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TRANSPORT MOBILITY PATTERNS OF DOMESTIC WORKERS WORKING IN CENTURION, CITY OF TSHWANE

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Urban Studies in Urban Management.

Johannesburg 2020

DECLARATION

I declare that this research report is my own work. It is being submitted for the Degree of Master of Urban Studies in Urban Management, in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other university.



……

Babra Duri

Signed on the **27Th** Day of **February** 2020

ABSTRACT

Transport needs of domestic workers are often marginalised or not considered in transport planning. The purpose of this study is to investigate the transport mobility patterns of female domestic workers working in Centurion, one of the affluent neighbourhoods in the City of Tshwane which has many gated communities. Domestic workers involved in this study are female 'live-out' domestic workers. A quantitative research approach was followed, and a survey of 100 participants was utilised to collect primary data of the study. The Likert scale was employed to ascertain the transport challenges that are experienced by domestic workers in commuting. Descriptive statistics, cross-tabulations and SPSS software package were used to analyse the data. The most common challenges for domestic workers from findings were high transport cost, lack of information on bus transport and lack of access to rail transport. The study found that the most frequently used mode of transport is minibus taxi. The results for commuting time show a degree of variation across different activities. The highest proportion of domestic workers working in Centurion spent approximately 21-40 minutes to travel to work. Most of these are from Olievenhoutbosch, a low-income housing area located in Centurion. Since they live relatively close to work, their transport times and costs were not as high as initially expected. KwaMhlanga, 102km from Centurion, is the most distant area where some respondents live, and transport costs and times are much higher than other areas. Planning, implementation and continuous monitoring of transport infrastructure and services are important to improve the quality of life of urban dwellers.

Key words: Transport, domestic workers, mobility, Centurion, low-income earners

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ACRONYMS

BCEA	Basic Conditions of Employment Act
CBD	Central Business District
CCMA	Commission for Conciliation, Mediation & Arbitration
ILO	International Labour Organisation
LRA	Labour Relations Act
NDP	National Development Plan
SA	South Africa
SD7	Sectoral Determination 7
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
Stats SA	Statistics South Africa
UN	United Nations

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

'Domestic worker' is a term that describes a worker providing household labour for among other duties, housekeeping, elder care, and childcare (Erman and Kara, 2018; Statistics South Africa [Stats SA] 2017). The members of employing household have the capacity to pursue their careers, leisure activities and other commitments; thereby supporting household economic and social functions (Stats SA, 2017; Fudge and Hobden, 2018). The global population of domestic workers is estimated to be 67 million of which 80% are women (International Labour Organisation [ILO], 2019). The population of domestic workers is expected to increase gradually both in the global south and the global north (ILO, 2019).

The urban global population was 4.2 billion people in the year 2018 (United Nations [UN], 2018a). In China, the demand for domestic services increased with growth in the urban middle class, household income, the ageing population, and urban developments (Minghui, 2017). In Turkey, gated communities are usually located far from where the low-income population live, as such, domestic workers have poor access to such areas (Erma and Kara, 2018). Access to transport is not easy for the low-income population living in certain areas of the city as compared to the high-income population with cars (Guzman, Oviedo and Rivera, 2017).

Transport plays a vital role in the socio-economic development of cities; as such it enables people to access different services and activities such as employment, social activities, health care, education, and markets (Coxon, Napper and Richardson, 2019). It is well documented that transport mobility constraints can result in poor quality of life, social exclusion, poverty, and transport inequalities (He, Cheng and Tao, 2018; Hernandez, 2018; Cui, Boisjoly, El-Geneidy and Levinson, 2019). The low-income population endure many transport mobility constraints. Some of the domestic workers can travel long distances in order to work in affluent suburbs where wages and salaries are higher (Erman and Kara, 2018).

