2) state, "open spaces were associated with physical, mental, spiritual, social and environmental wellness".

The World Health Organisation estimated that non-communicable diseases accounted for 88% of deaths in Canada (see figure 9). Cancer and cardiovascular conditions were the main causes of deaths (WHO, 2014). These deaths have negative socio-economic implications. Canada took in a large immigrant population, only to bear healthcare costs of caring for people who suffer from chronic lifestyle diseases. Although these conditions have preventive risk factors such as diet and physical activity. However, the statistics suggest that the multicultural nature of the Canadian society created challenges in addressing the prevalence of lifestyle diseases. Cultural practices could be a factor in the increase in deaths. Eyler & Rich (2008:3) state that ethnic minorities and women from low-income communities were less active than white women. Several explanations for such behaviours included not knowing the importance of exercise, mental fatigue from doing physically demanding work (both job and family related), and a necessity to compensate by resting.

Figure 9. Breakdown of Deaths from Non-Communicable Diseases, Canada



Source: World Health Organisation, 2014 (Accessed 2 May 2016)

The above graph illustrates that over 80% of deaths recorded in in Canada in 2014 resulted from non-communicable diseases (NCD's). Cancers (30%), cardiovascular diseases (27%), other non-communicable disease (22%) and diabetes (3%), altogether accounted for most deaths in Canada.

A study conducted between 2007 and 2009 in Quebec, Canada, assessed the rate of physical activity among young people. It found that only 7% of children and youth aged between 6 and 19 years were physically active, and concluded that adolescents and youth spent less time in contact with natural environment and were exposed to fewer opportunities to engage in outdoor recreation. Various reasons were provided for the decrease in physical activity. The principal issue were parental safety concerns for crime and danger from traffic (Faulkner, *et al.*, 2015:85). Seemingly, young people were reluctant to venture outdoors. Parents restrained children from visiting public parks for fear of their safety. To this extent, authorities were critical of the amount of time the young people spent outdoors, which has severely dropped in the millennium. The popularity of electronic media among the youth was a cause for concern.

The Canadian Health Measures Survey confirmed these observations that no more than 7 % of Canadian children and youth aged between 6 to 19 years met the Canadian Physical Activity Guidelines. The guidelines stipulated 60-minutes of moderate-to-vigorous physical activity (MVPA) per day for 6 days per week. Less than 2% of the youth accumulated the recommended 90 minutes of MVPA per day. The study concluded that physical inactivity and sedentary lifestyles were responsible for the rise in obesity, attention disorders and depression among young people (Demers & Lapierre, 2012:2). The implications were that the youth became less physically active from an early age, as an indirect cause of unsafe neighbourhood. In addition, passive lifestyle can be directly linked to the increase in chronic lifestyle diseases among the youth.

The Canadian government and private agencies initiated several programs to boost physical activity. Limitations identified with the programs concluded that there were few programs focussed on immigrants and minorities who were the most vulnerable to chronic lifestyles diseases (Health Canada, 2004). Specific deterrents to these groups included dirty parks, poor access, no clean toilets, inadequate seating and other facilities, and safety concerns and vandalism (Fairburn, Walker & Smith, 2005:25). These views suggest there is unequal provision and access by minorities to open spaces that would potentially enhance their health. Consequently, neighbourhood neglect exposed the minority groups to excessively high levels of chronic lifestyle diseases.

The Healthy Canada by Design (HCBD) and Coalitions Linking Action and Science for Prevention (CLASP) Initiative promote the building of Canadian communities to encourage healthy living. It sought to encourage health-promoting built environments by public health professionals, researchers, policy-makers and community groups across Canada. The initiatives realized that built environments could support population health by not only preventing exposure to environmental hazards, also by enabling lifestyles that prevented or limited chronic diseases such as increasing physical activity, promoting a healthy diet, increasing social cohesion and reducing stress. The HCBD engaged sectors in built environment, public health, urban and transportation planning, non-government, and community organizations (Miro, Kishchuk, Perrotta & Swinkels, 2015:51).

It is evident that unequal access to open spaces by young people and minority groups fuelled the prevalence of lifestyle diseases in Canada and had implications for spatial injustice. To address the burden from these diseases required a multidisciplinary collaboration. Therefore, policymakers had the responsibility to remove barriers to access open spaces and create pleasant neighbourhoods to ensure spatial equity for young people, low-income and other minority groups.

2.8 African Perspective on Non-Communicable Diseases : Kenya Case Study

2.8.1 Background

Kenya is situated on the East coast of Africa, across the equator. It is bordered by South Sudan and Ethiopia to the north, Somalia and the Indian Ocean to the east, Tanzania to the south, and Lake Victoria and Uganda to the west (figure 10). The country covers a land area of 581 309 square kilometres. It has a population of 45 million people. English and Swahili are the two official languages (Nations Online, 2016). Nairobi, a sprawling African metropolis, is the capital of Kenya. The city has an architectural contrast, with modern skyscrapers towering over vast informal housing at a distance that house refugees fleeing civil wars in neighbouring countries (World Bank,2016).

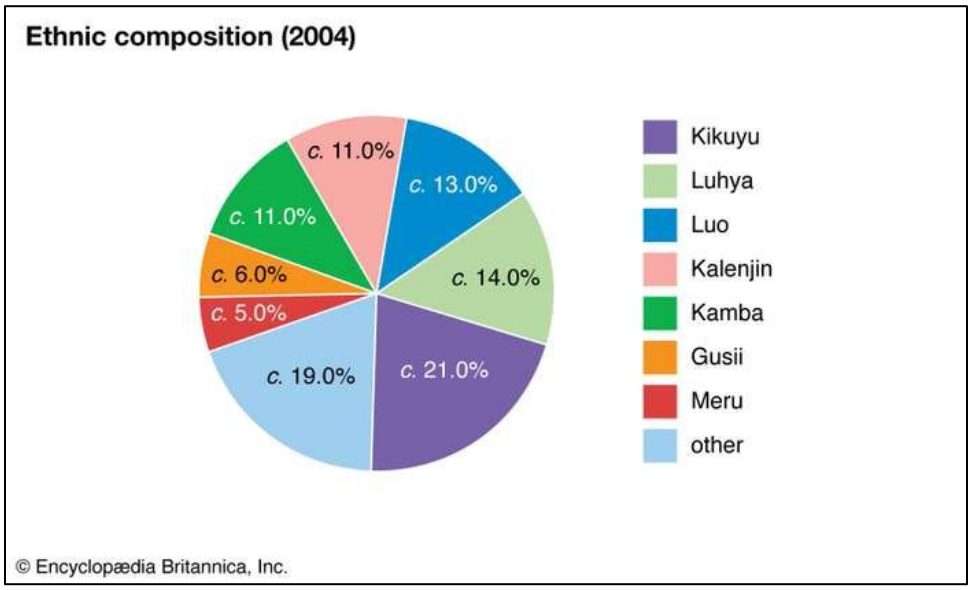
Figure 10. Map of Kenya

Source: Google Maps,2016 (Accessed 2 May 2016)

Figure 10 shows the geographical location of Kenya on the African continent.

Indigenous peoples of Kenya comprise nearly the entire population (figure 11). The groups form three main language groups: Bantu, Nilo-Saharan, and Afro-Asiatic. Of the three groups, Bantu is the largest and is mostly concentrated in the southern third of the country. The Kikuyu, Kamba, Meru, and Nyika peoples occupy the fertile Central Rift highlands. The Luhya and Gusii inhabit the Lake Victoria basin.

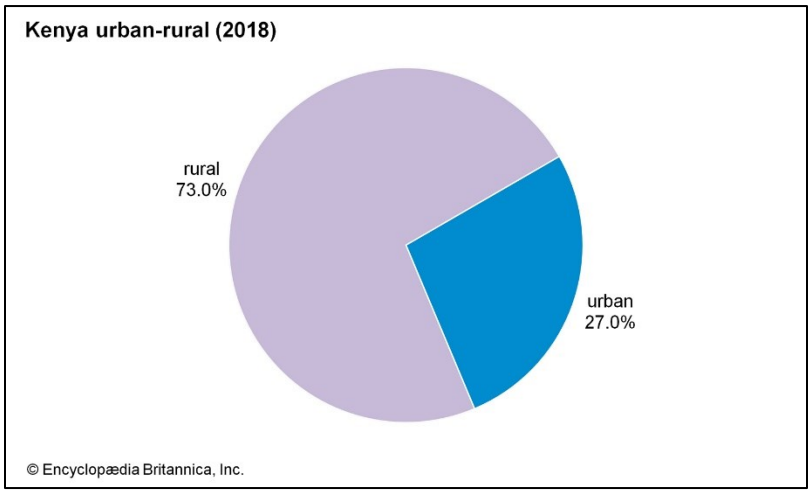
Figure 11. Ethnic Composition, Kenya



Source: Encyclopaedia Britannica,2016 (Accessed 2 May 2016)

The Nilo-Saharan people, whose languages include Kalenjin, Luo, Maasai, Samburu, and Turkana, are the second largest group. The Luo inhabit the lower rural parts of the western plateau, while the Kalenjin-speaking people occupy the higher parts. The Maasai are pastoral nomads found in the southern region bordering Tanzania. The Samburu and Turkana follow nomadic occupation in the arid northwest. The Afro-Asiatic peoples occupy the arid and semi-arid regions of the north and northeast, constitute a small fraction of Kenya's population. The Somali group reside along Somalia border, and the Oromo along Ethiopia. Both groups pursue pastoral livelihoods in regions that are subject to famine, drought, and desertification. Burji is another Afro-Asiatic group who are descendants of Ethiopian workers living in northern parts of Kenya. Figure 12 shows that over 70% of Kenya's population resided in rural and peri-urban areas (Britannica, 2016).

Figure 12. Kenya Urban-Rural Settlement Patterns



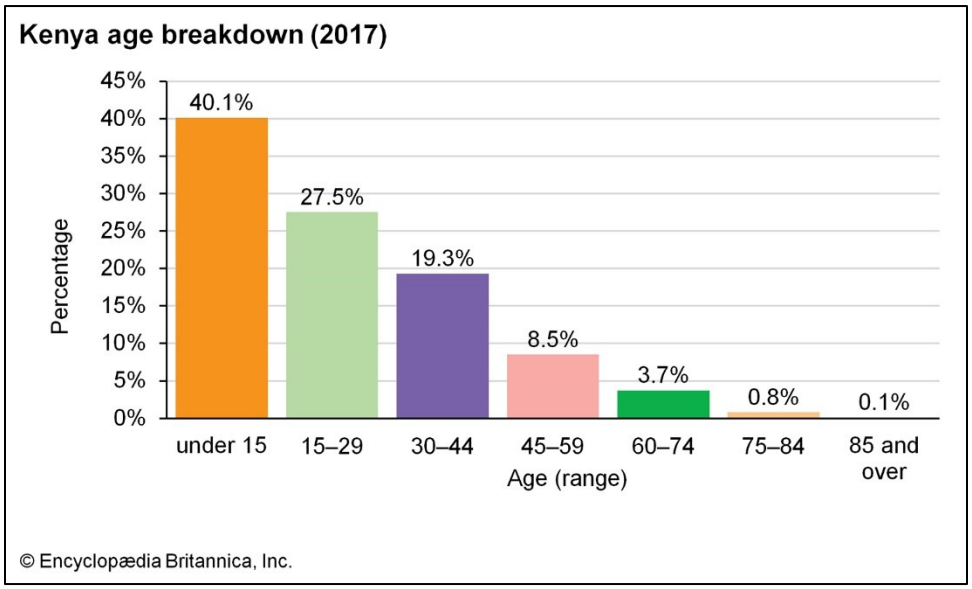
Source: Encyclopaedia Britannica,2018 (Accessed 2 May 2020)

Kenya is also home to other groups of immigrants from India, Pakistan and Europe. European Kenyans originated from Britain and are concentrated in the large urban centres of Mombasa and Nairobi. Most of Kenya's population is rural and inhabit scattered settlements. Climatic and soil conditions determine the location and concentration of the settlements. The modern cities of Mombasa, Lamu, and Malindi are among the former urban areas that were expanded during the colonial period. Nairobi, originally a Maasai watering hole, became important because of its connection to the railroad, which came through the area at the beginning of the 20th century (The Commonwealth, 2016).

Kenya is experiencing high population growth. During the first quarter of the 20th century, the total population was less than four million because of famines, wars, and disease. In the early 21st century, the rate of natural increase was still above the world average.

Figure 13 shows that two-thirds of Kenyans were under age 30, and the country's higher-than-average growth rate is expected to continue. The population explosion puts pressure on limited employment opportunities, rising costs for education, health care, and food import. Population growth also affected the government's ability to generate the resources to build housing in both urban and rural areas (World Bank,2016).

Figure 13. Age Breakdown, Kenya



Source: Encyclopaedia Britannica,2017 (Accessed 2 May 2020)

The background on Kenya provided a picture about the socio-economic status of the country. It revealed how geography of the country influenced settlement patterns. For example, the demographics revealed that 27% of Kenya population was urbanized and the youth comprised two-thirds of the population. Studies suggested that youth in urban areas adopted a behavioural lifestyle that predisposed them to lifestyle diseases such as eating fast foods and physical inactivity. For example, Ashakiran & Deepthi (2012) and Peer, *et al*. (2013) argued that the youth in urban areas adopted unhealthy dietary habits and were less physically active. The following section would look at the incidence of lifestyle diseases in Kenya.

2.8.2 Status of Non-Communicable Diseases in Kenya

The Kenyan government developed The Kenya National Strategy for the Prevention and Control of Non-Communicable Diseases 2015-2020. Its focus was on the prevalence of non-communicable diseases and identified four major non-communicable diseases that needed urgent attention, namely cardio-vascular disease, cancer, chronic respiratory diseases and diabetes (Kenya Ministry of Health, 2015:14).

The aim of the strategy was to identify and control the behavioural risk factors that are linked to the prevalence of lifestyle diseases. Tobacco use and exposure, unhealthy diet, physical inactivity and alcohol abuse were the main modifiable risk factors identified in the prevention strategy. The Kenyan government

stated that 80% of premature deaths from non-communicable diseases could be prevented with behavioural and medical interventions.

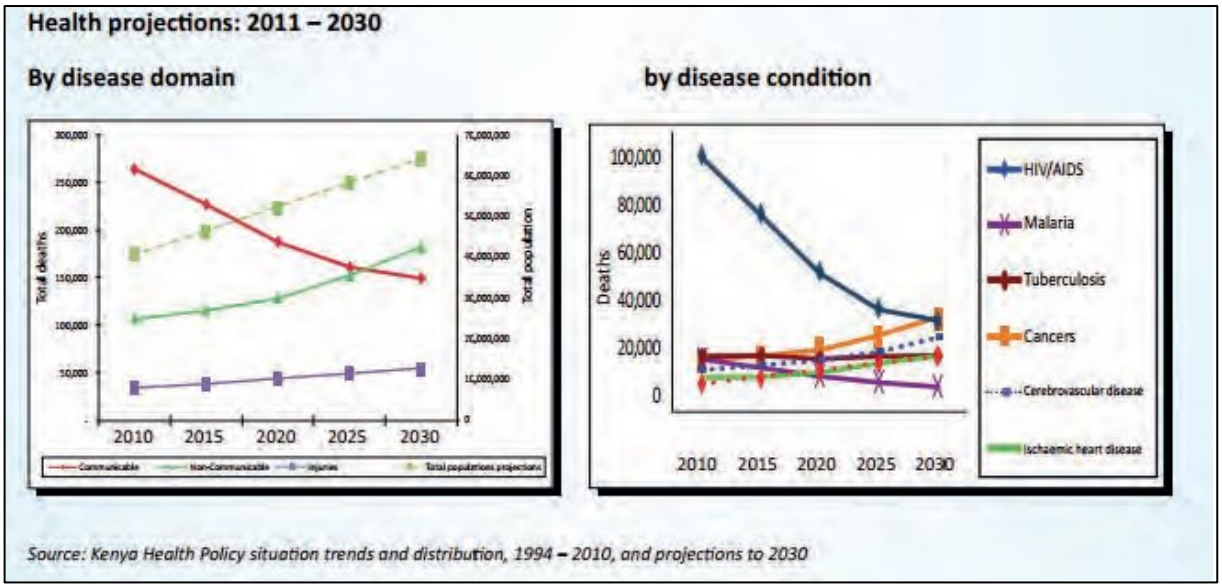
Figure 14. Kenya's Adult Risk Factors

Adult risk factors			
	males	females	total
Current tobacco smoking (2011)	26%	<1%	13%
Total alcohol per capita consumption, in litres of pure alcohol (2010)	7.4	1.3	4.3
Raised blood pressure (2008)	30.7%	26.7%	28.7%
Obesity (2008)	2.1%	6.2%	4.2%

Source: World Health Organization,2014 (Accessed 2 May 2016)

The World Health Organisation (2014) states that 80% of all cardiovascular diseases occur in low and middle-income countries such as Kenya. Addressing the modifiable risk factors such as physical activity, high blood pressure, tobacco use, obesity, unhealthy diets and raised blood glucose could drastically reduce the prevalence of cardiovascular diseases. Between 6.1% and 13% cases of death were associated with cardiovascular diseases in Kenya (WHO, 2014).

Figure 15. Kenya Health Projections



Source: Kenya Health Policy, 1994-2010 (Accessed May 2015)

Figure 15 shows Kenya's health projections between 2010-2030.Cancer accounts for the second highest mortality rates for lifestyle diseases in Kenya . It accounts for 7% of national mortalities. The Kenyan Health Ministry reported that 37 000 new cases of cancer were reported annually, and 28 000 deaths due to

cancer are registered annually. WHO (2010) states that physical activity and control of other environmental features may have a positive effect in fighting certain cancers.

The prevalence of diabetes is associated with the demographic and social changes such as globalisation, urbanisation and unhealthy lifestyles such as unhealthy nutrition and physical inactivity. It was reported that approximately 4.56 %, which is about 750 000 cases of diabetes were reported in the Kenyan population. At least 20 000 fatalities due to diabetes were reported annually. The prevalence is reportedly high, at 10.7% among urban dwellers than among rural dwellers, at 2.7% (World Bank,2016).

Kenya faced a double burden of communicable and non-communicable diseases. In 2012, lifestyle diseases accounted for 55% of total hospital admissions and for more than 55% of hospital deaths. The government approach was that addressing the communicable disease would have a positive effect on the prevalence of lifestyle diseases. Policy projections estimated that if more emphasis was placed on curbing communicable disease, the aggregate mortality from non-communicable disease would drop by 14%, translating to 360 000 deaths annually by 2030 (Kenya Ministry of Health, 2015). The Kenya Health Policy 2012-2030 aims to reverse the burden and trend associated with non-communicable diseases. The Policy projects that the reduction of non-communicable diseases and their risk factors would increase the quality of life and wellbeing of the population. Eventually that would contribute to economic and social development and substantial savings on the health budget.

The World Health Organisation (2014) identified passive lifestyles as an important risk factor responsible for multiple causes of chronic deaths and disability. According to WHO, physical inactivity is the fourth leading risk factor in terms of global mortalities attributed to lifestyle diseases. In Kenya, physical inactivity accounts for 6% of deaths and approximately 21-25% of breast and colon cancers, 27% diabetes and 30% of ischaemic heart disease (Kenya Ministry of Health, 2015).

A survey conducted by World Health Organisation in 2014 revealed that only 10% of men and 14% of women engaged in any form of physical activity. In comparison, rural dwellers were more physically active than their urban counterparts. The survey also revealed that 12.6% of children living in urban areas were less physically active. Physical activity was identified in the Kenya National Strategy for Prevention and Control of Non-Communicable Diseases as an important intervention strategy in the prevention of non-communicable disease. Authorities conceded that there were barriers that preventing people from being active. The limitations included poor built environment planning, security, inadequate information, motorised transportation and socio-cultural factors.

The prevalence of non-communicable diseases in Kenya points to behavioural patterns such as eating unhealthy foods, harmful use of alcohol, smoking and physical inactivity. Behavioural patterns appeared to follow the urban-rural settlement patterns, indicating a high prevalence of non-communicable diseases in urban than in rural areas. This prevalence of non-communicable diseases in urban Kenya has similarities with European countries such as Finland, Poland, Spain and Canada. The similarities suggest that behavioural patterns among urban residents contributed to the prevalence of lifestyle diseases. The following section would review South African and the status of non-communicable diseases.

2.9 South Africa

2.9.1 Background

South Africa shares similarities with Kenya that make the two countries comparable. Demographically, both countries have a large population of indigenous (African) peoples and euro-asia nationals (British, Dutch and Asians). Prior to colonization, the indigenous population groups had traditional diets and lifestyle patterns based on indigenous plants and enjoyed physical mobility such as subsistence farming and hunting.

European colonization of South Africa began in 1652 with the colonization of Cape Town by the Dutch who formed colonial towns across the country. At the start of the 19th century, after the advent of British rule other towns developed (Britannica, 2016).

European settlers dispossessed and took over the majority of the land indigenous people previously owned. Traditional settlements consisted of farming homesteads or villages. Animals grazed on communal land around the homesteads. Urban settlements in South Africa originated both as concentrations of population around the political centres of African chiefdoms and kingdoms and as towns established by European colonizers.

Colonization, dispossession, and segregation shaped the history and development of South Africa's urban policy. Other than providing labour, African people were aliens in urban areas. The policy of segregation sought to provide separate locations for Blacks (Africans, Coloureds & Indians). Its elements emphasised political domination and control. The African location as a strategy for building state power to shielded white suburbs from the perceived threats to white health and safety (Maylan, 1995).

Figure 16. shows geographic location of South Africa at the southern tip of the Africa continent. The land cover is approximately 1.2 million square kilometres. The country shares its borders with Mozambique, Zimbabwe, Botswana, Namibia, Swaziland and Lesotho.

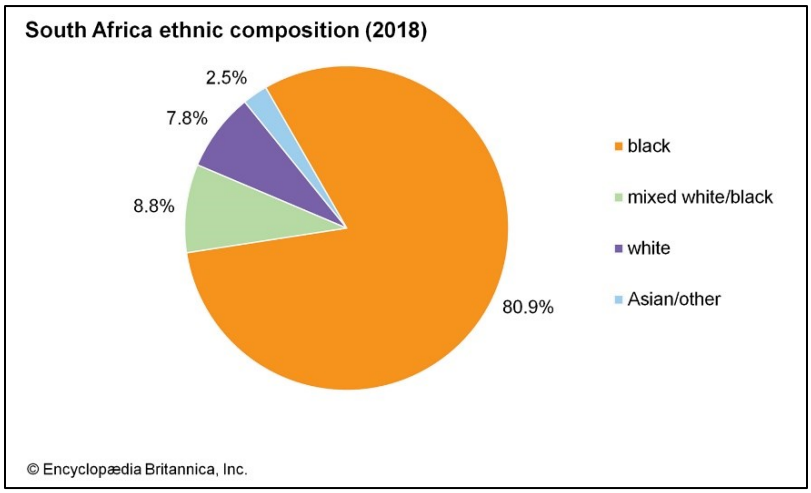
Figure 16. Map of South Africa

Source: Google Maps,2015 (Accessed 25 April 2015)

South Africa became a democratic, unitary state after conducting the first democratic elections on 27 April 1994. The country is divided into nine administrative and legislative provinces. The provinces are semi-autonomous, with powers to legislate.

Prior to the democratic dispensation, the classification of the population according to race group had an impact on social and economic provision of services. The affluent urban areas were reserved for whites. Africans, Coloured, and Indians were located in racially designated locations. A race-based policy of called apartheid, instead of equity influenced service delivery to these areas. The legalized segregation of people based on race or ethnicity was the most important distinguishing features of the South African political and spatial structures. The racial zoning policy was designed to keep communities apart. Each race had designated settlement or township based on the race or colour of the majority of people living in the community at the time (Christopher, 1989).

Figure 17. Population of South Africa, 2011



Source: Encyclopaedia Britannica,2018 (Accessed 25 April 2020)

Figure 17 shows the four broad race groups found in South Africa, namely African (Black), [6]Coloured, Asian (Indian) and White. [7]Race and ethnicity have been at the heart of South African history, politics, society and economy since the European colonisation in 1652. The concept of race became a particularly explosive subject during colonization, and during the Apartheid period which begun in 1948. Race was used for political, social, and economic purposes. White people had the rights to vote, access to state security and protection as well as political representation. In addition, Whites had the privilege of having access to more skilled and office jobs, and economic access to own the productive land and other means of production (SA history, 2020)

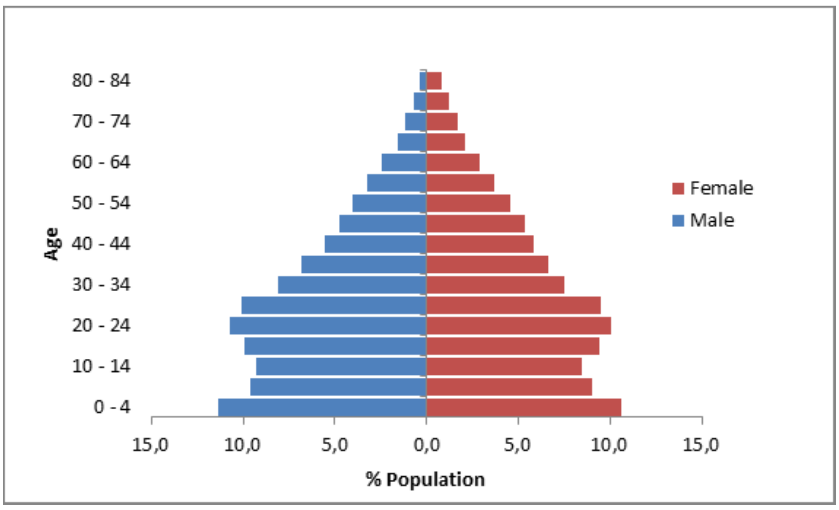
South Africa had a population of approximately 55.6 million, of which 51% (28.07 million) are female and 49% are male. Adolescents and youth older than 15 years comprised approximately 36.2% of the population. South Africa is home to 9.7 million young people. A substantial proportion of the youth population, approximately 22.9% (3.80 million) is located in KwaZulu-Natal and 19.7% (3.28 million) reside in Gauteng (Statistics South Africa, 2016). This implies that the youth population comprise the majority of

[6] Persons of mixed European and African ancestry, as officially defined by the South African government from 1950 to 1991. The Population Registration Act racially classified all South Africans in one of three categories: White, Black, or Coloured. Indians fell under the Coloured category. The appearance, social acceptance and descent were the criteria used to determine the qualification into each of these categories (Population Registration Act, no.30 of 1950).

[7] Race is defined as a social concept referring to a group of people who share distinct and similar physical characteristics such as skin colour, hair texture, facial features, and eye formation (Encyclopaedia Britannica, 2020).

the population segment and is concentrated in the two provinces of South Africa, Gauteng and KwaZulu-Natal.

Figure 18. Sex Composition, South Africa

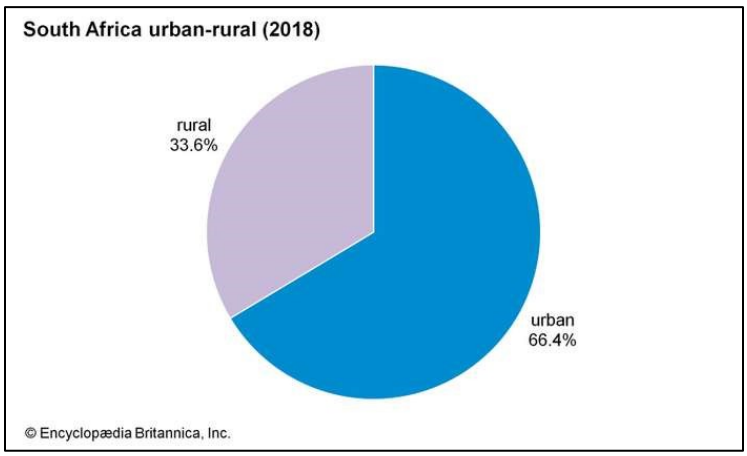


Source: Statistics South Africa (Accessed 25 April 2015)

Figure 18. indicates that the distribution of population by age groups. It shows a declining child population in the (0–14) age groups. In addition, it showed an increase in the adolescent and youth population 15-19 and 20- 24 age groups. A decrease in fertility rate could be the main contributing factor for the change in population age and sex structure over time. The large age 15-34 age groups are an indication of a growing youthful population. The observed decrease in fertility resulted in the shift from child to youth population, causing a youth bulge and therefore creating a demographic dividend. As a result, "the country is experiencing an intermediary stage with the median age of between 22 and 25" (Statistics South Africa, 2011: v).

About nine-tenths of the population live in the eastern half of the country and in the southern coastal regions. The western region, except for the area around Cape Town in the extreme southwest, is sparsely populated. Over two-thirds of the population reside in urban areas. Urban settlements in South Africa originated both as concentrations of population around the political centres of African chiefdoms and kingdoms and as towns established by European colonizers (Encyclopaedia Britannica, 2020). Figure 19. shows the settlement patterns in South Africa, which indicate that much of the population was concentrated in urban centres. This settlement pattern is consistent with developed and industrialized economies like that of South Africa. Figure 19 shows rural-urban settlement patterns.

Figure 19. Urban-rural settlement patterns, South Africa, 2018



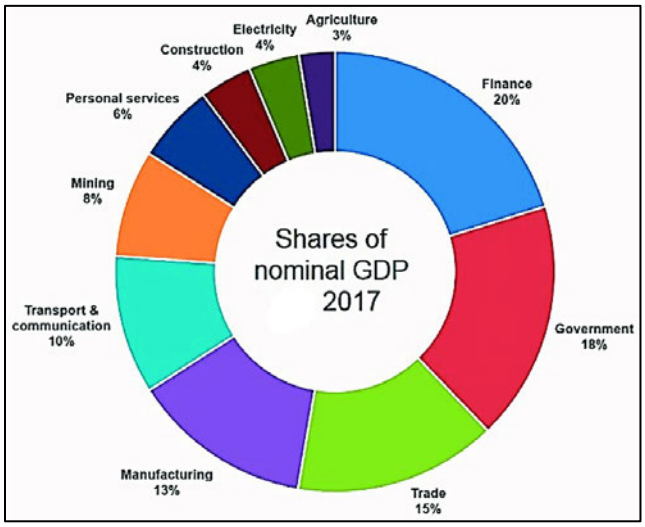
Source: Encyclopaedia Britannica,2018 (Accessed 25 May 2020)

Figure 19 shows urban-rural settlement patterns. Until 1994 when transition from apartheid to a constitutional government occurred, South Africa had a fragmented racist economy. Through various apartheid legislation, whites dominated the economy in the urban centres. Other race groups were prohibited, legally, from trading and owning property in urban areas. For example, the Natives (Urban Areas) Act of 1923 controlled the presence of Africans in urban areas. It empowered local authorities to demarcate and establish African townships on the fringes of White urban and industrial areas. The areas that were reserved for Africans had poor infrastructure and relied on subsistence economy. The Pegging Act of 1943 prohibited Indians from being granted the right to acquire or own property in the areas reserved for Whites. The Durban Land Alienation Ordinance empowered the Durban City Council to exclude Indians from ownership and occupation of land in white areas. By contrast, white neighbourhoods had an advanced economy supported by the state (South African History Online, 2020).

South Africa has a diverse economy. Traditionally, the economy was rooted in the primary sectors, which was the result of deposits of mineral resources and favourable agricultural conditions. The economy was revolutionized in the late 19th century when diamonds and gold were discovered. The main economic sectors are mining, manufacturing, agriculture and services. Over the years, the economy underwent a structural shift in output. The tertiary sector such as wholesale and retail trade, tourism and

communications have driven economic growth (BrandSouthAfrica.com, 2020). Figure 20 shows the key economic sectors that contribute to the gross domestic product of South Africa's economy.

Figure 20. Economic Sectors, South Africa



Source: Brand South Africa, 2020 (Accessed 25 May 2020)

The background on South African gave an insight about its development trajectory and the elements that influenced it. It revealed that race influenced economic development and settlements patterns in South Africa. It also revealed the transition of settlements from rural to urban areas because of concentration of economic opportunities in towns and cities. In addition, the impact of skewed development on rural-urban migration encouraged the economic growth of white-dominated towns and cities. These migration patterns contributed to urbanization of young people. Incidentally, this age group forms the majority of tertiary student population group that resides in urban areas. In addition, the country's diversified economy needs skilled and productive energic people to drive economic development of the country. To attain such skills, the youth need vocational and tertiary training. The following section would discuss the status of non-communicable diseases in South Africa.

2.9.2 Status of Non-Communicable Diseases in South Africa

In the National Development Plan (NDP, 2013), the South African government recognised the significance of managing the health and wellbeing of the population and articulated its vision 2030. The NDP identified social and economic conditions that caused ill health as critical to improving the livelihoods of the

population. Collaboration across sectors in human settlements, urban planning and design, transportation, health, agriculture and rural development were identified as central to the management and prevention of non-communicable diseases.

The main non-communicable diseases that were identified among the vulnerable groups are cardiovascular disease, diabetes, cancer and chronic respiratory conditions. According to the Department of Health, reducing NCD's required targeted focus on the four major risk factors, namely unhealthy diet, physical inactivity, tobacco and alcohol use (Department of Health, 2013). The government aims to reduce at least by 28% the prevalence of the major non-communicable diseases by 2030 (NDP, 2013). Figure 21 shows the prevalent chronic non-communicable diseases and associated risk factors. The table shows that risk factors are responsible for more than one NCD, which essentially indicates that modifying the risk factors could reverse the progression and speed at which the associated NCD's develop.

Figure 21. Common Risk Factor for Non-Communicable Diseases

Risk factor	Cardiovascular diseases	Diabetes	Chronic respiratory conditions	Cancer	Mental disorder	Oral diseases	Eye disease	Kidney disease	Muscular-skeletal conditions
Diet	X	X		X	X	X	X	X	X
Smoking	X	X	X	X		X	X	X	X
Physical activity	X	X		X	X			X	X
Alcohol	X	X		X	X	X		X	X

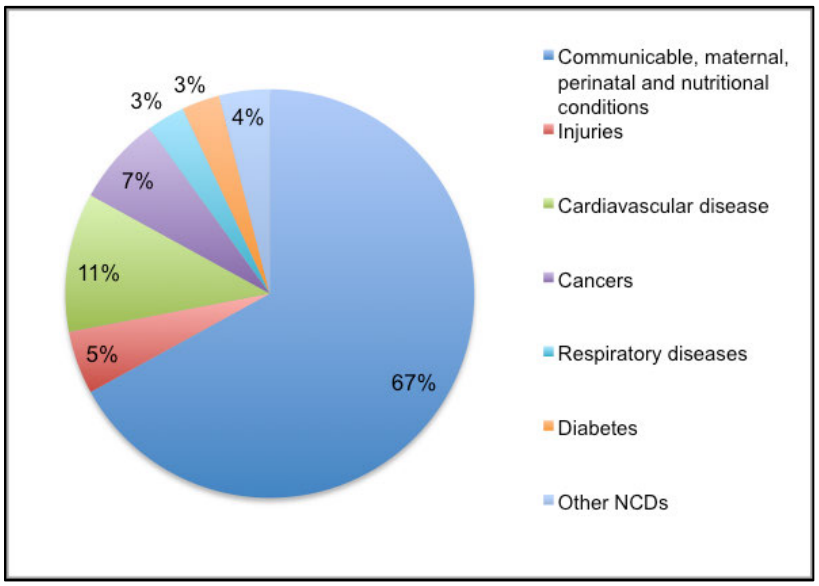
Source: Department of Health, 2013 (Accessed 2 May 2016)

South Africa is a developing country, with features and challenges that are prevalent in developed countries. The country finds itself at crossroads having to handle challenges faced by developing countries and developed countries (Oosthuizen, *et al*., 2008: 65). This view implies that the country is in transition and sections of the population have adopted behavioural lifestyles from developed countries. Therefore,

addressing the country's challenges would require adapting solutions from developed countries while maintain its character of being a developing country.

The country has undergone an epidemiological shift from infectious diseases such smallpox that were eradicated or reduced, to non-communicable diseases such as cancers, diabetes and heart diseases whose risk factors are associated with lifestyles (World Health Organisation, 2002). The Medical Research Council (2002) link this epidemiological shift to urbanisation, a change in lifestyle such as unhealthy diet and passive lifestyle and increase in stress levels to the prevalence of non-communicable diseases on the country's population. Figure 22. shows the proportion of deaths from the prevalent non-communicable diseases in South Africa, cardiovascular diseases (11%),cancers (7%) and diabetes (3%) show the greatest incidence.

Figure 22. Proportional Mortality from Non-Communicable Diseases



Source: Department of Health, 2013 (Accessed May 2016)

A study was conducted in the Gauteng province between 2003 and 2004 to evaluate the state of health and lifestyle aspects of respondents from childhood to adulthood. Data on the nature of physical activity, eating habits and drinking habits was also gathered. The study found that 56% of the participants engaged in physical activity for leisure or transport. Only 9% of the respondents indicated that they partook in group sports activities such as soccer, rugby and netball. Processed food was consumed on a regular basis

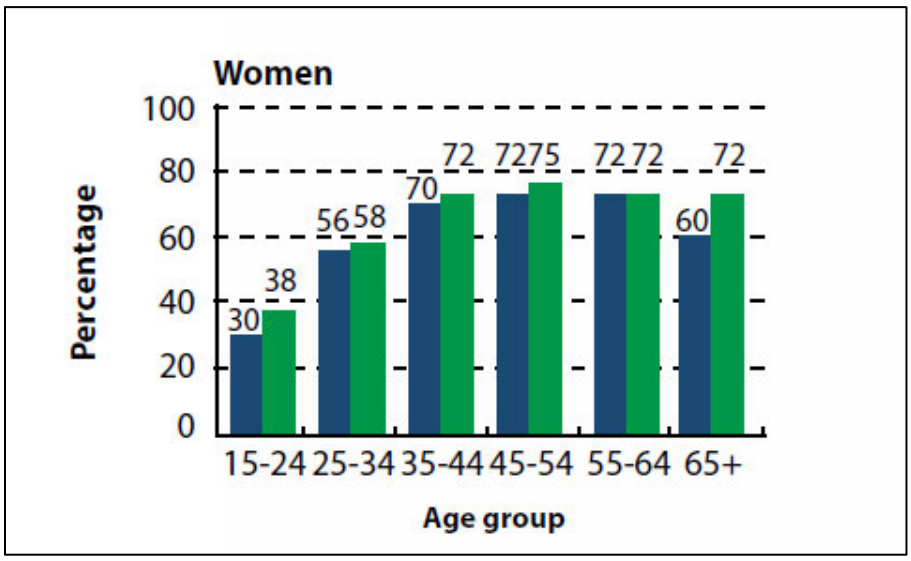
by 44% of respondents, fruit by 84% and vegetables by 93%. Regarding fried food, 97% of the participants regularly used oil to fry food. Sixty-seven percent of respondents consumed alcohol; the majority (85%) had seven drinks per week. It was also revealed that non-communicable diseases accounted for 37% of reported mortalities. A further 11% of the respondents aged between 15 to 24 years confirmed that they had high blood pressure (Oosthuizen, *et al*., 2008:67).

The findings revealed that fewer people engaged in vigorous physical activity such as sport, while more than half engaged in moderate physical such as walking, whether for leisure or transport. The majority of respondents prepared their food by frying; and clearly ate processed foods and drank alcohol. Respondents as young as 15 years old suffered from high blood pressure. It was observed that over two-thirds ate fruit and vegetables, a valuable source of nutrition.

With regard to obesity, 31% of the respondents regarded themselves as being overweight. At least 14% of the youth population between the ages of 15 to 24 years old were overweight. The South African Demographic and Health study (2016) described overweight and obesity as Body Mass index (BMI) between 25.0-29.9 and 30.0 or above respectively. At least, one-third (30%) of women had a normal BMI, 3% were underweight, 27% were overweight and 41% were obese. Twenty percent of women were severely obese (BMI of 35 or above). Most men (59%) had a normal BMI; 10% were underweight, 20% overweight and 11% were obese. Three percent of men were severely obese.

The study seemed to confirm the World Health Organisation report (2012) that non-communicable diseases were increasing among the youth population. The report stated that by 2020 chronic non-communicable diseases would be the leading cause of disability and death among the youth. Figure 23 shows the incidence and prevalence of overweight and obesity among women from 15-24 age group. The percentage almost doubles in the 25-34 age groups,at 56 % and 58% for overweight and obesity respectively. The graph shows that the conditions increase expeontially from young age to adulthood.In addition, it stated that while non-communicable diseases were manageable, however the policy framework in developing countries was not adequately equipped to address their prevalence.