In South Africa, transport systems and planning were shaped by city policies formulated during the Apartheid era (Kerr, 2017). During the Apartheid era, black South African homes were located in remote territories far away from opportunities and places of amenities (*ibid.*). This has led to transport problems such as long commuting distances, high transport costs, transport inequalities, poverty, social exclusion, and limited opportunities (*ibid.*). Some of the transport problems such as long commuting distances and high transport may be reduced significantly

by concepts such as mixed income developments, inclusionary housing and low-income housing close to high income areas (Todes, 2003; Klug et al., 2013). It is anticipated in the National Development Plan (NDP) that "by 2030 a large proportion of the population should live closer to places of work, and the transport they use to commute should be safe, reliable and energy efficient" (Stats SA, 2015). To attain this, it requires measures such as reducing urban sprawl and increasing urban densities to support public transportation (Stats SA, 2015).

The legislative responsibilities of different spheres of government with regard to transportation are stipulated in the Constitution of the Republic of South Africa (SA, 2019). In South Africa, "transport is a function that is legislated and executed at the national, provincial and local spheres of government" (SA, 2019:2). Urban management is a holistic concept linked to the "new role of local governments in the neoliberal era" (Davey et al., 1996 in Baclija, 2011:138). Urban management is a "specific type of management common to city administrations that maintains a balance between social and economic development" (Baclija, 2011). Urban management assures that basic urban services such as transport, water and sanitation are provided to the members of society and the various private, public and community stakeholders (Mattingly, 1995). According to Mattingly (1995:12), one of the main problems of urban management is to attain good quality of transport services without incurring costs which exceeds the charges which transport users find affordable. Developing countries have not managed to deal with this problem as the provision of transport services is left to the private sector which often compromise safety and comfort for affordable costs (Mattingly, 1995). Provision of public transport services in many developing countries is generally unsatisfactory (Mattingly, 1995).

1.2 PROBLEM STATEMENT

Traditionally, mobility is concerned with the physical movement of people in and around geographic space while transport bridges the gap between people and space (Rodrigue, 2017; Goncalves, Gomes and Ezequiel, 2017). Urban transportation systems enable access to places of amenities, education, goods, and activities important to their livelihood (Coxon *et al*., 2019). Access to transport mobility fulfils the goal of social equity in urban transport planning (Coxon *et al*., 2019). Previous research indicates that urban mobility of the low-income population is limited, disproportional, and their needs are often marginalised, especially in developing countries (Hernandez, 2018; Pyrialakou, Gkritza and Fricker, 2016).

South Africa is one of the countries with a considerable number of domestic workers (Marais and van Wyk, 2015). Stats SA reports that the quarterly labour force survey for the third quarter of the year 2018 shows that there are 1 029 000 domestic workers, which constitute 6% of the workforce (Stats SA, 2018). Various research studies have been done on transport mobility of domestic workers, internationally and locally; which amongst others include Erman and Kara (2018), de Madariaga, Arroyo and Flone Intitiative (2019), Kerr (2018) Lionjang and Venter (2018). In Turkey, Erman and Kara (2018) found that the spatial transformation of cities has led to longer travelling hours to work by domestic workers. Kerr (2018) found that in South Africa, the low-income populations endure high transport costs to work and some of them walk to work. In Nairobi, de Maradiaga et al. (2019) found that the majority of public transport users were women and major concerns were safety of women travelling at night.

In Turkey, Erman and Kara (2018), conducted qualitative research on challenges that female domestic workers face in accessing work places. Ye and Titheridge (2019) conducted a survey to investigate commuting satisfaction among the low-income population in Xi'an, China. In Nairobi, de Madariaga *et al*. (2019), conducted a survey of commuters to assess whether the public transport system supports daily mobility of women that take care of homes and dependents. Kerr (2018) explored the social exclusion related to transport in South Africa. The focus of the study was poor households using public transportation.

1.3 RATIONALE FOR THE STUDY

Limited transport options may lead to limited opportunities, unemployment, poor quality of life, social exclusion and poverty (Allan and Farber, 2019). In South Africa, as one of the countries that adopted the Sustainable Development Goals (SDGs), it would be important to provide transport for all, regardless of social status. This is supported by SDG 11, target 11.2:

"*By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons*" (UN, 2017).

Although many studies have looked at the transport mobility in cities, little research has particularly focused on transport mobility patterns of domestic workers in South Africa. The City of Tshwane may be a useful place to do this research as it is one of the cities with high numbers of domestic workers. Understanding transport mobilities of different social groups of society can lead to a better formulation of city policies.

This study is focused on female domestic workers working in the City of Tshwane, more specifically in Centurion. Centurion was chosen as the study area partly due to the characteristics of the area. According to the City of Tshwane (2016), Centurion is one of the affluent neighbourhoods in the city where some of the high-income population live. Centurion is also associated with gated communities, for example, Copperleaf Golf Estate, Blue Valley Golf Estate, Southdowns Residential Estate and Centurion Golf Estate. Some of the gated communities are located in private areas associated with poor access to public transport (Landman and Badenhorst, 2014). It can be noted that very large low-income populations are located in peripheral areas in cities, including the City of Tshwane.

In summary, the transport needs of domestic workers are important, they need to be understood, addressed and integrated into city policies. By investigating transport mobility patterns of domestic workers, this study will help to identify transport needs of domestic workers and means of reducing transport inequalities, poverty, and social exclusion, to fully harness the vital contribution of domestic workers to society; improve their quality of life and protect their civil and human rights.

1.4 RESEARCH QUESTIONS

1.4.1 Main Question

What are the transport mobility patterns of female domestic workers working in Centurion?

1.4.2 Sub-Questions

To answer the main question of the study, the following sub-questions are needed:

1. What are the modes of transport used by domestic workers working in Centurion for work and everyday life?
2. What are the factors that influence the mode choice of domestic workers?
3. What are the transport challenges experienced by domestic workers in accessing transport services?
4. What do domestic workers see as transport interventions that could ease daily travel

1.5 EXPECTED FINDINGS

This study hopes to find out the transport mobility patterns of female domestic workers who work in the Centurion area. A particular challenge for domestic workers could be accessing a fairly low-density area where the majority of residents are likely to rely on private cars. Other transport challenges that domestic workers are likely to face are safety and security, especially

for those that finish work late; high transport costs; and long walking distances to bus stops, taxi ranks, and long distances to work given how distant and dislocated townships in Tshwane are.

1.6 RESEARCH METHODOLOGY OF THIS RESEARCH REPORT

This research seeks to investigate the transport mobility patterns of female domestic workers working in Centurion for work and everyday life. The research methodology applied in this study includes both primary and secondary research. Secondary research and primary research are discussed in sections 1.6.1 and 1.6.2.

1.6.1 Secondary research

Secondary research can be described as a technique of synthesising existing research that was originally collected by another party or person (McQuarrie, 2015). An extensive literature study was carried out and is discussed in Chapter 2 of the study. The concepts involved in this study include domestic workers, transportation, transport modes, and mobility. These concepts are discussed in Section 1.7. At the end of this study, the sources consulted will be shown in the reference list.

1.6.2 Primary research

Primary research refers to original research. To address the main question, ‘what is the transport mobility pattern of female domestic workers working in Centurion for work and everyday life’ and to answer sub-questions, primary research was conducted.

A quantitative research approach was followed, and a survey was utilised to collect primary data of the study. The population of the study is the domestic workers working in Centurion. A sampling frame of domestic workers working in Centurion was not available for selection of sampling elements, therefore, non-probability purposive sampling was used to determine the sample for this study. Based on the questions and time to complete this study, the sample size was (N=100). The researcher collected data from domestic workers working in Centurion in different forms of housing. Data processing involved the task of editing, coding, data entry, computer editing and analyses of data. Descriptive statistics and SPSS statistical software package were used to analyse the data. The key terms used in this research report are discussed next.

1.7 DEFINITION OF KEY TERMS

The aim of this section is to conceptualise transport mobility within the context of domestic workers. It is important to discuss the key concepts in this dissertation and the key concepts in this study are domestic workers, live-out domestic worker and mobility.