Figure 23. Overweight and Obesity (Women/Age group)



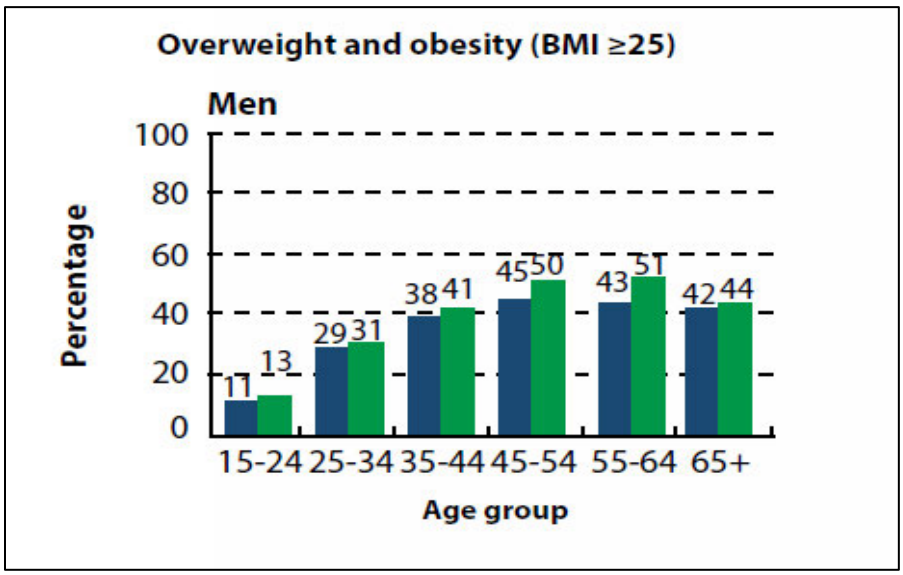
Source: South African Demographic and Health Survey, 2013 (Accessed 25 April 2016)

In relation to racial and gender demographics on the prevalence of lifestyle diseases, the survey found that obesity and overweight remained high among African women at 55%, and 30% in men from 15 years and above. The prevalence of obesity among white women had dropped. The report further stated that the increase in obesity among urban dwellers was linked to physical inactivity (Van Zyl, Van der Merve, Walsh & Groenewald, 2011).

In relation to gender, young females at 7.2% reported higher prevalence of obesity than their male counterparts at 3.3%. Geographically, the Gauteng province recorded the highest prevalence of obesity, at 9.7% than the other provinces. Figure 24 shows the percentage of overweight and obesity among men from the 15-24 age group. The percentage doubles in the 25-34 age groups, to 29% and 31% for overweight and obesity respectively,which indicated that men adopted passive lifesyles as grew older.

With regard to physical inactivity measurements, the survey indicated that the rates of inactivity were alarmingly high, 48% of men and 63% of women were reported inactive (Department of Health, 2007). Puoane, *et al*., (2003) surveyed the four major risk factors linked to non-communicable diseases in urban and rural environments.

Figure 24. Overweight and obesity (Men/Age group)



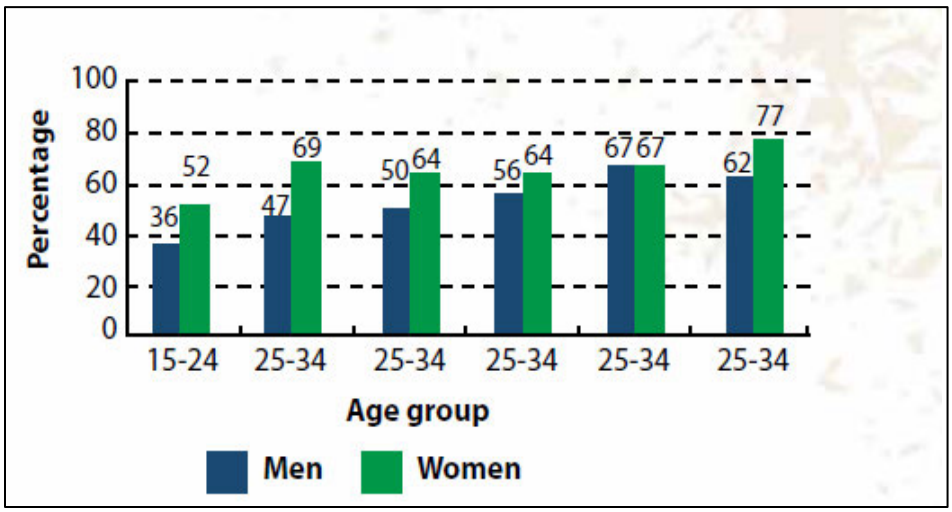
Source: South African Demographic and Health Survey, 2013 (Accessed 25 April 2016)

The survey found there were higher levels of physical inactivity in urban areas than in rural areas. The physical activity dimensions looked at all movements that occurred in everyday life such as work, recreation, exercise and playing sport. Figure 25 illustrate the physical inactivity levels between women and men in different age categories.

The activity may involve varying degrees of intensity, frequency, and duration. Vigorous activity would include playing soccer, rugby, netball and other activities that would make the participant sweat and breathe hard for at least 20 minutes. Moderate activity would include activities such as fast walking; slow biking and skating for a 30-minute duration (Reddy, *et al*., 2010).

Nationally, it was found that 25.2 % of the youth population spent more than 3 hours per day watching television, playing video or computer games. Only about 34.2% of Indian male youth were reported to have engaged in adequate vigorous activity, compared to 43% of the African youth. There were fewer Coloured at 29.7%, African at 34.6% and 21.4% Indian female youth who engaged in vigorous physical activity than their white counterparts, at 56.7%. Figure 25 shows levels of physical inactivity according to age and gender.

Figure 25. Physical Inactivity by Age and Sex, South Africa



Source: South African Demographic and Health Survey, 2013 (Accessed 25 April 2016)

Provincially, youth in the Free State (53.6%) and North West provinces (51.2%) had more young people who participated in vigorous physical activity than the national average of 43.2%. The Western Cape Province, at 32.4% registered the lowest levels of physical activity. Limpopo, at 24.0% and Western Cape provinces at 36.2% recorded the highest frequency of youth who were reluctant to participate in any physical activities.

KwaZulu-Natal had the highest levels of physical inactivity for men and women at 66% and 81% respectively. Northern Cape was second at 58% and 78% for men and women respectively (Department of Health, 2007:292-293).

Hypertension, which is a major risk factor for stroke and ischaemic heart disease, were the second and fourth leading causes of death in South Africa in 2012 (Pillay, *et al*., 2016). It was found to be common among urban than non-urban residents. The survey indicated that 27% of men and 37% of women were reported to be hypertensive. The Western Cape Province, at 40% had the highest prevalence of hypertension and, the incidence of stroke was at 13%. Indians and Coloureds reported a family history of hypertension. Men at 27% in KwaZulu-Natal were found to be least aware of being hypertensive. The survey found that prevalence of cancer in urban areas among men had doubled and a slight increase in non-urban men was reported.

Nationally, the prevalence of cardiovascular diseases for women and men averaged 14% and 11% respectively. The Free State and Western Cape provinces recorded the highest frequency of cardiovascular disease, while KwaZulu-Natal reported the lowest history per family at 6%. Indians, at 36%, were reported to have the highest frequency of cardiovascular conditions. The frequency of cardiovascular disease was found to be higher in non-urban areas. Limpopo and North West provinces had the highest prevalence (Department of Health, 2007).

Urbanization and behaviour were linked to the prevalence of non-communicable diseases among the youth. For example, Reddy, *et al*., (2008) argued that the youth population was experiencing developmental transition from behavioural, social, economic, political and emotional dimensions. This transition placed the youth at risk of non-communicable diseases and social elements that had negative effects on their health and wellbeing. The youth was experiencing cultural changes and processes of "modernization" which placed them in a more economically equitable position with unintended consequences. For example, products such as cigarettes, fast foods and alcohol have become more accessible and affordable to young people. Noting that many young people live in urban centres, approximately 60% of the population of South Africa was urbanised (National Development Plan, 2013). The Gauteng province and cities of eThekwini (KwaZulu-Natal) and Cape Town (Western Cape) were rapidly growing urban regions in South Africa where many young people preferred to live (Statistics South Africa, 2015).

The section on the status of the non-communicable diseases in South Africa paints a grim picture about youth behaviour towards their health and wellbeing. The surveys and studies revealed that urbanisation had a profound impact on the change of youth behaviour. As result, the youth changed from active living to passive lifestyles characterized by eating fast foods, smoking and the harmful and/or irresponsible use of alcohol.

Seemingly, improvements in socio-economic situation fuelled behavioural changes among the youth who took advantage of the ease with which tobacco and alcohol were available in urban centres. Noting that these behaviours (unhealthy diet, passive lifestyle, tobacco and harmful use of alcohol) are key risk factors to reducing the onset of non-communicable diseases. Demographically, the studies revealed that certain lifestyle diseases and associated risk factors were common in particular demographic groups. For example, because of unhealthy diet, harmful use of alcohol and smoking, cardiovascular diseases and obesity were prevalent among Indian and African communities respectively.

South Africa recognized the economic impact of non-communicable diseases on the working-age population and the country's productivity. In response, policymakers developed legislation to increase taxation on tobacco and alcohol and introduced measures to control smoking in public places. Although the policy on alcohol is fragmented, there has been progress in reducing allowable blood alcohol levels in drivers. In addition, legislation requires warning levels on alcohol containers, increasing excise taxes on alcohol products and imposing greater controls on tobacco and alcohol advertising (Bradshaw, *et al*.,2011). Despite the progress made so far, the approach on controlling NCD's in South Africa is one-dimensional, it relies on clinical approaches such as medications and other clinical procedures. Unlike developed countries that adopted multi-sectoral approaches and have incorporated the built environment dimension in their control strategies.

Applying multi-sectoral approaches to control the prevalence of lifestyle diseases is consistent with the World Health Organization Global Strategy for Diet and Physical Activity and the Global Status Report on Non-communicable Diseases. The reports required that national governments monitor the physical activity levels of their populations; harmonize efforts of Ministries, private sector and researchers in health, nutrition, education, sport, urban planning, economics, trade and transport; and to design the built environments to promote physical activity. The following principles should guide the multi-sectoral strategies:

- Development of public policy to make the built environment conducive to physical activity.
- Implementation should address all age, sex and socio-economic groups.
- Private sector to implement accurate nutrition labelling and monitor nutrition and health claims.
- Enforcing bans on alcohol and tobacco advertising, promotion and sponsorship (WHO, 2004; WHO, 2010).

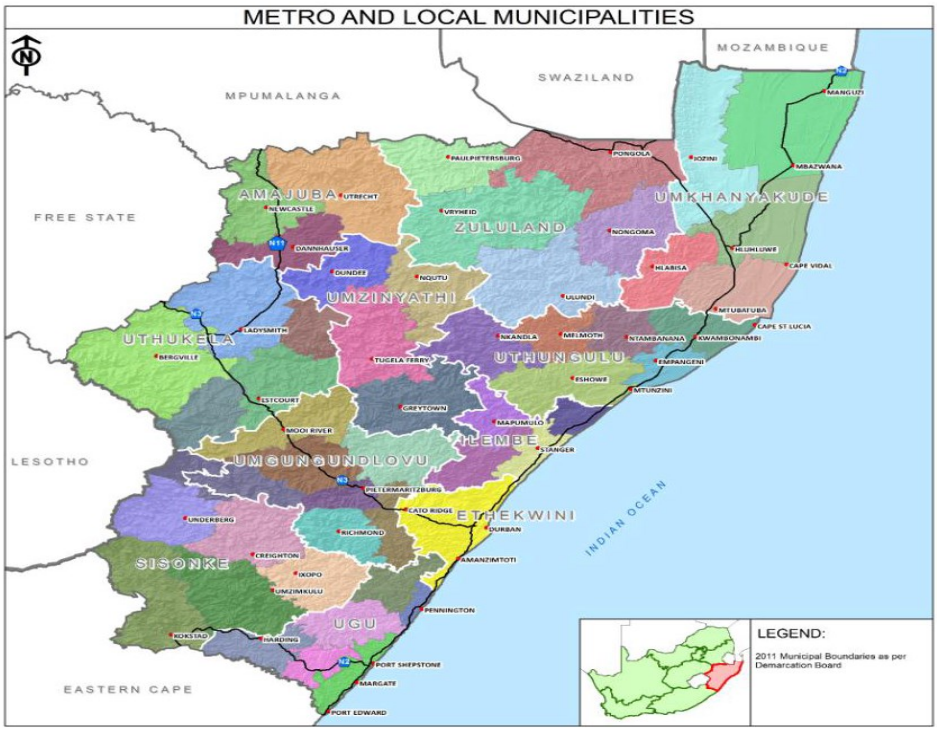
The following section would outline KwaZulu-Natal with regard to the status of non-communicable diseases and review the province's performance regarding the implementation of government's strategies and plans.

2.9.3 KwaZulu-Natal

KwaZulu-Natal (figure 26) is one of nine provinces in South Africa. It is located on the south-eastern border of the country on coast. Swaziland and Mozambique form the border to the north, Indian Ocean to the east, Eastern Cape Province to the south, Lesotho and Free State province to the west, and

Mpumalanga province to the northwest. KwaZulu-Natal is the third smallest province by land area, covering 92,100 square kilometres (Encyclopaedia Britannica, 2018).

Figure 26. KwaZulu Natal Province and Local Municipalities



Source: Municipal Demarcation Board, 2011 (Accessed 25 April 2016)

Figure 26 shows different Local and District municipalities found in the Province of KwaZulu-Natal. The Province is comprised of 10 District municipalities and 50 back-to-back local municipalities. Pietermaritzburg is the capital city of KwaZulu-Natal and Durban is the major port city.

The province has the second largest population after the Gauteng province, with 10.92 million people. The largest proportion of the youth, 3.8 million live in KwaZulu-Natal (Statistics South Africa, 2015). Table 3 shows the population breakdown from the nine provinces of South Africa and their percentage proportion of total population.

Table 3. Mid-Year Population estimates by Province, South Africa

	Population estimate	% of total population
Eastern Cape	6 916 200	12,6
Free State	2 817 900	5,1
Gauteng	13 200 300	24,0
KwaZulu-Natal	10 919 100	19,9
Limpopo	5 726 800	10,4
Mpumalanga	4 283 900	7,8
Northern Cape	1 185 600	2,2
North West	3 707 000	6,7
Western Cape	6 200 100	11,3
Total	**54 956 900**	**100,0**

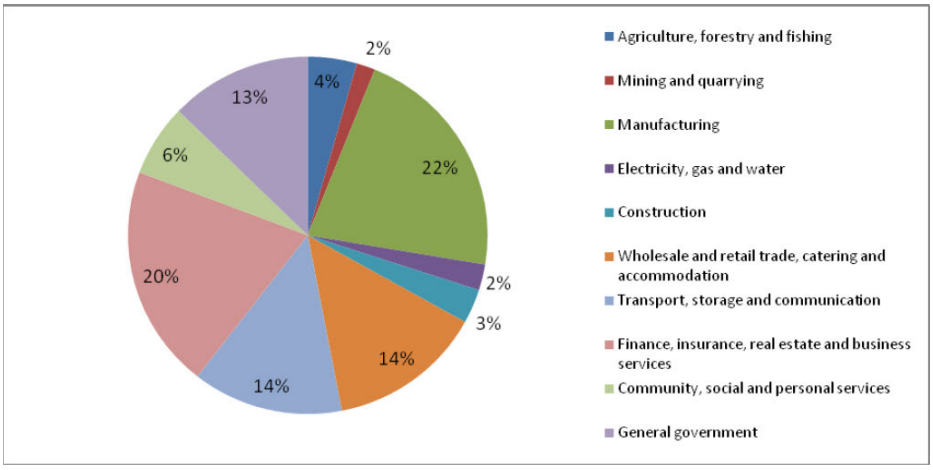
Source: Statistics South Africa, 2015 (Accessed 2 May 2016)

The people of KwaZulu-Natal belong to four main race groups. The provincial population groups consist of 86.8% African, 7.4% Indian, 4.2% White and 1.4% Coloured. IsiZulu is the dominant language spoken in the province followed by English. Africans are concentrated in rural and peri-urban areas. KwaZulu-Natal is considered a rural province due to the large section of the population that resides under tribal tenure. At least 54% of the African population inhabits the non-urban and rural areas of the province. The Ingonyama Trust Board, a tribal entity, owns about 40% of the land in KwaZulu-Natal (Statistics South Africa, 2015).

Like the national economy, KwaZulu-Natal economy is anchored on the primary sector such agriculture and mining (figure 27). Coal mining occurs in the north of KwaZulu-Natal and provides South Africa with much of its coking and semi-anthracite coal. Sugarcane is the main agricultural activity that takes place along the coast (Encyclopaedia Britannica, 2020).

Other agricultural products from the province include subtropical fruits such as pineapples and bananas and cattle farming. Plantations of pine and eucalyptus in the Midlands provide raw materials for sawmills and for paper and rayon pulp mills. A diversified tertiary sector in finance, insurance, real estate, tourism, transport and storage supports the primary sectors (KwaZulu-Natal Government, 2011). Figure 27 shows the sectoral composition of KwaZulu-Natal economy.

Figure 27. KwaZulu-Natal Economic Sectors



Source: KwaZulu Natal Government, 2011 (Accessed 25 May 2020)

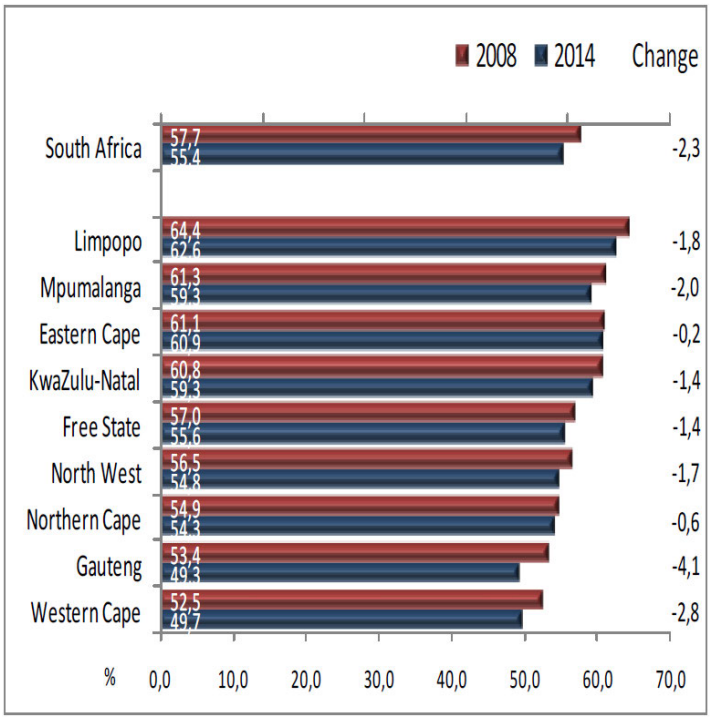
Manufacturing (22%) and the financial services (20%) are the largest sectors, and mining (2%) was the smallest. comprised The diversified economy would need a skilled workforce to drive it. To sustain economic activity would also need a healthy workforce that possess technical and specialized skills. KwaZulu-Natal is one of the provinces with the youngest [8]working-age populations. About 57% and 55% of the working population was 15–34 years old in 2008 and 2014 respectively. There was a steady increase in the working age population from 31, 5 million to 35, 2 million in the period 2008 to 2014. Youth, 15–34 years comprised a larger share of the working-age population compared with adults 35–64 years (Statistics South Africa, 2014:3).

These statistics indicate that the productive workforce is getting younger, as more young people join the job market. The implications are that the diverse economy would need more investment in skilling and training young people and to develop strategies to safeguard their health and wellbeing. It is critical for youth to be skilled. There are better prospects of being employable in the job market. In addition, being employed is a pathway to social and economic empowerment.

Figure 28 indicates the share of working age population between the youth and adults for 2008 and 2014. The working age population declined by 2.3% and 1.4% in 2008 and 2014 for South Africa and Kwazulu-Natal, respectively.

[8] The working-age population comprises three groups: persons who are employed; those who are unemployed, and the remainder who are not economically active (Statistics South Africa, 2014).

Figure 28. Youth Working Age Population, 2008 & 2014



Source: Statistics South Africa (Accessed May 2018)

Kwazulu-Natal has vocational colleges and tertiary education institutions that provide training in a variety of skills. For example, University of KwaZulu-Natal (eThekwini/uMgungundlovu), University of Zululand (eMpangeni), University of South Africa (eThekwini), Durban University of Technology (eThekwini/uMgungundlovu) and Mangosuthu University of Technology (eThekwini) are found on the east coast of the KwaZulu-Natal province.

The background on the province of KwaZulu-Natal revealed that it was diverse economically and demographically. If leveraged properly, these dimensions would generate socio-economic benefits such as healthy population, economic opportunities and sustainable development. The following section would discuss the state of health and wellness in the province.

2.9.4 Status of Health and Wellbeing in KwaZulu-Natal

Regarding the state of health and wellness in the province, the KwaZulu-Natal government identified HIV/AIDS and tuberculosis in the provincial strategy as the burden of disease and major threats to economic growth. The strategy identified the following themes:

- In providing health, the disease-burden is targeted for reduction, a broader view of mental and emotional health with moral regeneration, social cohesion and healthy lifestyles becoming part of the development plan.
- Research on migration patterns so that infrastructure and social service needs were catered for. Immigration control to assist planning for the migratory patterns that bring skills and entrepreneurship to KwaZulu-Natal.
- Development of human capital at various age groups and life-stages in a wide variety of institutions, in rural and urban settings, also notes the challenges presented by KwaZulu-Natal's education and training system.
- Spatial equity for young people was identified as central to the development agenda of the province, with community-based planning techniques that encompass planning for sustainable settlements and agricultural villages (KwaZulu-Natal Government, 2011).

These key themes that affect socio-economic health and wellbeing in the province. They provide clarity of purpose in terms of action plans that would make understanding of the Kwazulu-Natal growth strategy achievable. For example, the strategy acknowledges that reducing the burden of disease was crucial to achieve healthy lifestyles. It further recognised that migration patterns could have positive outcomes such as bringing skilled work force to support the provincial economy. This approach needs further investigation because a poorly managed migration strategy could result in resources and infrastructure overload. A diverse economy needs human capital. Therefore, the vocational and tertiary institutions in KwaZulu-Natal should respond to and address the needs of the diverse community. In addition, spatial equity should be to give the young people a voice in matters that affect their wellbeing.

The background of KwaZulu-Natal analysed opportunities and challenges that affect the province and its people. It provided insight into how apartheid economy and settlement patterns have influenced and structured the development of the province.

The Strategy described how to address the challenges and capitalise on the emerging opportunities. The following section would provide an overview of eThekwini Municipal Area (EMA), which is the location of the study area.

2.9.5 eThekwini (Durban)

EThekwini Metropolitan Municipality is located in the Province of KwaZulu-Natal, on the east coast of South Africa (figure 26). The uGu District Municipality forms a border to the south, uMgungundlovu to the west and iLembe to the north (Statistics South Africa, 2014:1).

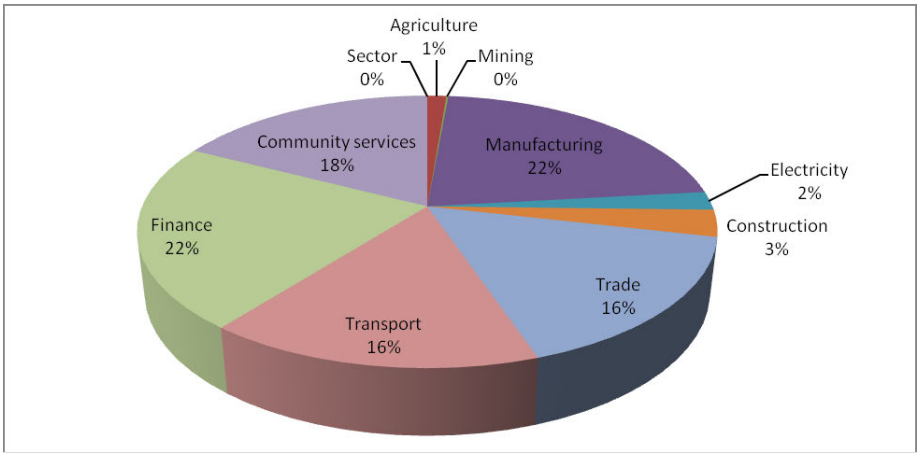
The city of Durban is overlooked by the Bluff to the south and stretches across the Umgeni River to the north. The eThekwini Municipal Area occupies a geographical area of 2297 square kilometres, with 98 kilometres of coastline and 75 000 hectares of green open space known as the [9]Durban Metropolitan Open Space System (D'MOSS). The city adopted the D'MOSS system as a policy in 1989 to protect the ecological infrastructure. The D'MOSS provides ecosystem services that were conservatively valued at R3, 1 billion in 2003. Apart from climate regulation, soil formation, erosion control, water supply and food production, the ecosystem services also provide raw materials, waste treatment, cultural and recreational opportunities (eThekwini Municipality, 2016).

EThekwini (Durban) is the KwaZulu-Natal province's largest economic and industrial hub. The city is one of the country's most important industrial regions. The Durban port is South Africa's major commercial port in terms of size and capacity. The port is a point of entry for bulk raw materials, capital goods, and industrial equipment and services for much of the interior of southern Africa. Durban is the headquarters of South Africa's sugar industry and a hub of highly diversified manufacturing activity. The city's proximity to the coast makes it an important tourism destination (Encyclopaedia Britannica, 2020).

Figure 29 shows the dominant economic sectors of eThekwini. The economy of eThekwini is diversified into manufacturing (22%), services (18%), finance (22%), transport (16%), trade (16%), construction (3%), electricity (2%) and agriculture (1%). It contributes 65.5% and 10.7% to the Gross Domestic Product (GDP) of KwaZulu-Natal and South Africa respectively (Global Insight, 2012). Clearly, eThekwini contributes the lion's share to the economy of KwaZulu-Natal province and a significance portion to the country. This confirms the economic importance of the city to the province and South Africa.

[9] Durban Metropolitan Open Space System (D'MOSS) is a system of open spaces, comprising 74671 hectares of land and water that incorporates areas of high biodiversity value linked together in a viable network of open spaces. D'MOSS include areas such as nature reserves, large rural landscapes in the upper catchments, riverine and coastal corridors. Privately owned land is included in D'MOSS (eThekwini Municipality, 2016).

Figure 29. Economic Sectors, eThekwini Municipality



Source: Global Insight, 2012 (Accessed 2 May 2016)

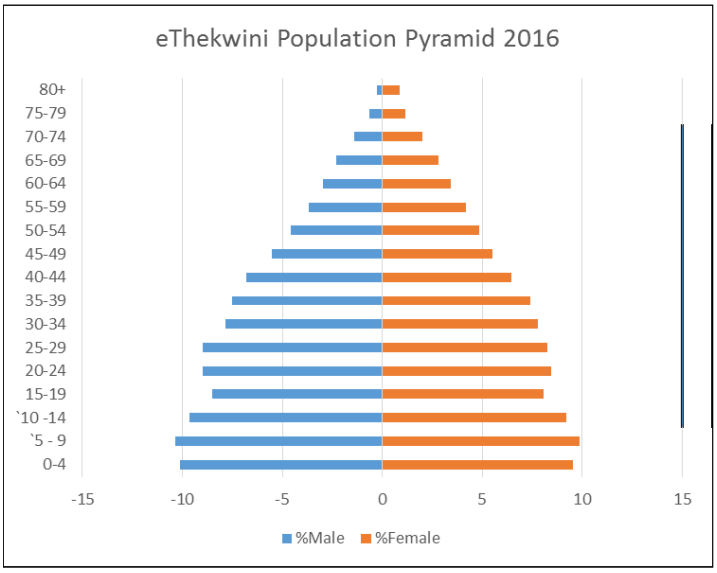
The formal sector employs about 794 956 of the workforce, 86 474 are employed in the informal sector and 85 744 are employed in private households (Statistics South Africa, 2014). Economic diversity and sound infrastructure that prevails in eThekwini seems to be draw card that attracts migrants to the city. The eThekwini Municipal Area (EMA) has a population of 3 442 361 people. Africans are the largest population group at 73.8%, followed by Indians at 16.7%, Whites at 6.6%, Coloureds at 2.5% and other groups form 0.4% (Statistics South Africa, 2014). About 62% of the population spoke IsiZulu, followed by English at 26 %. A substantial proportion of municipality's population of approximately 66% was below the age of 35, and 41% is aged between 15-34 years, 26% is aged between 35-59 years and 6% is 60 years and above.

In terms of gender distribution, females comprise 51% of the population and males 49%. Approximately 34.54% (1.18 million) of the population resides in the urban core, 33.61% (1.15 million) reside in the north region (eThekwini Municipality, 2017). The population graph (figure 30) of eThekwini indicates that females had a longer life expectancy than males. The population structure shows there were more females than males from 50-54 years and older age groups. Evidently, eThekwini is a youthful, multicultural city. Youthful age and a cultural mix are important economic attributes. They provide a diversified and quality human capital[10].

[10]Human capital is the economic value of a worker's experience and skills. It entails assets like education, training, intelligence, skills, health, and other qualities employers value. Human capital is perceived to increase productivity and therefore profitability (Tumwine, Nasiima, & Kamukama, 2014).

The shaping of young people as active and productive citizens is critical for the production of a "demographic dividend: an increase in the rate of economic growth due to a rising share of working age people in a population" (National Youth Policy, 2014:6).

Figure 30. Gender & Age Profile, eThekwini



Source: eThekwini Municipality: Integrated Development Plan, 2019 (Accessed August 2020)

Figure 30 shows the population pyramid of eThekwini. The structure of the pyramid reveals a youthful and developing city, with high birth and infant mortality rates where 63% were below the age of 35, 28% between 35 and 59 years and a comparatively short life expectancy 9% over 60 years (eThekwini Municipality, 2016).

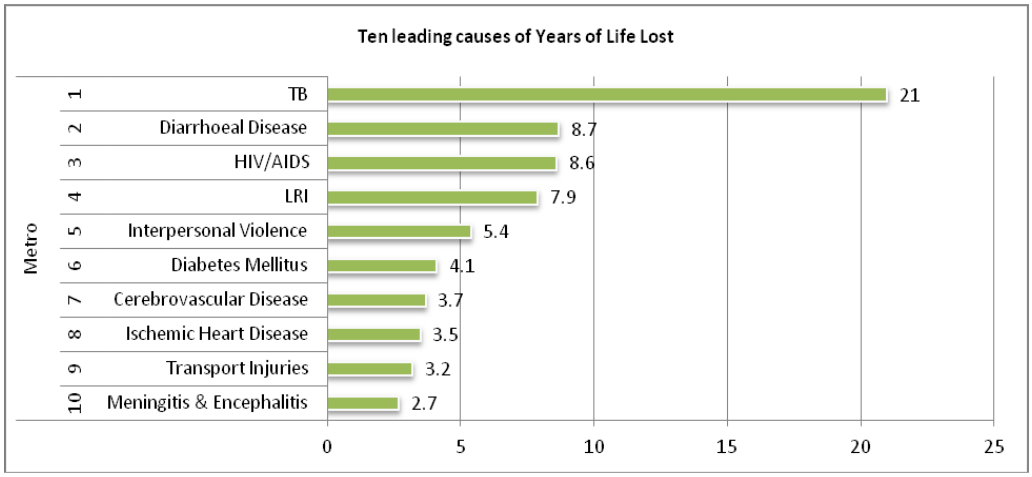
2.9.6 State of Health and Wellness in eThekwini

EThekwini Municipality identified alcohol abuse among the youth as a serious socio-economic concern. A 20%-30% prevalence of alcohol abuse among the youth aged between 20-34 years was identified (eThekwini Municipality, Integrated Development Plan, 2014). The South African Demographic Health Survey (1998) found that current drinking (past week or past month) ranged between 20%-30% and was higher among males 20-34 years old. Another survey revealed that lower levels of education were linked with higher levels of binge drinking among current drinkers in the 18-35 age groups. The phenomenon was prevalent among urban dwellers (Youth Risk Behaviour Survey, 2011:56). This implies that alcohol was readily accessible, and the urban youth had the economic means to purchase and consume it.

Macdonald, *et al*.,2007) supports this view and argue that neighbourhood characteristics and living in close proximity to alcohol outlets encouraged early experimenting with drinking alcohol.

Medical Research Council (2012) identified excessive use of alcohol as one of the risk factors linked to the prevalence of lifestyle diseases. EThekwini listed deaths that resulted from lifestyle diseases among the leading top ten causes of death in the area. Diabetes mellitus (4.1%), cerebrovascular disease (3.7%) and Ischemic heart diseases (3.5%) were common lifestyle diseases in the city (Department of Health, 2013). Figure 31. Illustrates the leading causes of death in eThekwini. Tuberculosis being the top cause of death. Non-communicable diseases such as diabetes mellitus, cerebrovascular disease and Ischemic heart disease being the sixth, seventh and eighth causes of death respectively.

Figure 31. Leading Causes of Years of Life Lost, eThekwini, 2011



Source: District Health Barometer, 2011 (Accessed 2 May 2016)

Ethekwini needs an integrated approach to address the prevalence of lifestyle diseases. There appears to be shortcomings on the curative approach for delivery of health services in the city. The concept of curative is defined "*Able to cure disease or use for curing an illness*" (Oxford Disctionary.com, 2020). The approach was premised on diagnosing sick people and prescribing medicines to manage the conditions than on assessing and preventing the risk factors to health. There is however a realization that a combination strategy would be effective, to combine curative and community-based prevention strategy. The approach would place emphasis on identifying and addressing social determinants of ill-health. Policymakers recognized the potential of public places to achieve the strategy. "Public spaces need to be developed to achieve social, economic value and provide long-term health benefits for individuals, reduce crime and create secure communities to improve quality of life" (eThekwini Municipality, 2019:543).

The realization that public open spaces played a significant role on the health of the community and provide long-term social health and economic benefits. It is clear that individualistic strategies are not effective. A multi-sectoral approach, where various disciplines would collaborate to achieve a common objective, should be considered. Therefore, a combination of the curative approach to focus on diagnosis and, a spatial dimension to focus on environmental determinants of health should inform a collaborative strategic approach to address the state of health and wellness of the community.

2.10 Summary

The chapter reviewed literature in developed and developing countries. It discussed the tools used to measure the built environment and physical activity in both developed and developing countries. It further discussed the developing countries' (Kenya) perspectives on non-communicable diseases. It discussed the status of non-communicable diseases and common risk factors in South Africa, which revealed that poor diet, smoking physical and alcohol abuse were responsible for most diagnosed NCD's. The chapter discussed the demographic profile of eThekwini, which revealed that there were more females (51%) than males (49%). Sixty three percent (63%) of the population was below the age of 35 years. It also discussed the state of health and wellness in eThekwini which revealed there was 20%-30% alcohol abuse among the youth. The following section would discuss the theoretical framework on which the study was based.

3.1 Introduction

Understanding the theoretical and conceptual frameworks is important when doing research because it gives direction to the study. The theoretical framework should assist the researcher ensure that the research project is coherent and to focus the mind on the objectives of the research. Although obscure, the use of theoretical and conceptual frameworks is part of research (Green, 2014). This view suggests that the journey of a research study may be unclear at the beginning, but the path becomes clearer when the theoretical and conceptual frameworks that support it, are understood. In essence, these concepts enable the researcher to put across clearer arguments and stay on track of the research project. Are these two frameworks similar in meaning and use, and are they interchangeable?

The definition of theory offers guidance. Fain (2004) defined theory as: "*organized and systematic set of interrelated statements (concepts) that specify the nature of relationships between two or more variables, with the purpose of understanding a problem or the nature of things and concepts as symbolic statements describing a phenomenon or a class of phenomena*".

The definition suggests that theory was formed by, and from related concepts in an organized matter with the objective to define and understand a problem. Essentially, the organization of concepts describes the relationships between them in relation to the problem that is under investigation and assist to clarify it. To support this view, Liehr and Smith (1999:8) described theory as "a set of interrelated concepts, which structure a systematic view of phenomena for the purpose of explaining or predicting. A theory is like a blueprint that depicts the elements of a structure and the relation of each element to the other…" This view further suggests that theory outlines its composite parts and seek to analyze the problem systematically to simplify its understanding.

From these definitions and analysis, theoretical and conceptual frameworks relate to each other but are not similar. Therefore, the two frameworks are not necessarily similar. However, Green (2014) suggest that it is purely a matter of interpretation regarding when concepts become organized and interrelated enough to be considered theories. Which might explain why the two terms are often used interchangeably.

Perhaps defining conceptual framework would make understanding the relationship clearer. Lacey (2010) suggested that conceptual frameworks identified the researcher's 'world view' of their research topic and described the assumptions and preconceptions about the areas being investigated.

This suggestion indicates that the conceptual framework puts in context the thoughts and ideas the researcher holds, and their expectations about the problem under investigation. Imenda (2014) states that defining concepts does not take place in a vacuum. The context in which they occur influence the meanings and interpretations attached to them. Essentially, unless the concepts are placed in context, in this instance the research project, the researcher's views become unclear. In light of this, Liehr and Smith (1999: 7) defined conceptual frameworks as "an image or symbolic representation of an abstract idea". It can be interpreted that conceptual frameworks create a detailed presentation of the theory they seek to explain.

Fulton and Krainovich-Miller (2010) further described them as the map for a research study, giving a justification for the development of research questions. These views suggest that the objective of conceptual frameworks was to guide researchers to ensure that their investigations have rationale and keep their focus on the objectives of the research. Authors provide guidance on when to apply the frameworks. For example, Parahoo (2006) suggested that theoretical framework should be used when research was underpinned by one theory and that a conceptual framework draws on concepts from several theories and results to guide research. Furthermore, it was a futile exercise to consider whether a researcher used the correct terminology or not. Of importance is how theory was used to underpin the study. These debates allude to the importance of not only framing the research on the frameworks but also showing how they guided the researcher in pursuing the study objective.

This study was underpinned by modernism and postmodernism in urban planning. There are interrelationships and differences between the two theories. From an urban planning perspective, they represented different points in the evolution of planning theory. For example, both theories had a desire to create liveable urban environments and order urban spaces to address social conditions (Monclus & Medina, 2016). Technocratic decision-making centred on rationalism to modernise society, were the main characteristics of modernism. On the other hand, postmodernism questioned whether the public's interest was central to urban planning. Postmodern planning stressed the involvement of communities in the planning process. The following section would look at modernism and postmodernism in urban planning and their guiding (principles) concepts.

3.2 Modernism in Urban Planning

Modernism as a cultural paradigm dated back to the fifteenth century and became prominent during the eighteenth century in the period known as the Enlightenment (Harvey 1990 cited in Hirt, 2002). The philosophers of the Enlightenment era formulated the modernity project. Habermas (1996:45) argued that it "*thrived in the persistent development of the objectivating sciences, of the universalistic foundations of morality and law, and of autonomous art, all in accord with their own inherent logic. It resulted in releasing the cognitive potentials accumulated in the process and attempted to apply them in the sphere of the praxis, to encourage the rational organization of social relations*".

During the period of enlightenment, around the eighteenth century, the modernism ideology gained popularity for its scientific and rational approach in dealing with social crises of industrial capitalism (Harvey, 1989). It was around this period of Enlightenment that modernist planners envisaged a utopian society through the pursuit of knowledge and objective science (Berman, 1992). Industrial capitalism provided both an undesirable situation, such as overcrowding in industrial cities that modernist planners could reject. It also presented an opportunity to create a new utopian society based on scientific and technical progress: "a dream of the rational city" (Sandercock, 1998a: 22). Essentially, modernism era appeared as the light that shone during a period of chaos and grime brought about by industrialisation.

Hirt (2002:3) argued that modernist planning sought to "apply scientific knowledge and human creativity in order to discover universal and eternal truth". The ultimate objective of which was to liberate humanity from irrational and arbitrary traditions and introduce new ways of ordering urban spaces. Modern planning established an objective scientific approach on which to base the rational organisation of spatial relations. The objective scientific approach manifested, for example, in radical innovations in housing and urban forms that were the basis of the modernist urbanism (Monclus, & Medina, 2016:535).

To understand the meaning of planning (Irving, 1993) argued that within the philosophical and cultural contexts of modernity and postmodernity, the modernist called it urban planning. Because it focused on large scale, technical and efficient city plans and the international style of functionalist, "no frills architecture guided by the principle of less is more and form follows function aesthetics". Planning as a modernist project responded to the social crises created by the fast-growing industrial cities that struggled to cope with urbanization. Due to large-scale rural-urban migration, urban centres in industrial cities experienced unprecedented population growth (Cherry, 1980 in Hobson, 1999:2).