1.7.1 Domestic workers

The term, domestic worker, is most commonly used in the context of workers that perform paid domestic work (ILO, 2018). In many countries, domestic workers in employment constitute a significant portion of the national workforce (ILO, 2018). The majority of the domestic workers employed in South Africa are women (80%) and 60% are employed in the cities (Dinkelman and Ranchhod, 2012). This study is focused on domestic workers that commute to work (known as live-out domestic worker).

1.7.2 Live-out domestic worker

Live-out domestic worker (also known as "stay-out domestic worker") is a worker that provides labour service to households and does not live on the same premises with the employer (ILO, 2018). Live-out domestic workers commute to work on a daily basis and are more likely to experience transport challenges.

1.7.3 Mobility

Mobility is a concept that can be defined as the potential for physical movement of a mode of transport to cover the distance between point A and point B (Saif *et al*., 2018). Mobility can be accomplished through the use of buses, taxis, bicycles, cars, trains and on foot. It is a vital tool for transport planning and development that improves the quality of life of community members (Goncalves *et al*., 2017). Mobility enables members of communities to become connected, access workplaces, health care and other opportunities in the city (*ibid.*). The aspects of mobility include number of journeys, distance of journeys, trip purpose, trip duration and modal choice (Malone, Silla, Johanssen and Bell, 2017).

1.8 OUTLINE OF THE RESEARCH REPORT

The outline of the chapters of this dissertation is illustrated in Figure 1.1.

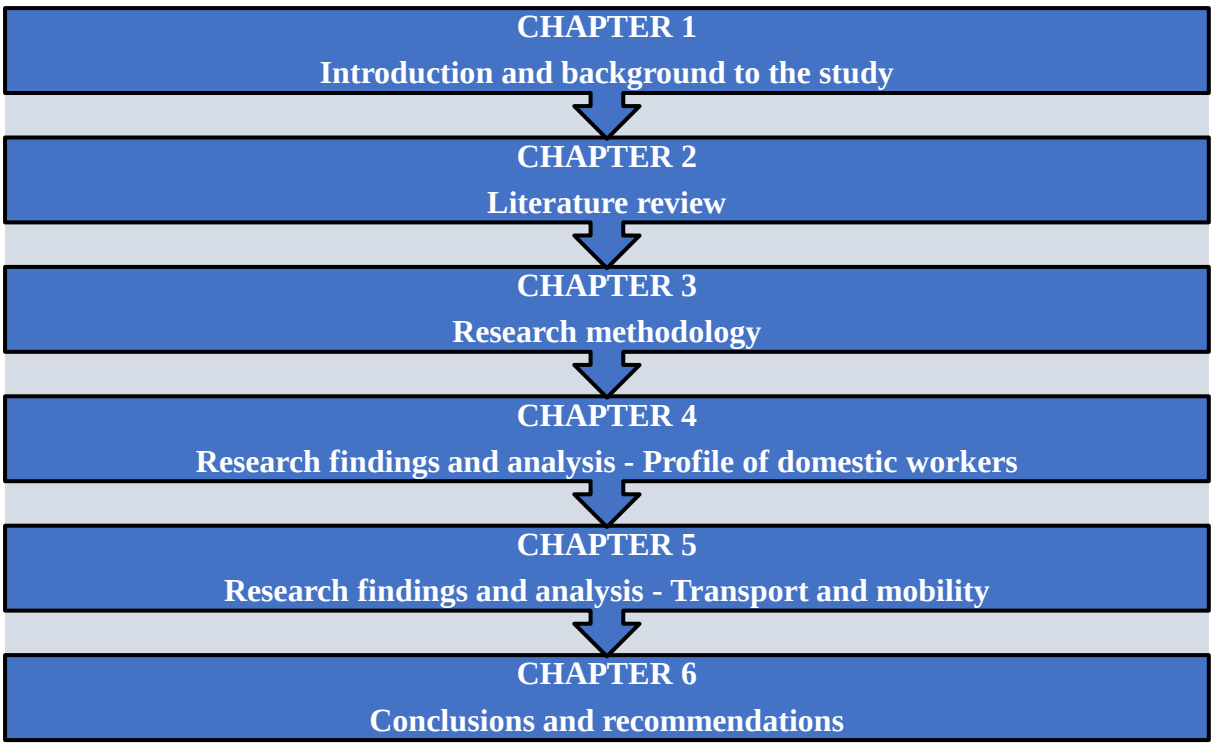


Figure 1. 1: Outline of the dissertation

In order to address the problem statement given in previous section, the chapters in the dissertation are arranged as follows.