Modernist planning aimed to solve the prevailing social crises (such as slum, poverty, disease and moral decay), to change "an unwanted present by means of creating an imagined future" (Holston, 1998:40). The vision of urban planning was to harness the benefits of technical and scientific progress, where scientific knowledge became supreme authority. The political authority was relegated, if not excluded altogether from decision-making. Comprehensive master plans, which required a public authority to fund, were considered the best solutions to solve the problems that faced industrial cities (Robinson, 2011). Basically, modernist urban planning problematized the industrial city as being "chaotic and lacking order". From that chaos, urban planning was positioned to establish stability in a structured and rational form. Elements such as modern architecture that focused on permanent forms of spatial structure gave modernism a physical expression.

Modernism reflected images of "the machine, factory, speed and automobile". It was an urban phenomenon that manifested in urban renewal schemes to confront the effects of mass urbanization. Urban planning believed in linear progress, positivist in thinking and technocratic rational planning of social and geographic space. The problem of the city became a focal point with more people in developed America and Britain living in urban areas. Urban improvement strategies focused their attention on park development, civic beauty and functional government guided by the principles of efficiency, science and zoning (Irving, 2001:475-476).

In response to the "industrial evils of the nineteenth century" caused by urbanisation, the development of the new town or garden city emerged. The garden city developed from a need to create an environment that was both beautiful, functional and healthy (Creese, 1995:135). The ideal garden city was self-sufficient with wide streets, chapels, public parks and schools. Some of the elements of the garden city included the restriction of population growth to about 32,000 people; creation of a permanent green belt around the city to form a barrier and act as agricultural countryside for the city. The municipality had permanent ownership and control of the urban territory; providing property lease to private firms and drew profits for conducting businesses (Batchelor, 1969:189).

The garden city concept interlinked the town to its rural surroundings. Ideally, the garden city would solve problems such as encroachment of cities on adjacent agricultural areas; urbanization and decline of rural life; the development of slums in cities and the resultant overcrowding; the instability of economic activity in the agricultural sector; the growth of land values without benefit to the community; the exclusion of the benefits of city life for residents of rural areas, and the unsanitary conditions of life in modern cities.

City dwellers provided a reliable and stable workforce for business owners. Living in the city improved workers' health, morality, quality of life and educational standards.

Parks and gardens that existed at the heart of cities were the privilege of the wealthy. Others were private estates of kings. With the advent of modern planning, public open spaces were consciously planned as part of total fabric of urban spaces. However, they served a limited segment of the population such as the residents of adjacent housing complexes. The parks were fenced off with a gate that had to be unlocked to gain access. The insensible growth of industrial towns and the appetite to modify urban space owing to the rapid growth motivated the creation of public urban parks. Authorities realized that overcrowding, poor sanitation, insufficient light and ventilation, and lack of proper water facilities were the basis of the social and environmental problems experienced in industrial cities. Lawmakers debated the relationship between general health in densely populated towns and the psychological and recreational value of public open spaces. The debate culminated in urban planning programs to design tree-lined boulevards and open spaces in towns (Hyde, 1947:153).

In the post-Second World War period, modernist urban planning which began as a reform movement, was institutionalized as an instrument of the interventionist state. The state was considered representative of the public's interest to improve living conditions for the urban poor and create healthier urban environments. Modernist planners used planning as a tool to distribute social benefits across all social groups and imagined a future where social problems would be "tamed and humanity liberated from the constraints of scarcity and greed" (Beauregard,1996: 218). In response to the growing demand for housing in the post-War period, urban renewal and highway developments featured modernist principles such as development of large-scale housing estates. Urban planners analyzed demographic and other land use data to design homogenous developments. Dear (1986:377) argued that in the post-War period, the urban planning profession consolidated its physical land-use identity. State intervention received extensive mandate in the development of land and property such as large-scale comprehensive metropolitan plans and housing estates.

Advances to urban transportation systems influenced changes in the spatial distribution of the population in metropolitan areas. Highway road networks were designed to link distant places, not necessarily local commuting. Lawmakers considered the countrywide distribution of population, manufacturing activity, agricultural production, the location of post Second World War employment, the location of military and naval bases, and interregional traffic demands to design comprehensive highway systems (Baum-Snow, 2007:778).

Improved transportation and communication technologies, together with massive government subsidies, led to a continued spread of residential, retail and manufacturing activities away from the urban centres (Long, 1981; Zimmer, 1975 in Frey & Zimmer, 2001:29).

The sudden increase in private motorcar ownership appeared to have influenced the emerging shape of the city. At town level, accommodating the car took up land through requirement for access and parking. At regional level, individual mobility fueled the trend towards suburban decentralization (Gold, 2006:113). With affordable fuel and mass-produced vehicles, the highways reduced travelling costs and the prospect to live in detached dwellings encouraged the migration of families to the suburbs (Jackson, 1985: 191).These developments suggest that town planning responded to the emerging trend of motorised transportation and detached housing options that became available with the popularity of motor cars.

3.3 Criticisms against Modern Planning

Comprehensive planning model dominated the planning profession until its elevated status came under attack in the 1960's. Other alternative models, each questioning the merits of comprehensive planning began to emerge (Hirt, 2002). The large-scale development schemes that characterized modern planning drew criticism for being insensitive to the values of old cities. The critics argued that new developments lacked urbanity due to the single functional zoning that neglected the human scale in large-scale housing estates and buildings. In addition, different urban groups could not integrate into the city, became isolated and fragmented (Irving, 1993; Monclus & Medina, 2016).

The growing disillusionment with modem planning was a reaction against the large-scale planning interventions such as slum clearance, and awareness of the environmental consequences of the comprehensive planning model (Goodchild, 1990). Critics against modern planning argued that understanding of cities and their planning should come from the bottom up, from countless individual decisions of ordinary people. "*The diversity of cities marked their quality, and that top-down urban planning destroyed such diversity. Cities were problems in organized complexity that presented interconnected variables to form an organic whole* (Jacobs, 1961: 433).

Modernist planning was further criticized for being oppressive. Despite its reformist objectives, the functional zoning inadvertently created sterile cities; slum redevelopment that displaced the underprivileged city dwellers and destroyed social structures. Highway developments divided communities and encouraged urban sprawl. The growth nodes produced costly inefficient non-sustainable urban centres (Harrison, 1996:32).

Minority communities were on the receiving end of the oppressive outcomes linked to modern planning. For example, Yiftachel (1998:4) argued that, while it was not intended to, modern planning acted as an oppressive instrument and was used to control marginal groups based on ethnic, racial, gender and class divides. The oppressive outcomes of spatial policies were evident in the implementation of public housing, inner city development, gentrification, the location of job opportunities far away from residential areas and environmental hazards such as noise brought from building of highways. The following section would look at the main principles that guided modern planning.

3.4 Principles of Modern Planning

Several principles characterised modern planning from subsequent flexible planning approaches. These elements of modern planning shaped the character of industrial cities and were the cornerstone of the post-War urban renewal projects.

3.4.1 Comprehensive Rationality

The comprehensive rational model embodied identifying social problems, describing goals and objectives, identifying opportunities and limitations, designing plans of action, projecting outcomes, and assessing alternatives (Alexander, 1986). The master plan would be the ultimate product, which Beauregard (1996) described as planning's modernist meta-narrative.

Around the 19th century when large numbers of workers flocked industrial cities resulted in diseases and epidemics. The urbanisation created overcrowding and unsanitary conditions in cities. As a result, the spread of infectious diseases became the primary public health threat during the industrial revolution (Perdue, Stone & Gostin, 2003). In reaction to the urban chaos of the industrial city, planning emerged as a profession with the promise of radical urban reform. The city was viewed as rundown beyond repair, and in its place, the future city could be planned rationally (Hirt, 2005:30).

The modernist thinking was that the laws of reality, such as the laws of city development, were objective. In addition, it claimed a collective public good could be defined objectively by planners and other experts who were better placed to understand how a city functioned and what was best for its residents (Beauregard, 1989). The modernist model dominated the planning profession from the Progressive era until the 1970s when its claims for the discovery of a conflict-free public good, and role of planners as experts being uniquely positioned to define it were challenged for being deceptive, and to an extent oppressive (Hirt,2005:29).

3.4.2 Physicalism

The initial coordinated response to the urban chaos of the industrial revolution was implemented through a system of centralised planning by imposing top-down 'organic' order in city and regional plans. That approach was embedded in physicalism, a viewpoint that social problems could be resolved by manipulating the physical environment and by dividing space to address the prevailing socio-economic challenges (Batty & Marshall, 2009:551). A significant element of modern city planning was the zoning ordinance or regulations. The primary object of zoning was to regulate the physical structure of the city. Essentially, the zoning regulations prescribed by districts or zones, the kinds of buildings that could be built, coverage of the lots, and uses that the lands and buildings could be put to within the districts. In addition, the zoning regulations created districts within the city according to use, reserved districts for residential use, restricted against manufacturing and business (HLW, 1920:191).

The land use specialisation gave rise to the development of suburbs and other specialised land uses such as shopping centres and industrial parks. Another prominent feature of that period was the construction of highways and apartment blocks, mainly high-rise buildings. Living in suburbs popularized the use and ownership of motor vehicle (Filion, 1999:428). The suburbs with their healthy surroundings, away from the uncleanliness and poverty of the densely packed inner city, were considered the best place for families to live. The physical separation of land uses was essential to lessen the adverse harmful effects to health and well-being of communities living in cities (Thompson, 2007:157).

3.4.3 Top-down Approach

Abercrombie argued, "cities required a top-down ordering, and planning had a duty to enforce it. Professionals were best suited for that task, which was essentially mechanical in its form and process" (Abercrombie, 1937:16). The practice of plan-making embraced a top-down approach in which the planning practitioner knew the proposed optimal form and applied it in the design. The use of science to human affairs in the practice of social engineering and policy analysis had a larger impact based on the idea that cities were seen as systems to be engineered into forms that were more efficient (Batty & Marshall, 2009:562).

Modern planning placed emphasis on the scientific methodology of spatial ordering. However, the rational model and the physical master planning that prevailed in the late twentieth-century across the world, attracted criticisms. Critics tirelessly challenged the rational approach to the effect that powerful elites benefited from planning projects. At the same time, low-income urban inhabitants were being

displaced to make way for the infrastructure projects (Fainstein, 2000:453). The challenges of planning during the massive urban regeneration programs support the countless objections against the top-down, expert driven planning.

The above discussion on modern planning or comprehensive rationalism sought to highlight the inception of planning, its evolution, and its relationship with health and wellness concerns of urban dwellers. The following section would discuss postmodern planning, the loopholes of the theory and criticisms that have been identified against it as a planning approach.

3.5 Postmodern Planning

At the turn of the century, competitive capitalism gave way to the monopoly or Fordist stage. The growth of large, monopolistic corporations and the mass production of standardized goods marked the Fordist period. However, the shock of rapid economic and political changes of Fordism produced cultural modernism that reached its climax after the Second World War. That era was characterized by cultural innovation and economic growth. The innovation of modernism era began to show flaws in the late 1960s and fell into crisis in the recession of 1973. Plans to resolve the crisis gave rise to a post-Fordist economy that was characterized by the flexible production of diversified goods on a new global scale. The economy produced the new culture of postmodernism, which recognized difference, diversity and ephemerality (Gartman, 1998:121).

Various interpretations were put forward to describe postmodernism and postmodernity. Postmodernism was defined in disagreement to the radical modernist cultural movements in art, literature and architecture that started in the late nineteenth century and dominated high culture until the 1970s (Gare, 2001:78). As a periodizing concept or epoch, it represented a new transitional period where a number of interrelated socio-economic, political and cultural changes happened concurrently (Dear, 2000). As a method, postmodernism represented an intellectual move in viewing the world that shifted from humanity's linear historic progress or the ultimate truth of scientific laws that were linked to modernist intellectual conventions. In all accounts, postmodernism extended across the narrow interpretation of a particular aesthetic style in arts like architecture (Dear 2000 in Hirt, 2002: 3).

Planners had begun to vigorously scrutinize how planning was conceptualized as applied social science because the social science techniques had not greatly improved the practice, especially the ability to predict behaviour (Milroy, 1991). Returning to planning's design origins does not guarantee positive outcomes. Therefore, turning to humanities revealed the delicate interrelation in social practices, norms,

behaviour, and language which indicated that social reality, was a social construction. The notion of empirical social science to find physical data in social practice became problematic.

Friedmann (1989: 220) argued that "*modernization was not a problem, but the attempt to totalize the idea of modernity by adopting unidimensional cognitive rationality was. The unblocking of the modernization project and redirecting it to forge a new unity between the existential reason of the body and cognitive reason of the mind".* This viewpoint suggest that postmodernism was a revised variant of modernism under changed conditions and understanding rather than a turning point. Other views suggest that postmodernism succeeded modernism. This view is supported by Jameson (1984:55),who argued that postmodernism was a new stage linked to the arrival of late stage of capitalism, which brought with it a different relationship between culture and capital. The position of postmodernism in culture was at the same time an implicit or explicit political stance on the nature of multinational capitalism. In this case, postmodernism was projected as a new era with new conditions, a period that man had not mastered.

However, the view that something must be mastered indicates clinging to the main beliefs of modernism, the separated subject and object, master and 'other'. Whatever views prevail about postmodernism, it appears to resist the accepted conventions about modernism. Three broad characteristics can be used to describe postmodernism, namely: It is *deconstructive* by way of enquiring and establishing a sceptical distance from conventional beliefs and, more vigorously, trying both to determine who derives value from upholding their authority and to displace them. *Antifoundationalist* by way of dispensing with universals as foundations for truth. *Nondualistic* by refusing the separation between subjectivity and objectivity along with the variety of dualisms it provoked including the splits between truth and opinion, fact and value, and encouraging of plurality and difference (Milroy, 1991:183). In essence, postmodernism questioned the universal laws that sought to prescribe what the acceptable truth was and good for society. In addition, it rejected to separate facts from values and accepted that society was different and diverse.

The important question was whether it would be feasible to address the fragmentation of modern society and create a vision that would include pluralities across all boundaries without erasing them. Hatuka & Alexander (2007:23) argued that it would be challenging to bridge a gap between a particular idealistic vision of modernity and the inherent plurality of society. The rise of public's participation indicated that the planning process was adapting the postmodern relativity of views, characterized by the emergence of dissenting voices in the planning arena, postmodern fragmentation of values and rejection of expert's visions, which were acceptable in the post-war period (Filion, 1999:424).

3.5.1 Communicative Rationality

Debates on how to foster citizen-driven, instead of expert-driven planning have dominated planning practice (Healey, 1997). To this end, Habermas (1984) proposed communicative rationality as a progressive way forward through a different conception of human reason. It would be an alternative to keep the idea of the liberating and democratic potential of reasoning. It was widened to encompass moral appreciation and aesthetic experience along with rational-technical forms of reasoning. That wider understanding of what we know, and how we know it, rooted as much in "practical sense" as in formalized knowledge, was brought into collective deciding and acting through intersubjective communication rather than through the self-reflective consciousness of autonomous individuals. A recourse to scientific knowledge or rational procedures must be contained within a conception of democratic acting in the world. Therefore, communicative rationality provides normative principles to evaluate and challenge the qualities of interactive practices (Habermas, 1984).

The communication theory is differentiated between two kinds of rationality: the emancipative communicative reasoning and the strategic or instrumental thinking. Essentially, social action could be either a strategic action oriented towards success or a communicative action seeking understanding.

In the case of strategic action, purposive-rational action would be oriented towards other persons from a utilitarian angle, such as deliberate manipulation of others. In other words, an actor who acts strategically would primarily be seeking his own ends. Alternatively, communicative action would be concerned with mutual conflict resolution through consensus. In this case, actors are not predominantly concerned about achieving their own success, but rather to harmonize their plans of actions with the other participants. The endeavour to achieve consensus was founded on the intersubjective recognition of debatable validity claims (Schaefer, *et al*.,2013:1). The two elements of communicative rationality are similar on their use of language as a medium, but differ on the orientation of their objectives, which makes communicative action the opposite of strategic action.

Various terms are used interchangeably in planning theory literature to describe communicative planning, and to analyse the concepts of Habermasian critical theory into planning. For example, argumentative planning (Forester, 1993), planning through debate (Healey, 1992a), inclusionary discourse (Healey, 1994), and collaborative planning (Healey, 1997a, 1998). Argumentative planning as the analysis that goes beyond the investigation of differences of opinion about technical facts. It considers the positions that were being criticized, or against which a justification was mounted. In essence, without knowing these

counter positions, the argumentative meaning would be lost. The task for argumentative analysis is finding ways to merge the analysis of the discursive production of reality with the analysis of the social practices from which social constructs emerge (Hajer, 2002). Effectively, argumentative planning provides meaning to vague social circumstances and raises awareness to the fact that actors would use debate and persuasion to impose their perception of reality on others, and even manipulation and the exercise of power.

Similarly, Healey (2003) argued that communicative rationality provides a way forward through a different conception of human reason. Without giving up on reason as an informing principle for contemporary societies, the perspective shifts from an individualized, subject-object conception of reason, to one that is formed within intersubjective communication. Reasoning is essential where living together but differently in a shared space and time drives ways of reaching consensus on how to address shared concerns.

In addition, planning should defend boundaries and equally foster the celebration of difference. Planning would achieve this by appreciating diversity and recognizing that differences are vital elements in conceiving inclusion, which must be informed by tolerance and mutual respect (Healey, 1993:236). Essentially, the rationale for communicative planning was to recognise the role diverse actors played in a shared space to seek consensus on issues of mutual concern.

Collaborative planning, as a component of communicative planning theory was framed as a negotiative process that involved the exchange and bargaining among a variety of actors to evaluate the implementation of plans (Healey, 1997a). A coalition of actors such as government and the business lobby developing urban policies that claimed to foster economic competitiveness. The emergence of civil society and community-based movements who challenged the policies preferred by the coalition that dominated planning practice, transformed urban planning (Douay, 2010).

Developing an institutional account of planning and practice was necessary to focus on development interests and institutional practices in order to understand interaction between structural driving forces and local governance capacity. The perception of planning as an interactive process inspired collaborative planning and concerns to enhance the qualities of places and territories. The commitment to social justice and realization that wider economic, social and environmental forces structure how interactions take place between and within the diverse actors.

Recognizing that planning activities were situated in a diverse social environment was significant. The notions of the 'good' and the 'just' were constructed through relations of knowledge and power (Healey, *et al*., 1988:104).

A shift in power relations would be inevitable when policy development was facilitated through collaborative planning (Healey, 1997). Positive outcomes for institutional transformation were achieved where narrow power interests once dominated strategy development. The collaborative approach combined communication and implementation to meet differing local conditions in social relations and political context had a potential to be effective and accountable policy-making tool that engages with the public (Blair, Berry, & McGreal, 2007:440). Notwithstanding the attempt of communicative planning theory to address the possibility to achieve improvements in social justice, several criticisms were levelled against the collaborative planning approach.

3.5.2 Criticism against Communicative Planning Theory and Collaborative Planning

Criticisms against the adoption of communicative approaches to planning, especially those that appealed to consensus, may deny the importance of alternative visions constructed by social movements. When recognizing diversity, bringing groups together in a consensus-building exercise involved a contest between differing worldviews. In which case, none of the actors should receive privilege above others. Often practitioners take positions, whether conscious or unconscious, that manifest in ways of thinking, acting, and appearing in defense of capital (economic, social, cultural and symbolic). Capital and the values that support it are usually entrenched, and not given up without a struggle. Social movements emerge out of the struggles around capital, or from efforts to make the majority embrace alternative values. When considerable differences in visions appear, communicative planning must be able to deal adequately with diversity, and not gloss over a critical opposition for the sake of accepting comfortable pictures of consensus, or even worse to automatically deny their validity (Foley, & Lauria, 2000:2).

The ideals of openness and diversity associated with communicative planning model were not the basis for its criticism (Feinstein, 2000). However, its shortcomings stem from the tendency to substitute moral advice for analysis. Although rooted in critical theory, proponents of communicative theory lose their thought when they move away from critique and instead present a manual for action. Ideal speech, which provides means for demystification was advocated as a criterion to register the distortions inherent in most interactions (Habermas, 1984). However, the argument takes a moralistic tone if ideal speech becomes the objective of planning.

Proponents of communicative planning seemingly forget the economic and social forces that produced widespread social conflict and control by powerful elite. If role-players were reasonable, conflicts would be resolved through negotiation. Unfortunately, vulnerable communities suffer systemic bias when their viewpoints were not acknowledged within a planning negotiation setup. In addition, defenseless groups get unfavorable benefits from planning decisions. For example, when decisions about unwanted facilities are located close to their neighborhoods (Feinstein, 2000:455).

Collaborative planning and communicative planning theory in general placed emphasis on governance process and process design. Critics argued that there was neglect of context and a lot of focus on process, which was detached from substantive content (Healey, 2003:108). The interactive process that is embedded in collaborative planning was criticized for directing attention away from the justice and sustainability of the substantive outcomes of planning interventions. They argued that substance and process were not separate spheres but are co-created.

Therefore, process should not be perceived as a means to a substantive end, rather as processes that have results. Participants in governance processes shape the role-players' sense of themselves and generate ways of thinking and acting that would be advantageous in later governance engagements (Gualini, 2001). In addition, the participants involved were faced with a dilemma to conduct themselves ethically and ensure justice in material outcomes (Howe, 1990).

Collaborative planning and communicative planning theory were also criticized for absence of an adequate social theory (Lauria and Whelan, 1995) or an 'explanatory' theory (Yiftachel and Huxley, 2000) that underpinned it. The criticisms enquired about the nature of assumptions that underpinned communicative planning theory about how social order was fashioned and transformed. In addition, communicative planning was viewed as having a tendency to portray planning as primarily a procedural field of activity, similar to the rationality-in-planning school. That view placed planning one level away from the political and economic realities of power and inequality in urban and regional development. In the same vein of searching for the right decision-rules seen in rational-comprehensive or rational-communicative, universal or local (Huxley & Yiftachel, 2000:102).

Other criticisms levelled at communicative planning related to its structuration foundations. The fact that theory did not provide an accurate definition of what constituted a structure, an agency or an institution. There was ambiguity on the structure, which seemed to represent features of the broad context in which agents operated.

Agents were portrayed as key participants working in institutions, and institutions became wrongly categorized as people (Allmendinger & Tewdwr-Jones 2002:18). Consequently, important aspects such as conflict within and between agency and institution; strategies that were the product of other external forces; overestimating the effect of agency upon structural change; and undertheorizing the dynamics of transformation were minimalized (Ball, 1998). These criticisms were appropriate for urban planning. For example, in providing guidance for planning practitioners on the different responsibilities they would play in mediating situations, providing information, and making recommendation to the governance structures.

The planner's involvement in planning negotiations may generate dependency among the community groups with whom he interacts and facilitates communication. Listening to communities is not an assurance that their views would certainly inform policy. The diverse input, most from ordinary persons, may turn the planning discourse into a subjective interpretation, instead of identifying limitations and examining outcomes of planning decisions. When ordinary citizens are unable to accurately frame alternatives, the civic forums could be reduced to talk shops (Fainstein, 2000).

Public participation painstaking process. The length of time and extent of commitment required from the community could be emotionally and psychologically strenuous. The energy exhaustion among communities could frustrate the impatient communities. In diverse communities where the majority of members are middle class professionals, the less educated members of the community could feel overcome by the planning process. Civic meetings could eventually be seen as an ineffective exercise (Fainstein, 2011). These criticisms reveal some of the shortcomings of communicative rationality such as the systemic bias against the less educated or illiterate communities under the pretext of communicative planning.The following section would briefly discuss some of the guiding principles for collaborative planning.

3.6 Guiding Principles for Collaborative Planning

Moving towards a deep understanding of planning objectives would be possible when practitioners realized that planning principles could be used to rationalize oppressive policies and by testing models against their real-world material outcomes (Yiftachel & Huxley,2000:910). The discussion would focus on the following guiding principles for collaborative planning (communicative planning theory): inclusivity, participation, diversity, consultation, and social justice.

3.6.1 Inclusivity and Participation

Communicative planning is founded on the assumption that, when faced with "the truth" and the evidence of the need to act in a more open and inclusionary way for wider interests, planners would choose the noble aspect of inclusion (Tewdwr-Jones, 2002:74). In that vein, collaborative planning advocates an inclusive approach to the planning discourse in which the decision-making process would include a broad spectrum of actors. The differentiation of the community in terms of class, social standing, gender, age, ethnic and race should participate in the neighbourhood planning process. It is another question whether all the participants were recognized as equal players, adding value to decision-making or included as tokenism.

Participation should be conversational discursive, not merely for the sake of it. Communicative rationality requires ideal role taking and power neutrality. There should not be conditional types of bargaining or simulations of strategically negotiated compromises among conflicting particular interests (Flyvbjerg, 1998:213). An outcome of a collaborative process in which there is recognition of all participants, and their interests may be acceptable.

3.6.2 Diversity

In collaborative planning, the diverse interests and expectations of different people are acknowledged. Gualini (2004:558) supports this view and argued that local policies would enjoy wider legitimacy if governance processes for policy learning account for the diversity that constitute the different peoples. Effectively, collaborative planning should seek to draw knowledge and reasoning from the diverse spectrum of role-players, and to ensure that no actor, however powerful or influential, dominate the planning process. The shaping of public policy should be reflective of the diversity of a community (Fainstein, 2000; Healey, 1997:29).

Continually prejudiced ideals (sexist, racist and homophobic) that underpin the planning discourse should be challenged. Otherwise, there would be a risk of perpetuating repression of difference. The good intentions of planners are not enough (Young & Christos-Rogers, 1995). Noting that race and gender are embedded in social institutions that cannot restructure themselves. Restructuring would be possible when the community challenged internalized oppression and demand that policymakers see their differences and recognize their diversity (Foley & Lauria, 2000: 221). However, the weaknesses of collaborative planning were the optimism about the possibility of mediating significant diversity values and interests.

Diversity is not merely something to be tolerated or excluded by imposing one homogeneous vision of desirable urban living. It can neither be considered just a nuisance, something that opposes a sought-after consensus. Instead, it represents an intrinsic advantage to the production of cultural variation as a source of possibility (Calhoun, 1995:75).

3.6.3 Consensus

The application of communication as a tool in the planning process, consensus is reached about the framework and form of public policy. The policy, which is designed after consensus, combines the views of a diverse community. As a negotiator, the planner attempts to mediate among the diverse stakeholders to secure agreement (Fainstein, 2000:458). To give effect to the ideas of communicative planning practice, Healey (1993:243) argued that it required a focus on the "arenas of struggle", where community debates occurred and where problems, strategies, tactics and values are identified, debated, evaluated and where conflicts were mediated.

Undoubtedly, an inclusive approach would bring up a lot of information, opinions and views that would need to be refined. Filtering the information should be less technical to enable different views to be preserved. Allmendinger & Tewdwr-Jones (2002:10) argued that a mutual filtering exercise would achieve this objective based on a collective decision-making process that considers various options and their outcomes. A favourable policy direction, that would have been collaboratively selected, would emerge from the process.

3.6.4 Spatial and Social justice

Environmental justice and access to green spaces relates to human health, landscape planning, and creates sustainable communities. However, the uneven, unjust, or inequitable distribution of green spaces across some neighbourhoods deprives vulnerable communities of the ecological benefits (Jennings, *et al*., 2012:1). Collaborative planning seeks to extend access to and participation of broad community interests in planning and decision-making. The community interests were defined by the diversity of class, race, gender, and age, which should be accommodated by the consultative forum.

To achieve a socially just urban environment, governance structures and decision-makers would have to appeal to the individuality and diversity of community groups, showing respect and dignity to their interests. The planning process should be sensitive to the social needs of diverse communities, and opportunities to participate in planning processes should be extended to ordinary people (Healey, 1997). The processes should watch against the risk of domination by influential individuals and organisations.

Facilitators of policy review meetings should allow different voices to be heard and should recognise the rights of all people to live and work in the city (Fainstein, 2000:455).

To achieve greater social justice, which is the objective urban policy, McDowell (2000:207) argued that the policy should seek to close the widening gap between the powerful and the powerless, the rich and poor in contemporary cities. The poor are defined by gender, race, age or class or another complex dimension that cuts across all these social divisions.

3.7 Relevance of Modern Planning and Postmodern Planning in South Africa

Despite the criticisms, modern planning has a crucial role to play in South Africa. The vast socio-economic disparities that prevail in South Africa would require central government planning interference. The urban landscape of any part of modem South African society features gross material inequality. The extent of inequality in the country is most obvious in urban areas. That is where surprisingly wide polarities of wealth and poverty are visible in close proximity to each other (Maylam, 1995:20). The legacy of entrenched racism, urban segregation and rural deprivation gave rise to a situation of spatial inequality, underdevelopment and lack of housing that have hampered urban integration (Turok, 2014a:10).

Against the backdrop of underdevelopment, South Africa would benefit immensely from a hybrid of comprehensive rationality and a communicative planning approach to provide infrastructure for the previously disadvantaged and currently forgotten communities residing in peri-urban areas. To achieve this objective, local government must be development orientated, but also adopt an integrative approach that would be sensitive to the diversity of the local population. Government should have the capacity and drive to provide services in an equitable manner. However, given the history of social exclusion, governance structures would have to be inclusive of diverse voices from all socio-economic and racial backgrounds. This view is consistent with South Africa's current policy direction that marked a departure from the originally dominant policy, which emphasised restitution and integration. The policy puts emphasis on environmental sustainability, shared economic growth and social inclusion. In addition, there is focus on responsible urban governance, and there is no expectation that urban management should exclusively be driven at local government (Parnell & Pieterse, 1998; 70). Social inclusion would not be feasible without engaging civil society on the development agenda to bridge the gap between government, private sector and civil society.

Social engagement is critical for any success of government's developmental initiatives. State planning, with its different configurations (at national, provincial or municipal level) cannot successfully implement

the rolling out of public infrastructure. Forced removals, which were the official policy of apartheid government, displaced Black people from the urban core and created underserviced townships located beyond the urban periphery (Terreblanche, 2002). The abolishment of the segregation system fuelled urbanization to metropolitan areas. As a result, townships have grown beyond their capacity and informal settlements have mushroomed around transport routes and economic centres. Due to poor infrastructure in townships and informal settlements, the areas are overcrowded and susceptible to flooding and communicable diseases (Turok, 2014). To mitigate these development challenges would require a hybrid of comprehensive rationality and communicative planning approaches.

3.8 Conceptual Framework

The main concepts around which the study was structured would be discussed in the following section. The concepts for this study were identified from the review of literature around the topic. A conceptual framework is a visual or written product that explains, in graphic or narrative form, the main ideas that were studied, the key elements, thoughts, or variables and the presumed relationships among them (Miles & Huberman, 1994:39). Essentially, the conceptual framework identified ideas and thoughts to be able synthesise an argument about the subject and its sub-themes that were investigated.

3.8.1 Master Planning

A city adopts a master plan "*to promote health, safety, morals, order and convenience. The master plan, which displays the general location of streets and other communication networks; the general location of public parks, recreational and open spaces; the general location of public buildings and other properties; general location of public utilities and terminals; amendments to any of these locations, and a zoning plan for the control of height, area, bulk, location of buildings"* (Dunham, 1958:170). Clearly, the idea of developing a town or city on the basis of a master plan was to ensure that provisions for the various amenities was orderly; overcrowding and unsanitary conditions would not arise. The town's residents could conveniently visit the public parks and open spaces for recreation.

The city plan also made provision for traffic to ensure efficiency and economic activity and facilitate movement of people and goods in the city (Haar, 1955). The various functions such as governmental, commercial, industrial, educational, social, recreational or religious depended on the city plan, which was physical. The physical plan was therefore the basis for the city in terms of health, comfort, convenience and happiness of the people who lived in it. The distribution of wealth and poverty, and the location of communities were linked with the way the cities were developed (Howe, 1912).

The problems (economic, social, physical, and emotional) that affected people who inhabited cities were connected to the plan of the city. Conceptually, the city plan was implemented to enforce order, morals and progress (Geddes, 1913).

Similarly, in the South African context town planning was the primary tool for restructuring society. However, urban planning was instrumental in crippling the development of South Africa's cities and entrenched segregation against the majority of citizens. Through racial restructuring of cities, apartheid planning ensured enforced urban segregation. In the post-apartheid era, urban planning has dominated the reconstruction and development discourse that seeks to reintegrate the apartheid fragments (Mabin & Smit, 1997). Whether master planning was viewed from the lens of progress or regress, it facilitated the desired outcome, however undesirable. Effectively, making it an instrument with which to control and often stifle human progress.

3.8.2 Suburbanization

The development of different forms of single home ownership and mass social housing programs, linkages with the inner city changed patterns of mobility and encouraged suburbanisation (Forrest & Williams, 2001:90). Coupled with that, introduced improvements in commuter transport such as commuter trains and ownership of motor vehicle in the nineteenth century encouraged relocation to the suburbs. The suburbs were residential districts separated from the grime of the densely populated inner city (Frumkin, 2002:201). Geographically, the suburb developed further from the urban core and had a typical low-density housing. They were characterised by wholesome surroundings and healthy living in the sense that there was no overcrowding and air pollution (Thompson, 2007: 157). However, residing in suburbs had its disadvantages. For example, commuting between community amenities such as schools and shops required driving a motor vehicle because they were located a distance apart.

Increased dependence on motorised transport had an impact on the levels of physical activity for the suburban residents. At least 85% of the adults' sitting time, excluding work-related time, was spent sitting in cars, watching television, and using other devices in high-income countries (Hallal, *et al*., 2012; Giles-Corti, *et al*., 2016:2917). Effectively, suburbanization and the subsequent dependence on motor vehicles contributed to an increase in sedentary lifestyles.

3.8.3 Lifestyle Diseases

Lifestyle diseases are connected with lifestyle choices, and result from a combination of factors including genetics, physiology, environment and behaviours. Seemingly, unrelated causes such as sudden unplanned urbanization, globalization of unhealthy lifestyles and ageing population are the main drivers for these diseases. Due to their chronic nature, lifestyle diseases are also known as non-communicable diseases (Tabish, 2017:1).

Globally, non-communicable diseases (NCD's) are the leading causes of death and carry a huge financial burden that extends beyond health to trap people in poverty. They weaken workforce productivity because they affect large numbers of the working-age population, and productivity of the country. The non-communicable diseases are the main contributors to preventable diseases and premature death in low and middle-income countries, affecting the quality of life and growing health-care expenses both at individual level and at a country level. Cardiovascular diseases, diabetes, cancers, chronic respiratory diseases, and mental illness are the main non-communicable diseases in South Africa (Bradshaw, *et al*., 2011:1).

There are high levels of common, preventable risk factors that drive the surge in lifestyle disease. The four main non-communicable diseases (cardiovascular disease, cancer, chronic respiratory disease, and diabetes) are associated with four leading preventable and modifiable behavioural risk factors: tobacco use, harmful use of alcohol, physical inactivity, and unhealthy diet. These behaviours lead to four key physical changes: raised blood pressure, overweight and obesity, raised blood glucose, and high blood cholesterol. Another key risk factor is environmental air pollution (World Health Organization, 2018:14). Essentially, a change of lifestyle and behavior such as engaging in physical activity and eating a healthy diet can minimize or prevent the onset of lifestyle diseases.

3.8.4 Physical Activity

Physical activity is central to the World Health Organization's integrated strategy to the prevention and managing non-communicable diseases and the promotion of health. In both developed and developing countries, the majority of the population is presently either totally inactive or engaged in inadequate amounts of physical activity to support physical and mental health (Shephard, *et al*., 2004:347).

The environment is considered one element that encourages an inactive lifestyle, which is likely to contribute to positive energy balance and childhood obesity. Whether young or old, physical activity is conducive to a healthy lifestyle and prevention of disease.

Habitual physical activity that developed at a young age may provide the greatest probability of impact on mortality and longevity. Physical activity is essential for the physical health of young people and should be included as normal part of growth and development. For physical activity strategies to have a major impact on increasing habitual physical activity levels among young and old people, the environmental factors need to change (Hills, King, & Armstrong, 2007). Undoubtedly, physical activity provides health benefits, and it is becoming increasingly clear that physical inactivity is a pressing public health concern.

It is crucial to accurately measure physical activity levels to design effective prevention and intervention strategies for lifestyle diseases. The objective of measuring physical activity is not just to obtain accurate assessments of energy expenditure. Various dimensions of physical activity such as type, duration, frequency, and intensity can be assessed. Evidence suggest that the type and intensity of activity have numerous health benefits (Hu, 2008:119). Arguably measuring physical activity would be susceptible to errors from day-to-day variations, inaccurate memory and estimation, and individual biases linked with weight status. To some extent, it would be challenging to measure different dimensions of physical activity. Self-reported methods and monitoring devices are two approaches adopted for measuring physical activity.

Developed countries such as Australia and United States have produced numerous objective instruments to assess population levels of physical activity. For example, Australia included nine items in the assessment of physical activity in their five yearly National Health Surveys. The primary measurement objective for the surveys was to assess patterns of physical activity over time. The [11]National Physical Activity Guidelines analyzed frequency (reported in number of days) and duration (reported in hours or minutes) of different activities of defined intensity. The objective was to estimate whether respondents achieved an energy expenditure threshold that was enough to have health benefits (Brown, *et al*., 2004:128). Similarly, in the United States the Physical Activity Guidelines for Americans recommended that adults achieved 30 minutes or more of moderate-intensity physical activity preferably every day. The purpose of which was to offer a specific public health directive to motivate the mostly inactive population of the United States to participate in physical activity (Haskell, *et al*.,2007:1423). The limitations with country specific measuring tools was their narrow focus. For example, their variables were specific to

[11] **Total time in physical activity** (Australia National Physical Activity Guidelines)**:** Total 150 minutes or more of moderate intensity physical activity in a week, with time in vigorous activity weighted by two (Brown, *et al*., 2004:129).

settings such as physical activity during leisure time or at the workplace. The tools were not applicable to a variety of situations, such as transportation, work, household and family care, and leisure time.

The World Health Organization (WHO) developed the Global Physical Activity Questionnaire (GPAQ) in 2002 as an initiative of the WHO STEPwise Approach to Chronic Disease Risk Factor Surveillance (STEPS). The STEPS approach was found practical to monitoring eight major risk factors of non-communicable diseases, especially in developing countries. It was suitable for cultural differences and specific sub-populations, such as women, people with lower socio-economic status, literacy levels and populations from a non-English speaking background. The GPAQ contained nineteen (19) questions organized to capture physical activity in various behavioral settings such as work, transport and leisure. The tool closed the gap of absence of comparable data internationally and provided a tool for uniform assessment of physical activity (Bonita, *et al*., 2003; Bull, Maslin & Armstrong, 2009).

3.8.5 Built Environment

Rapid urbanisation brings to cities global health challenges such as consumption of unhealthy diets, physical inactivity, non-communicable diseases, obesity, and injuries from road accidents. These global challenges would force a review of decisions about housing, food, energy, transport, and healthcare. In this regard, town planning has a potential to decrease the prevalence of non-communicable diseases, road accidents and to promote health and wellbeing by reducing dependency on motor vehicles, traffic congestion, pollution, and promoting walking and cycling in safe environments (Giles-Corti, *et al*., 2016:2912).

These challenges have an effect that most global populations do not meet the minimum requirement for physical activity. For example, less than 3 % of Americans satisfy the Physical Activity Guidelines. Several reasons for physical inactivity are complex and multi-layered. The built environment is one possible contributor to inactive behaviour (Haselwandter, *et al*., 2015:323). It is therefore crucial to understand the effect of the built environment on health-related behaviours at individual and neighbourhood level.

A review of the built environment features would be beneficial in identifying linkages between physical environment and health behaviours. The analysis would also be valuable to planners when designing or redesigning neighbourhoods to improve neighbourhood health and wellness. Such analysis would make it possible to identify qualities of the built environment that could predict neighbourhood health (Mazumdar,*et al*., 2018:3). The built environment includes elements made by people for their convenience such as buildings, transportation systems, and open spaces. Low psychosocial distress was

linked to the availability of and staying in neighborhoods with higher quality of public open spaces. In addition, green space in the neighbourhood was independently associated with increased survival among the elderly populations, and lower incidence of death from stroke were attributed to higher levels of greenness in the environment. Similarly, students and workers living in the inner-city derive numerous psychological, emotional, and mental health benefits from green space. For example, green space provides a meeting place for users to develop and maintain neighbourhood social connections (Northridge, Sclar & Biswas, 2003:558 & Lee & Maheswaran, 2011: 213).