Chapter 1 provides the background to the study, the problem statement, the research objectives, the research methodology; it provides the definitions of the key concepts used throughout this dissertation.

Chapter 2 consists of a literature review regarding transport mobility in the context of domestic workers. The chapter discusses issues and challenges around transport for the low-income population.

Chapter 3 explains the research methods used in this research report, including details such as sampling design, measuring instrument, pilot study and data processing and analysis. The chapter also provides background on the study area (Centurion).

Chapter 4 and 5 present research findings and analysis while Chapter 6 concludes with a summary of the findings and a discussion of the recommendations of the study, and future research directions.

CHAPTER 2: TRANSPORT MOBILITY AND DOMESTIC WORKERS

2.1 INTRODUCTION

The literature review in this study draws from previous literature on themes such as 'domestic workers', 'mobility of low-income population', 'mobility of women' and 'urban transport'. Chapter 2 aims to conceptualise transport mobility and domestic workers. In the context of South Africa, little research has focused on the mobility of domestic workers. However, there are many studies that have focused on mobility of the low-income population. Domestic workers are among the low-income population in South Africa. The chapter commences by providing a background on domestic workers in Section 2.2. Discussion of domestic workers within the South African context is also included in the Section. This discussion aims to answer these questions: who are the domestic workers in South Africa, what are the working conditions for the domestic workers in South Africa, what are the wage levels and whether the conditions of work are changing. Transport systems affect the social well-being of people of any nation. This study is focused on urban transport. Section 2.3 uncovers transport systems, including urban transport challenges experienced by low-income populations. The chapter finishes off with a conceptual framework in Section 2.4. Lastly, the conclusion is given in Section 2.5.

2.2 DOMESTIC WORKERS

Domestic work is regarded as one of the world's oldest occupations (ILO, 2012). Worldwide, many families depend on domestic workers for their caregiving needs and domestic responsibilities (ILO, 2016). In many countries, the domestic work industry is characterised by informality (Fudge and Hobden, 2018). UN (2015) acknowledges informal employment as an essential source of jobs. It can be noted that domestic work often does not have clear terms of employment and is often excluded from the scope of labour legislation (ILO, 2019), which may lead to high levels of abuse of workers. Informality creates problems such as lack of social protection, low wages, restriction on freedom of movement, and long working hours (Erma and Kara, 2018; ILO, 2019). Generally, domestic workers are classified as low-income earners as they earn relatively low wages. Domestic workers are discussed under different subthemes from Section 2.2.1 to 2.2.5.

2.2.1 General profile of domestic workers

In some countries, women constitute a larger share of domestic workers that are often not covered by legislation; also, they are excluded from the scope of labour laws (UN, 2015). Generally, some of the push factors for women to become domestic workers are lack of education, financial constraints and unemployment. In many cases domestic workers are migrant women who left their families in their countries to work abroad (Tungohan, 2018). Over the years, worldwide, there has been an increase in migrant workers from developing countries working in wealthier countries in the domestic worker industry (Kontos and Bonifacio, 2015). In Turkey, the majority of domestic workers are women migrating from rural areas to urban areas. (Erman and Kara, 2018). Research done by Bino, Venkatesha and Datta (2018) in India shows that the largest proportion of domestic workers working in Mumbai are workers migrating from rural to urban areas. In addition, migrant domestic workers are willing to provide labour at lower wages and salaries than local domestic workers (Minghui, 2017).

2.2.2 The domestic worker industry in South Africa

South Africa is one of the countries in Africa with a significant number of domestic workers (Marais and van Wyk, 2015; Budlender, 2016). Domestic workers are found in both rural and urban areas across all provinces of South Africa (Budlender, 2016). As compared with other provinces, Gauteng was identified as one of the provinces where domestic workers earn relatively high wages (Dinkelman and Ranchod, 2012).