Other features of the built environment such as residential density, land use mix, street connectivity and street design were linked with positive health outcomes (Melis, *et al*., 2015:14899). The built environment can also enhance safety. Qualities such as sidewalks, streetlights and terrain can encourage both recreational and transport-related physical activity (Williams, 2007:2). Elements of the built environment such as streets are crucial for routine physical activity. It is on the streets where walking, active travel to work, shops, eating out, and daily social engagements take place (Ewing, *et al*., 2006:224). Notwithstanding the physical features that encourage physical activity, the visual appeal of the built environment influences the decision to visit the amenities.

Other characteristics of the physical environment may also limit people from being physically active. For example, people living in areas with limited access to places for physical activity, inadequate lighting, poor quality sidewalks and areas with social disorder such as dealing in drugs, crime and robberies. The perception of safety is differentiated in terms of socio-demographic variables, such as gender, age and income. Women, the elderly and low-income individuals had an increased perception of low levels of safety in the neighborhood surroundings (Rech, *et al*., 2012: 2). Other barriers to physical activity were defined in a personal context. For example, active males identified the use of alcohol and other drugs and having a girlfriend as reasons for less physical activity. For active females, school and college responsibilities were identified as the main barriers to physical activity (Tappe, Duda & Ehrnwald, 1989).

The above conceptual framework provided an outline of key concepts that underpinned the study. For example, master planning became a tool with which to order the built environment and control unhealthy conditions. And, a review of the built environment could identify barriers to physical activity. Therefore, town planning interventions in the design of the built environment could decrease the prevalence of lifestyle diseases and enhance the quality of life. The following section would discuss the research methodology.

4.1 Introduction

The study used a qualitative research approach to answer the research questions. This research approach used interviews to understand the perspectives of policymakers in town planning and opinions of users of public open spaces, more particularly the urbanised youth living in the central business district of eThekwini. According to Berg (2004:195-197), qualitative research is a form of scientific approach that seeks to answer a research question scientifically. The approach uses predefined procedures and gathers evidence in order to produce outcomes that were not predetermined.

Qualitative research gives credibility to the powers of reflective thought, discussion and action that comes from ordinary people. The approach is relevant when the research tries to understand the meaning or nature of experience of persons with problems such as chronic illness and addiction and finding out what people are doing and thinking (Corbin & Strauss, 2014:11). Qualitative methods were applicable to explore substantive areas about which little was known or about which much was known to gain different understandings (Stern, 1980). The research method embraces a participative approach in an organised and systematic way to resolve a social question. The study sought to answer the following main research question.

4.2 Research Question

What effect did the built environment in the Central Business District of eThekwini have on the passive lifestyle patterns of the youth?

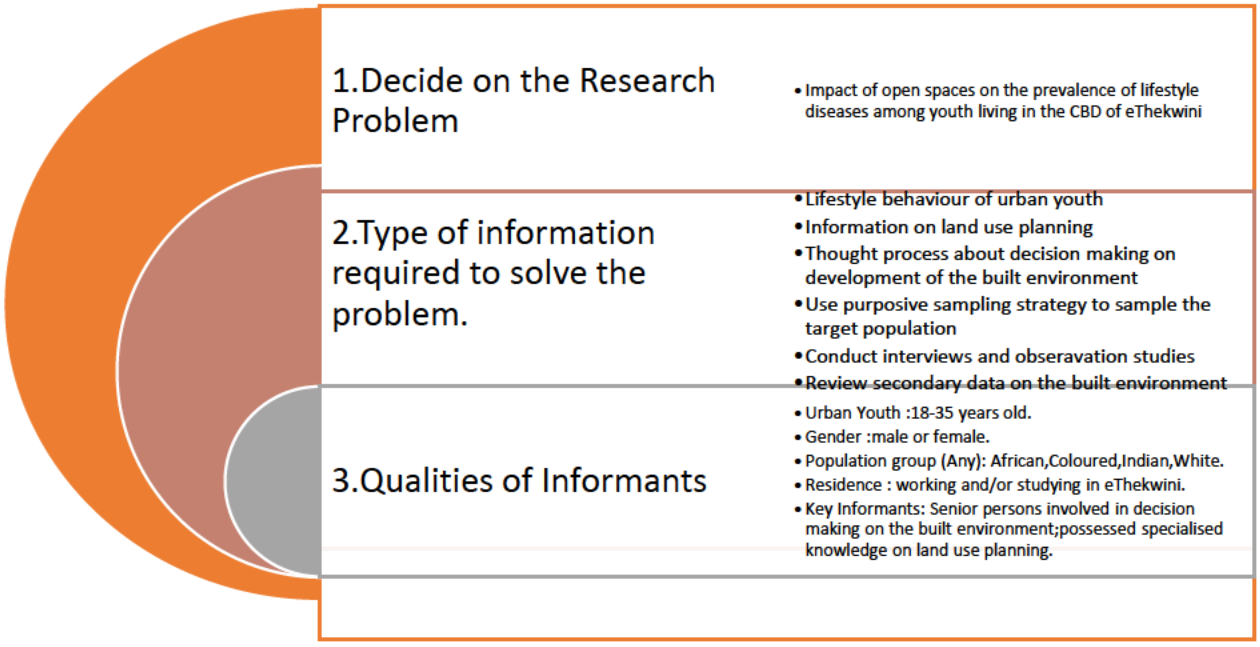
In Appendix 1 and Appendix 2 are the schedules of the interview questions that were put to the key informants and study participants, respectively.

4.3 Sampling Strategy

It is critical when conducting qualitative research to determine whether the entire population or a representative sample would be drawn, how large the size of the sample and what technique would be used to ensure that the sample is representative and data that would be collected is replicable, solid and relevant (Tongco, 2007:151). Furthermore, purposive sampling is a suitable sampling strategy when information about the qualities or behaviour of a specific population was required (Palys, 2008). In the context of this research enquiry, the study needed insights into the behaviour and lifestyle patterns of the youth living in the Central Business District of eThekwini.

A purposive sampling strategy groups participants according to preselected criteria. The strategy was deemed suitable when the informants were likely to produce the most valuable data (Kitchin & Tate, 2013). A form of criteria or qualification were required on what made a good or bad informant. The criteria had to be specific and clearly understood. Applying a purposive sampling strategy and using a criterion would guarantee that only the informants with the required attributes were included in the sample (Tongco, 2007). In this study, only the youth that lived (studied or worked) in the CBD were purposively selected into the sample and key informants with specialised knowledge in land use planning, urban design, community health were purposively selected. Palys (2008:697) supports the adopted approach and argue that research informants were not equally knowledgeable. Articulate informants would provide better responses than would be the case in a randomly selected sample. Figure 32 bellow illustrates steps that were followed in undertaking the purposive sampling strategy.

Figure 32. Steps in Purposive Sampling



Source: Researcher, 2016

The steps entailed firstly, defining the research problem. Secondly, a decision was made on the type of data that was required to solve the problem. Thirdly, key informants were defined and those with the experience were identified by their portfolios.

4.4 Target Population

The target population for the study was the youth living (studying or working) in the central business district in the eThekwini Municipal Area. For the purposes of this study, the [12]youth was defined as any person between the ages of [13]18-35, regardless of sex, age and race or sexual orientation. The participants could be employed, students at tertiary level or high school. Noting that the National Youth Policy and African Youth Charter defined the young age range between 14-35 years. The youth age group was modified to accord with the legal voting age of 18 years in terms of the Electoral Act (1998).

4.5 Sampling Frame

The target population was the youth residing in the central business district (CBD) of eThekwini. The CBD is situated in ward 28 in the Central Planning Region (Figure 34). It overlaps with ward 26 to the east, wards 32 and 33 to the south, and wards 27 and 31 to the north. The sample frame was drawn from the voter registration database that was available in 2016.

4.6 Sample Size

Twenty-nine study participants between 18-35 years were purposively selected and interviewed for the generation of primary data. Cross-sectional qualities of the target population such as sex, age and race groups were identified to ensure that the sample size was representative. Teddlie and Yu (2007:4) supports this approach. They argue that a sample was designed to select a small number of cases from which most information about the subject under investigation can be derived. The qualities of the target population addressed the key characteristics of the target population that were crucial to understand the questions that were under investigation.

4.7 Key Informants

Six key informants with specialised knowledge about the built environment and non-communicable diseases were identified by their portfolio from eThekwini Municipality's website. Email and telephonic communication were sent to the key informants to request an interview session. The key informants held senior management positions in their respective portfolios.

[12] **National Youth Policy (2009-2014)** refers to young people as those falling within the age group of 14 to 35 years. **African Youth Charter (African Union, 2006)** defines youth as those between the ages of 15 and 35 years.

[13] **Electoral Act (73 of 1998)** ***Section 39(1) (c)*** the presiding officer is satisfied that that a person has attained the age of 18 years.

The key informants were decision makers whose work directly impacted on the built environment and non-communicable diseases in the CBD. They held the following portfolios at the time of investigation:

- Development Planning
- Land Use Management Systems
- Environmental Planning and Climate Protection
- Leisure, Parks, and Cemeteries
- Primary Healthcare
- Architecture and Urban Design

4.8 Generation of Interview Data

Interview data consisted of primary data and secondary data. Primary data were generated from first-hand accounts during interviews with study participants and key informants. It also comprised field notes and photographs taken by the researcher to supplement interview data, which is presented in Chapter 5. Polkinghorne (2005:143) argues that observations were used to supplement and explain data generated from participant interviews.

Secondary data consisted of archived official documents such as eThekwini Municipality Council resolutions, legislation, and policies. Literature from previous studies and research publications supplemented the secondary data.

4.9 Primary Data

The investigation had two sources of primary data, namely semi-structured interviews (Appendix 1 and Appendix 2) and participant behaviour observation (Appendix 3).

4.9.1 Semi-structured Interviews

Face to face and structured open-ended interviews were a preferred method for generating primary data because study participants and key informants expressed themselves freely and openly. Kitchin & Tate (2013) state that structured open-ended interviews did not constrain the study informants to preconceived categories or ideas that were created by the researcher. The respondents were free to express their thoughts. The researcher asked structured and standardised open-ended questions to maintain the focus of the conversation.

The interviews and observation studies were conducted in the central business district (CBD) of eThekwini, on sites that were purposively selected because the youth frequented them. Data collection took place during the months of September and October in 2016.

The researcher administered the semi-structured interview on the study participants and key informants between Monday and Saturday. The study participants were not particular about which day of the week they would be interviewed on. Their flexibility enabled interviews to be conducted in various locations such as parks, college campus and workplace settings.

The key informants were only available for interviews during the week. Prior to conducting interviews, emails were sent to the participants requesting their consent to participate in the study and outlining the purpose of the research. Each participant signed a consent form giving permission to record the interviews. The participants' right to participate and consent to be interviewed were explained. In compliance with the ethical requirements of the University of KwaZulu-Natal, all the study participants who were interviewed, were 18 years or older.

4.9.2 Participant Observation

Observation studies were conducted using a notebook and an observation schedule, with a checklist of items to be observed, in order to corroborate the primary data from interview data (Appendix 3). Participant observation provided insight into what informed the behaviour of participants in their natural environment. Belk (1990) argued that the objective of participant observation was to enable the researcher to participate in the social activities of the target audience while conducting the research objectives based on small populations. It was a common technique applied when conducting research to compliment the data set that was gathered from structured open-ended interviews.

Participant observation also validated the feedback from the respondents by actually experiencing first-hand how the informants conducted themselves or behaved in their natural environment when one was watching. This view was consistent with Mays & Pope (1995), who argued that in participant observation, the researcher also becomes the research instrument in the sense that the researcher gives an account of what is observed, and his account must correlate with what is consistent with the behaviour of the informants.

The observation study was administered on three sites namely Bulwer Park (Bulwer), Albert Park (Albert Park) and the Durban Country Club Beach (beachfront). These sites are located within the CBD, and were

selected based on primary interview data from study participants, which suggested that the venues were popular hangout spots for the youth. Chapter 5 provides an in-depth analysis of the observation sites.

The study sites were observed during Mondays, Wednesdays and Saturdays to get an overall experience of participant behaviour. Each observation session lasted for 30 minutes during the weekdays and one hour on Saturdays. Weekend observations were longer because there were more participants on the sites than was the case during the weekday observations. Weekends were an ideal observation session on which to generate rich data. The weekend enabled the researcher to assimilate into surroundings with the participants to become part of the study.

The observation exercise had its shortcomings such as length of time required to observe behaviour objectively. Mack (2005:15) state that the researcher must depend on memory and personal discipline to write down observations and describe then objectively immediately after the session.

4.10 Secondary Data

Secondary data provided valuable background information, which became useful in understanding the subject under investigation. It provided a valuable baseline with which to amplify primary data. Publicly accessible secondary data in the form of literature, policies and resolutions were used. Where necessary, prior permission was requested to access restricted secondary databases.

Heaton (2008:34) state that secondary data analysis involved the re-using of previously available qualitative data sourced from previous research studies. The data included semi-structured interviews, responses to open-ended questions in questionnaires, field notes and research diaries. Internal documents such as circulars, policy documents, maps and reports in the custody of eThekwini municipality and Acts of parliament were reviewed.

4.11 Data Storage

The interview data was recorded in a digital device and stored in a hard drive. The recorded data was transcribed and coded. Observation data was recorded in a notepad and was converted to a portable document format. Mottier (2005:8) argue that storage of data allowed for future revision. It would enable emerging issues and re-interpretation of the data to take place. Data storage would enable access of the data by the research community and contribute to dialogue and empowerment.

4.12 Data Analysis

After the recordings were transcribed, the interview and observation data were coded into themes to identify common and recurring themes using thematic analysis. The themes were the basis for interpretation of the data to establish its meanings and make sense of it. In addition, the themes enabled the researcher to understand the social reality of the study participants and their surroundings.

Hsieh & Shannon (2005:1278) defined thematic content analysis as "a research method used for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns". Content analysis made it possible for consistencies and meanings to be made from the large volumes of qualitative data (Patton, 2002). However, relying on a single research method to analyze data had limitations connected with the use of the method and from superficial analysis when applying it. To overcome that limitation, the data was triangulated to improve its credibility. Triangulation entailed using secondary data and observation data to validate findings from participant interviews. Mathison (1988:13) argued that using multiple methods and data sources when executing a study was essential to reduce bias and to improve the validity of research findings.

4.12 Study Limitations

This study experienced numerous limitations. Firstly, the study was restricted to a single geographical area of the city, in the central business district (CBD) of eThekwini municipality, which is one of many overpopulated economic nodes in the city. For logistical reasons, other economic nodes in the municipality were not visited. Therefore, the findings may only be generalizable to areas that have geographical and social characteristics that are similar to the CBD. Secondly, the dependent outcome, the prevalence of lifestyle diseases was based on key informant interviews. For ethical reasons, no actual clinical records were reviewed to correlate key informant accounts. Thirdly, a small sample sizes (n=29) limited this study from making generalized findings about the youth behaviour and prevalence of lifestyle diseases in the entire city. To overcome these limitations, literature and case studies from developed countries were reviewed to corroborate the research data and draw a connection between public open spaces and their impact on the prevalence of lifestyle diseases among the youth. The following section will discuss research findings and data analysis.

5.1 Description of the Study Area

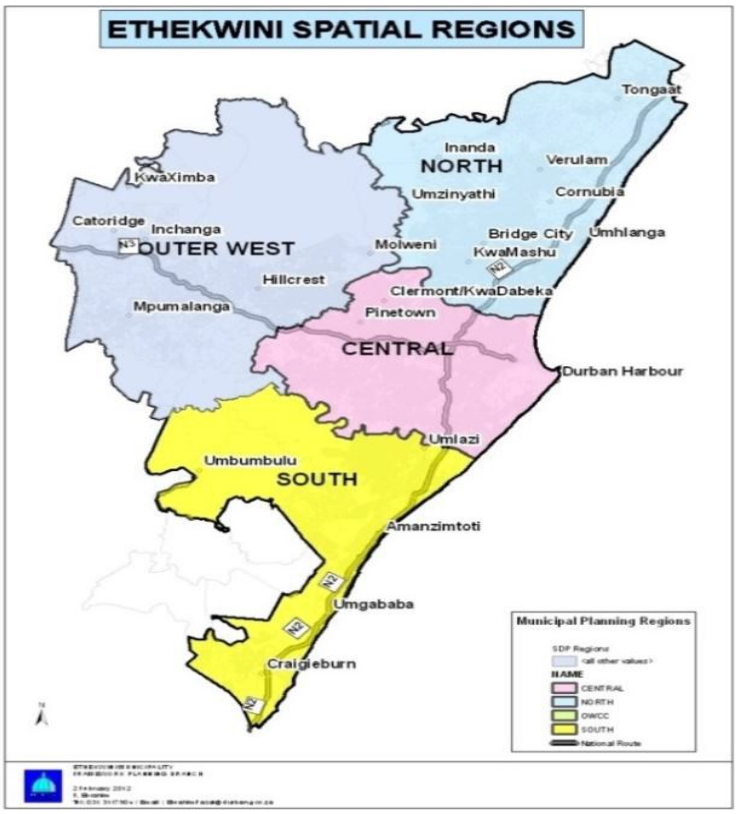
The study area is situated in eThekwini, the city of Durban, in the Central Spatial Region (figure 34) of the eThekwini Municipality Area (EMA).It has an estimated population of approximately 3,442,358 million people and covers a land area of 2,297 hectares in extent (Statistics South Africa, 2011). Figure 33 shows the CBD of eThekwini. It is a coastal city that is bordered by the Indian Ocean. It has beaches, public amenities and suburbs that are connected by a hierarchy of road network.

Figure 33. Central Business District, Durban

Source: eThekwini Municipality,2016 (Accessed May 2016)

The eThekwini Municipal Area is divided into four spatial planning regions, namely Central, North, South and Outer West. The study area is located in the Central spatial planning region. Figure 34 shows the different spatial regions of eThekwini.

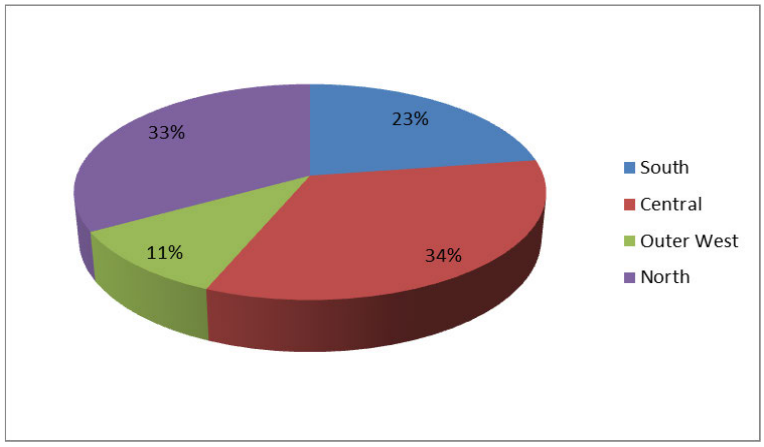
Figure 34. Spatial Planning Regions, eThekwini Municipality



Source: eThekwini Municipality: Spatial Development Framework, 2016 (Accessed March 2020)

The central region is the largest and accounts for 34% of the population distribution in the city, which translates to 1,18 million people. It is the most industrialised part of the city where the harbour, manufacturing, and heavy industries such the oil refineries are located. The north region is the second largest with 1,15 million people (33 % of the population). Light industries and commercial land uses including the airport are located in the north region. The south region is predominantly residential, with pockets of industrial land uses, and has a population of 760 000 people. Lastly, the outer west region has 338 000 inhabitants. The region was predominantly agricultural land but was later rezoned to residential and commercial land uses (eThekwini Municipality, 2016). Below is the demographic breakdown per region.

Figure 35. Population Breakdown per Planning Region, eThekwini Municipality

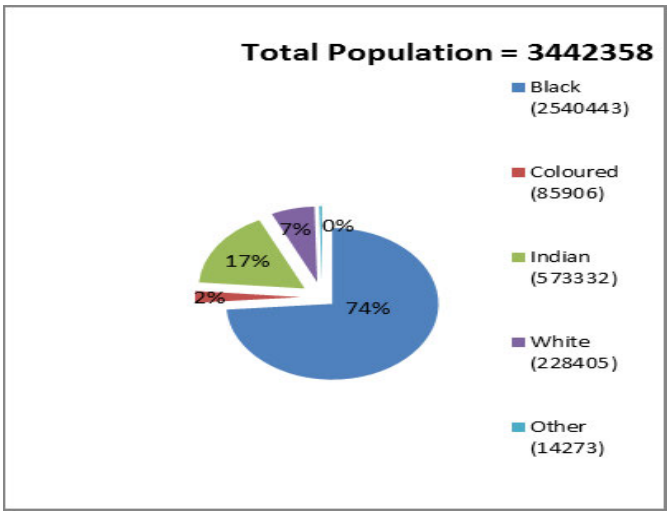


Source: eThekwini Municipality,2016 (Accessed March 2020)

5.2 Population Structure

In terms of demographic breakdown, there are four main population groups in eThekwini. Figure 36 shows the breakdown of the population by race with regard to percentage composition of each group.

Figure 36. Total Population and Race Profile



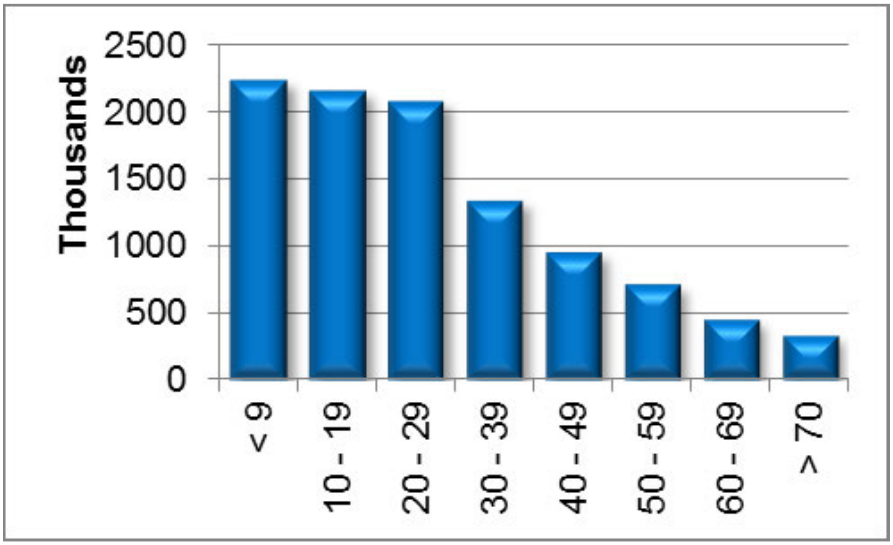
Source: Statistics South Africa, 2011 (Accessed October 2019)

The illustration shows that Africans are the majority with 2,540,443 people, comprising 74% of the population. Indians make 17% of the population with 573 332 people. Whites with 228 405 and Coloureds 85 906 people, comprising 7% and 2% respectively.

Other nationals constituted only 0, 4% of the population. In terms of gender, females were the majority at 51%, comprising 1 759 956 people and males at 49% translating to 1 682 408 people (Statistics South Africa, 2016).

The age profile (figure 37) revealed that eThekwini has a youthful population. At least 66 % of the population was below the age of 35 years. Persons in the 0-14 and the 15-34 age groups comprised 25% and 41% of the population respectively. The economically active population band, 15-59 age group, constituted 67% of the population (Integrated Development Plan, 2016/17).

Figure 37. Age Profile, eThekwini Municipality



Source: Statistics South Africa, 2011 (Accessed October 2019)

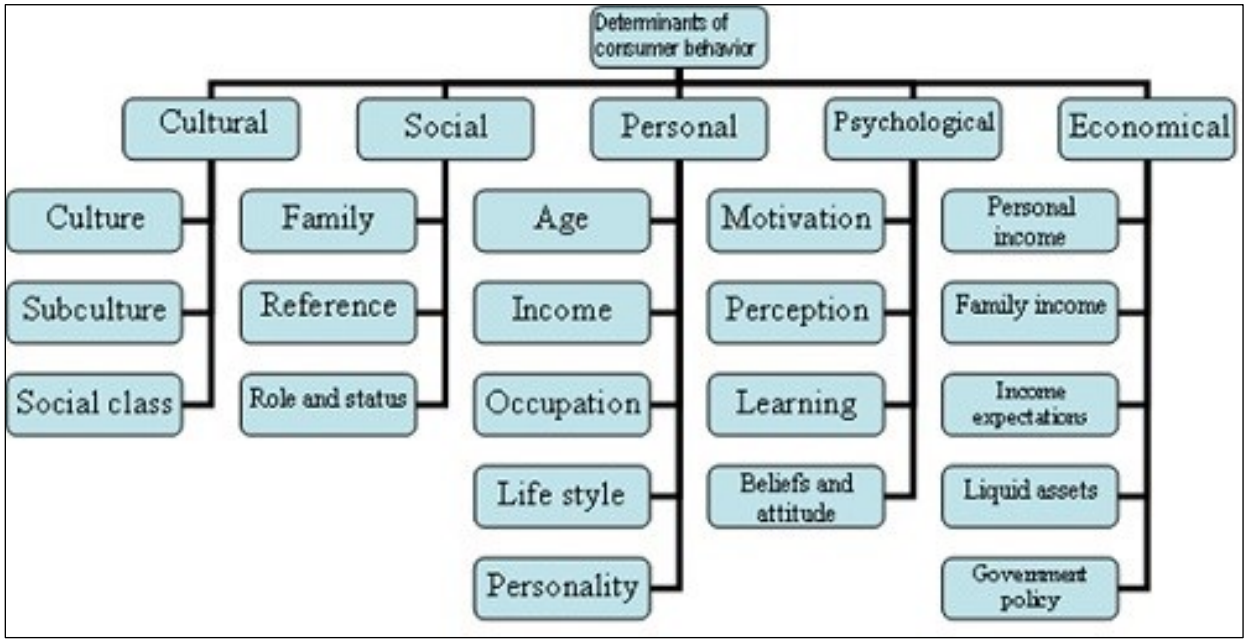
5.3 Behaviour Profile of the Target Population

To better understand the respondents, they were profiled by factors that influenced their behaviour. The behaviour profile assessed the effects of age, sex, race, and occupation on lifestyle choices, leisure and social activities the respondents spent their leisure time on. The approach was informed by the view that youth were the typical example of a global segment, with uniform consumption habits in terms of clothing styles, music tastes, and media preferences. These attributes influenced how and with whom the youth socialised, their consumption habits, and these decisions affected their lifestyles and where they chose to live (Kjeldgaard & Askegaard, 2006:232). Youth are a homogeneous group given the similarities of their behaviours, habits, and hobbies such food choices.

Similarly, Rani (2014:57) supports this view, and argued that age, race and occupation influenced the consumers' buying behaviour. "Consumers did not buy the same products at 21 and 70 years. Their choices changed with age". The financial situation of the consumer determined their buying power and the types of products they consumed at a particular point in time.

According to Ramya and Ali (2016:76), consumer buying behaviour can be categorised into five broad factors, namely cultural, social, personal, psychological, and economic factors. These factors influenced the selection, buying and consumption of goods and services by consumers to satisfy their wants. Figure 38 below illustrates the various factors that marketers used in the development of consumer products.

Figure 38. Determinants of Consumer Behaviour



Source: Ramya and Ali, 2016 (Accessed October 2016)

The model indicates that a buying decision is the result of these factors. A person is directed by their culture, their subculture, their social class, their membership groups, their family, their personality, and their psychological factors (Ramya & Ali,2016). To align with the theme of the study, discussion would focus on specific factors that affect and shape the youth consumer behaviour and consumption patterns. The following section would provide a brief overview of the determinants of consumer behaviour.

5.3.1 Cultural factors

These factors are derived from learning a set of values, perceptions, preferences and behaviour patterns because of socialisation in the family and other institutions. For example, Flynn & Fitzgibbons (1998) argued that cultural factors affected physical activity levels in African and Asian women. Compared with their White counterparts, African and Asian women were likely happy with their weight. If overweight, they were more likely to feel beautiful.

The cultural differences placed African and Asian women at higher risk of obesity. Therefore, it was unlikely that they would exercise to lose weight (Flynn & Fitzgibbons, 1998:13). Essentially, cultural norms could place women at high risk of lifestyle diseases and be detrimental to health of women due to social expectation that a thin woman was unattractive.

a) Culture

According to Ramya & Ali (2016), culture defined a set of beliefs and values that were shared by most people in a group. It influenced the pattern of consumption and decision making of a person or group of persons. It is in knowing the behavioural patterns that marketers viewed young people as a desirable market segment that was distinct from the mainstream society (Kjeldgaard & Askegaard, 2006). Therefore, marketers use the consumption patterns of consumers to develop their product marketing strategies. Family, friends and community influenced an individual to learn values, preferences and behaviours that were common to their culture (Rani, 2014:53). In the context of the study, youth culture was characterised by preference for fast-foods and other ready-made products that required minimal physical effort.

b) Sub-culture

A sub-culture defines a set of beliefs that are shared by a sub-group of the main culture. It may include nationalities, religious, racial groups, and geographic regions. The sub-cultures form important market segments that marketers used to develop products that would appeal to the needs of the sub-culture. Paddison (2001:198) supports this notion and argued that the diversity of the city created opportunities for subcultures to develop. Essentially, the city provided space within which individuals could express their interests collectively and promoted social contact that enabled groups to establish cultural identities. For example, the youth as a sub-cultural group, was a distinct subculture in their show of extravagance and consumption of branded products which their families or community, as a cultural group, would find unacceptable.

c) Social class

A social class from which a person or group of people came also determined their consumer behaviour (Ramya & Ali, 2016:79). Social class was a permanent and ordered segment of a community where the members shared similar values, interests, and behaviour.

Factors such as income, occupation, education, authority, power, ownership, lifestyles, consumption and patterns of expenditure influence the choice of social classes to which individuals and groups belonged. For example, Braveman, *et al*., (2011) argued that income was a key element of socio-economic status and low income was one of the most reliable forecasters of poor health. By implication, poor people were likely to neglect their wellbeing, and would be predisposed to treated conditions.

Similarly, Block, Scribner & DeSalvo (2004) argued that there was a connection between the consumption of fast food, which is particularly high in fat content and weight gain among non-white and low-income populations. Effectively, income levels influenced decisions on food choices and purchase, especially among the low-income earners who are predominantly nonwhite.

5.3.2 Economic factors

Economic determinants, which shape consumer behaviour, can be viewed in two contexts: macro-economic and microenvironment (Roszkowska-Holysz, 2013). The first is the macro-environment that includes the country's economic policy, taxes and other legislative framework that controls the consumers' socio-economic environment. An increase in the rate of unemployment, escalation in the levels of inflation, decrease in wages and an unstable economic climate can negatively affect consumers' spending power. The macro-environment is external to the consumers, and they have no control over them other than to adapt to it (Muniady, *et al*., 2014:20).

The micro-economic environment, which the consumer can influence includes, but not limited to personal income, savings and spending (to buy goods and services), family income, liquid assets and consumer credit (Roszkowska-Holysz, 2013:335). Based on the assessment of their situations, consumers can choose which goods to buy or avoid, how much to spend and at what price. Essentially, consumers may decide to reduce spending in order to survive or select the types of goods to buy or consume (Pikturniene & Urbonavicius, 2014:74).

a) Personal income

Consumers' personal Income is a key determinant of their buying behaviour. The disposable and discretional income are the two components of the gross personal income (Ramya & Ali, 2016:79). Disposable income is the actual money left for the consumer with which to buy goods (food and clothing) and services after taxes have been deducted. An increase or decrease in the size of the disposable income has a direct impact on the buying power of the consumer (Rani, 2014).

The discretionary personal income defines the balance that is available to the consumer after meeting basic needs. The decrease or increase in the discretionary income would influence the expenditure on discretionary shopping for goods and luxury items (Ramya & Ali, 2016). Limited or no income would reduce the possibility of the consumer being able to buy many items, therefore being limited to basic goods.

Higher consumers' incomes would increase their demand for luxury goods. It therefore follows that the consumers' size of income would affect their lifestyle and attitudes towards consumption (Roszkowska-Holysz, 2013).

b) Family income

Regardless of age and sex, any consumer belongs to a family structure. The family is responsible for the purchasing decisions that affect family members. Although each member of the family may have different demands for certain goods. Collectively, the family negotiates among the members which goods to buy with the family income (Roszkowska-Holysz, 2013). The family income defined the aggregate income of all family members. The buying behaviour and product choices depended on the family income (Ramya & Ali, 2016). The size of the family income, and not the size of the family, would enable a family to purchase a larger basket of goods.

A larger family with a paltry family income would only be able to purchase a reduced basket of goods. Most of their expenditure would be on basic goods. However, the affluent family would be able to increase their demand for luxury goods (Roszkowska-Holysz, 2013).

c) Liquid assets

A liquid asset defines cash at the hand of the consumer or their assets that can be readily converted to cash. The asset is similar to cash because it can be converted to cash with little or no effect on its value (businessdictionary.com, 2016). Owing to the relative ease of conversion of the asset, the consumer

would be able buy goods on demand. Liquid assets include cash, bank balance, marketable securities, mutual funds, stocks, and bonds (Ramya & Ali, 2016). Instead of carrying loads of cash, which has security risks associated it, consumers can choose to carry liquid assets such as credit or debit cards in order to make purchases.

5.3.3 Personal factors

Personal factors are shaped by the environment and society from which the individual comes. Consumer preferences change when there are changes in their personal circumstances and situations. The individual characteristics of the consumer also influence their decisions and buying behaviour (Rani, 2014:56). Age, sex, occupation, income and lifestyle are important personal factors that influence consumer behaviour (Ramya, 2016; Roszkowska-Holysz, 2013).

a) Age and Sex

Age (of a consumer) is an easy attribute to identify, and it represents the basic criteria for the typology of a consumer segment. Age differentiates consumer needs and how those needs would be satisfied. Consumers change their purchase of goods and consumption patterns, as they grow older. For example, young single people prefer ready meals or fast foods but change their dietary preferences to healthier meals as they grow older (Ramya & Ali,2016:80; Rani, 2014:57). The size and structure of consumption change with the increasing age. For example, due to limited resources, a younger person would have limited purchasing power (Kjeldgaard & Askegaard, 2006:336).

The increase in obesity among young people showed the equally unprecedented rise of largely unregulated marketing that targets youth. Corporate advertisers spend a fortune advertising to young people on television and other social media platforms. Evidently, food marketing had an influence on young people's consumption of unhealthy food and in the increase of juvenile obesity (Linn & Golin, 2006:14).

Women and men have different demands for certain products. The two sexes behave differently in the process of consumption. Roszkowska-Holysz (2013:337) states that women seem more susceptible than men to product advertisement on television commercials. Adversely, men show greater susceptibility to radio, press and external commercials. Shopping is labelled a feminine activity because more women than men prefer shopping (South & Spitze, 1994). Women were associated with shopping because the activity appears like their natural role.

For example, in the family setting, women take the responsibility to buy food and clothes for the family. Women also have patience to visit different shops searching for the best product and to buy it at the best price (Muniady, *et al*., 2014:21).

b) Income

There is an overlap between economic and personal factors. The country's economic climate affected personal incomes of its citizens. During times of economic downturn, companies retrench workers in large numbers, which increase unemployment. Because of unemployment, the disposable income and consumption of individuals and households are adversely affected. Consumers are forced to adjust their consumption (Pitturniene & Urbonavicius, 2014:73).

Depending on the age category of the consumer, sources of income can vary from formal employment, part-time jobs and scholarships to parents providing pocket money to their teenagers and young adults. The nature and type of brands that consumers buy depend on their income levels. Ramya & Ali (2016:80) states that consumption patterns and choice of products would be influenced by the consumers' levels of income. As a source of buying power, the income levels of consumers differ and so would the products they can afford to buy. This means that consumers would limit their purchases to the products they can afford. The opposite would also be true, in that, higher income consumers would afford to buy more even expensive products. Razak, *et al*., (2014:283) argued that there is correlation between the choice of eating food prepared at home and age and income source of the consumer. They argued that teens with limited income would prefer to eat at home than younger adults or employed youth with stable income who would have a choice to eat out from fast-food outlets than at home.

c) Lifestyles

Consumer lifestyles demonstrate how consumers think, live, act and behave. Muniady, *et al*., (2014:20) state that lifestyles were determined by the individual consumer's demographic background, experiences, current situation, socio-economic characteristics and behavioural tendencies. Consumer lifestyles provided an understanding of the deeper motivations and aspirations that influenced purchasing and use of products. According to Ramya (2016:80), lifestyle is expressed in the person's activities, interests and it represents the "whole person" and their interaction with the environment.

Lifestyle influences consumers' behaviour and their purchasing decisions and including their values and opinions. For example, a health-conscious consumer would prefer to eat organic foods, buy from specific grocery stores and exercise regularly (Rani, 2017:57).

d) Personality

The concept of brand personality develops out of assigning human personality traits to products and services. Consumers relate their choice of brands with celebrity characters or historical figures. Hence, they would identify with the products because it matches the celebrity's personality trait dimension that they would like to emulate. Consumers would then express certain dimensions of themselves from the way they perceive the personality of a preferred brand.

Personality, which results in constant behaviours, is derived from the interaction of psychological and physiological qualities of the individual. It manifests in traits such as sociability, confidence, autonomy, charisma, ambition, openness to others, shyness, curiosity and adaptability (Rani, 2017:57).

Every person is unique and would react differently to the same market stimulus. The personality attributes allow similarities to be detected among the consumers. This analysis forms the basis of developing a typology of buyers and market segmentation that seeks to predict market response to the product (Roszkowska-Holysz, 2013:343).These dimensions of consumer behaviour provided an insight into how brand producers position their products and the strategies they implement to capture the consumers' attention.

5.4 Profile of Study Participants

The study participants consisted of the youth living (working or studying) in the CBD of eThekwini between the ages of 18-35 years, from both sexes. No preference was given to the respondents' levels of income or occupation. However, it was important to indicate the main occupation of the respondents because it was factor in determining the social class, lifestyle and consumer behaviour of the respondents. With regard to demographics, it was mostly youth from the Indian and African race groups who participated in the study. Attempts to purposively select other race groups that formed the population of eThekwini were unsuccessful. For example, Coloured and White population groups, could not be located within observation sites.

It appeared that the concentration of Africans and absence of the other races in the CBD of eThekwini was influenced by the changes in population dynamics after the first democratic elections in 1994. Moffett & Freund (2004:2) support that view, and argued that until the first national elections, the city was managed in the interests of the White minority racial group. During the apartheid era, the White population group inhabited the inner city, occupying the city's high-rise buildings and sea-facing apartments.

Although remnants of senior White people still inhabit a few apartment blocks in the CBD, but the numbers have declined substantially. It was after the abolition of the segregation policies, such as the Groups Areas Act of 1950, that the previously marginalised race groups (Africans, Indians and Coloureds) were able to, not only work in town but could also live in the residential apartments in the CBD (Mylan, 1995).The below table provides a profile of the study respondents. The respondents were profiled by age, gender and race to minimise bias and give many voices a platform on the subject matter.

Table 4. Profile of Study Participants

AGE GROUP	SEX		RACE GROUP							
	Male	Female	African		Coloured		Indian		White	
			Male	Female	Male	Female	Male	Female	Male	Female
18-22	2	0	2	0	0	0	0	0	0	0
23-27	4	6	3	4	0	0	1	2	0	0
28-32	4	4	2	3	0	0	2	1	0	0
33-35	3	6	2	4	0	0	1	2	0	0
Total	**13**	**16**	**9**	**11**	**0**	**0**	**4**	**5**	**0**	**0**

Source: Researcher, 2016.

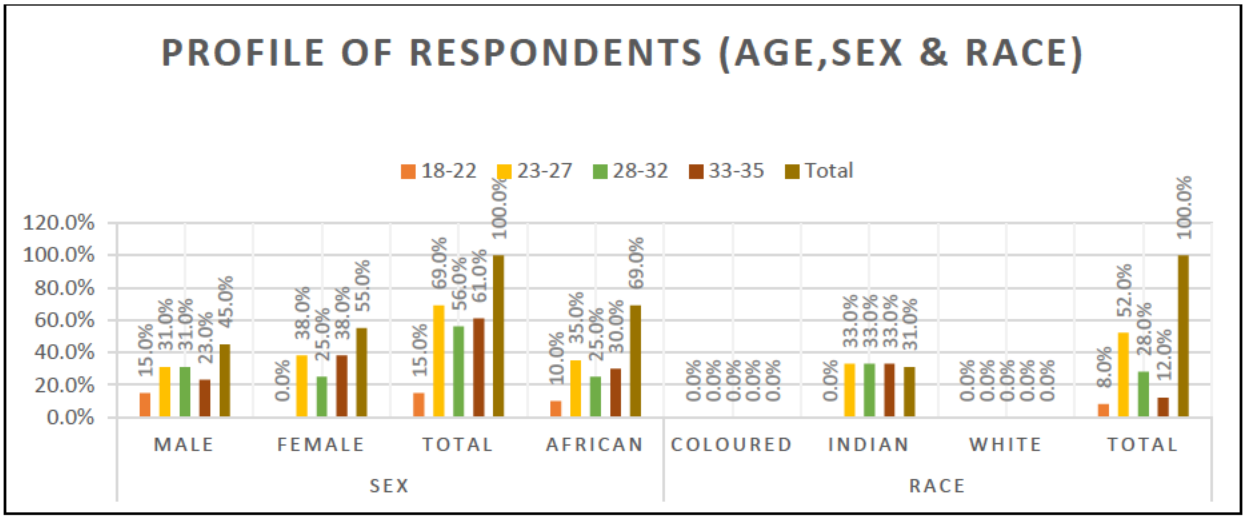
Table 4 (above) shows that twenty-nine study participants were interviewed for the study. In terms of gender distribution, sixteen females (55 %) and thirteen males (45 %) participated. With regard to race demographics, twenty (69%) Africans and nine (31%) Indians. Given the focus of the study on the youth, the respondents were purposively selected from the three observation sites (Albert Park, Bulwer Park and Durban Country Club Beach). A survey of observation sites within the study area revealed that these sites were accessible to and were popular hangout spots for the youth living in eThekwini CBD.

In the following graph (Figure 39), respondents were further profiled by age, sex, and race. According to Ramya & Ali (2016), age and sex were the basic criteria for classifying a consumer segment. This criteria segregates consumer needs and analyses how consumers chose to satisfy their needs. As they grow older, consumers changed what they consumed and their choice of goods.

The graph indicates that 33% of respondents in the 23-27 and 28-32 age groups were from the Indian race group, lived in the CBD. Similarly, between 35% and 25% of respondents in the same age groups were from the African race group. There were more young women at 55% who fell in the 23-27 (38%) and 33-35 (38%) age groups who lived in the city.

Young men at 45% were mainly in the 23-27 (31%) and 28-32 (31%) age groups. From the data, it could be deduced that predominantly the youth who lived in the CBD of eThekwini fell in the 23-27 (69%), 33-35 (61%) and 28-32 (56%) age groups.

Figure 39. Profile of Respondents by Age, Sex and Race



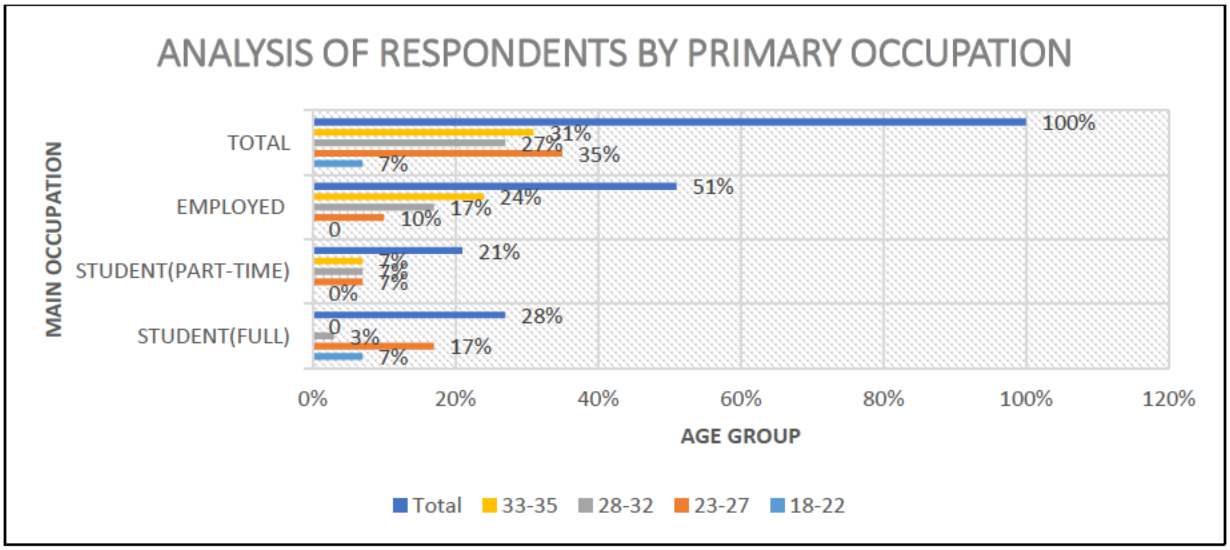
Source: Researcher, 2016.

To further understand reasons why the respondents were living in the CBD, they were profiled according to their primary occupation. Primary occupations were defined as the main activity on which the respondents spent at least 8 hours (33%) of their daytime. Daytime being a typical 7h00 and 16h00 working or study day. Time spent outside these hours was considered leisure time. The occupations were categorised into three broad groups: full-time student (28%); part-time student (21%) and employed (51%). The reasoning behind these categories arose from respondent interviews. It emerged that the respondents chose their social circles within similar occupations as theirs, and largely socialised with persons of similar socio-economic circumstances. For example, tertiary students mostly from the same institution socialised together. The respondents indicated that their social circles started on campus and spilt over to their neighbourhood environment. Similarly, working persons also developed social networks with their colleagues from the workplace.

Profiling the respondents' main occupation was informed by the argument that occupation determined income levels and by extension the buying and consumption habits. For example, Ramya & Ali (2016) argued that consumers' spending and type of brand products they preferred depended on their income levels.

Clearly a student with limited financial means would buy products and foodstuffs they could afford. Similarly, the income level of employed persons determined their buying power and product taste. Higher income consumers could afford to buy more even expensive products. Razak, *et al*., (2014) support this view and argued that consumers' income levels increased their buying power and their choice of products.

Figure 40. Analysis of Respondents by Primary Occupation



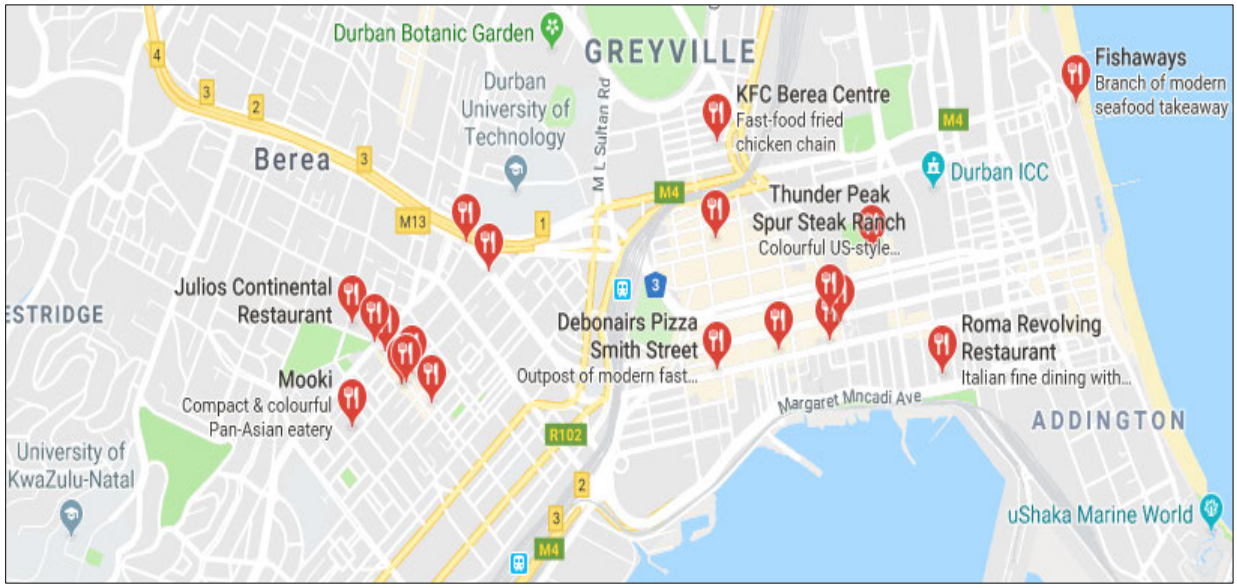
Source: Researcher, 2016.

Figure 40 provides an analysis of respondents by primary occupation. It illustrates that there were more full-time respondents (35%) in the 23-27 age group, and there were fewer part-time respondents (7%) in the 23-27; 28-32 and 33-35 age groups, respectively. A larger proportion of employed respondents (24%) and (51%) fell in the 33-35 and 18-22 age groups respectively. The analysis suggest that younger respondents were full-time students, and older respondents were part-time and employed. Bursaries and scholarships were the main sources of income for the full-time student respondents. The analysis provided an insight into consumption patterns with regard to food, leisure time and physical activity. Occupations of respondents was found to be an influential factor on the buying power and decision-making process.

The respondents confirmed they preferred eating fast foods because there were many restaurants in town. They stated, "*cooking food takes long, but you can buy takeaway food around the corner in town in Albert Park*". The response suggested that there was little consideration for nutrition, instead the accessibility and ease of availability was the primary concern when buying food. Secondly, the cost of food was not the primary concern for respondents. This suggested that respondents could afford the fast-food.

Figure 41 below illustrates the distribution of fast-food outlets in CBD of eThekwini. It is visible from the map that there was a pattern of concentration of fast-food outlets along public transport routes. The abundance of fast-food outlets in every street in the CBD lends credence to the argument from the respondents that fast-food shops were widespread and easily accessible.

Figure 41. Distribution of Fast-food Outlets in the CBD (eThekwini)



Source: Google Maps,2016 (November 2016)

The distribution of fast-food outlets was consistent with observation by Muniady, *et al*., (2014), who argued that marketers profiled the lifestyles of their consumers to provide products that appealed to them. In addition, the current circumstances, demographic background, and behavioural tendencies influenced the consumers' lifestyle. Marketers analysed consumer behaviour to entice them with products such as fast food and beverage drinks that appealed to their taste.

5.5 Profile of Key Informants

The key informants were practitioners in various portfolios within eThekwini Municipality. They were purposively selected based on the relevance of their portfolios to the study questions . Six key informants, who held senior portfolios in their respective departments, gave consent to be interviewed. Within the built environment, the portfolios interviewed were from Development Planning; Environmental Planning and Climate Protection; Urban Design and Architecture; Botanical Gardens and Parks, Leisure, and Cemeteries. One key informant specialised in Primary/Community Health with expertise in clinical management of chronic non-communicable diseases such hypertension, type-2 diabetes and obesity.

The key informants were interviewed using a schedule of semi-structured interview questions (Appendix 1). Figure 42 below illustrates the key informants and a summary of their core functions. The interviews with key informants were structured according to thematic areas of their functions. The thematic areas were synthesised from the responses that each key informant provided. The responses were subsequently consolidated into main themes. After conducting each interview, the data was transcribed, and its contents was pre-analysed for relevance to the study objectives and research questions. From the pre-analysed data, themes that answered the research objectives began to emerge and started to crystallise into preliminary findings.

Figure 42. Analysis of key informants by portfolio

KEY INFORMANTS

PORTFOLIO	MAIN FUNCTIONS
DEVELOPMENT PLANNING & LAND USE MANAGEMENT	▪ Regulate land use plans/planning ▪ Evaluate development proposals ▪ Comment on layout plans ▪ Input in the development of Integrated Development Plan (IDP) and Spatial Development Framework (SDF)
ENVIRONMENTAL PLANNING & CLIMATE PROTECTION	▪ Manage protection of ecosystem goods &services ▪ Conduct biodiversity Impact Assessment ▪ Map out D'MOSS layer on the SDF ▪ Provide input on the development of the IDP
ARCHITECTURE & URBAN DESIGN	▪ Develop concept plans for public infrastructure ▪ Plan and design urban redevelopment plans ▪ Oversee the implementation of the redevelopment plans ▪ Provide input on the development of IDP
PARKS LEISURE & CEMETERIES	▪ Landscaping, management & maintenance of public parks and gardens ▪ Procurement and maintenance of outdoor furniture and equipment ▪ Provide input on the development of IDP
PRIMARY HEALTHCARE	▪ Screening, diagnosis, and treatment of medical conditions ▪ Provide primary health service to the local community ▪ Conduct community health awareness campaigns & programmes ▪ Provide input on the development of IDP
BOTANICAL GARDENS	▪ Preservation and custodianship of botanical gardens ▪ Raise awareness on the importance of green infrastructure ▪ Provide input on the development of IDP

Source: Researcher, 2016.

The analysis of key informants (figure 42) by portfolio ensured that there was a cross-section of expertise that overlapped across the various disciplines. A collaboration among the portfolios could provide important policies design interventions to improve the health of urban populations (Northridge, Sclar & Biswas, 2003). Noting that the urban environment was changing, and interdisciplinary approaches create new knowledge and develop capacity for decision making.

Knowledge was critical to understand modern health problems and to develop strategies to promote human health in a sustainable manner (Butler, Capon & Dixon, 2015:595). The following section would discuss the research findings.

5.6 RESEARCH FINDINGS

The research findings responded to the study questions. The questions in Annexure 1 and Annexure 2 were put to the key informants and study participants, respectively. To minimise duplication, feedback from key informants and study participants was synthesized into a single report and were structured according to the research questions. The first part of the research findings contained interview data, and the second part contained observation survey data.

5.6.1 How did stakeholders provide input on urban regeneration plans?

The question sought to find out the process followed when urban regeneration were developed. Assessment of responses from key informants with expertise in Development Planning and Land Use Management revealed that inclusion of public open spaces was considered in the plans. The key informant said that:

"As *part of Integrated Development Plan (IDP) Project Steering Committee, the Department provided input on the development of Spatial Development Frameworks (SDF) and Land Use Management Systems. The SDF was a strategic spatial representation of the vision of the city on which decision-making on planning, development and use of land was based. Input on urban regeneration plans was informed by a statutory framework such as Spatial Planning and Land Use Management Act (SPLUMA) and Integrated Development Planning (IDP)".* The key informant stressed the importance of internal collaboration among role-players in the built environment and alignment of plans with requirements of legislation and elaborated that "u*rban regeneration plans were developed in collaboration with departments such as Human Settlements; Parks, Leisure and Recreation; Engineering, Architecture and Urban Design and Economic Development and Investment to show alignment with the statutory framework*".

Another key informant from Architecture and Urban Design said "*the department provided input when concept and framework plans were developed. The Department would meet with client departments such as the Parks, Leisure, and Cemeteries to discuss the project briefs before conceptualising plans and developing designs. After reaching agreement on the concept plans with the client department, Urban Design Department would develop designs and specify products which they felt were suitable for the environment*". The key informant cited an example where a decision about the use of different paving

elements, such as asphalt or paving bricks, had to be taken for application on pavements and walkways. "*Environmental considerations such as permeability of material and pedestrian traffic determined which products were suitable for that purpose*" said the key informant. The Architecture and Urban Design Department also provided input about the feasibility of public open spaces for local economic development opportunities such using paved spaces as trading stalls. Other key informants expressed similar views.

For example, a key informant from Environmental Planning and Climate Protection stated, "*the Department applied the Durban Metropolitan Open Space System (D'MOSS) to map out ecologically sensitive areas on the Spatial Development Frameworks (SDF) as part of the development of the IDP. The D'MOSS was a tool with which urban regeneration plans were assessed for compliance with the frameworks"*. The key informant elaborated that "*the D'MOSS strengthened and refined the legislative provisions of the National Environmental Management Act (NEMA) to ensure the protection of environmental goods and services, which eventually minimised the ecological impacts"*.

To gain insight on the health perspective to urban regeneration, a key informant from Primary Health made the following remarks, *"the Primary Health Department's input in relation to the Integrated Development Plan and urban regeneration focused on health education, nutritional and clinical interventions to extend the life expectancy of the residents of eThekwini"*. The key informant further revealed that there was an increase in cases of lifestyle diseases, *"our screening found an increase in the incidence of risk factors such as obesity and hypertension, which caused lifestyle diseases such as Type-2 diabetes among the youth. We have a prevention strategy that includes Health Awareness Outreach Programmes in schools to screen for risk factors and raise awareness about healthy lifestyles",* said the key informant.

The key informant revealed that a Community Dialogue, which was a discussion forum in Ward Committees, was organised in conjunction with Ward Councillors to raise awareness about various health concerns in the CBD community. *"The Primary Healthcare Strategy emphasised screening for lifestyle diseases in high schools than at tertiary institutions because there was a greater probability of change in lifestyle behaviour if awareness about lifestyle diseases was emphasised at an early age",* elaborated the key informant.

The revelation suggested that health strategies were only integrated in the IDP, but implementation was fragmented because implementation programs excluded the built environment. Studies have identified

that the environment including other personal factors played a pivotal role on health. Coutts (2010:455) argued that to be effective, a comprehensive health promotion framework should include environmental, intrapersonal, interpersonal, community and policy level interventions. Health considerations should justify political support for green infrastructure initiatives. Similarly, Northridge & Freeman (2011:582-583) stated that the increasing complexity of urban environments and the serious discrepancies in cities, the planning discipline and health professionals should consider inclusive methods to improve population health and address health equity. The built environment in a neighbourhood and the vibrant, complex and adaptive social systems which constitute them form the crucial social determinants of both individual and neighbourhood health and wellbeing". Evidently, the health of the community was dependent on the environment and the two dimensions (built environment and social systems) required attention when policies such as IDP and Urban Regeneration Plans were developed. Essentially, it emerged from the enquiry that various city departments collaborated, albeit in isolation, on the provision of public infrastructure such as urban regeneration projects.

5.6.2 How did the city ensure participation of diverse stakeholders when reviewing urban regeneration plans?

Key informants were asked for their views on the model of public participation and diversity of stakeholders participated in the development of the IDP. According to the Integrated Development Plan Review (2016/17:7), the eThekwini Municipality stated that it sought to *"build an inclusive developmental local government to achieve the vision of a caring and liveable city*". For example, one key informant said:

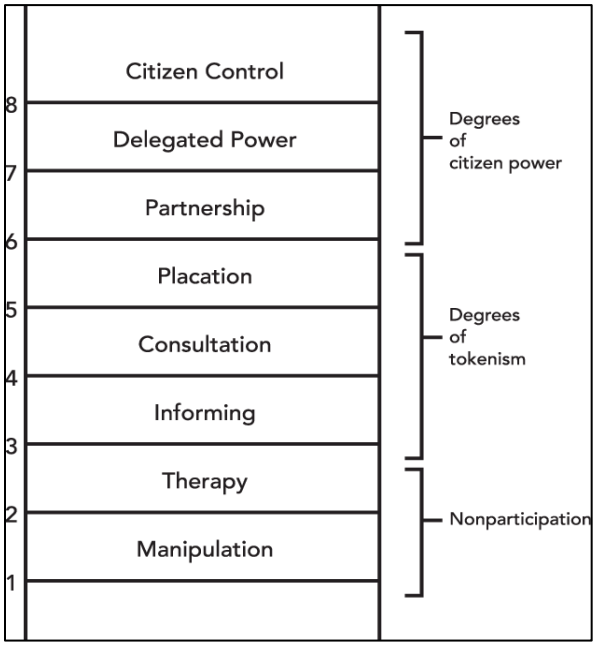
"*Public participation was a contested subject because of the way it was structured. Organised stakeholders such as the Chamber of Commerce, Business and Property owners understood the importance of public participation and participated effectively in the development processes where their interests were affected. Their main concerns centred on value for money for the services they received from the city. Open Days were also organised for the public where the public can access information on current programmes and projects and ask questions from officials. For several reasons such as lack of knowledge about the process and its objectives, resource constraints and general apathy, public engagement about the IDP processes was not satisfactory"*.

The key informant was cautious on whether or not the model of public participation being used by the city was effective. He cited an example about a proposed Inner-city Urban Regeneration Plan for Warwick Triangle Precinct (Integrated Inner LAP and Regeneration Plan City, 2016) and said, "*the levels of*

participation from the public varied from low to poor. Open Days organised by departmental officials took place during the working hours which was awkward for workers and students because they were not available to attend such meetings". The Precinct Plan to which the key informant referred was a 62-page long technical document, to which the public was expected to analyse and comment on before the closing date of 5 October 2016. Open days for public engagement were scheduled between 10h00-12h30 for 2 days in September 2016. It can be argued that, given the complexity of the Plan, the time allocation for the public to participate and make comments was insufficient. It would not be feasible for the public to make a meaningful contribution to a technical Plan about which their input was critical.

Public participation was problematic when situations such as resource constraints came in the way for the public to engage meaningfully on the governance processes that affected their livelihoods. Mulder (2015:19) argued that a bottom-up participation process compelled government to adapt. Unfortunately, the process lags behind due to the inflexibility of the government to meet public demands for government to facilitate public initiatives and assist the public to participate on the governmental domain, on behalf of the public and their collective interests to enhance spatial quality. These sentiments were consistent with the ladder of citizen participation model . Arnstein (1969) developed a model, with 8 rungs, called a ladder of citizen participation (figure 43).

Figure 43. Ladder of Citizen Participation



Source: Arnstein (1969)

The model defined citizen participation as the redistribution of power to enable the marginalised, currently excluded from the political and economic processes, to be included in decision-making. It argued that there were different degrees of citizen participation. Each of the steps on the ladder corresponded to the degree of influence citizens had over decision making on governance issues. Arnstein (1969:216) defined "citizen participation as the transfer of power to empower citizens, currently excluded from the political and economic processes, to be purposely included in the future". It was a tactic by which the marginalized participated in shaping how information was shared, goals and plans were developed. The model illustrated eight levels of participation organised in a ladder pattern with each rung matching the degree of citizens' power in shaping the end product.

According to the model, the objective of the lower rungs was not actually to allow the community to participate in decision-making, but rather to "cure" and "inform" them (Arnstein, 1969). The "manipulation of the pubic" where community involvement is non-existent defeats the objective of the concept of public participation whose key ingredient is democracy especially when the issues at stake had a direct effect on the community (Holdar, *et al*., 2002:12).

Another key informant who was based at Parks, Leisure and Cemeteries Department provided a different perspective on public participation. "*Direct consultation with the public does not happen as extensive as we would want. The interaction with the public occurred when we attend to complaints received from members of the public. The Department interacted to a large extent with the Ward Councillor, who was an elected public representative, who was believed to be the voice of the community"*. When asked about engaging the youth prior to installing public infrastructure such as the outdoor gym equipment. The key informant admitted, "*there was a huge gap in engaging with the youth, being the majority users of our facilities*. *The department installed outdoor gym facilities without actually engaging the youth"*.

Study participants confirmed these views during an observation survey. When asked if they participated in the planning phase of the Outdoor Gym Programme or other related public awareness processes. Study participants said there was no official launch of the Outdoor Gym project to formally hand it over to the community . *"We just saw municipal workers digging and building structures in the park. Later when the equipment was delivered and installed we realized that they were building a gym. They left after they were finished with the installations.*

We started using the gym on our own accord after they had removed the danger tape around it", said one study participant. The views from officials and the perception of the community about participation

demonstrate that there was poor communication with and participation by the community on the Outdoor Gym project.

It was critical to engage communities. Social awareness programmes played a vital role in raising awareness in the community. Coghill, Valaitis & Eyles (2015) argued that social marketing conducted through presentations to schools, community groups, elected officials and municipal staff was crucial to achieve community buy-in about ways the built environment can affect the health of the community.

However, it became evident that the model of public participation used by decision-makers was inadequate. Another key informant from Botanical Gardens Department admitted that:

"*Public participation was inadequate. Botanical Gardens did advocacy work with interest groups, urban planners, and non-governmental organisations. Internal departments such as Environmental Planning and Climate Protection and Architecture and Urban Design were also engaged. However, more effort was needed to connect with diverse audiences such as the elderly, youth and homeless people, who were often overlooked when planning outdoor infrastructure"*.

The key informant indicated that they conducted surveys to investigate why people visited or did not visit parks, which was an important tool in the decision-making processes. "Homeless *people used public parks more than any other audience but were overlooked in planning decisions. Similarly, the youth needed infrastructure that was responsive to their needs. Without their input on our plans how can we be so sure that the city responds accordingly*", said the key informant. It was acknowledged that departments needed to "*step outside their comfortable corridors and engaged more with interested and affected communities*".

From a primary healthcare perspective, the key informant from the Lancers Road Primary Health Centre stated that public participation outreach programmes were undertaken to educate people who visited the Centre about healthy lifestyle choices. "*Wellness Awareness Programmes were undertaken at schools that were in town, in partnership with Department of Education. Outreach initiatives were also facilitated in the Warwick Triangle Precinct targeting commuters*". The key informant elaborated further that in partnership with Ward Councillors, community dialogues on healthy nutrition and lifestyle choices took place during ward meetings. However, the key informant acknowledged, "*that there were not enough lifestyle outreach programmes facilitated at tertiary institutions. Our assumption was that tertiary students were better empowered to make positive lifestyle decisions"*, said the key informant. The lack of resources was also cited as the reason for not engaging tertiary students.

Decision-makers in the city also lamented the lack of collaboration among its various departments. The city's online news bulletin (*NewsFlash*, June 2018) quoted policymakers stating that "*collaboration was urgently needed between the different departments to enable us to deliver on the expectations of our customers*". Arguably, the public participation approach that eThekwini Municipality used during the installation of the Outdoor Gym facilities in the observation sites that were visited appeared to be consistent with lower rungs of the model, (1) Therapy and (2) manipulation], which represented non-participation.

It is suggested that for the community to be truly empowered, representation on governance structures was crucial. For instance, Pandeya (2015:70) argued that the level of public representativeness was crucial to ensure an inclusive and democratic involvement on governance structures. With higher levels of representativeness, so would the increase in confidence of citizens in asserting their rights. Inversely, the argument suggests that less representation of the stakeholders on governance structures and in decision making processes would equally erode public confidence on the outcomes. Therefore, despite the city's good intentions, public's under-representativeness was evident in the manner in which decisions to provide public recreational facilities such as the outdoor gym were taken. Sentiments from stakeholders who resided around the observation sites showed that they lacked a sense of ownership for the facilities that were intended for their benefit.

5.6.3 What were the concerns about using public open spaces in the CBD?

The question sought to evaluate whether public open spaces in the city enabled the youth to be physically active. Safety was the main concern among the youth in relation to engaging in physical activities outdoors. The respondents complained that the streets were not safe. Kolbe-Alexander, *et al*., (2015:2) support that view, and argued that connections were identified between the attributes of the built environment, land-use mix, street connectivity, physical activity, safety concerns, poor health, and mobility. Fear for personal safety from crime, traffic volumes and speed of traffic had a negative impact on health behaviour such as physical activity. In addition, Buck, *et al*., (2015:2) also stated that environmental opportunities in the urban environment can positively influence health outcomes such as obesity, hypertension and other cardio-metabolic risk factors by encouraging physical activity. It is clear from these debates that positive neighbourhood attributes were crucial to encourage outdoor activities.

About sixty percent of the study participants stated they would only jog if the surroundings were safe. They indicated that it was safe to jog on the promenade at the beachfront because the precinct had

security. *"I felt safe when jogging or playing at the promenade because there was visible security on the beach front. Security made the area feel safer for jogging and walking. Even jogging at night was safer because of the bright lights"*, said one participant.

The study participants alluded to passive surveillance and the visibility of security personnel on the beachfront as a contributing factor to the perception of safety when they engaged in physical activities such as walking or jogging or participated in other recreational amenities in the beachfront precinct. The participants who expressed safety concerns were mainly females. However, safety issues were not a major concern among the male participants. Characteristics of the built environment had an impact on their levels of physical activity. Rech, *et al*., (2012:1) support this view and argued that the physical and social environments may encourage passive behaviour. People living in neighbourhood that had limited access to facilities for physical activity, poor lighting, inferior quality sidewalks and areas with social disorder such as the presence of drugs, crime and robberies were less active.

Besides taking advantage of the expanse beachfront promenade for physical activity, other respondents admitted to using it for social gatherings. Thirty percent of the study participants stated, "*we go to the Durban Country Club Beach to party because that is where our friends go to have a good time"*. The different views from the participants about the physical environment suggested their perceptions influenced how they interacted with public spaces. For example, some study participants alluded to using the beach environment for physical activity because of their perception of safety due to visible security. Other participants perceived the beach as a suitable hangout spot for social gatherings besides physical activities.

Mazumdar, *et al*., (2018:2) argued that the built environment enhanced social capital by creating pedestrian friendly, walkable neighbourhoods that had accessible parks, public transport, and retail outlets. Social capital would be achieved through different pathways such as more time for socialization from reduced commuting time and greater opportunities for social interaction in walkable communities and ease of access to avenues and centres for formal interaction such as clubs and recreational places. Social capital was defined as those aspects of social structure such as the extent of interpersonal trust between citizens, norms of reciprocity, and density of civic relations that enabled collaboration for mutual benefit (Kawachi, Kennedy, & Glass, 1999:1187).

The observation surveys (see Appendix 3) were undertaken during weekdays and weekends. It was observed that the intensity of social interactions was different between weekdays and weekends. There

were fewer crowds on weekdays as compared to the weekend, especially Saturdays when the observation sites came alive with public activity. At the Durban Country Club beach, young people were seen gathered around *braai* stands preparing meat and socialising. They played music from motorcar radios. Others sat inside cars, and others danced to the loud music. While grilling meat, young people were also seen chatting on smartphones with one hand and drinking from *Heineken* beer bottles with the other.

At the Albert Park site, the observation findings were different. The Park had various amenities such as courts for basketball, netball, soccer, and outdoor gym equipment. The male youth played soccer while others watched around the football pitch, cheering them on. A handful of other young people were seen exercising on the outdoor gym nearby.

Bulwer Park, which had an outdoor gym, benches and a large, wooded area, appeared deserted compared to the other observation sites. There were approximately three young people (African, both sexes) at the Park standing on the gym facilities. They were chatting to each other. When interviewed about why they did not make use of the facilities? They responded that they used the park as social hotspot, one participant said, *"we came out to the park to relax and catch some fresh air. We are not in the mood to exercise*".

On all the days during which site observations took place, the weather conditions were clear skies with a moderate north-easterly wind (South African Weather Service, October 2016). Despite the good weather for various outdoor physical activities such as swimming, jogging, cycling and walking at the beach, the body language and behaviour of the people at the beach, such as their dress code suggested that the young people who gathered at the beach did not intend to engage in any form of physically activity, except grilling meat, playing music and drinking alcohol. The site observations corroborated the views from the 30% of the participants who said, "*we visited the beachfront area to relax or party*".

From the accounts of study participants and site observations, it could therefore be concluded that public open spaces enabled the youth to be physically active but were not fully utilized. The neighbourhood had positive attributes but on their own, the attributes would not make the youth engage in any form of physical activity, unless they were willing to.

The attitudes and behaviour of the youth and how they socialised during their leisure time needed to change. The youth need to be educated on the real health benefits of engaging in physical activities. Social awareness campaigns would play a vital role in getting the youth playing, walking and jogging in the available public open spaces.

5.6.4 How accessible were the public open spaces in the CBD?

The study participants were asked about their views about the accessibility of public open spaces in eThekwini, and what they considered as barriers to access. Responses from the participants suggested that they regarded public open spaces within the CBD of eThekwini to be accessible. Accessibility was perceived from different dimensions. According to Kellett & Rofe (2009:17), the notion of access was two-dimensional. Access to a place can be influenced by physical or socio-political factors. Physical access was considered as the ability of a person or a community to access a facility or service without demand for or having to pay an admission fee. On the other hand, socio-political factors such as race, gender, age, income, class, and disability may create barriers to accessing public open spaces in communities where such factors prevailed. In addition, Villanueva (2015:113) argues that the provision of and access to public open spaces becomes a crucial environmental justice issue. It addresses the fair distribution of natural capital such as clean air, water, and greenery to ensure that vulnerable groups were not exposed to needless harm to their health and well-being.

At least 80 % of the study participants (mainly Africans), in the age groups 23-27 and 28-32 years, said, "*there were no restrictions to accessing the public open spaces in the city because everyone was free to go where they wished to go*". This was attributed to the fact that access to public open spaces in the CBD did not require any admission fee nor had restricted access. Although there were signposts in the public parks, which stated, "*Right of admission reserved, by order of the city manager*". One of the key informants from Parks, Leisure and Cemeteries confirmed that. The sign was intended to caution patrons of public parks and beaches against misbehaviour than to restrict physical access.

Another 20% of the study participants stated that they "*preferred driving their cars than using public transport when going to places such as the Durban Country Club Beach or similar hang-out public spaces*". The participants preferred cars because public transport did not drive close enough to their destinations. "*The taxis would drop me far from my destination and then I would have to walk a little longer which I find unsafe. I could get mugged whilst walking*", said one participant. It was mostly female respondents, in the 23-27 years age group who reportedly felt unsafe. They resided in the Albert Park neighbourhood.

The respondents said they *"would only walk or jog around the park if I was in the company of friends*. Although the park was accessible and close to their places of residence, they would not go to the park for social gatherings such as having a *braai* or picnicking. They feared of being mugged or attacked by the

'*feranjees'* [14]. Public parks were notorious for being havens for drug dealers and drug users alike. The Human Sciences Research Council (HSRC) study (2016:19) found that socio-economic hardships experienced by people living in South African cities such as eThekwini had contributed to the increase in the numbers of homeless people. There were large numbers of homeless people concentrated in the Albert Park area.

Albert Park is notoriously known as "*Whoonga* Park" because it is home to users of the *whoonga*[15] drug. The HSRC study found that 87% of the homeless people were African males, below the age of 34 years. Two key informants (Parks, Leisure & Cemeteries and Botanical Gardens) confirmed the findings that homeless people inhabited public open spaces such as neighbourhood parks around eThekwini. "*Homeless people posed a serious challenge to community safety and access to the city's parks and gardens",* said the key informant. Another key informant shared similar sentiments:

"*The city was grappling with a scourge of homeless people who have made public parks their home. They appeared to be attracted to our parks and gardens because there was clean drinking water from the fountains. They bathed and washed their clothes in the fountains and often slept on the benches which made the parks unpleasant for other users*".

The views from study participants and key informants gave the impression that a section of eThekwini community members regarded homeless people as a nuisance: an unpleasant sight in public spaces. Another study found that the fear of strangers, accidents and injuries were the main reasons parents were reluctant to allow their children to play in the neighbourhood parks unsupervised. Demers & Lapierre (2012:4) shared similar views and reported that a British survey found that 42% of adolescents were not allowed to play outside without adult supervision because it was considered unsafe. As a result, young people suffered from "nature deficit" as young people spent less time outdoors and their direct experience with nature was reduced, which gave rise to obesity, depression and other attention disorders.

The findings suggested that public open spaces in the CDB of eThekwini were accessible. However, social concerns such as crime, muggings and fear of homeless people (*feranjees)* was a barrier to access. The concerns created limitations to full enjoyment of the amenities that were provided and social capital that could be derived from public open spaces.

[14] *Feranjees- plural noun (slang) informal reference to street kids or homeless people. The term is used by young people in the streets of eThekwini*.

[15] *Whoonga- is a mixture of marijuana and heroin, is also said to contain anti-retroviral drugs, detergents, and rat poison (KZN Department of Health, 2017).*

5.6.5 What risk factors were the youth predisposed to in relation to lifestyle diseases?

The question sought to find out if, as a result of their lifestyles, the youth were predisposed to risk factors associated with lifestyle diseases. The study participants were asked how they spent their leisure time. For consistency of feedback, leisure time was explained as any spare time outside normal working hours or scheduled attendance at school or university and included weekends and public holidays. Nilsson, *et al*., (2009:2) state that leisure time behaviours were likely to impact physical activity and inactive behaviour. In addition, random outdoor play, taking part in organized sports and mode of transportation to school or university, were recommended links to physical activity levels in youth and possible targets for physical activity interventions. Essentially, leisure time could provide benefits if used constructively.

Seventy percent of the participants, mainly the females in the 28-32 age category stated that they "*spent their leisure time at home relaxing. I like watching television, soap operas or movies on my laptop computer*", emphasised one study participant. Ten percent (10%) of the study participants in the 33-35 age group stated that they spent their leisure time working out at the gym*. "I feel energetic when I exercise at the gym to keep in shape",* said one participant. A further twenty percent of the participants in the 23-27 age group stated they "*used their leisure time to go out shopping for food or clothing. Sometimes I use public transport or drive to visit my friends to socialise*". Meanwhile fifty percent of the male participants in the 23-27 age group reported that they spent most of their leisure time in the gym. "*In the afternoons after classes, I go to the gym. Sometimes I play soccer or jog in the ground in Albert Park*", explained one participant.

Studies have established that sedentary leisure time behaviour was a risk factor for diabetes and cardiovascular diseases. There were negative health effects from continued sitting during leisure time, such as watching television, using a computer or driving a car, including the effect of reduced physical exercise (Storgaard, *et al*., 2013:59). Another study found that the incidence and prevalence of lifestyle diseases increased with less physical activity. Incidence of obesity, metabolic syndrome and diabetes increased with the use of household devices such as television, computer, cell phones and motor vehicle because of increased sitting time. There was a link between poor diet, increased caloric intake and time spent on household devices (Lear, *et al*., 2014:258). During observation surveys, it was found that young people participated in group sport such as soccer and basketball where facilities were provided. Others partook in physical training on the outdoor gym facilities that were provided. However, the proportion of the youth who spent their leisure time in passive behaviours was worrisome. A key informant revealed that the city was experiencing an increase in new diagnosed cases of non-communicable diseases among

young people. The key informant, who occupied a senior portfolio at the Lancers Road Primary Healthcare Centre, stated that:

"*Our records showed an increase in the incidence and prevalence of hypertension and Type-2 diabetes among the youth in the city. More and more young people were either overweight or obese. The prevalence of the NCD's was attributed to among other reasons inadequate physical activity, increased alcohol consumption, overweight and eating processed foods from takeaway outlets and shisa nyama*[16] *with high salt and fat content. Such fatty foods also increased cholesterol in the body. The youth love fast-food but it is actually killing them"*. The key informant elaborated that the youth comprised 60% of the population of patients who visited the Lancers Road Primary Healthcare Centre.

The Primary Healthcare Centre was conveniently located in Warwick Triangle, a busy transportation hub for taxis and buses. The location of the Lancers Road Primary Healthcare Centre within a bustling transport hub was ideal to service a transient student community. The urban youth were part of the student enrolment from the five major tertiary institutions in the city (Berea Technical College, Durban University of Technology, ICESA, University of KwaZulu-Natal and University of South Africa).

The increase in lifestyle diseases among the youth could be connected to the rural-urban migration. For example, Micklesfield, *et al*., (2014) argued that nutrition transition and urbanisation have been identified as responsible for the increase in overweight and obesity. Physical inactivity levels, defined as doing no or little physical work, at work, home, or during leisure time, were estimated to be 43%-49% among South Africans 15 years and older. In addition, Oosthuizen, *et al*., (2008:1) further argued that factors such as changes in lifestyle, urbanisation, increased stress levels, living standards and a "western diet" were among the reasons for the increase in chronic non-communicable diseases. These arguments were consistent with the abundance of fast-food outlet in the CBD which offer limited dietary options for young people who migrated to the city from the peri-urban and rural areas.

And, according to de Groot, *et al*., (2019:13), western diets were rich in salt, sugar and saturated fat and contributed to the adverse blood lipids that characterised the high availability of fast-food shops, which was a common feature in urban areas. This study found that a considerable proportion of the youth, over sixty percent, spent their leisure time on sedentary activities such as watching television and eating

[16] ***Shisa nyama***- *an isiZulu phrase which literally means to "grill meat". It describes a unique South African food culture to barbeque or "braai" meat in an open flame, usually near a butchery* (Wikipedia.org,2016).

processed, unhealthy foods. A small proportion of the participants engaged in some form of moderate to vigorous physical activity such as walking, playing soccer or exercising at the gym during their leisure time.

Evidently, sedentary lifestyles had an impact on the increase in diagnosed cases of chronic non-communicable diseases among the youth living in the central business district of eThekwini. It could be deduced that due to lifestyle behaviour and passive leisure time, a large proportion of the urban youth were predisposed to the risk factors associated with lifestyle diseases.

5.6.6 What were the health benefits of engaging in physical activity?

To gain insight whether the youth understood the consequences of sedentary lifestyles on their health, they were asked about awareness of the benefits of engaging in physical activities and other healthy behaviours. For the purpose of this study and to reduce bias, the definition of physical activity was not confined to formal sporting codes.

It was explained that physical activity may include walking, dancing, jogging, cycling, running and weight training that resulted in light sweating or slight increase in breathing. Jones, Freudenburg & Mongiello (2011:64) state that young people would derive significant health benefits if they frequently engaged in any form of physical activities especially if they began at an early age and continued the behaviour into adulthood. Weight loss and improved general wellbeing were some of the health benefits of physical activity.