Domestic work in South Africa reflects a "history of colonial oppression, racial segregation and exclusion of domestic workers from legal protection" (du Toit, 2013:5). Blackett and Tiemeni (2018) concur that the domestic work sector reflects the legacies of slavery and apartheid. During the Apartheid era, domestic workers were mostly exclusive to white South Africa (Cock, 1980). Bad working conditions can be tracked back to the Apartheid era (Cock (1980). Domestic workers are still working long hours and many work without work contracts (Thobejane and Khosa, 2016; Tanzer, 2013). According to du Toit (2013:2), female domestic workers are vulnerable to "triple exploitation based on gender discrimination, as well as class, weaker position in labour market and in many cases, race and nationality". The domestic work sector in South Africa is dominated by African women, and this pattern has not changed over the years (Budlender, 2016). Women are responsible for cooking for the family, childcare, housekeeping work and other house duties.

According to Sectoral Determination 7: Domestic worker sector: Wages and conditions of employment, South Africa, domestic workers are allowed to work not more than 45 ordinary hours per week (Department of Labour, 2019). If a domestic worker works five days a week, the maximum working hours per day should be nine (Department of Labour, 2019). In the case that the domestic worker works more than five days a week, the maximum working hours per day should be eight (Department of Labour, 2019). However, employers often do not abide by rules and regulations.

2.2.3 Nature and working conditions of domestic work

Domestic work performed by domestic workers is highly individualised and non-standard; it is performed under widely diverging conditions (du Toit, 2013). In most cases, domestic workers work without contractual agreements. The work performed and the working conditions are primarily at the employer's discretion. Duties and tasks of domestic workers are not clearly specified and the majority of domestic workers do not have work contracts, as such, domestic workers tend to do more work (Tolla, 2013). Employers do not always adhere to verbal agreements (Tolla, 2013).

Domestic work takes place in the home, behind closed doors. In most cases, domestic workers work in isolation and without co-workers. The relationship between an employee and employer is not balanced as the employee is in a private space of the employer. Some employers may regard domestic work as not employment, but, rather private family arrangements, thereby making regulation of the industry difficult (du Toit, 2013). The intimacy between the employer and employee may reduce the value of the employee since the employee will be treated as a member of the family (Thobejane and Khosa, 2016). There has been a long-standing debate as to whether domestic work should be treated as work (du Toit, 2013). This debate was settled by an international convention Decent Work for Domestic Workers Convention, 2011 (No. 189) which resulted in domestic work being seen as a "form of socially valuable labour or work" (du Toit, 2013). South Africa ratified this convention in 2013 (du Toit, 2013).

Housekeeping services goes beyond simple housekeeping work; it requires trust between the employer and employee (Dinkelman and Ranchhod, 2012). The relationship between the employer and employee may become highly personal rather than professional, especially in cases of childcare. Emotional bonds can be created between the domestic worker and the family for whom care is being given. Such relationships may complicate labour regulations. Against

this background, the domestic work sector is characterised by high levels of exploitation and abuse (du Toit, 2013).

Worldwide, in the domestic work industry, it is a norm to work for different employers as some households do not require the services of a domestic worker on a daily basis (Bino et al., 2018; Erman and Kara, 2018). Research done in Turkey shows that domestic workers can work for several families (Erman and Kara, 2018). In India, domestic workers work with multiple employers who prefer flexible engagements (Bino *et al*., 2018). However, in India part-time workers have a high risk of working in poor working conditions and get abused (Bino *et al*., 2018).

The broad classifications of domestic workers are live-in and live-out domestic workers. These terms are defined in Section 1.7. Live-in workers are more vulnerable to abuse because of the nature of the job; they are vulnerable to exploitation, abuse and long working hours (Social Law Project, 2014; Tanzer, 2013). As compared to live-out domestics, live-in domestic workers do more work (Bundlender, 2016). Overtime work is invisible, as such; domestic workers do not get compensation for overtime work (Tanzer, 2013).