Levels and patterns of physical activity may vary according to age, gender, weight and socio-economic status. Younger persons were more energetic, but the energy levels decreased with age. In the African region, only 8%-35% of the African youth engaged in adequate levels of physical activity for 60 minutes per day in at least 5 days per week (Oyeyemi, *et al*., 2016:2 & McVeigh & Meiring, 2014: 371). Clearly, the African youth did not meet the minimum levels for physical activity. It is important to point out that it was not enough to engage in physically active. The quality of such activity depended on the duration and frequency of physical activity to meet minimum levels. A study by McVeigh & Meiring (2014) found that with progressing pubertal status, South African adolescents girls in particular, showed a decrease in physical activity. With boys showing continuous increase in levels of physical activity. The gender discrepancies may point to societal norms where young girls were expected to be indoors early or most of the time to perform household chores, while there were no similar expectations on boys.

Responses from study participants revealed that they were aware about the health benefits of physical activity. Responses ranged from physical toning, weight loss and reduction of high blood pressure.

For example, sixty percent of the study participants stated that they "*experienced low energy levels and were continuously tired during the day at work if they did not exercise*". The mainly female participants in the 23-27 and 28-32 age categories believed that their "*neighbourhoods were unsafe for them to walk or jog in the public open spaces such as the pavements, road and parks"*. For example, one female respondent said, "*The parahs[17] can attack and mug you when you are walking or jogging alone in the park"*. Thirty percent of the participants revealed that because of "*the unsafe neighbourhood environment, they took up membership at a private gym to exercise. The private gyms offered better facilities and I felt safe when I exercise in the gym than jogging on the streets in town*", said one participant.

Ten percent of study participants in the 23-27 age group indicated that they *"played group sport such soccer or basketball in the sporting facilities that were provided in Albert Park during their leisure time to keep physical fit. Engaging in group sport has an added advantage of providing safety in numbers*", said one participant. An observation study (see figure 47) that was carried out in Albert Park as part of the enquiry found a group of young people who had organised a soccer tournament over the weekend.

In an attempt to encourage the citizens to be physically active, the city's Parks, Leisure and Cemeteries Department introduced a project of installing outdoor gyms in public parks. "*the outdoor gyms were targeted at young adults from 23 years and above. It is a free facility for all residents of eThekwini*", said the key informant. When asked about the target market, the key informant stated, "*students and working people frequent the outdoor gyms in the afternoons and evenings around 18h00 after work or after attending classes*". Observation of the sites in the evenings confirmed the key informant's statement that many young people used the outdoor gyms in the evenings. It was also observed that during the day, the facilities were underutilised. This would lend credence to the fact that the young people were at work or attended classes during the day.

The study revealed that levels of physical activity correlate with age and gender. Male participants were more physically active than their female counterparts. Due to societal norms, females were expected to perform household chores which reduced their leisure time for physical activity. Also, safety concerns in general and fear of muggings by homeless people (*amaparah*) emerged as a reason why female participants were less likely to be physically active alone in public open spaces. Notwithstanding safety

[17] **Parahs** *(parah, singular noun)- slang, street language used by youth in eThekwini in reference to street kids or homeless people. The term is abbreviated from "parasite" to refer to someone who lives at the expense of others.*

concerns, the study participants were aware of the health benefits of engaging in different forms of physical activity.

5.6.7 What was your state of health and wellbeing?

The question sought to find out about state of health and wellbeing among the study participants. Further, they were asked if there was anything they would like to improve about their health? Health was viewed from the definition proffered by the WHO (1946:1) that "*health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*". This was a holistic view on health and wellness which represented a shift from a narrow clinical approach, which included social and spatial dimensions. The approach suggests that environmental elements such as spatial configuration of the neighbourhood could contribute to positive health outcomes.

Godbey (2009:1) support that approach and state that living close to the natural environment was linked positively with low stress levels and increased opportunities for physical activity. In addition, Shanahan, *et al*., (2015:476) argued that spending time in the natural environment improved health and wellbeing by reducing health risks. For example, it is well-known that vegetation filters pollutants from the air and acted as a barrier against the urban heat island effect. And, people were inclined to exercise if their environments provided safe and pleasant surroundings.

Study participants based their state of health and wellbeing on self-reported accounts. For ethical reasons, personal medical records of the study participants were not requested. Twenty percent of the participants, mainly females in the 33-35 age group were unhappy about their health. "*I feel bad about my state of health because I do not exercise at all. I easily get tired and sweat when walking fast, which never used to happen before when I was physically active*. *I would also like to cut down on eating junk food*[18] *because it makes me fat",* said one participant. The female respondents felt that junk food was unhealthy and responsible for their weight gain. Meanwhile, male participants in the 23-27 age group stated that they were satisfied with their health. "*I can say I am happy with my health because I played sport almost daily in the evenings or jog around the park".*, said one participant in the age group.

One key informant who was based at the Primary Healthcare clinic reiterated the negative effects of poor nutrition. "E*ating salty and/or oily foods caused weight gain, hypertension and was associated with the*

[18] ***Junk food****-is an informal term that refers to food perceived to have little or no nutritional value and whose ingredients are deemed unhealthy when eaten regularly. It contains high levels of refined sugars, white flour, trans fat and polyunsaturated fat, salt, and other food additives (Journal of Krishna Institute of Medical Science, 2013:8)*.

incidence of non-communicable diseases such heart problems, Type-2 diabetes and stroke", said the key informant. The negative effects of unhealthy diets were widely reported in literature. For example, Jones, Freudenburg & Mongiello (2011:64) state that unhealthy dietary habits involved the consumption of high fat foods, pastries, fast foods and sweetened beverages among college students. These foods were cooked outside the home or bought from vending machines, and were associated with overweight and obesity, linked with an increase of Type-2 diabetes, cardiovascular diseases and cancers among young people. At least 80% of the study participants indicated that they "*would like to change their lifestyle, be more physically active and spend less time sitting at home*". They felt that they have gained weight because they did not exercise. Most of the participants were females in the 23-27 years and 28-32 years age groups.

Observation studies conducted on the observation sites that were frequented by the youth such as the Country Club Beach (see figure 49) found that, despite being outdoors during the day with friends, young people were fixated with their smartphones. While some danced to the music, others were seated in the cars. The observation confirmed findings of a study conducted by Global Web Index (2016), which found that young people aged between 18-32 years old spent 3.14 hours a day on their smartphones. Similarly, the American Institute of Paediatrics (2001) recommended that no more than 2-hours per day should be spent watching television.

Despite being conscious about their health and wellbeing, the findings revealed that the youth knowingly participated in sedentary activities for most of their leisure time. And, others engaged in unhealthy behaviours such as eating junk food, chatting on smartphones for prolonged periods, sitting in cars despite being outdoors in pleasant public open spaces. It is apparent from the findings that the youth did not understand the negative impact their lifestyle behaviours had on their health and wellbeing.

5.6.8 How were urban regeneration plans reviewed for health impacts?

The question sought to find out if decision makers in eThekwini considered health impact assessment (HIA) when reviewing urban regeneration plans. Key informants were asked if their review processes for urban regeneration plans considered health impact assessment. A key informant based in the Planning Department stated that the municipality conducted impact assessments. "*The need for impact assessment arose out of development proposals and urban regeneration plans either initiated by the city or by private developers. The eThekwini Municipality had a functional Municipal Planning Tribunal that evaluated development applications",* said the key informant. The key informant revealed that the Municipal

Planning Tribunal was established in terms of the Spatial Planning and Land Use Management Act[19] (SPLUMA). "*Public interests were considered when reviewing development applications*"., said the key informant. The SPLUMA was a legislative tool that municipalities applied when assessing development plans. The preamble of the Act, states it :

"*Provides a framework for spatial planning and land use management in South Africa; to provide for the inclusive, development, equitable and efficient spatial planning at the different spheres of government. It seeks to promote social and economic inclusion by applying the spatial planning and land use management systems*" (SPLUMA, 2013). The key informant stated that these tools and systems were aimed at social inclusion and connecting neighbourhoods to economic and social opportunities.

Other departments such as Parks, Leisure and Cemeteries, and Environmental Planning and Climate Protection had similar legal frameworks to assess urban regeneration plans for biodiversity impact. "We *undertook impact assessment by conducting biodiversity impact assessment for proposed developments to ensure the protection of the open space system. The department assessed and provided comment on development proposals when a planned project was adjacent to green open spaces and other ecologically sensitive areas",* said the key informant. A survey of the Municipality's website revealed that health impact assessments were conducted, and that each department assessed development proposals based on their individual portfolio requirements.

According to Northridge & Freeman (2011:593), health impacts were gaining momentum in both urban planning and public health sectors. They complement other participatory intervention approaches such as community participation. Health impact assessment supports the notion that healthy urban planning means planning for people living in cities. It is linked to the view that the city was more than just buildings, streets, and open spaces, but a dynamic social space, whose health was intricately connected to that of its residents. Essentially, health impact assessments recognise that planning decisions have health implications, which, if not integrated in the planning assessment toolkit, would result in disparities in communities.

Ellis, Chang & Mannion (2010:35) argue that planning policymakers should seek to recognize the health and well-being determinants, their connection with spatial planning and the built environment. In

[19]***SPLUMA (2013) Objects of Act, Section 3.*** *The objects of this Act are to—(a) provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic;(b) ensure that the system of spatial planning and land use management promotes social and economic inclusion;(c) provide for development principles and norms and standards;(d) provide for the sustainable and efficient use of land;(e) provide for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and (f) redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.*

addition, ensure that specific health impacts were considered for major impact development proposals. However, impact assessments could be valuable for other development proposals to encourage a detailed assessment of the potential contribution of developments to the health and well-being objectives, not just its negative impacts

The survey of responses revealed that eThekwini Municipality conducted Health Impact Assessments to evaluate urban regeneration plans. It further revealed that there was fragmentation in impact assessment processes. Each department focused solely on its specific mandate with no integration of mandates. Furthermore, assessment processes showed minimal collaboration when reviewing urban regeneration plans for their health impacts.

Studies support collaborative planning approaches. The WHO Commission on Social Determinants of Health (2008:22) state that an empowered public sector underpinned action on the social determinants of health and health equity, was founded on principles of justice, participation, and intersectoral collaboration. The studies suggest that decision-makers should review process flows for impact assessment to create partnerships and seamless collaboration among different disciplines.

5.6.9 What considerations informed the distribution of public open spaces in the city?

The question sought to find out how were public open spaces planned across the city. The responses suggested that housing infrastructure was the main priority, then on residual land public open spaces were developed. "*Issues such as housing densities, accessibility to communities and availability of land on which to design and develop open spaces were some of the key considerations. However, lately the focus has been to over densify on housing developments. Only leftover space, which was unusable for other infrastructure was considered as public open space",* said the key informant.

The key informant bemoaned the fact that priorities were somewhat skewed in favour of building more housing units. "*In recent years, human settlement developments post-1994, the land use mix was not right. A lot of space is dedicated to housing over open spaces in new public-sector developments. This would have negative aesthetic consequences in the long term for the settlements*", said the key informant.

Another key informant shared a similar view and said that: "*the distribution of land uses was a technical exercise that was informed by legislation, policies and guidelines*. *Projected population densities for a given piece of land, types of facilities that were required for a functional neighbourhood were key considerations when layout plans were developed*". The key informant further stated that:

"*One of the challenges was that during implementation of projects, the delivery of housing top structures was prioritised over other public amenities such as open spaces. In addition, lack of budgetary alignment by various role players in the human settlement delivery value chain interfered with the implementation processes. Therefore, client departments cited budgetary constraints when open spaces, which were outlined in the original Area Plans, were omitted from the projects.*

These concerns correlate with global norms. For instance, Wolf & Robbins (2015:390) state that governments prioritised the basic infrastructure such as housing, utilities, and transportation. Thereafter, consider creating green infrastructure from residual land. Similarly, Jennings, *et al*., (2012:1-5) point out that there was unequal, unjust, and inequitable delivery of open spaces and green infrastructure in urban centres. The dilemma of having to choose between housing benefits and conserving green spaces have caused tensions among decision-makers. Interdisciplinary collaboration between scientist, planners, health practitioners and local stakeholders would greatly enhance the green space planning programmes.

Another key informant lamented the lack of equity and rigidity of the spatial framework policies and argued that the traditional approach about the distribution of well-resourced open spaces in the city was inflexible. "*Affluent private developers can purchase large tracts of land and incorporate it within gated neighbourhoods and golf estates for their exclusive use as open spaces. On the other hand, underprivileged people remained on the urban fringes under unsound environmental conditions"*. The key informant emphasised that socio-economic considerations about open spaces needed to include the needs of vulnerable and minority groups such the elderly, youth and urban poor.

To further emphasise the point, the key informant stated that: "*homeless people seemed invisible to decision-makers in the city. They needed to be considered when urban regeneration plans were developed because they occupied public parks across the city, so they are also urban dwellers"*.

The phenomenon of homeless people occupying public parks was a serious challenge for the city. The Human Science Resource Council (HSRC,2016) found that there were 3 933 homeless people living in the central business district of Durban. Fifty percent of the homeless people lived in public parks such as Albert Park (figure 48). The study revealed that homeless people used public parks for sleeping and doing other anti-social activities such as prostitution, selling and using drugs and hiding from law enforcement agencies. The extent of the homelessness menace in Albert Park earned it the notoriety as the "Whoonga Park" owing to the prevalence of drug users living in the park. During observation, it was confirmed that

homeless people occupied Albert Park. Homeless people were seen sleeping on the grass, and others walked around the park carrying their belongings in shopping bags.

The Integrated Development Plan (eThekwini Municiality,2016/17) revealed that public open spaces in eThekwini Municipality had a coverage of 14,4% of the city's population. The city recognised that significant part of the population was deprived of equal access to socio-cultural opportunities in the past, and little or to no investment into social infrastructure, resources, development and activities. Key informant feedback and analysis of secondary data revealed that there was inequitable access to public open spaces for fringe communities across the city. Only a fraction of the city's population enjoyed access to well-planned public open spaces. The previously underprivileged communities lacked equitable access to the socio-economic benefits from public open spaces . Meanwhile, homeless people remained on the fringes of the green infrastructure, almost invisible to decision-makers.

5.6.10 What caused discrepancies in resourcing public open spaces across the city?

The question sought to find out from key informants what informed the provision of resources to public opens spaces around the city. "*A pilot project to install outdoor gyms in public parks was initiated by the Parks, Leisure and Cemeteries Department to test public acceptance of outdoor gyms. The project was piloted in a suburban area, in Bulwer Park in 2015 (figure 46)",* said the key informant. Owing to the success of the outdoor gym concept, the department decided to extend it to other public open spaces around the city. The key informant further said that: "*installation of outdoor furniture and modern paving in Bulwer Park followed a collaborative process between the Bulwer community, ward councillor and city officials. The project proved successful, and the city decided to roll it out to other parks."*

According to Lestan, Erzen & Golobic (2014:6548) the poor quality of neighbourhood, open and green spaces became a barrier for the wellbeing of inhabitants because it restricted spending time outdoors, walking and playing. In addition, Sugiyama, *et al*., (2015:2493) state that public open spaces that had gardens, grassed areas, walking paths, water features, wildlife, amenities, dog-related facilities, and off-leash areas for dogs were positively connected with walkability.

Under-resourcing and poor maintenance of public open spaces emerged as concerns for the key informants and study participants alike. Key informants cited budgetary limitations as a barrier to providing a comprehensive social infrastructure such as park amenities. Meanwhile, study participants complained that the provision and maintenance of public open spaces was unequal in suburban and peri-urban areas. These concerns were confirmed during field observation studies. For example, in Albert Park

(figure 47 and figure 48), some of the recreational equipment was found to be in disrepair and the general upkeep of the park was unsatisfactory. The basketball courts were littered. In contrast, in Bulwer Park (figures 45 and figure 46), the trees had recently been trimmed and the park was tidy. The contrast revealed that suburban communities such as in Bulwer suburb took more ownership in protecting public infrastructure.

The concerns from both key informants and study participants indicated that poor maintenance affected the quality of public open spaces, which discouraged users from visiting the amenities. The key informant however conceded that "*not all public open spaces in the city were adequately resourced*". And said that: "*In other public parks, infrastructure was vandalised due to lack of community ownership of the public amenities. Rogue elements in the community stripped metal components of outdoor furniture and sold them to dealers of scrap metal. Vandalism was costly to the city because budgets must be made available to repair the damaged infrastructure, which impacts negatively on service delivery."*

There was credibility to the views expressed by the key informant. An observation study revealed that public infrastructure such as the outdoor gym equipment were being misused. In Albert Park for instance, patrons were seen placing heavy rocks on the equipment to balance the weights or swinging on the equipment in manner that was inconsistent with the operating procedures. The operating procedure was clearly displayed on the various equipment.

The key informant was hopeful that collaboration among community stakeholders could yield positive outcomes in relation to protecting public facilities. The key informant gave example of a project in Congella Park, in Umbilo suburb, where collaboration between the local business community, ward councillor and city officials turned the park around. Previously, vagrants slept in the park, equipment was vandalised, and the park in general was neglected. The immediate community could not access the park amenities. A stakeholder engagement process led by city officials and local ward councillor brought together diverse neighbourhood actors to regenerate Congella Park. The collaborative efforts between public and private actors contributed towards making the park a pleasant public space for the Congella community.

Another key informant supported this viewpoint and said that: "*the inconsistencies in resourcing public open spaces were attributed to the entitlement mentality in the communities. For example, the city would provide infrastructure for the benefit of the community. On the other hand, the community was passive in*

safeguarding it against misuse and vandalism. The attitude reflected a lack of civic pride in the upkeep of neighbourhood", said the key informant.

Making public open spaces attractive would enhance their public appeal. Boehmer, *et al*., (2007:965) argued that attributes of urban neighbourhoods such as access to leisure facilities, aesthetics and mixed land uses were associated with recreational and transportation activity. However, neighbourhood neglect was positively linked with the prevalence of obesity, pointing to a relationship between obesity and specific urban design and neighbourhood elements.

There was credibility to the notion that creating an enabling neighbourhood environment, well-resourced with recreational facilities would encourage an active lifestyle among people living in the vicinity. Study participants voiced concerns that certain characteristics of their neighbourhoods such as crime and vagrants created barriers to active living.

5.6.11 What was the significance of public open spaces to the city?

The question on the significance of public open spaces was two-dimensional. The first dimension deals with the city as a scale. The other dimension, which addressed the human scale, will be dealt with in latter section. The question sought to find out if decision-makers placed any significance to public open spaces. The key informants admitted that public open spaces were important to the city and to its people, and held strong views about the significance of public open spaces to the city. One informant said: "*public open spaces provided recreational space for the citizens in proportion to the population density of a neighbourhood. They also provide citizens with a natural space in which to reflect and unwind. Young people used public open spaces to partake in sport; and senior citizens have natural environment where they can take an afternoon stroll*".

Another informant shared similar views and said that: "*providing open spaces was an integral part of spatial planning and development of the built environment in the city. It considers the economic and social needs of the city's residents. The city appreciated the green public open spaces to dilute pollution and offer recreational opportunities to young and old people alike"*, said the key informant.

Apart from economic, social and recreational benefits that are derived from public open spaces, it was also revealed that the city placed an ecological value on the green open spaces. A key informant from Environmental Planning Department said: "*open spaces were important to the city because they provided ecosystem goods and services such as air purification, storm water and flood attenuation*". The respondent revealed that the city had identified one-third, about 74,555 hectares of the total municipal area valued

at R3.1 billion in 2003, to be designated as Durban Municipal Open Space System (D'MOSS), which the city must conserve from development. In support of these views, Brown & Grant (2005:330) argue that urban trees helped to maintain a balance between atmospheric gases such as regulating increasing levels of oxygen and reducing carbon dioxide. Basically, urban greening has a positive impact on local air quality. Noting that, oxygen is crucial in cellular health and respiratory and brain function.

5.6.12 What was the importance of public open spaces to humans?

The question sought to find out from the study participants about their views on the importance public open spaces to humans. A large proportion, about 60 % of respondents believed that public open spaces were important to humans because they "*provided an opportunity to interact with other people and meet friends"*. Respondents stated they visited public open spaces like the Durban Country Club Beach, which is located on the Durban beachfront to "*socialise with our friends*". These views were consistent with literature review, which suggested that the built environment created opportunities for social capital. For example, Mazumdar, *et al*., (2018:2) argued that through better design, neighbourhoods maximize opportunities for social interaction. Further, the creation of pedestrian friendly, walkable neighbourhoods with easy access to parks, public transport, and retail outlets enhanced social capital. This would be achieved in multiple pathways such as increase in time for socialization from decreased commuting time, greater opportunities for social interface in walkable densely settled communities and easily accessible avenues and centres of formal interaction such as clubs and recreational places.

5.6.13 How were the benefits of public open spaces to the community evaluated?

A review of secondary data revealed that eThekwini Municipality commissioned a Quality-of-Life Survey among the citizens. The objective of the review was to evaluate the extent to which citizens were satisfied with their neighbourhoods and service delivery. Dimensions such as accessibility, maintenance and safety in public spaces formed part of the survey.

The findings were measured on a licket scale from 1 to 5, where 1 indicated "very satisfied" and 5 "very dissatisfied". The outcomes of the survey revealed that the citizens were satisfied with the accessibility and maintenance, with scores of 2.12 and 2.33 respectively of public open spaces in their neighbourhoods. In relation to safety when walking in the neighbourhood during the day, 31.2% of the respondents indicated that they felt "very safe" while 10.1 % felt "very unsafe" (Pride and Joy, 2015:40-50).

Key informants conceded that the Quality-of-Life Survey was inadequate to evaluate the benefits of public open spaces to communities. It was indicated that complaints about safety in public parks were received

via internal complaints management systems. When fewer complaints were received, it was assumed the public was satisfied with their facilities. "*A gap exists in relation to the evaluation of resource investment, return on investment and benefits of open spaces to communities*", said one key informant. The key informants were unanimous that the city did not have a reliable and integrated system that evaluated the benefits of public open spaces to communities.

It was advisable for the city to consider the Global Physical Activity Questionnaire (GPAQ) as a tool to assess the various attributes of the built environment. The World Health Organisation (2012) developed GPAQ for countrywide surveillance of physical activity. The questionnaire gathers information on physical activity participation in three settings (at work, travel to and from workplace and recreational activities) and sedentary behaviour. The instrument would be beneficial for developing countries such as South Africa to enable it to generate and analyze reliable community data on physical activity levels.

5.7 Findings from Observation Surveys

5.7.1 Background

Observation surveys were conducted on three different sites (Bulwer Park, Albert Park, and Durban Country Club Beach) using an observation schedule (Appendix 3) to corroborate the primary data from interviews. The sites, which are located within the central business district were popular to young people living or working in eThekwini. Figure 44 provides a profile overview about each site. The sites were evaluated against five dimensions such as appearance, verbal behavior and interactions, physical behaviour, personal space, and human traffic.

During interviews, study participants revealed that they visited the observation sites to spend leisure time with friends. Mack (2005:13) state that participant observation could be an influential instrument to check against what people report about themselves during interviews and focus groups. The objective is to help researchers learn the perceptions held by study populations. Based on the assumption that multiple perceptions exist within any given community, understanding what those diverse perceptions were and gaining an insight of the interplay is of interest.

Observation surveys on the study sites (figure 44) were conducted randomly on weekdays and over the weekends. Each session on weekdays lasted between 30-45 minutes and 60 minutes over the weekend sessions.

Weekends sessions were longer because most young people did not have formal engagements such as attending classes or going to work, and the sites were usually full of people. In addition, on weekends the researcher was able to assimilate into the space of study participants and be part of the lived experience with the respondents.

Figure 44. Profile of Observation Sites

Name of Site	Attributes	Infrastructure	Security Features	Visual Condition [Good; Fair; Poor]
1.Albert Park	-Sport facilities -Walkability -Security fence -Security guard	-Green infrastructure -Playgrounds -Grand stands -Outdoor Gym -Walkways -Benches	-Lights -Security Gate/Fence	**Good** -Crowded, many people playing/watching sport
2.Bulwer Park	-Sport facilities -Walkability	-Green Infrastructure -Outdoor Gym -Walkways -Benches	- Lights	**Good** -Few people playing in the park, looked isolated
3.Durban Country Club Beach	-Beach -Sport facilities -Walkability	-Promenade -Built it braai facilities -Cycling/Walkability	- Lights -Security Personnel -Passive surveillance	**Good** -Crowded, many people partying, drinking -Few people playing sport

Source: Researcher, 2016.

Figure 44. describes the neighbourhood attributes of the main observation sites and a conditional assessment of the outdoor infrastructure.

5.7.2 Bulwer Park

Bulwer Park is located on the western edge of the CBD of Durban, in the suburb known as Bulwer. It forms part of the Durban Metropolitan Open Space System (DMOSS) that is owned by eThekwini Municipality.

Figure 45. Outdoor Gym Infrastructure, Bulwer Park

Source: Researcher, 2016

Figure 45 show the outdoor gym equipment and tidy surroundings in Bulwer Park.

Appearance

Physically, the park appeared well maintained. The park lawns were green and landscaped. Tree canopies had been trimmed and tree stumps were lying on the ground. The infrastructure (walkways, benches, and outdoor gym equipment) appeared in good working condition during observation. Generally, the observation was that the park did not appear busy. There were few people using the equipment.

There were children and young adults, of both sexes, aged approximately 10-15 years and 20-25 years respectively. People at the park appeared nourished and neatly dressed in casual clothing (shorts, t-shirts and sneakers). That suggested that the people at the park were not vagrants. Their appearance suggested that they were resident in the houses or apartments near the park. It looked like they had walked to the park because none of them appeared to be homeless.

Verbal behaviour and interaction

With regard to interaction, the younger adult group interacted separately from the children. That suggested that the groups arrived separately and there was no relationship between them.

The children were heard chatting and laughing among themselves. Both groups interacted in the local vernacular (IsiZulu) and English, suggesting that they were within school going age.

Figure 46. Human Traffic, Bulwer Park, Durban

Source: Researcher, 2016

Figure 46 shows young people in Bulwer Park playing on the outdoor gym equipment.

Physical behaviour

The children were standing on the hardened surface playing with the gym equipment. The user instructions written on the equipment stated that it was designed for people above 17 years. However, no parental supervision was observed on site during the survey. The older youth were kicking a ball around the park.

Personal Space

The proximity of the people to one another at the park suggested that they knew each other. No strangers or suspicious looking individuals were observed. The observation further suggested that the people came from the houses or apartments close to the park.

Human Traffic

During the observations, which lasted 45 minutes, there were not many people at Bulwer Park. The human traffic was similar during the week and over the weekends.

5.7.3 Albert Park

Albert Park is located in the CBD, on the foot of the southern freeway overlooking the Durban harbour (figure 47). It is a public park served the community of Albert Park and forms part of the D'MOSS infrastructure.

Figure 47. Sporting Facilities, Albert Park, Durban

Source: Researcher, 2016.

Figure 47 shows adolescents and the youth utilising the basketball courts and outdoor gym equipment.

Appearance

Physically, the park appeared well maintained. It was fenced and walkways had brick paving. The field was trimmed and landscaped. During observation, the park was equipped with sporting facilities such as football field with grandstands, netball, and basketball courts. Apart from the security fence around the perimeter, a security guard was stationed at the main gate to control vehicular access. The infrastructure appeared to be in good working condition.

The park was busy. There were many people watching a football match (figure 48). Others were standing around the ground drinking alcohol, from beer bottles. On other observation days there were fewer people using the facilities at Albert Park. The age distribution of the people at the park could be estimated between 15 - 32 years. The users at the park were dressed casually (jeans, t-shirts and sneakers) except for the players who wore a soccer kit.

The dress style was consistent with leisure, sport and social gatherings. It could be detected from the discussions from the participants at the park that they were students. Discussions were about student politics and campus life. From their appearance, none of them appeared to be homeless. They were presentable.

Verbal behaviour and interaction

The spectators used a variety of South African languages. The dialect suggested that the young people were from different areas outside eThekwini. That could suggest that they were students who were a product of rural-urban migration to seek study opportunities in the city.

Physical behaviour

The people who stood on the side-lines of the soccer field or were seated on the grandstands interacted in groups. The intensity of interactions suggested that the people were acquainted with one another or perhaps resided in common surroundings such as off-campus college residence. The proximity of the people to one another at the park suggested that there was a level of familiarity with each other. No suspicious looking individuals or homeless people were observed. There were not many cars in the parking lots, further suggesting that the people may have walked to the park.

Human traffic

The observations lasted 45 minutes during which many people were seen at Albert Park. The observation was consistent with the fact that the Albert Park area was popular among young people. The area offered affordable off-campus student accommodation. The study participants indicated during the interviews that they visited public spaces that were accessible, safe and located within a walkable distance from their residence. Weekends were busy days at the park. During weekdays, fewer people were seen visiting Albert Park.

Figure 48. Human Traffic, Albert Park

Source: Researcher, 2016.

Figure 49 shows young people watching a soccer match in the Albert Park playgrounds.

5.7.4 Durban Country Club Beach

The Durban Country Club Beach (popularly known as Country Club) is located on the North Beaches of Durban, east of the northern freeway (figure 49). The place derived its name from its location adjacent the historic Durban Country Club. The site was a popular hangout spot for people of all age groups. It was furnished with built-in braai facilities, a wide promenade for cycling, walking, and ample parking space.

Appearance

During the observations, the area had trimmed and landscaped lawns. Generally, the Country Club Beach looked very tidy. There were many cars and people at the site on weekends than on weekdays, which suggested that the patrons came by private vehicles than by public transport. The observation further correlates with informants' assertion that they used private vehicles when visiting public open spaces for leisure.

The age distribution of the people at the Country Club could be estimated to range between 19 - 28 years. There were multi-racial groups, but Africans were in the majority. The dress sense of the people at the Country Club Beach varied.

Africans mainly were dressed casually (jeans, t-shirts and sneakers) and Whites were dressed in active wear (shorts, flip-flops). This distinction in clothing suggested that White youth came to exercise or to partake in some form of physical activity.

Africans came to the beach to party. From observation, most of the African youth were seen seated in cars and on camp chairs, drinking from beer bottles and operating smartphones with the other hand. The observation corroborates informants' account that most of their leisure time was spent on social media and socialising with friends. The gadgets and cars the people drove in, could further suggest that the youth either were tertiary students from middle-income households or were employed.

Verbal behaviour and Interaction

The observation lasted about 60 minutes. During that period, the young people who gathered at the Country Club Beach were heard speaking various South African languages and English. That could suggest that they were familiar with one another from either work or campus. The diversity of languages spoken suggested that the people had migrated from different towns and provinces across the country. Car registration plates from other provinces, such as Limpopo and Eastern Cape, suggested rural-urban migration.

Figure 49. Physical Behaviour, Durban Country Club Beach

Source: Researcher, 2016.

Figure 49 shows young people enjoying a braai in the Country Club Beach.

Physical Behaviour

Study participants were seen sitting on camp chairs, in cars or standing around braai stands. Others were seen handling smartphones and drinking from beer bottles. The *Heineken beer*, in green bottles seemed to be a popular beer brand among the patrons. Apart from short walks to and from the cars, no other form of physical activity was observed taking place among the young adult groups. The observation confirmed the views from study participants that they "*get together to hang out and consume alcohol other than engaging in physical activity*". It further corroborated studies by Global Web Index (2016) which suggested that the youth spent over 3-hours of their leisure time sedentary and on smartphones. In addition, one key informant revealed that health screening of young people showed "*there was an increase in diagnosed cases of hypertension, type-2 diabetes and obesity. The prevalence of such lifestyle diseases could be attributed to the passive lifestyles, excessive alcohol consumption and eating foods with high salt and fat content."*

Personal space

The proximity of the study participants to one another at the Country Club beach suggested that there were acquainted with one another. No homeless people or street children were seen during observation.

Human traffic

The study participants and people in general stood or sat close together which suggested that there was a degree of familiarity and that meeting at the Country Club Beach was a planned rendezvous . During the observation, many more cars came carrying four or five passengers each.

5.8 Data Analysis

5.8.1 Thematic content analysis

The study findings were analysed thematically. In conducting thematic analysis, the content is described based on themes, which became the unit of data analysis. Descriptive texts in the data would be used to create codes and categorise them as themes (Oliveira, *et al*., 2016). Thematic analysis was used to supplement analysis achieved from surveys, to expand the understanding of the context under investigation (Soltani, *et al*., 2011).

5.8.2 Social Interaction

In relation to the importance of public open spaces to humans, at least 80% of the respondents across all age groups indicated that public open spaces played a key role in social interaction. According to the respondents, social interaction was described as the opportunity to meet with friends and colleagues. The nature of the meetings would involve having a party or just socialising.

During the partying, a braai would take place accompanied by eating and drinking. At least 20% of respondents within the 23-27 age groups stated that they would bring along a ball to play games when they met up to socialise.

An observation study was conducted to assess how the youth socialised in public open spaces. Three sites were visited, namely Bulwer Park, Albert Park and Durban Country Club Beach (figure 44). The analysis of the sites suggested that they were withing walkable distance, well maintained and popular social hotspots among the youth. The observations revealed that young people sat around in their vehicles or in camp chairs and chatted on smartphones while they ate and drank alcohol. For example, in Albert Park there was a soccer match in progress. Outside the football field, young people, predominantly male, were seen sitting around the field and some in groups drank alcohol while they watched the soccer match.

5.8.3 Physical Activity

At least thirty percent of the respondents indicated that they engaged in physical activities such as walking, jogging and group sport like soccer and netball. This cohort stated that elements of the built environment such as pavements facilitated walkability on public spaces. The female respondents stated that they "*feared being mugged by the feranjees"* (homeless people) and verbal harassment when they jogged in town was a limitation for them. They preferred jogging in groups, which provided additional security. Twenty percent of the female respondents indicated that they played netball to stay healthy and to keep physically active.

5.8.4 Accessibility of Public Open Spaces

The general perception of the respondents about the CBD of eThekwini suggested that they found the built environment in the CBD accessible. For example, the respondents stated, "*there were no restrictions in accessing public open spaces. One can just walk anywhere*". The city's departments endeavoured to make public open spaces accessible by designing a system of roads and paved walkways to enable cycling and walkability. Observation survey of the movement corridors in the CBD confirmed that, largely the

public infrastructure was maintained and functional. Similarly, Fermino, *et al*., (2013) argue that accessibility of public open spaces in urban surroundings promoted physical and emotional wellbeing. Further, there was positive association between physical activity and living close to public open spaces

5.8.5 Walking versus Driving for Transport

At least forty percent of the respondents stated that they preferred to drive a private vehicle than to walk when they went out to social hotspots such as the Durban Country Club Beach. Thirty percent of the female respondents stated that they preferred using their private cars than public transport. Private car was perceived as convenient and safe. Public transport, especially minibus taxis used different routes. As a result, they were perceived as unreliable to transport them to their intended destinations. Walking to social hotspots raised safety concerns about incidents of muggings and verbal harassment.

Twenty percent of the respondents did not own a vehicle. They stated that they would only use public transport to go to work but would catch a lift with friends in a private car to visit social hotspots. The evidence suggested that young people (females) preferred private transport to public transport and that walking to social hotspots was considered unsafe.

5.8.6 Fear of Street Kids (*Amaparah*)

The fear of muggings in the hands of homeless street kids informally known as "*amaparah"* in the streets of Durban, emerged as a strong barrier to physical activity among female respondents which prevented them from accessing and using public open spaces. According to respondents, street kids were notorious for targeting young women and children and mugging them of valuable items such as cell phones and money. The Quality-of-Life Survey (2015) found that many people had reported being victims of crime in the central business district of eThekwini.

The observation survey did not identify the alleged threat from street kids or homeless people. It must be noted that the observations took place during the day when passive surveillance of the neighbourhood from the daylight was high. The circumstances may be different in the evenings when it was darker and there were less people moving around.

5.8.7 Homelessness

Key informants indicated that homeless people who inhabited public parks posed a risk to neighbourhood amenity. For example, a key informant based at the Parks, Leisure and Cemeteries Department indicated that "*homeless people used park facilities such as water fountains to bath and do their laundry*". Such

behaviour was viewed in a negative light by the city and the public. The sight of homeless people bathing in public was "*considered a nuisance and unacceptable behaviour"* by communities living adjacent the public parks.

The conduct of homeless people had a negative effect on the community's use of public open spaces. It allegedly interfered with the community's right to visit and use public open spaces. The public's perception about homeless people was that of a nuisance that seemingly disturbed their peace and harmony.

5.8.8 Passive Surveillance and Visible Policing

Visible law enforcement emerged as a major concern among the respondents. They indicated that visible policing in the beach precinct had a positive effect on the perception of safety. As a result, the beach precinct was considered safe for walking and jogging. Respondents indicated that being aware that security personnel were patrolling in the background provided assurance that the area was safe for walking or jogging.

Bartolj & Slabe-Erker (2015:243) supports that view and argued that environmental factors in narrow geographical areas such as cities influenced levels of physical activity. Factors such as accessible, orderly, and safe environments such as parks were found to have a positive influence on the frequency of physical activity. In addition, Humbert, *et al*., (2006:468) stated that understanding the factors that affected physical activity participation among youth should address the features of physical activity at different levels such as behavioural influences, family support and environmental factors such as facilities. Essentially, to improve the levels of physical activity among the youth, factors such as safety, security and the condition of the environment were crucial considerations.

5.8.9 Sedentary Behaviour and Passive Lifestyle

A considerable proportion of respondents between the ages 28-32 and 33-35 years revealed that they enjoyed watching television or spent time using other technological devises such as computers and smartphones during their leisure time. The length of time respondents spent watching television was inconsistent with recommendations from the American Academy of Paediatrics (2001:258) which recommended that young people should view less than two hours of television each day.

The respondents stated that visiting social media platforms on their smartphones while snacking was their favourite pastime. The revelation was confirmed during observation surveys. It was observed that young

people were glued to their smartphones while they were outdoors with friends. And, Lear, *et al*., (2014:258) argues that there were linkages between ownership of common household devices and obesity and diabetes in high, middle, and low-income countries. Time spent watching television was also connected to poor diet and increased caloric intake. These observations confirmed that spending most time in sedentary activities has negative health consequences.

5.8.10 Awareness about the Benefits of Physical Activity

Judging from the responses, the respondents were aware of the positive benefits of physical activity. The responses did not correlate with their behaviour. The sedentary behaviour of the youth in their social settings contradicted their awareness. Observation surveys revealed that respondents did not fully participate in physical activities when outdoors. Observation evidence further suggested that respondents consumed fast foods and drank alcohol during their leisure time. The evidence was consistent with the revelation from a key informant based at the Primary Healthcare Centre, who revealed that young people ate foods that had a high salt and fat content. And, respondents acknowledged being aware of the negative effects of consuming fast foods because some had undergone wellness assessments at their workplaces which revealed adverse health outcomes.

5.8.11 Preference for Private Gym exercise over Public Spaces

Thirty percent of the respondents revealed that their feeling unsafe when exercising in the public open spaces was the reason they took up membership in a private gym. There was a perception, among the respondents in the 33-35 age group, that exercising in private gyms was safer because it occurred under a monitored environment. According to the respondents, the safety factor outweighed the cost implications of private gym. Respondents further stated that exercising outdoors was unsafe unless they were in the company of friends. Observation evidence from public spaces where outdoor gyms were installed revealed that the rate of use of the facilities was minimal. And, that corroborates the view that women felt vulnerable when exercising outdoors unless a group of friends accompanied them when jogging to create a safety cushion. The perception of unsafe public open spaces in the CBD appeared to be driving the youth, especially women, to take up private gym memberships.

5.8.12 Positive Attributes of the Built Environment in the CBD

Evidence from the key informants suggested that positive attributes of the built environment such as well-maintained public open spaces had positive social, economic, and cultural benefits.

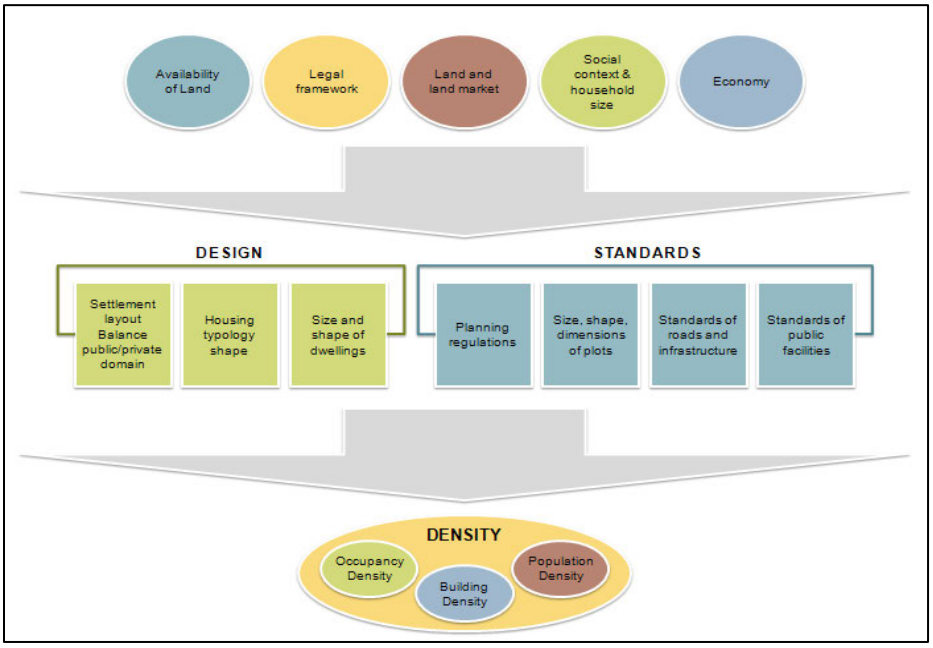
For example, the effect that public open spaces provided recreational spaces for young and old citizens of the city. Where facilities were provided, senior citizens could walk to public parks to unwind and reflect.

Similarly, young people could partake in various sporting activities such as soccer, basketball and netball. Furthermore, evidence from key informants suggested that public open spaces acted as the "*green lungs of the city"* (Jones, 2018). Benefits such as dilution of air pollution, beautifying the environment and attenuation against storm water and flood damage were derived from public open spaces. Economic and cultural opportunities such as trading spaces, hosting cultural events, and achieving social capital were positive attributes of the built environment.

5.8.13 Top-down Planning

Key informants revealed that technical considerations informed spatial distribution of public open spaces across the city. It was stated that legal frameworks, layout plans, housing densities, and land availability were central considerations in planning decisions. Furthermore, evidence from key informants suggested that technical requirements varied according to departmental mandates. Figure 50 illustrates the process flow of technical considerations that informed planning decisions in the Municipality.

Figure 50. Technical Planning Model, eThekwini Municipality



Source: eThekwini: City Density Strategy, 2013 (Accessed October 2016)

From the model, it appeared the public's participation in planning decisions was minimal. Seemingly, the public was involved after planning decisions, layout and development frameworks were developed. Depending on the nature and scale of the project, departmental collaboration was minimal, and not structured in a formal process.

In relation to capital expenditure to fund projects, public participation occurred after technocrats in the city had developed budget plans. Key informants indicated that budget allocations had an impact on development priorities. Social housing densification took priority over the provision of public amenities such as public open spaces, which were regarded as peripheral to the physical infrastructure.

5.8.14 Impact Assessment Processes

Key informants revealed that environmental and social impacts were the main criteria for assessing development proposals. For example, ecological issues such as biodiversity were the main consideration under the environmental impact assessment process. Protecting communities from industrial hazards was the focus under a social impact assessment. Evidence suggested that impact assessment processes were implemented as isolated departmental processes. There appeared to be no blueprint for collaboration and integration of the impact processes at a city scale. Key informants conceded that impact assessment processes were inward looking, focussing on departmental mandates. From the evidence, there was a gap in the impact assessment processes, which were largely technical and expert driven.

5.8.15 Planning for, rather than, with the community

Key informants revealed that the idea of building the outdoor gym infrastructure was first piloted by the city officials, ward councillor and a community of Bulwer suburb. It was after the Bulwer suburban community accepted the outdoor gym project that the city decided to rollout the concept to other communities around the city. The decision to rollout the outdoor gym infrastructure was noble because communities stood to benefit from the infrastructure . However, the Bulwer community nor the city did not represent other suburbs nor had the mandate to decide for them . The outdoor gym infrastructure was subsequently installed in other parks in the CBD such as Albert Park. The decision to rollout the infrastructure to other parks appeared to have excluded local residents living in those neighbourhoods.

Communities were complex and diverse. Kellett & Rofe (2009:47) argue that planning approaches should first assess local needs for open space provision because such needs differ according to socio-demographic and cultural factors, including the number of visitors to the area. Implying that different areas would need different approaches, distributions and types of open space provision.

Public engagement that met local needs and where local residents felt a sense of ownership would minimise vandalism and reduce ongoing maintenance costs of public infrastructure.

Decision makers in the city installed the facilities for the broader inner-city communities without an adequate public participation process with affected communities. The low rate of usage by communities and vandalism was a symptom of lack of community ownership. Therefore, planning for the community without their direct involvement in planning decisions, undermined the noble intentions of city plans.

5.8.16 Youth Behaviour in Public Open Spaces

Judging by how the study participants conducted themselves during their leisure time when they were outdoors, it could be surmised that behavioural ignorance of young people fuelled by lack of appreciation for the ecological benefits from public open spaces were symptoms of risky lifestyles. The sedentary lifestyle, consumption of foods high in salt and fat content, preoccupation with smartphones and binge drinking were consistent with a lifestyle that did not display appreciation for ecological capital of the built environment. In addition, such lifestyle choices predisposed the youth to risk factors associated with lifestyle diseases.

5.9 Synopsis of Main Findings

5.9.1 Safety Concerns about the Built Environment in the CBD

The study found that safety was a major concern among a substantial proportion of study participants. It was indicated that safety of the surroundings influenced their decision about time spent outdoors, which areas were preferred for social gatherings, and whether or not to venture outdoors for physical activities. The participants, especially females, raised concerns about muggings and stabbings ostensibly perpetrated by the notorious street kids in the city, whom they colloquially referred to as "*amaparah"*.

On the other hand, due to visible security on the promenade, the beachfront was considered a safe public space in which to partake in outdoor physical activities such as walking, jogging and social interactions. Fear of criminal acts were a reasonable concern because it had the potential of inflicting serious physical harm. In addition, fear of crime has a negative effect on the loss of quality of life. For example, Dolan & Peasgood (2007:123) argued that the fear of crime could have health and non-health losses. The non-health losses were related to changes in behaviour and a different view of society. While the health losses were the anxiety and stress that people experienced when they anticipated they may become a victim of crime. These losses resulted in the reduction in well-being and health.

5.9.2 Distribution and Quality of Public Open Spaces in the CBD

The study found that public open spaces were distributed evenly across the CBD, and their quality was found to be reasonable. Quality was assessed based on upkeep and maintenance, provision of recreational infrastructure and visible security, where it was applicable. The use of public open spaces depended on their quality. Similarly, Lee & Maheswaran (2011:218) argued that maintenance and availability of amenities affected the appeal of green spaces. People chose whether or not to use green spaces based on their features but also due to the condition of those facilities and their features. Essentially, public open places that were poorly maintained were less likely to attract many visitors and contributed to the perceived sense of lack of safety.

However, the key informants expressed concerns about how land for public open spaces was allocated on new planned developments across the city. Concerns stemmed from changes in land reallocation allegedly by developers to maximise housing developments on land that was originally earmarked as allotment for open spaces. City officials were adamant that developers altered layout plans for planned developments during the construction phase to increase their profit margins when submitting payment certificates to the city.

5.9.3 Vandalism

Key informants revealed that vandalism of outdoor furniture such as benches, bins, and recreational infrastructure such as outdoor gym equipment was a setback. It was financially costly to the city and in terms of resource reprioritisation that required funds for other programmes to be diverted to fund maintenance. According to the key informant, the money for maintenance could be used to improve service delivery in other areas but was instead diverted to repair vandalised equipment. It was not evident from officials as to who was responsible for the vandalism or whether adequate security was provided to safeguard the amenities .

Baughman (1971:3-15) argued that the costs of vandalism were not limited to physical repairs. The costs did not quantify the loss of use of the amenities to other people. Policy makers may indirectly encourage vandalism by accepting poor sites, facility design, and providing recreational opportunities that were futile to the intended users or failing to understand and relate to their needs. Therefore, a needs analysis and user engagement were important in securing the public's buy-in.

During observation surveys at the various sites, some users were seen misusing the gym equipment in the parks by placing bricks to balance weights. That malpractice was contrary to the user instructions that were clearly displayed on the equipment.

The key informants felt that users in particular and communities in general should take ownership of the infrastructure in public open spaces to guard against misuse and vandalism. After all, users benefited from the facilities and would be deprived if the facilities were vandalised. The ownership-by-user principle would be a realistic and sustainable approach to mitigate against vandalism as opposed to placing security personnel to police the area.

5.9.4 Health Impact Assessments

The study found limited evidence to suggest that health impact assessments were integrated in the decision-making processes during the assessment of development proposals or urban regeneration plans. It was found that each department that regulated the built environment applied assessment criteria that was unique to their portfolio. Although those criteria addressed some of the development objectives of the city in terms of the Integrated Development Plan (IDP). They did not seem to link the health impacts at a community, neighbourhood or city scales.

According to Edward & Tsouros (2006:14), conducting a health impact assessment would ensure that active living concerns were included in land use reviews and planning decisions. It would ensure that community planning addressed the impact on the residents' ability to engage in physical activity. Essentially, health impact assessments influenced the way healthy neighbourhoods were planned.

Health Impact Assessment (HIA) is an integrated approach tool that developed countries such as the United States and Canada apply to assess development proposals in order to design responsive built environments. The tool sought to align the assessment of development proposals or urban regeneration plans with the desired health objectives of the community and its residents. For example, when residential areas are located further away from recreational and commercial areas, people would have to depend on motor vehicles in order to access these amenities (Perdue, Stone & Gostin, 2003). To achieve desired outcomes using HIA as a tool, collaboration among various disciplines in the built environment was critical. Quantifying the attributes of the built environment such as walkability, accessibility and street connectivity was central in configuring space, which ultimately was crucial in determining the amount and nature of physical activity that residents could have in a neighbourhood (Koohsari, *et al*., 2013).

5.9.5 Did the Built Environment Enable or Limit Physical Activity?

According to study participants, "*parts of the city such as the promenade on the beachfront were suitable for walking, jogging and other physical activities*". That was made possible because of visible law enforcement on the beachfront, which made the environment feel safer. Hence, it was a popular hangout spot among the young people. Other elements of the built environment such as sidewalks, roads and sections of public parks were found to be responsive to physical activity. For example, there was visible warning signage on the roads and wide sidewalks to separate vehicular and pedestrian traffic.

Duncan, *et al*., (2014) state that a walkable built environment, with more sidewalks and less traffic density encouraged social interaction, playing, and walking among residents, and if used extensively, was therefore associated with a reduction in body mass index. Observation surveys that were conducted to assess the attributes of the built environment confirmed that the outdoor environment in the CBD was conducive to an active lifestyle. However, the users' behaviour and attitudes would enable them to derive positive health outcomes by actually engaging in physical activities.

The sidewalks were well maintained, and public parks were equipped with physical exercise infrastructure. Buck, *et al*., (2015:2) state that provision of and access to public open spaces was a valuable resource that promoted physical activity, which had positive health outcomes in relation to obesity, hypertension, and other heart-related risk factors. It could be surmised that the built environment in the CBD of eThekwini enabled physical activity.

5.9.6 Was the Youth Predisposed to the Risk Factors for Lifestyle Diseases?

Observation surveys conducted over the weekends on popular hangout spots for study participants revealed different but interlinking patterns of behaviour among young people. In Albert Park (figure 48), young people were seen engaging in group sport such as soccer. Their peers were sitting on the side lines and stands watching the game and drinking beer. On the weekdays, the Albert Park looked deserted with just a handful of the youth using the outdoor gyms.

A similar situation was observed at the Durban Country Club (figure 49) where young people were observed sitting in cars, playing music, drinking alcohol and smoking. They seemed oblivious of the sign boards warning against drinking in public. Young people stood around braai stands preparing meat, wearing headphones and chatting on cell phones.

The common theme that emerged from the observation surveys was that of young people eating, sitting and binge drinking. To contextualise the behaviour, young people were asked how they spent their leisure time. Feedback ranged from *"going out with friends to the shopping malls to shop for clothes or food; to meet up with friends to party".* Others stated that if they were not visiting friends*, "they sat at home and watched television"*.

The participants' observed behaviour and own admission were consistent with passive lifestyles. Lear, *et al*., (2014:258) argued that a reduction in the individual's amount of physical activity, sedentary behaviour and increased use of household devices, such as television, cell phones and motor vehicle, was positively associated with the increase in the prevalence of lifestyle diseases due to increased sitting time. In addition, spending time watching television was connected to poor diet and increase intake of calories.

The World Health Organisation (2013) identified four modifiable risk factors that were associated with chronic non-communicable diseases. The risk factors included tobacco use, physical inactivity, obesity, unhealthy diet and harmful use of alcohol. Almost all the risk factors were identified during observation studies in two of the observation sites.

Observation evidence and key informant admission that *"over the years, screening records showed a worrying increase in the incidence of hypertension and Type-2 diabetes among the youth who were screened at the at the local primary healthcare facility"*. The youths' sedentary lifestyle and irresponsible behaviour patterns predisposed them to the risk factors associated with lifestyle diseases.

5.10 Summary

The chapter described the study area in terms of demographics and age breakdown. It provided a profile of the study participants and key informants, and an overview of the observation sites. A behavioural profile of the target population was discussed. The chapter further presented the research findings and analysed the data. It provided a thematic analysis of the data collected from interviews with key informants and the target population. It discussed the various themes that emerged from the data. Lastly, it provided a synopsis of the study findings. The following chapter will discuss the recommendations, contribution to knowledge, make suggestions for further research and provide a conclusion for the study.

6.0 CHAPTER SIX RECOMMENDATIONS and CONCLUSION

6.1 RECOMMENDATIONS

The study found that positive attributes of the built environment such as residential density, land use mix, street connectivity and staying in neighbourhoods with high quality public open spaces enabled physical activity. Similarly, the study found that other characteristics of the built environment such inadequate lighting, inferior quality sidewalks and living in areas with social disorder such as drug dealing, crime and robberies limited young people from being physical active. In light of findings in chapter five, the following recommendations which have implications for policy design, collaborative planning, civic engagement, and law enforcement are submitted.

6.1.1 Collaboration in Policy Design and Streamlining Work Processes

Noting that planning decisions have a broader impact on social development in areas such as health and wellness, recreation, land use and transportation. Collaboration in developing a policy framework that underpinned the assessment of development proposals which affects the built environment, needs to be explored to include other related disciplines. Sectoral departments working in silos was identified as the cause of the contradictions and gaps in the assessment of development proposals and review of urban regeneration plans. The contradictions created gaps and scope overlaps which duplicated functions and caused resource wastages. For example, the work processes of the Parks, Leisure, and Cemeteries; Environmental Planning and Climate Protection and Botanical Gardens had functional overlaps. Streamlining of processes would reduce service delivery bottlenecks and reduce costs to the city and the taxpayer. A portfolio review is recommended to streamline service departments and cut out duplications. It is recommended that portfolios that have functional overlaps be consolidated to optimise the use of expertise and resources.

6.1.2 Collaborative Planning with Diverse Communities

Noting that eThekwini was a multicultural city and the youth comprised about 60% of the population. It was imperative that mechanisms were developed to ensure representation of youth interests in decision-making structures of the city. It is recommended that, where planning decisions would have a direct impact on the youth segment of the population, decision-makers should collaborate with youth representatives to ensure inclusivity and user acceptance of planned projects. Consultative processes about planned projects and programmes for the youth such as the installation of outdoor gym facilities,

should be communicated on the most appropriate media platform for the target population. It is hereby recommended that popular communication platforms such as social media and youth-centric channels are used to reach the target population.

6.1.3 Accessibility of Public Open Spaces in the Central Business District

Safety at public open spaces was found to be barrier to access among female respondents. Collaborative strategies with law enforcement agencies and sectoral departments need to be developed to create partnerships that would ensure a user-friendly built environment. Noting that the World Health Organisation (2013) identified walkability, accessibility, and safety as important social determinants of health. An indication that these attributes of the built environment must be present for public open spaces to be accessible.

Concerns around muggings at the hands of street kids did not only create physical limitations to young people from exploring the outdoors but also created a psychological limitation. The fear of attacks had psycho-social effects such as anxiety, stress and hostility which caused loss of quality of life. It is recommended that surveillance systems should be installed in the public realm to augment mobile law enforcement.

6.1.4 Assessing Levels of Physical Activity

The WHO developed the Global Physical Activity Questionnaire (GPAQ) as a standardised instrument with which to evaluate physical activity in a variety of environments such as home, work, school/college, and the neighbourhood. The study found that developing countries such as South Africa did not have reliable tools to collect data and assess levels of physical activity for its population. In the absence of reliable data to assess the levels and frequency of physical activity across different domains, it is recommended that the South Africa should adopt GPAQ instrument to generate baseline data for physical activity. The city should adopt globally recognised tools to evaluate the effectiveness of the built environment attributes in encouraging physical activity among young people.

6.1.5 Built Environment as a Health Intervention

Positive attributes of the built environment such as walkability, safety, accessibility, improved public transport and availability of destinations such as retail outlets were influential determinants to improve human health, well-being and to enhance social capital. For example, Kabisch, *et al*., (2017:67) state that provision of and improving access to urban green spaces improved mental and physical health. Effectively,

configuring the built environment by enhancing its positive attributes would provide population-wide positive health outcomes. The built environment could be a catalyst for an active lifestyle in the fight against the burden of lifestyle diseases such as overweight, type-2 diabetes and hypertension. The study found that the inner-city was saturated with fast-food outlets along transport corridors. Policymakers should regulate the saturation of the inner-city with food outlets that do not provide nutritional content. It is recommended that Health Impact Assessment (HIA) be integrated when assessing development proposals or reviewing urban regeneration plans in order to design responsive built environments.

6.1.6 Behavioural Revolution

As the study participants, the youth indicated being aware about their state of health and they had to do to improve their wellbeing. Responses such as "*feel bad about my state of health because I do exercise at all. I would like to cut down on eating junk*", summed up their state of wellbeing. The youth of eThekwini must spearhead a behavioural revolution that would be characterised by healthy eating and physical activity. They should make informed choices about irresponsible behaviours such as irresponsible consumption of alcohol and smoking .

6.1.7 Fear of Criminality

Criminal activity and fear of muggings had become a barrier to young people from exploring outdoor social life. To the extent that thirty percent of the study participants felt that the neighbourhood environment was unsafe and resolved to join private gyms to keep physically active. It is recommended that authorities should pay attention to the scourge of criminality that is slowly engulfing the inner-city. Collaborative strategies to eradicate criminal activity should be developed with multidisciplinary actors in urban regeneration to restore civic pride in the central business district.

6.1.8 The Menace of Homelessness: "*ama-parah*"

A study by the HSRC (2016) found that 3,933 homeless people lived on the streets of eThekwini. Homeless people have occupied public parks and other public spaces in the CBD. They were notorious for muggings and using drugs in public parks such the Albert Park, which earned notoriety as *Whoonga Park*.

Homelessness had become a menace to socio-economic development in the CBD of eThekwini. Homeless people, colloquially referred to as "*ama-parah*", have taken over public open spaces to the detriment of vulnerable sectors of the urban community such as the women and youth. Ignoring the threat posed by the growing population of homeless people on other urban dwellers would be tantamount to silently

denying spatial justice to other users of public open spaces. It is recommended that city authorities and civic organizations should create genuine partnerships, not as tokenism, to find solutions for and design programmes to address the menace of homelessness.

6.2 CONTRIBUTION TO KNOWLEDGE

The study sought to evaluate the impact of public open spaces on the prevalence of lifestyle diseases among the youth living in the Central Business District of eThekwini. It relied on qualitative research approaches to answer the research questions. The study was unique in that the built environment and its various elements became diagnostic tools for incidence and prevalence of lifestyle diseases in the city. It revealed that, by analyzing sedentary lifestyles and other behavioural patterns of young people, decision makers were able to predict the early onset of lifestyle diseases. It also revealed that it was possible to configure the built environment to enhance positive health outcomes for the individual, neighbourhood and community.

6.3 SUGGESTIONS FOR FURTHER STUDY

The following suggestions for further research are submitted:

- The spatial distribution of fast-food outlets in the central business district and their impact on consumption of junk food by the youth.
- The socio-economic drivers of homelessness in the city.

6.4 CONCLUSION

The study found that the Central Business District of eThekwini showed similar socio-economic problems that industrial cities in the 19th century faced. For example, chapter one discussed that the growth of industrial cities resulted in the influx of people migrating from the countryside to work and live in the cities, which resulted in communicable diseases due to overcrowding, unsanitary conditions, and air pollution (Perdue, *et al*. ,2003). The study also found that due to urban-rural settlement patterns, youth comprised about 66% of the population of eThekwini. Youth migrated to eThekwini, which contributed 65% to the GDP of Kwazulu-Natal, in search of studying and employment opportunities. The urban environment in which the youth resided contributed to lifestyle patterns that gave rise to the incidence of lifestyle diseases.

The study found that there was behavioural ignorance from the youth in how they behaved when outdoors. The youth did not appear mindful of the negative effects of their passive behaviour when in public open spaces. Their sedentary behaviour, being fixated on smartphones and consumption of foods with high salt and fat content, and binge drinking showed lack of appreciation of the ecological benefits from public open spaces. In chapter two, it was revealed in the state of health and wellness in eThekwini that current drinking ranged between 20%-30% and was higher among males in the 20-34 age groups.

The study revealed that the risk factors associated with lifestyle diseases such as tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol were modifiable and reversible. So, creating an enabling built environment would facilitate physical activity and potentially reverse the burden from lifestyle diseases. However, unless there was a behavioural change from sedentary behaviours towards a more active lifestyle, the youth would be burdened with chronic non-communicable diseases. The World Health Organization (2013) warned that lifestyle diseases, which affected the economically active population groups, were a global phenomenon with huge social and economic consequences if not controlled.

The study further found that the youth were predisposed to risk factors for lifestyle diseases. The sedentary leisure time behaviour, consumption of fast-foods, eating *shisa-nyama*, smoking and alcohol abuse, was credible evidence of their susceptibility. A key informant from a Primary Healthcare Centre confirmed that there was an increase in the diagnosed cases of lifestyle diseases: "*More and more young people were either overweight or obese from increased alcohol consumption and eating food with high salt and fat content*". In agreement, at least twenty percent of respondents, females in the 33-35 age group, revealed they were unhappy about their state of health: "*I get tired easily and sweat a lot when walking fast which never used to happen before when I was physically active. I would like to cut down on eating junk food because it makes me fat*".

The study found that the CBD of eThekwini had become obesogenic, that it was saturated with fast-food outlets along transport corridors, which inadvertently placed the fast-food menu on the eyes of young people. For example, the problem statement discussed that limited availability of supermarkets and recreational areas within walkable distances, and increased exposure to crime in urban neighbourhoods was associated with increased obesity. The findings placed the obligation on young people to consciously initiate a behavioural revolution towards healthy lifestyles.

In chapter two, it was revealed that integrating built environment characteristics such as land use planning and transportation encouraged physical activity and could reduce obesity. The study revealed that the built environment in general and public open spaces in particular had positive attributes to enhance social capital among young people living in the CBD of eThekwini. For example, the respondents believed that public open spaces were important to humans because they "*provided opportunities to socialise with friends and interact with other people*".

The findings correlate with studies from developed countries which found that through better design, the built environment would maximise opportunities for social interaction, and the creation of pedestrian friendly, walkable neighbourhoods with access to parks, public transport and retail outlets to enhance social capital.

The study further revealed that accessibility of public open spaces was two-dimensional. The first dimension related to the physical access to facilities or services where there was no demand for an admission fee. The second dimension had spatial justice implications where factors such gender, age, income, and class created psychological limitations to public spaces. The female study participants considered public open spaces physically accessible but felt vulnerable to muggings from street kids, *amaparah*, which created anxiety and stress from fear of becoming victims of crime when in public spaces.

The study also found that concerns about safety and security limited young people, especially women from accessing public open spaces. These concerns influenced decisions about walkability of public spaces, use of public transport and preference for private vehicles among the female respondents.

The study also identified homelessness as a threat to neighbourhood harmony. The respondents perceived homeless people in a negative light. Homelessness was blamed for adversely impacting the public's enjoyment of public open spaces. To the extent that thirty percent of female respondents felt that unsafe neighbourhood environment influenced their decision to take membership at private gyms to keep physically active.

The study also found that city authorities were aware about homelessness in the CBD, which had become a common feature of the cityscape of eThekwini. According to key informants, "*homeless people were attracted to public parks because they accessed clean drinking water and also washed their clothes*". Study participants alleged that homeless people displayed anti-social behaviour such as being involved in muggings and drug peddling in public spaces.

The causes of homelessness fell outside the scope of the study. Therefore, the study was unable to delve into the socio-economic drivers of homelessness in the city.

The study revealed that vandalism of outdoor furniture and misuse of recreational infrastructure was a financial setback to the city. Further, the loss of use of the facilities by patrons had far reaching implications for loss of health and wellness.

The study revealed that there was inadequate public participation process when decision-makers in the city decided on rolling out public infrastructure such provision of outdoor gym infrastructure to cater for social and recreational needs of young people. As a result, there was low rate of usage of the facilities by communities and vandalism due to the lack of sense of community ownership of the facilities.

The study found that public participation varied from low to poor participation on planning decisions. Key respondents felt that "*public participation was a contested subject*". Organised stakeholders such the Chamber of Commerce, Business and Property owners participated effectively where their interests were concerned in the city's development processes. For ordinary citizens, public participation appeared to be tokenism. More like a way of informing the public than seeking their contribution and recognizing them as critical stakeholders.

The study also revealed that a top-down planning approach informed decision making processes in eThekwini. Consideration of technical information such as legal frameworks, layout plans and housing densities were prioritized, which seemed to isolate communities for whom public infrastructure was intended. As a result, community buy-in and sense of civic pride on the public infrastructure such as the outdoor gym facilities, was missing.

The study also found that public open spaces were developed on residual land after housing developments had been prioritized. Densifying on housing units was prioritized over other public amenities. Left over space, which was unusable for other infrastructure developments was allocated as public open spaces . Private developers who owned or purchased large tracts of land were able to incorporate it within gated neighbourhoods and golf estates for exclusive use as open spaces by the estates.

The study revealed there was inadequate collaboration between the city's different functional departments, which negatively affected resource management and service delivery. Key informants admitted that impact assessment processes was conducted departmentally and therefore not very impactful when assessing urban regeneration plans.

However, key informants alluded to a Municipal Planning Tribunal which was supposed to have a holistic review of urban regeneration plans. Key informants agreed that intersectoral collaboration needed to be enhanced and strategies developed to include community health and wellness as spatial consideration on urban regeneration plans. Lastly, the study achieved its aim to evaluate whether the built environment, public open spaces in particular, in the Central Business District of eThekwini encouraged passive lifestyles among the urban youth.

REFERENCES

Abercrombie, P. (1937). Planning in Town and Country: Difficulties and Possibilities; an Inaugural Lecture in the Department of Town Planning, School of Architecture, University College, London. University Press of Liverpool. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Alexander, E. R. (1992). *Approaches to planning: Introducing current planning theories, concepts, and issues*. Taylor & Francis. Available at: http://www.googlescholar.com [Accessed 29 August 2020].

Allmendinger, P., & Tewdwr-Jones, M. (2002). The communicative turn in urban planning: Unravelling paradigmatic, imperialistic, and moralistic dimensions. *Space and polity*, [online] *6*(1): 5-24. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Andrews, L. & Wolf, K. (2015). Regional challenges overview paper: human health, November 2015. Regional Open Space Strategy, [online] Available at: http://www.psrc.org/assets/8345/item_5_ROSS_EC [Accessed 11 February 2016].

Bartolj, T., & Slabe-Erker, R. (2015). Differences in leisure time physical activity predictors in Europe. *Polish Sociological Review*, [online] 190(2):239-254. Available at: http://www.googlescholar.com [Accessed 20 October 2020].

Batchelor, P. (1969). The Origin of the Garden City Concept of Urban Form Author. *Journal of the Society of Architectural Historians*, October 1969, [online] 28(3):184-200. Published by: Available at: https://www.jstor.org/stable/988557 [Accessed 5 August 2020].

Batty, M. & Marshall, S. (2009). The evolution of cities: Geddes, Abercrombie, and the new physicalism. Centenary Paper. *The Town Planning Review,* [online] 80(6):551-574. Available at: http://www.researchgate.net/publication/250277131 [Accessed 20 February 2016].

Baughman, P. (1971). Vandalism and Its Prevention. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Baum-Snow, N. (2007). Did Highways cause suburbanization? *The Quarterly Journal of Economics,* May 2007, [online] 122(2):775–805. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Beauregard, R. A. (1989). Between modernity and postmodernity: the ambiguous position of US planning. *Environment and Planning D: Society and Space*, [online] *7*(4):381-395. Available at: http://www.googlescholar.com [Accessed 28 August 2020].

Belk, R. W. (1990). Participant Observation: A Methodology for Human Studies. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Belon, A. P., & Nykiforuk, C. (2013). Possibilities and challenges for physical and social environment research in Brazil: a systematic literature review on health behaviors. *Cadernos de saúde pública*, [online] *29*(10) 1955-1973. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Blair, N., Berry, J., & McGreal, S. (2007). Regional spatial policy for economic growth: lessons from the deployment of collaborative planning in Northern Ireland. *Urban Studies*, [online] *44*(3):439-455. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Block, J. P., Scribner, R. A., & DeSalvo, K. B. (2004). Fast Food, Race/Ethnicity, and Income. *American Journal of Preventive Medicine*, [online] *27*(3):211-217.Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Boehmer, T. K., Hoehner, C. M., Deshpande, A. D., Ramirez, L. B., & Brownson, R. C. (2007). Perceived and observed neighbourhood indicators of obesity among urban adults. *International journal of obesity*, [online] *31*(6): 968-977. Available at: http://www.googlescholar.com [Accessed 10 August 2020].

Bonita, R., Winkelmann, R., Douglas, K. A., & de Courten, M. (2003). The WHO Stepwise approach to surveillance (STEPS) of non-communicable disease risk factors. In *Global behavioural risk factor surveillance* (pp. 9-22). Springer, Boston, MA. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Bornstein, D.B., Pate, R.R., & Pratt, M. (2009). A review of the national physical activity plans of six countries. *Journal of Physical Activity and Health*, [online] 6 (Suppl 2):245-264. Available at: http://scholarcommons.sc.edu [Accessed 11 February 2016].

Bradshaw, D., Steyn, K., Levitt, N., & Nojilana, B. (2011). Non-communicable diseases–a race against time. *Cape Town: Medical Research Council South Africa*. Available at: http://www.googlescholar.com [Accessed 21 August 2020].

Brand South Africa. (2020). South Africa's economy: key sectors. Available at: https://brandsouthafrica.com/south-africa-economy-key-sectors/ [Accessed 15 July 2020].

Braveman, P., Egerter, S., & Williams, D. R. (2011). The Social Determinants of Health: Coming of Age. *Annu. Rev. Public Health*, [online] *32*:381-98. Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Britannica. (2016). Canada: History, Population, Immigration, Capital, and Currency. Available at: https://www.britannica.com/place/Canada [Accessed 20 November 2016].

Britannica. (2017). New Zealand: History, Map, Flag, Capital, Population, and Facts. Available at: https://www.britannica.com/place/New-Zealand [Accessed 12 August 2020].

Brown, C., & Grant, M. (2005). Biodiversity and human health: What role for nature in healthy urban planning?. *Built Environment*,[online] 31(4):326-338. Available at: http://www.googlescholar.com [Accessed 10 August 2020].

Brown, W., Bauman, A., Chey, T., Trost, S., & Mummery, K. (2004). Method: comparison of surveys used to measure physical activity. *Australian and New Zealand journal of public health*,[online] 28(2):128-134. Available at: http://www.googlescholar.com [Accessed 12 August 2020].

Buck, C., Kneib, T, Tkaczick, T., Konstabel, K. &Pigeot, I. (2015). Assessing opportunities for physical activity in the built environment for children: interaction between kernel density and neighbourhood scale. International Journal of Health Geography, [online] 14(35):1-16. Available at: http://www.biomedicalcentral.com [Accessed 12 August 2020].

Bull, F. C., Maslin, T. S., & Armstrong, T. (2009). Global physical activity questionnaire (GPAQ): nine country reliability and validity study. *Journal of Physical Activity and health*, [online] *6*(6):790-804. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Butler, C., G Capon, A., & Dixon, J. (2015). *Health of People, Places and Planet. Reflections based on Tony McMichael's four decades of contribution to epidemiological understanding*. ANU Press. Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Champion, T. (2001). Urbanization, suburbanization, counterurbanization and reurbanization. *Handbook of urban studies*, *160*, 1. Available at: http://www.googlescholar.com [Accessed 21 August 2020].

Christian,H.E., Bull,F.C., Middleton,N.J., Knuiman,M.W., Divitini,M.L., Hooper,P., Amarasinghe,A.& Gile-Corti,B. (2011). How important is the land use mix measure in understanding walking behaviour? Results from RESIDE study. International Journal of behavioural Nutrition and Physical Activity, [online] 8(55):1-12. Available at: http://ijnpa/org/content/8/1/55 [Accessed 20 November 2016].

Christopher, A. J. (1989). Spatial variations in the application of residential segregation in South African cities. *Geoforum*, [online] *20*(3):253-267. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Cohen, D. A., Scribner, R. A., & Farley, T. A. (2000). A structural model of health behavior: a pragmatic approach to explain and influence health behaviors at the population level. *Preventive medicine*, [online] *30*(2):146-154. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Collier, J. (1914.). City planning and the problem of recreation. The Annals of the American Academy of Political and Social Science, [online] 51:208-215. Available at: http://www.jstor/stable/101226 [Accessed 20 February 2016].

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Creese, W.L. (1995). The Search for Environment: The Garden City Before and After. *Utopian Studies*, [online] 6(1):135-138. Available at: https://www.jstor.org/stable/20719380 [Accessed 5 August 2020].

Day, P. L., Pearce, J. R., & Pearson, A. L. (2015). A temporal analysis of the spatial clustering of food outlets around schools in Christchurch, New Zealand, 1966 to 2006. *Public health nutrition*, [online] *18*(1): 135-142. Available through: http://www.googlescholar.com [Accessed 5 August 2020].

de Groot, R., van den Hurk, K., Schoonmade, L. J., de Kort, W. L., Brug, J., & Lakerveld, J. (2019). Urban-rural differences in the association between blood lipids and characteristics of the built environment: a systematic review and meta-analysis. *BMJ global health*, [online]*4*(1). Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Dear, M.J. (1986). Postmodernism and planning. *Environment and Planning B: Society and Space*, 1986, [online] 4(3): 367-384. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Demers, M. & Lapierre, L. (2012.) Free play outdoors an essential part of youth development. Québec Eforme, [online] 9 (Spring 2012):1-7. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Dendup, T., Feng, X., Clingan, S., & Astell-Burt, T. (2018). Environmental risk factors for developing type 2 diabetes mellitus: a systematic review. *International journal of environmental research and public health*, [online] *15*(1):78. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Department of Agriculture, Environmental Affairs and Rural Development. (2010). KwaZulu-Natal State of the Environment 2004: Socio-economic environment specialist report. KwaZulu-Natal Provincial Government: Pietermaritzburg.

Department of Health, Medical Research Council. (2007). South African Demographic and Health Survey 2003.Pretoria: Department of Health.

Ding, D., Lawson, K. D., Kolbe-Alexander, T. L., Finkelstein, E. A., Katzmarzyk, P. T., Van Mechelen, W., ... & Lancet Physical Activity Series 2 Executive Committee. (2016). The economic burden of physical inactivity: a global analysis of major non-communicable diseases. *The Lancet*, [online] *388*(10051):1311-1324. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Dolan, P., & Peasgood, T. (2007). Estimating the economic and social costs of the fear of crime. *British journal of criminology*, [online] *47*(1):121-132. Available at: http://www.googlescholar.com [Accessed 20 October 2020].

Douay, N. (2010). The emergence of a collaborative approach challenges Hong Kong's urban planning model. *China Perspectives*, [online] *2010.*(2010/1). Available at: http://www.googlescholar.com [Accessed 18 August 2020].

Duncan, D.T., Sharifi, M., Melly, S.J., Marshall, R., Sequist, T.D., Rifa-Shiman, S.L. & Taveras, E.M. (2014). Characteristics of walkable built environments and BMI *z*-scores in children: evidence from a large electronic health record database. Environmental Health Perspective, [online] 122:1359–1365. Available at: http://dx.doi.org/10.1289/ehp.1307704 [Accessed 2 May 2016].

Dunham, A. (1958). City planning: an analysis of the content of the master plan. *The Journal of Law and Economics*, [online] 1: 170-186. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Edward, P. & Tsouros, A. (2006). Promoting Physical Activity and Active Living in Urban Environments: the role of local governments. World Health Organisation, [online] Available at: http://www.euro.who.int/pubrequest [Accessed 20 November 2016].

Ellis, H., Chang, M. & Munnion, F. (2010). Spatial planning for health: A guide to embedding the Joint Strategic Needs Assessment in spatial planning, [online] Available at: http://www.googlescholar.co.za [Accessed 11 February 2016].

eThekwini Municipality. (2013). Imagine Durban: eThekwini Municipality Green Map, [online] Available at: http://www.imaginedurban.org [Accessed 24 October 2016].

eThekwini Municipality. (2016). Integrated Development Plan: Annual Review 2016/2017, [online] Available at: http://www.durban.gov.za/Resource_Centre/quality_life/Pages/default.aspx [Accessed 24 October 2016].

Eyler, C. E., & Rich, J. N. (2008). Survival of the fittest: cancer stem cells in therapeutic resistance and angiogenesis. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*, [online] *26*(17):2839. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

eThekwini Municipality. (2016). What is the Durban Open Metropolitan Open Space System?, [online] Available at: http://www.durban.gov.za/dmoss_tp_amendments [Accessed 17 February 2016].

Ewing, R., Handy, S., Brownson, R. C., Clemente, O., & Winston, E. (2006). Identifying and measuring urban design qualities related to walkability. *Journal of Physical Activity and Health*, [online] *3*(s1):S223-S240. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Fain, J.A. (2017). Reading, Understanding, and Applying Nursing Research. Second edition. FA Davis, Philadelphia PA.

Fainstein, S. S. (2000). New directions in planning theory. *Urban affairs review*, [online] *35*(4): 451-478. Available at: http://www.googlescholar.com [Accessed 18 August 2020].

Fainstein, S. S. (2011). Spotlight: Urban social movements, citizen participation, and trust networks. In *Contention and trust in cities and states* (pp. 175-178). Springer, Dordrecht. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

FAIRBURN, J., Walker, G., & Smith, G. (2005). Investigating environmental justice in Scotland: links between measures of environmental quality and social deprivation. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Fermino, R.C., Reis, R.S., Hallal, P.C. & Junior, J.C. (2013). Perceived environment and public open space: a study with adults from Curitiba, Brazil. International Journal of Behavioural Nutrition and Physical Activity, [online] 10(35):1-10. Available at: http://www.ijbnpa.org/content/10/1/35. [Accessed 20 November 2016].

Filion, P. (1999). Rupture or continuity? Modern and postmodern planning in Toronto. *International journal of urban and regional research*, [online] *23*(3):421-444. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Fischer, F., Forester, J., Hajer, M. A., Hoppe, R., & Jennings, B. (1993). *The Argumentative Turn in Policy Analysis and Planning*. Durham, NC: Duke University Press.

Flynn, K. J., & Fitzgibbon, M. (1998). Body images and obesity risk among black females: a review of the literature. *Annals of behavioural medicine*, [online] *20*(1):13-24. Available at: http://www.googlescholar.com [Accessed 10 September 2020].

Flyvbjerg, B. (1998). Habermas and Foucault: thinkers for civil society?. *British Journal of Sociology*, [online] 210-233. Available at: http://www.googlescholar.com [Accessed 10 August 2020].

Foley, J., & Lauria, M. (2000). Plans, planning and tragic choices. *Planning Theory & Practice*, [online] *1*(2): 219-233. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Friedmann, J. (1989). The dialectic of reason. *International Journal of Urban and Regional Research*, [online] 13(2):217-236. Available at: http://www.googlescholar.com [Accessed 10 August 2020].

Frumkin, H. (2002). Urban sprawl and public health. Public Health Reports, May-June 2002, [online] 117:201-217. Available at: http://www.cdc.gov.healthyplaces/ [Accessed 20 February 2016].

Fulton, S. Krainovich-Miller, B. (2010). Gathering and appraising the literature. In LoBiondo-Wood G, Haber J (Eds) Nursing Research: Methods and Critical Appraisal for Evidence-Based Practice. Seventh edition. Mosby Elsevier, St Louis MO.