As compared to live-in domestic workers, live-out domestic workers commute more often and face challenges associated with commuting. Research done by Zhao (2015) in Beijing on commuting burden of low-income workers found that in general, the commuting time of workers depends on the trade-off between transport cost, housing market and job market. Live-out domestic workers who live far from workplaces are more likely to bear high transport costs as well as experiencing long commuting time. It should be noted that, in general, affordable housing is not always available close to workplaces (Zhao, 2015); hence the balance between jobs-housing becomes difficult. As a result, women with no family ties may opt for live-in domestic work.

2.2.4 Wage levels

It is often the case that domestic workers are not in a position to co-determine wages and conditions, thereby become economically vulnerable (Budlender, 2016). The Basic Conditions of Employment Act (South Africa, 1997) makes provision for proclamation in areas of the labour force that are deemed vulnerable (Marais and van Wyk, 2015). The minimum wage was introduced in September 2002 to reduce widespread poverty (Millea, Rezek, Shoup and Pitts, 2017). Before 2002, there was no minimum wage that was set in South Africa. Employers would decide on the wage of the worker. Even though the establishment of a minimum wage

was a positive development to reduce poverty, domestic workers still get low wages (Thobejane and Khosa, 2016). Legally domestic workers are supposed to get unemployment insurance, unless they only work a limited time. In reality, domestic workers do not enjoy social protection benefits such as pension, death and unemployment insurance (Dinkelman and Ranchhod, 2012). On the other side, the introduction of minimum wage law had a substantive impact more on the general conditions of work for domestic workers (Dinkelman and Ranchhod, 2012).

Wages of domestic workers are essential to this discussion as they affect how people live, where they live, and most importantly the transport choices. The minimum wage setting is prescribed according to areas, Area A and Area B. Area A refers to metropolitan areas while Area B refers to non-metropolitan areas. Municipal boundaries have been used to distinguish between the regions. As from 3 December 2018, domestic workers working in Area A, who work 27 ordinary hours per week, or less, are paid a minimum hourly rate of R16.03 (up from R15.28); weekly rate R432.78 (up from R412,60); and monthly rate of R1 875.22 (up from R1 787.80) (Department of Labour, 2019). This rate is only applicable until 30 November 2019. In reality, the minimum wage is very minimum; it can barely cover living expenses including travelling costs to work. The minimum wage of domestic workers is not a living wage (Budlender, 2016). The poverty cycle cannot be broken on minimum wages.

In Mpumalanga province, Tolla (2013) found that there were domestic workers earning between R700-R800 which was way less than the minimum wage. In addition, these women work long hours (Tolla, 2013). Thobejane and Khosa (2016) also listed low wages as one of the challenges facing domestic workers in Mpumalanga. Some domestic workers do not have full-time jobs; therefore, they work for certain days in a week. It can be assumed that those who work less days end up getting lower salaries and wages. Tungohan (2018) argues that domestic workers are undervalued and poorly paid mainly because the society perceives domestic work as work that comes naturally to women. This is also supported by Thobejane and Khosa (2016) who argue that communities in Mpumalanga province of South Africa perceive domestic work as reproductive work, as such, domestic workers do not require real wages but rather stipends.

2.2.5 Policies and legislation

During the Apartheid era, domestic workers were intentionally excluded from policies and legislation to protect workers (du Toit, 2013). After 1994 South Africa established policies and

legislation to protect domestic workers (Budlender, 2016; Thobejane and Khosa, 2016). In 1994 the rights-based constitutional order was introduced to protect the interests of all the members of society (du Toit, 2013). In recent years, South Africa is characterised by progressive legislative reforms. Today, domestic work is regulated by Labour Relations Act 66 of 1995 (LRA), the Basic Conditions of Employment Act 75 of 1997 (BCEA) and Sectoral Determination 7 of 2002 (SD7) (du Toit, 2013). The basic employment conditions of domestic workers are prescribed in that legislation. The Constitution of the Republic of South Africa 1996 enhances the legislative measures and protects the rights of domestic workers.