Gartman, D. (1998). Postmodernism; or, The cultural logic of post-Fordism? *The Sociological Quarterly*, [online] 39(1):119-137. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Geddes, P. (1913). Two Steps in Civics: "Cities and Town Planning Exhibition" and the "International Congress of Cities",: Ghent International Exhibition, 1913. *The Town Planning Review*, [online] *4*(2): 78-94. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Gidlow, C., Johnston, L. H., Crone, D., Ellis, N., & James, D. (2006). A systematic review of the relationship between socio-economic position and physical activity. *Health Education Journal*, [online] *65*(4), 338-367. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Giles-Corti, B., Vernez-Moudon, A., Reis, R., Turrell, G., Dannenberg, A. L., Badland, H., ... & Owen, N. (2016). City planning and population health: a global challenge. *The lancet*, [online] *388*(10062):2912-2924. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Global Web Index. (2016). Young adults spending over three hours a day on smartphones. India New England News, 5 May, [online]. Available at: http://www.indianewengland.com/2016/05/young-adults-spending three hours-smartphones [Accessed 11 October 2016].

Godbey, G. (2009). Outdoor recreation, health, and wellness: Understanding and Enhancing the Relationship. Resources for the Future, [online] 9(21):1-42. Available at: http://www.rff.org [Accessed 20 February 2016].

Gold, J.R. (2006). The making of a megastructure: architectural modernism, town planning and Cumbernauld's Central Area, 1955–75. *Planning Perspectives* (April 2006), [online] 21:109-131. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Government Communication and Information Service. (2015).Draft National Youth Policy, 2014-2019: No. 38393. Available at: https://www.gov.za/sites/default/files/gcis [Accessed 2 May 2016].

Green, H. (2014). Use of theoretical and conceptual frameworks in qualitative research. *Nurse Researcher*, [online] 21(6): 34-38. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Gualini, E. (2004). Integration, diversity, plurality: territorial governance and the reconstruction of legitimacy in a European 'postnational'state. *Geopolitics*, [online] *9*(3):542-563. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1,9 million participants. *The lancet global health*, [online] *6*(10):e1077-e1086. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Haar, C. M. (1955). The master plan: An impermanent constitution. *Law and Contemporary Problems*, [online] *20*(3):353-418. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Habermas, J. (1996). Modernity: An Unfinished Project. In *Habermas and the Unfinished Modernity Project,* edited by Maurizio Passerin d'Entrèves. London: Polity Press. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Hajer, M. A. (2002). Discourse coalitions and the institutionalization of practice: the case of acid rain in Great Britain. In *Argument Turn Policy Anal Plan* (pp. 51-84). Routledge. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., Ekelund, U., & Lancet Physical Activity Series Working Group. (2012). Global physical activity levels: surveillance progress, pitfalls, and prospects. *The lancet*, [online] 380(9838):247-257. Available at: http://www.googlescholar.com [Accessed 21 August 2020].

Harrison, P. (1996). Postmodernism confronts planning: some thoughts on an appropriate response. *Town and Regional Planning*, April 1996, [online] 40:26-34. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Haselwandter, E. M., Corcoran, M. P., Folta, S. C., Hyatt, R., Fenton, M., & Nelson, M. E. (2015). The built environment, physical activity, and aging in the United States: A state of the science review. *Journal of aging and physical activity*, [online] *23*(2):323-329. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., ... & Bauman, A. (2007). Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*, [online] *116*(9):1081. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Hatuka, T. & Alexander, D. (2007). Postmodernism: Readdressing the Role of Utopia in Urban Design and Planning. *Places*, [online] 19(2):19-27. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Healey P (1993). Planning through debate: The communicative turn in planning theory. In: Fisher, F. & Forester, J. (eds) *The Argumentative Turn in Policy Analysis and Planning* (pp 121–148). Durham, NC: Duke University Press. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Healey, P. (1992). Planning Through Debate: The Communicative Turn in Planning Theory. *Town Planning Review,* [online] 63(2):143–162. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Healey, P. (1996). Planning through debate: The Communicative turn in Planning Theory. In: Campbell and Fainstein, S.S. (eds.) *Readings in planning theory*, Oxford: Blackwell, 234-257.

Healey,P.(1997).*Collaborative planning*. Hampshire: Macmillan. Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Heaton, J. (2008). Secondary analysis of qualitative data: An overview. *Historical Social Research*, [online] 33(3):33-45. Available at: http://www.googlescholar.com [Accessed 7 September 2020].

Hills, A. P., King, N. A., & Armstrong, T. P. (2007). The contribution of physical activity and sedentary behaviours to the growth and development of children and adolescents. *Sports medicine*, [online] *37*(6), 533-545.

Hirt, S. (2002) Postmodernism and planning models. *Critical Planning*, [online] 2-13. Available at: http://archive.spia.vt.edu [Accessed 12 February 2016].

Hirt, S. (2002). Postmodernism and planning models. *Critical Planning*, *9*(Summer), [online] 116-127. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Hirt, S. A. (2005). Toward postmodern urbanism? Evolution of planning in Cleveland, Ohio. *Journal of Planning Education and Research*, [online] *25*(1):27-42. Available at: http://www.googlescholar.com [Accessed 29 August 2020].

HLW. (1920). Municipal Zoning. *Michigan Law Review*, [online] 191-202. Available at: http://www.googlescholar.com [Accessed 27 August 2020].

Hobson, J. (1999). New Towns, The Modernist Planning Project and Social Justice: The case of Milton, Keynes, UK and 6th October, Egypt, Working Paper No.108 [online], United Kingdom: University College London. Available at: http://www.ebscohost.com [Accessed 20 February 2016].https://www.businessdictionary.com

Holdar, G. G., Zakharchenko, O., Natkaniec, A., Dihtyar, T., & Piontkivska, I. (2002). People's Voice Project International Centre for Policy Studies. *Kyiv, Ukraine: iMedia Ltd*. Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Howe, E. (1990). Normative ethics in planning. *Journal of Planning Literature*, [online] *5*(2): 123-150. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Howe, F. C. (1912). The city as a socializing agency: The physical basis of the city: The city plan. *American Journal of Sociology*, *17*(5): 590-601. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, [online] *15*(9): 1277-1288. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Hu, F. (2008). *Obesity epidemiology*. Oxford University Press. Available at: http://www.googlescholar.com [Accessed 12 August 2020].

Humbert, M. L., Chad, K. E., Spink, K. S., Muhajarine, N., Anderson, K. D., Bruner, M. W., ... & Gryba, C. R. (2006). Factors that influence physical activity participation among high-and low-SES youth. *Qualitative health research*, [online] *16*(4): 467-483. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Huxley, M., & Yiftachel, O. (2000). New paradigm or old myopia? Unsettling the communicative turn in planning theory. *Journal of planning education and research*, [online] *19*(4): 333-342. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Hyde, F.E. (1947). Utilitarian Town Planning 1825-1845. The Town Planning Review, [online] 19(3/4):153-159: Liverpool University Press. Available at: https://www.jstor.org/stable/40101894 [Accessed 2 September 2020].

Imenda, S. (2014). Is There a Conceptual Difference between Theoretical and Conceptual Frameworks? *Journal of Social Sciences*, [online] 38(2):185-195. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Irving, A. (1993). The modern/postmodern divide and urban planning. *University of Toronto, Quarterly,* [online] 62(4):474-487. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Jacobs, J. (1961). Jane Jacobs. *The Death and Life of Great American Cities*, [online] 21(1):13-25. Available at: http://www.googlescholar.com [Accessed 11 February 2016].

Jameson.F. (1984). Postmodernism or the cultural logic of late capitalism. *New Left Review*, [online] 146:53-92. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Jennings, V., Johnson Gaither, C., & Gragg, R. S. (2012). Promoting environmental justice through urban green space access: A synopsis. *Environmental Justice*, [online] *5*(1):1-7. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Jones, H., Freudenburg, N. & Mongiello, L. (2011). Modelling BMI, Dietary Habits, and Physical Activity among Ethically Diverse Urban College Students. Journal of Health Disparities Research and Practice, [online] 8(2):61-74. Available at: http://digitalscholarship.unlv.edu/jhdrp/ [Accessed 20 November 2016].

Jones, K. R. (2018). 'The Lungs of the City': Green Space, Public Health, and Bodily Metaphor in the Landscape of Urban Park History. *Environment and History*, [online] *24*(1): 39-58. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Kabisch, N., Korn, H., Stadler, J., & Bonn, A. (2017). *Nature-based solutions to climate change adaptation in urban areas: Linkages between science, policy, and practice*. Springer Nature. Available at: http://www.googlescholar.com [Accessed 13 November 2020].

Kawachi, I., Kennedy, B. P., & Glass, R. (1999). Social capital and self-rated health: a contextual analysis. *American journal of public health*, [online] *89*(8):1187-1193. Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Kellett, J. E., & Rofe, M. W. (2009). *Creating active communities: How can open and public spaces in urban and suburban environments support active living?: A literature review* (Doctoral dissertation, Institute for Sustainable Systems and Technologies, University of South Australia). Available at: http://www.googlescholar.com [Accessed 20 October 2020].

Kitchin, R. & Tate, N.J. (2013). Conducting Research in Human Geography: Theory, Methodology and Practice. New York: Routledge.

Kjeldgaard, D., & Askegaard, S. (2006). The glocalization of youth culture: The global youth segment as structures of common difference. *Journal of consumer research*, [online] *33*(2):231-247. Available at: http://www.googlescholar.com [Accessed 15 September 2020].

Kolbe-Alexander, T.L., Pacheco, K., Tomaz, S.A., Karpul, D. & Lambert, E.V. (2015). The relationship between the built environment and habitual levels of physical activity in South African older adults: a pilot study. BMC Public Health, [online] 15(518):1-9. Available at: http://www.biomedical.com [Accessed 20 November 2016].

Koohsari, M.J., Kaczynski, A.T., McCormack, G.R. & Sugiyama, T. (2014). Using Space Syntax to Assess the Built Environment for Physical Activity: applications to research on parks and public open spaces. *Leisure Sciences*, [online] 36:206-216. Available at: http://Taylor&francis.com/ [Accessed 20 November 2016].

Lacey, A. (2010). The research process. In Gerrish K, Lacey A (Eds) The Research Process in Nursing. Sixth edition. Wiley-Blackwell, Chichester.

Lachowycz, K. & Jones, A.P. (2011). Green space and obesity: a systematic review of the evidence. Obesity Review, [online] 12:183-189. Available at: http://researchgate.net [Accessed 20 November 2016].

Lear, S.A., Teo, K., Gasevic, D., Zhang, X., Porier,P.P., Rangarajan, S., Seron, P., Kelishadi, R., Tamil, A.M., Kruger, A., Iqbal, R., Swidan, H., Gomez-Arbelaez, Yusuf, R., Chifamba, J., Kutty, V.R., Karsidag, K., Kumar, R., Li, W., Szuba, A., Avezum, A., Diaz, R., Anand, S.S., Rosengren, A. & Yusuf, S. (2014). The association between ownership of common devices, obesity and diabetes in high, middle and low-income countries. *Canadian Medical Association Journal*, [online] 186(4):258-266. Available at: http://wwwcmaj.ca [Accessed 20 November 2016].

Lee, A. C., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of public health*, [online] *33*(2):212-222. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Lee, I. M., & Skerrett, P. J. (2001). Physical activity and all-cause mortality: what is the dose-response relation?. *Medicine and science in sports and exercise*, [online] *33*(6; SUPP):S459-S471. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Lee, R. E., & Cubbin, C. (2002). Neighborhood context and youth cardiovascular health behaviors. *American journal of public health*, [online] *92*(3): 428-436. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Liehr, P. & Smith, M.J. (1999). Middle range theory: Spinning research and practice to create knowledge for the new millennium. *Advances in Nursing Science*, [online] 21(4): 81-91. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Linn, S., & Golin, J. (2006). Beyond commercials: How food marketers target children. *Loy. LAL Rev.*, *39*(13). Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Long, J.F. (1981). *Population Deconcentration in the United States*. Special Demographic Analysis CDS-81-5. Washington, DC: US Government Printing Office.

Macdonald, L., Cummins, S., & Macintyre, S. (2007). Neighbourhood fast food environment and area deprivation—substitution or concentration?. *Appetite*, [online] *49*(1): 251-254. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Mabin, A., & Smit, D. (1997). Reconstructing South Africa's cities? The making of urban planning 1900–2000. *Planning perspectives*, [online] *12*(2): 193-223. Available at: http://www.googlescholar.com [Accessed 21 August 2020].

Mack, N. (2005). Qualitative research methods: A data collector's field guide. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Mathison, S. (1988). Why triangulate?. *Educational researcher*, [online] *17*(2): 13-17. Available at: http://www.googlescholar.com [Accessed 15 September 2020].

Maylam, P. (1995). Urban Change in Southern Africa. Journal of Southern African Studies, [online] 21(1):19-38. Available at: http://www.jstor.org/stable/2637329 [Accessed 20 November 2016].

Maylam, P. (1995). Explaining the apartheid city: 20 years of South African urban historiography. *Journal of Southern African Studies*, [online] *21*(1): 19-38. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Mays, N. & Pope, C. (1995). Rigour and qualitative research. *British Medical Journal*, [online] 311: 109-112. Available at: https://www.jstor.org/journal/bmjbritmedj [Accessed 11 February 2016].

Mazumdar, S., Learnihan, V., Cochrane, T., & Davey, R. (2018). The built environment and social capital: A systematic review. *Environment and Behaviour*, [online] *50*(2):119-158. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

McDowell, L. M. (2000). Women, Men, Cities. *Handbook of Urban Studies*, 206.

Medical Research Council. (2013). An overview of chronic diseases of lifestyle. Available at: http://www.mrc.ac.za [Accessed 20 February 2016].

Melis, G., Gelormino, E., Marra, G., Ferracin, E., & Costa, G. (2015). The effects of the urban built environment on mental health: A cohort study in a large northern Italian city. *International journal of environmental research and public health*, [online] *12*(11): 14898-14915. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Micklesfield, L.K., Pedro, T.M., Kahn, K., Kinsman, J., Pettifor, J.M., Tollman, S. & Norris, S.A. (2014). Physical Activity and Sedentary behaviour among adolescents in rural South Africa: levels patterns and correlates. Biomedical Central Public Health, [online] 14(40):1-10. Available at: http://biomedcentral.com/1471-2458/14/40 [Accessed 20 November 2016].

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Milroy, B.M. (1991). Into Postmodern Weightlessness. *Journal of Planning Education and Research*, [online] *10*(3):181-187. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Miro, A., Kishchuk, N. A., Perrotta, K., & Swinkels, H. M. (2015). Healthy Canada by Design CLASP: Lessons learned from the first phase of an intersectoral, cross-provincial, built environment initiative. *Canadian Journal of Public Health/Revue canadienne de santé publique*, [online]*106*(1), eS50-eS58. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Moffett, S., & Freund, B. (2004). Elite formation and elite bonding: social structure and development in Durban. In *Urban Forum,* [online] 15(2):134-161). Springer-Verlag. Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Monclus, J. & Medina, C.D. (2016). Modernist housing estates in European cities of the Western and Eastern Blocs. *Planning Perspectives*, [online] 31(4):533–562. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Mottier, V. (2005). The interpretive turn: History, memory, and storage in qualitative research. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, [online] 6(2). Available at: http://www.googlescholar.com [Accessed 8 September 2020].

Mulder, R. P. (2015). An evaluation of an alternative provincial approach to the spatial (re) development process in the participation society evaluating the province of Noord-Brabant programme,'Mijn Mooi Brabant'. Available at: http://www.googlescholar.com [Accessed 24 July 2020].

Muniady, R., Mamun, A., Permarupan, P.Y, Zainol, N.R.B. (2014). Factors Influencing Consumer Behaviours: A study among University Students in Malaysia. *Asian Social Science*, [online] 10(9):18-25. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Nations Online. (2016). Canada-Country profile: Nations Online project. Available at: https://www.nationsonline.org>oneworld>Canada [Accessed 17 October 2016].

Nations Online. (2016). Republic of Kenya-Country profile: Nations Online Project. Available on: https://www.nationsonline.org/oneworld/kenya.htm [Accessed 2 May 2016].

Nilsson, A., Andersen, L. B., Ommundsen, Y., Froberg, K., Sardinha, L. B., Piehl-Aulin, K., & Ekelund, U. (2009). Correlates of objectively assessed physical activity and sedentary time in children: a cross-sectional study (The European Youth Heart Study). *BMC public health*, [online] *9*(1): 322. Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Northridge, M. E., & Freeman, L. (2011). Urban planning and health equity. *Journal of Urban Health*, [online] *88*(3):582-597. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Northridge, M. E., Sclar, E. D., & Biswas, P. (2003). Sorting out the connections between the built environment and health: a conceptual framework for navigating pathways and planning healthy cities. *Journal of Urban Health*, [online] *80*(4):556-568. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Nyoka, A. & Lekalake, R. (2015). Improving prospects for South Africa's youth: Education, vocational training still key priorities. Available at: http://www.googlescholar.com [Accessed 15 September 2020].

Oliveira, M., Bitencourt, C., Teixeira, E., & Santos, A. C. (2013). Thematic content analysis: Is there a difference between the support provided by the MAXQDA® and NVivo® software packages. In *Proceedings of the 12th European Conference on Research Methods for Business and Management Studies*, [online] 304-314. Available at: http://www.googlescholar.com [Accessed 7 September 2020].

Oliveira, M., Bitencourt, C.C., dos Santos, A.C.M.Z. & Teixeira, E.K. (2016). Thematic Content Analysis: Is there a difference between the support provided by the MAXQDA and NVIVO software packages. *Brazil Journal of Management*, [online] 9(1):72-82. Available at: https://www.researchgate.net [Accessed 17 October 2016].

Olmsted, F.L. (1914). The town planning movement in America. *The annals of the American Academy of Political and Social Sciences*, [online] 51:172-181. Available at: http://www.jstor.org/stable/1012261 [Accessed 20 February 2016].

Oosthuizen, M. A., Jinabhai, C. C., Terblanche, A. P., & Becker, P. J. (2008). A transition in health status from childhood to adulthood and associated lifestyle risk factors: a 13-year interval follow-up study in South Africa. *International Journal of Environmental Health Research*, [online] *18*(1):65-72.Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Oyeyemi, A.L., Ishaku, C.M., Oyekola, J., Wakawa, H.D. Lawan, A., Yakubu, S. & Oyeyemi, A.Y. (2016). Patterns and associated factors of physical activity among adolescents in Nigeria. PLOS ONE, [online] 11(2):1-16. Available at: http://www.ncbi.nlm.hih.gov/pmc/articlesPMC4762937 [Accessed 20 November 2016].

Paddison, R. (2001). Communities in the city. *Handbook of urban studies*, 194-205. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Palys, T. (2008). Purposive Sampling. In: Given, L.M. (Ed.) *The sage Encyclopaedia of Qualitative Research Methods*, [online] 2:697-698.Sage: Los Angeles. Available at: https://www.googlescholar.co.za [Accessed 8 June 2016].

Pamar, A. (2002). Global youth united: homogeneous group prime target for US marketers. *Marketing News*, [online] *28:*1-49. Available at: http://www.googlescholar.com [Accessed 15 September 2020].

Pandeya, G. P. (2015). DOES CITIZEN PARTICIPATION IN LOCAL GOVERNMENT DECISION-MAKING CONTRIBUTE TO STRENGTHENING LOCAL PLANNING AND ACCOUNTABILITY SYSTEMS? AN EMPIRICAL ASSESSMENT OF STAKEHOLDERS' PERCEPTIONS IN NEPAL. *International Public Management Review*, [online] *16*(1). Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Parahoo, K. (2006). Nursing Research: Principles, Process, and Issues. Second edition. Palgrave Macmillan, Basingstoke. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Parker, W., Steyn, N.P., Levitt, N.S. & Lombard, C.J. (2012). Health promotion services for patients having non-communicable diseases: feedback from patients and healthcare providers in Cape Town, South Africa. Biomedical Central Public Health,[online] 12(503):1-10. Available at: http://biomedcentral.com/1471-2458/14/40 [Accessed 20 November 2016].

Parnell, S., & Pieterse, E. (1999). Developmental local government: the second wave of post-apartheid urban reconstruction. *Africanus*, [online] *29*(2): 61-85. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Patton, M. Q. (2002). Qualitative research and evaluation methods. Thousand Oaks. *Cal.: Sage Publications*. Available at: http://www.googlescholar.com [Accessed 15 September 2020].

Pearce, J. R., & Maddison, R. (2011). Do enhancements to the urban built environment improve physical activity levels among socially disadvantaged populations?. *International journal for equity in health*, [online] *10*(1): 1-9. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Peer,N., Bradshaw,D., Laubscher,R., Steyn,N., & Steyn,K., (2013). Urban-rural and gender differences in tobacco and alcohol use, diet, and physical activity among black South Africans between 1998 and 2003.*Global Health Action*, [online] 6(1):19216. Available at: http://dx.org/10.10.3402/ghav6i019216 [Accessed 20 November 2016].

Perdue, W.C., Stone, L.A., & Gostin, L.O. (2003). The built environment and its relationship to public's health. The legal framework. *American Journal of Public Health*, [online] 93(9):1390-1394. Available at: http://www.scholarship.richmond.edu/law-faculty-publication[Accessed 20 February 2016].

Pickett, K. E., & Pearl, M. (2001). Multilevel analyses of neighbourhood socioeconomic context and health outcomes: a critical review. *Journal of Epidemiology & Community Health*, [online] *55*(2):11-122. Available at: http://www.googlescholar.com [Accessed 20 November 2016].

Pikturniene,I.,Urbonavicius,S. (2014). Spending and Savings Patterns of Two Consumer Age Groups during Economic Downturn and Recovery of 2009-2011.*Ekonomika*, [online] 93(4):72-84. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of counselling psychology*, [online] *52*(2): 137. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Pride and Joy Consultants. (2015). eThekwini Municipal Services and Living Conditions Survey: Four-year Trend Report, [online] Available at: http://www.durban.gov.za/Resource-Centre/quality-life/Pages/default.aspx [Accessed 14 October 2016].

Puoane, T., Tsolekile, L., Sanders, D., & Parker, W. (2003). Chronic non-communicable diseases. Health Systems Trust, [online] Available at: http://www.hst.org.za/uploads/files/cha5_8 [Accessed 20 February 2016].

Quebec Enforme. (2012). Free play outdoors: an essential part of youth development, [online] Available at: http://www.quebecenforme.org/media/103610/09_research_summary [Accessed 20 February 2016].

Ramya, N. & Ali, S.A.M. (2016). Factors affecting consumer Buying Behaviour. *International Journal of Applied Research,* [online] 2(10):76-80. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Rani, P. (2014). Factors influencing consumer behaviour. *International Journal of Current Research and Academic Review,* [online] 2(9):52-61.Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Razak, M.I.M.,Abidin,N.E.,Yusof,M.A.M.,Sakarji,S.R.,Nor,K.M. (2014). Spending Trends among Youth in Mayasia. *Journal of Economics and Development Studies*, March 2014,[online] 2(1) :277-288. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Rech, C. R., Reis, R. S., Hino, A. A. F., Rodriguez-Añez, C. R., Fermino, R. C., Gonçalves, P. B., & Hallal, P. C. (2012). Neighbourhood safety and physical inactivity in adults from Curitiba, Brazil. *International Journal of Behavioural Nutrition and Physical Activity*, [online] *9*(1):72.Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Reddy, S.P., James, S., Sewpaul, R., Koopman, F., Funani, N.I., Sifunda, S., Josie, J., Masuka, P., Kambaran, N.S., & Omardien, R.G. (2010). Umthente uhlaba usamila: The 2nd South African Youth Risk Behaviour Survey 2008.Cape Town: South African Medical Research Council, 2010. Available at: http://www.mrc.ac.za/healthpromotion/healthpromotion.htm

Republic of South Africa, National Planning Commission. (2013). National Development Plan 2030 Our Future –make it work. Department of the Presidency: Pretoria.

Robinson, D. (2011). Modernism at a Crossroad: The Spadina Expressway Controversy in Toronto, Ontario ca. 1960–1971. *The Canadian Historical Review*, June 2011, [online] 92(2):295-322. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Roszkowska-Holysz, D. (2013). Determinants of Consumer Purchasing Behaviour. *Management*, [online] 17(1):334-346. Available at: http://www.scholar.google.co.za [Accessed 20 November 2016].

Royal Haskoning DHV. (2013). eThekwini City Density Strategy, Final Report.6 May 2013,[online] Available at: http://www.durban.gov.za/Resource_Centre/quality_life/Pages/default.aspx [Accessed 17 October 2016].

Sandercock, L. (1998a). *Towards Cosmopolis*, Chichester: John Wiley, [online] Available at: http://www.googlescholar.com [Accessed 20 August 2020].

Sander-Regier, R. & Etowa, J. (2014). Urban green spaces as a public health resource: lessons from Ottawa's Fletcher Wildlife Garden. *International Journal of Health, Wellness and Society*, [online] 5:2-10. Available at: http://www.healthandsociety.com [Accessed 25 April 2016].

Schaefer, M.; Heinze, H-J.; Rotte, M. & Denke, C. (2013). Communicative versus Strategic Rationality: Habermas Theory of Communicative Action and the Social Brain. *PLoS ONE,* [online] 8(5): 1-7. Available at: http://www.googlescholar.com [Accessed 15 August 2020].

Shephard, R. J., Lankenau, B., Pratt, M., Neiman, A., Puska, P., Benaziza, H., & Bauman, A. (2004). Physical activity policy development: a synopsis of the WHO/CDC consultation, September 29 through October 2, 2002, Atlanta, Georgia. *Public health reports*, [online] *119*(3):346-351. Available at: http://www.googlescholar.com [Accessed 12 August 2020].

Soltani, E., Azadegan, A., Liao, Y. Y., & Phillips, P. (2011). Quality performance in a global supply chain: finding out the weak link. *International Journal of Production Research*, [online] *49*(1): 269-293. Available at: http://www.googlescholar.com [Accessed 20 October 2020].

South African Medical Research Council. (2013). An overview of Chronic Diseases of Lifestyle. *South African Medical Research Council,* [online]. Available at: http://www.mrc.ac.za/Overview/htm [Accessed 11 February 2016].

Statistics South Africa (2015). Mid-year population estimates: Statistical release P0302. Statistics South Africa: Pretoria.

Statistics South Africa. (2014). Key findings: P0309.3-Mortality and causes of death in South Africa: findings from death notifications, 2014, [online] Available at: http://statssa.gov.za [Accessed 11 February 2016].

Stern, P. N. (1980). Grounded theory methodology: Its uses and processes. *Image*, [online] 12:20-23. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Storgaard, R. L., Hansen, H. S., Aadahl, M., & Glümer, C. (2013). Association between neighbourhood green space and sedentary leisure time in a Danish population. *Scandinavian journal of public health*, [online] *41*(8): 846-852. Available at: http://www.googlescholar.com [Accessed 05 August 2020].

Sugiyama, T., Gunn, L. D., Christian, H., Francis, J., Foster, S., Hooper, P., ... & Giles-Corti, B. (2015). Quality of public open spaces and recreational walking. *American journal of public health*, [online] *105*(12):2490-2495. Available at: http://www.googlescholar.com [Accessed 10 August 2020].

Tabish, S. A. (2017). Lifestyle diseases: consequences, characteristics, causes and control. *Journal of Cardiology & Current Research*, [online] *9*(3):1-4. Available at: http://www.googlescholar.com [Accessed 21 August 2020].

Tappe,M.K., Duda,J.L., & Ehrnwald,P.M. (1989). Perceived barriers to exercise among adolescents. *Journal of School Health*, [online] *59*(4):153-155. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Terreblanche, S. (2002). A History of Inequality in South Africa 1652–2002 University of Natal Press. *Scottsville, & KMM Review Publishing Co, Sandton*. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Tesch, R. (1990). Qualitative research: Analysis types and software tools. New York: Falmer.

Tewdwr-Jones, M. (2002). Personal dynamics, distinctive frames and communicative planning. *Planning futures: New directions for planning theory*, [online] 65-92. Available at: http://www.googlescholar.com [Accessed 20 August 2020].

The Heart and Stroke Foundation. (2016). Salt is killing South Africans and it's time to take action [online]. Available at: http://www.heartfoundation.co.za/salt-killing-south-africans/ [Accessed 20 November 2016].

Thompson, S. (2007). A planner's perspective on health impacts of urban settings. *Public Health Bulletin*, [online] 18(9-10):157-160. Available at: https://www.researchgate.net [Accessed 11 February 2016].

Tongco, M.D.C. (2007). Purposive sampling as a tool for informant selection. Ethnobotany Research and Application, 5:147-158. Available at: https://www.googlescholar.co.za [Accessed 8 June 2016].

Troiano, R. P., Berrigan, D., Dodd, K. W., Masse, L. C., Tilert, T., & McDowell, M. (2008). Physical activity in the United States measured by accelerometer. *Medicine and science in sports and exercise*, [online] *40*(1): 181. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Tumwine, S., Nasiima, S., & Kamukama, D. (2014). Human capital elements and their influence on performance: Evidence from Uganda's manufacturing firms. Available at: http://www.googlescholar.com [Accessed 15 July 2020].

Turok, I. (2014). South Africa's tortured urbanisation and the complications of reconstruction. *Urban growth in emerging economies: Lessons from the BRICS*, *143*. Available at: http://www.googlescholar.com [Accessed 22 August 2020].

Union, A. (2016). Africa health strategy 2016–2030. *Addis Ababa: African Union*. [online].Available at: http://www.googlescholar.com [Accessed 22 August 2020].

United Nations-Habitat. (2019). Global Future Cities Programme. *Durban, City Context Report*. January 2019. Available at: https://www.globalfuturecities.org/sites/default/files/ [Accessed 23 August 2020].

Van Zyl, S., Van der Merve, L., Walsh, C.M., Groenewald, A.J., & Van Rooyen, F.C. (2012). Risk factor profiles for chronic diseases of lifestyle and metabolic syndrome in an urban and rural settings in South Africa. *African Journal of Primary Health Care and Family Medicine*, [online] 4(1):1-10. Available at: http://www.dx.doi.org/10.4102/phcfm [Accessed 8 June 2016].

WHO Commission on Social Determinants of Health, & World Health Organization. (2008). *Closing the gap in a generation: health equity through action on the social determinants of health: Commission on Social Determinants of Health final report*. World Health Organization. [online] Available at: http://www.googlescholar.com [Accessed 10 August 2020].

William, I., & Allen, N. (2012). National survey of Australian outdoor youth programs: Summary Report, April 2012. *Outdoor Youth Programs Research Alliance* [online]. Available at: http://www.oypra.org.au/ [Accessed 20 February 2016].

Williams, C. H. (2007). The built environment and physical activity: What is the relationship?. Available at: http://www.googlescholar.com [Accessed 10 July 2020].

Windischer, A., Grote, G., Mathier, F., Martins, S.M., & Glardon, R. (2009). Characteristics and organisational constraints of collaborative planning. *Cogn Tech Work,* [online] 11:87-101. Available at. https://www.googlescholar.co.za [Accessed 8 June 2016].

Wolch, J.R., Byrne, J., & Newell, J.P. (2014). Urban green space, public health and environmental justice: the challenge of making cities just green enough. *Land and Urban Planning*, [online] 125:234-244. Available at: http://www.elsevier.com/locatelandurbplan [Accessed 20 February 2016].

World Bank. (2016). Kenya Overview: Development news, research, data. Available at: https://www.worldbank.org/en/country/kenya/overview [Accessed 2 May 2016].

World Health Organisation. (1946). Constitution of WHO: principles. [online] Available at: http://www.who.int/about/mission/en/ [Accessed 20 February 2016].

World Health Organisation. (2013). Global Action Plan for the Prevention and Control of non-communicable diseases, 2013-2020, [online] WHO, Geneva: Switzerland. Available at: www.who.int [Accessed 20 November 2016].

World Health Organization. (2018). Noncommunicable diseases country profiles 2018. Available at: http://www.googlescholar.com [Accessed 12 August 2020].

Yiftachel, O. (1998). Planning and Social Control: exploring the 'dark side'. *Journal of Planning Literature*, [online] 12(2): 395-406. Available at: http://www.googlescholar.com [Accessed 5 August 2020].

Yiftachel, O., & Huxley, M. (2000). Debating Dominance and Relevance: Notes on the 'Communicative Turn' in Planning Theory. *International Journal of Urban and Regional Research*, [online] *24*(4): 907-913. Available at: http://www.googlescholar.com [Accessed 27 August 2020].

Young, A., & Christos-Rogers, J. (1995). Resisting racially gendered space: the women of the St. Thomas Resident Council, New Orleans. *Marginal spaces: Comparative urban and community research*, [online] *5(95)*. Available at: http://www.googlescholar.com [Accessed 23 August 2020].

Zimmer, B.G. (1975). 'The urban centrifugal drift', in Amos H. Hawley and Vincent P. Rock (eds), *Metropolitan American in Contemporary Perspective*. Beverly Hills, CA: Sage, [online] 23–91. Available at: http://www.googlescholar.com [Accessed 23 August 2020].

BIBLIOGRAPHY

Abercrombie. (1959). Town and Regional Planning.3rd ed. London: Oxford University Press, 1959.

Altshuler, A. (1973). "The goals of comprehensive planning ", in Faludi, A. (ed.) A Reader in Planning Theory, Oxford: Pergamon.

Beauregard, R. (1996). "Between modernity and postmodernity: the ambiguous position of US planning, in Campbell, S. and Fainstein, S. (eds.) Readings in Planning Theory, Oxford/Malden: Blackwell (first published 1989).

Berman, M. (1982). "Why modernisation still matters", in Lash, S. and Friedman, J. (eds.) Modernity and Identity, Oxford: Blackwell.

Calhoun, C. (1995). *Critical Social Theory: Culture History, and the Challenge of Difference* (Cambridge, MA, Blackwell).

Cherry, G. (1980). "Introduction: aspects of twentieth-century planning "in Cherry, G. (ed.) Shaping an Urban World, London: Mansell.

Fain, J.A. (2004). Reading Understanding and Applying Nursing Research. Second edition. FA Davis, Philadelphia PA.

Forrest, R., & Williams, P. (2001). Housing in the twentieth century. *Handbook of urban studies*.

Frey, W.H. & Zimmer, Z. (2001). 'Defining the City', in R. Paddison (ed.), *Handbook of Urban Studies*. London: Sage.pp.14-35.

Fulton, S. Krainovich-Miller, B. (2010). Gathering and appraising the literature. In LoBiondo-Wood G, Haber J (Eds) Nursing Research: Methods and Critical Appraisal for Evidence-Based Practice. Seventh edition. Mosby Elsevier, St Louis MO.

Gare, A. (2001). Post-modernism as the Decadence of the Social Democratic State. *Democracy & Nature,* 7(1):77-99.

Habermas and Modernity. (1981). Cambridge: Polity Press.

Habermas, J. (1984). *The Theory of Communicative Action.* Boston: Beacon.

Habermas, J. (1987). *The Philosophical Discourse of Modernity.* Cambridge: Polity Press.

Harvey, D. (1989). The Condition of Postmodernity, Oxford: Blackwell.

Holston, J. (1986). The Modernist City: architecture, politics and society in Brasilia, Doctoral dissertation, Yale University, UMI.

Koenigsberger, O. (1980).Foreword to Turner, A. (ed.) Cities of the poor: settlement planning in developing countries, London: Croon Helm.

Lacey, A. (2010). The research process. In Gerrish K, Lacey A (Eds) The Research Process in Nursing. Sixth edition. Wiley-Blackwell, Chichester.

Parahoo, K. (2006). Nursing Research: Principles, Process and Issues. Second edition. Palgrave Macmillan, Basingstoke.

Sandercock, L. (1998a). Towards Cosmopolis, Chichester: John Wiley.

Appendix 1

Interview Questions: Key Informants

Good day,

I am conducting research into the "**Impact of open spaces on the prevalence of lifestyle disease among youth living in The CBD of eThekwini**". I would like to ask you a series of questions relating to this topic. Your responses to these questions, which I would like to record unless there are objections, will be used in this research project and will be treated in strictest confidence. You are at liberty to participate in this interview and may opt out at any point.

1. How did stakeholders provide input on urban regeneration plans?
2. How did the city ensure participation of diverse stakeholders when reviewing urban regeneration plans?
3. What were the safety concerns about using public open spaces in the CBD?
4. How accessible were the public open spaces in the Central Business District?
5. What risk factors were the youth predisposed to in relation to the lifestyle diseases?
6. What were the common lifestyle diseases among the youth living in the CBD?
7. What were the health benefits of engaging in physical activity?
8. How were urban regeneration plans reviewed for health impacts?
9. What considerations informed the spatial distribution of public open spaces in the city?
10. What caused discrepancies in ensuring that public open spaces were resourced?
11. How prevalent were lifestyle diseases among the youth?
12. What are the benefits of public open spaces to the city
13. What are the benefits of public open spaces to humans

14. What are the benefits of public open spaces to the community?

Appendix 2

Interview Questions: Study Participants

Good day,

I am conducting research into the "**Impact of open spaces on the prevalence of lifestyle disease among youth living in the CBD of eThekwini**". I would like to ask you a series of questions relating to this topic. Your responses to these questions, which I would like to record unless there are objections, will be used in this research project and will be treated in strictest confidence. You are at liberty to participate in this interview and may opt out at any point.

1) Why do you think open spaces are important to humans?
2) How accessibility were public open spaces in the Central Business District of eThekwini?
3) What are your concerns about public open spaces, safety, and physical activity?
4) How do you spend most of your leisure time?
5) What type of outdoor recreation or physical activities, if any, do you participate in?
6) How often do you engage in the above activities?
7) How long (duration) do you engage in physical activity?
8) What do you think are the benefits you derive from engaging in the recreational activities /physical exercise?
9) What was your state of health and wellbeing?
10) What is you view about your state of health and wellbeing how can you improve it?

Date: _____

3.1 Observation Tool Schedule: Location_____

3.1.1 Semi-Structured Checklist

The semi-structured checklist will be used to record specific dimensions that are of interest during the field observation. For this research project, the study would focus on the following dimensions:

A. Appearance

Average Age _____ Gender_____

Physical appearance _____ Clothing_____

Appearance of the of the observation site_____

B. Verbal Behaviour and Interaction

Language/Dialect Spoken_____ Who speaks to whom_____

Who initiates interaction_____

C. Physical Behaviour

What people do_____ Who interacts with whom_____

Who does what_____ Who is not interacting_____

D. Personal Space

How close people stand/walk to one another_____

E. Human Traffic

Description of people who enter/leave the observation site_____

Description of people who spend time at the observation site_____

Key Informant 1. Parks, Leisure & Cemeteries, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, Mitchel Park, Department of Parks, Leisure and Cemeteries, 11th October 2016, 13:00.

Key Informant 2. Architecture & Urban Design, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, Archie Gumede Place, Department Architecture and Urban Design, 12th October 2016, 14:00.

Key Informant 3. Community & Primary Health, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, Lancers Road Primary Health Centre, 12th October 2016, 15:00.

Key Informant 4. Executive Management-Land Use Management, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, KE Masinga Road, Development Planning and Management, City Engineers Building, Room 101, 13th October 2016, 11:30.

Key Informant 5. Environmental Planning & Climate Protection, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, KE Masinga Road, Room 200, Department of Environmental Planning and Climate Protection, 13th October 2016, 16:30.

Key Informant 6. Botanical Gardens, eThekwini Municipality (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban, Mansfield Road, Botanical Gardens, 17th October 2016, 10:00.

Study participant #1 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 15th October 2016.

Study participant #2 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 15th October 2016.

Study participant #3 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 17th October 2016.

Study participant #4 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 10th October 2016.

Study participant #5 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 11th October 2016.

Study participant #6 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 17th October 2016.

Study participant #7 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 17th October 2016.

Study participant #8 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 10th October 2016.

Study participant #9 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Bulwer Park, Durban, 18th October 2016.

Study participant #10 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #11 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #12 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #13 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #14 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #15 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 15th October 2016.

Study participant #16 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 22nd October 2016.

Study participant #17 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 22nd October 2016.

Study participant #18 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Albert Park, Durban, 22nd October 2016.

Study participant #19 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 22nd October 2016.

Study participant #20 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #21 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #22 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #23 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #24 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #25 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #26 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #27 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #28 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.

Study participant #29 (2016). Research into the *Impact of Open Spaces on the prevalence of Lifestyle Diseases among the Youth living in the CBD of eThekwini*. Interviewed by: Nzuza, N.P. [oral]. Durban Country Club Beach, Durban, 29th October 2016.