The BCEA protects domestic workers by recognising that they should have employment contractual agreements as well as stipulating and regulating working condition, for example, leave periods and working time (Blackett and Tiemeni, 2018). The principles in BCEA are widely reinstated in Sectoral Determination 7 (SD). SD 7 creates a regulatory framework specific to the domestic work sector (Department of Labour, 2019). The responsibility of the Department is to monitor and enforce compliance as established by SD 7 (Department of Labour, 2019).

The framework of BCEA is, however, implanted in the institutional structure of the Commission for Conciliation, Mediation and Arbitration (CCMA) (Blackett and Tiemeni, 2018). The CCMA is an instrument for resolving labour disputes especially for low-income earners such as domestic workers (Blackett and Tiemeni, 2018).

South Africa contributed significantly to the development of the new international labour standards and ratified the Decent Work for Domestic Workers Convention, 2011 (No. 189) in 2013 (Blackett and Tiemeni, 2018). The Convention promotes and signifies that domestic work is a form of work that is not different from other types of labour and it is part of economic activity (du Toit, 2013). The states that ratified the Convention should take measures to protect, promote, respect and apprehend the human rights of all domestic workers (du Toit, 2013).

Although the domestic work industry is vital to society, the industry is often marginalised, and regulation is still a challenge (Thobejane and Khosa, 2016). In South Africa, domestic work remains economically undervalued, poorly remunerated, and offering unsatisfactory working conditions (du Toit, 2013). Du Toit (2013) questions whether legal regulation is the whole answer to the challenges that domestic workers face. However, it can be argued that laws are more effective when accompanied by educational campaigns that promote compliance and enforcement.

2.3 TRANSPORT SYSTEM

The definition of transport has not changed over the years (Enoch, 2012). Transport can be described as an activity of moving passengers and freight from one point to another point (Rodrigue, 2017). Transport activity is associated with satisfying human needs and activities which are affected by the developments of the society, economy, and technology (Proffillidis and Botzoris, 2019).

Transport affects people's lives in many ways, either positively or negatively. Previous research reveals that lack of transportation may lead to poverty, social exclusion, transport inequalities and deprivation of opportunities (Pyrialakou et al., 2016; Hernandez, 2018). Transport systems influence the way people move through a city as well as where people live, shop and work. The system is complicated as it is made up of different components that are also interlinked to other elements in the city. The transport system is made up of three main components namely: transport infrastructure, vehicle and transport operations (Rodrigue, 2017).

Transport infrastructure is described as all routes and fixed installations of modes of transport such as bridges, roads, airports and harbours (Dalton, de la Pena, Vassallo, and Acciaro, 2017). Transport infrastructure is an element of the transport system that supports economic and social relations across different regions. Infrastructure is a prerequisite for economic growth in developing countries and is often referred to as the backbone of any economy (Skorobogatova and Kuzmina-Merlino, 2017).

2.3.1 Transport modes

A mode of transport can be described as the mobile component in the transport system, such as buses and trains (Rodrigue, 2017). The mode of transport is an important consideration when planning a journey and shipment of goods as each mode of transport has inherent characteristics (Proffillidis and Botzoris, 2019). The modes of transport are related to the type of infrastructure on which they operate (*ibid.*). There are various factors that influence transport mode choice. Based on previous research, the four factors which influence mode choice and that will be discussed in this study (discussed later in Section 2.3.4) are practical factors, structural factors, psychosocial factors, and socio-demographic factors (Proffillidis and Botzoris, 2019; Ye and Titheridge, 2019).

This study is focused on land transport modes such as cars, trains, buses, minibus taxis, and walking. In South Africa, minibus taxis are regarded as the most accessible mode of transport (Kerr, 2018). Minibus taxis are associated with taxi violence, high transport cost and fatal crashes (Kerr,2018). These are some of the disadvantages of the minibus taxis that transport users face in South Africa.

2.3.2 Transport for low-income populations in South Africa

South African cities were shaped by policies of segregation during the Apartheid era (Kerr, 2017). The system of Apartheid era left a legacy of social exclusion; black people were displaced from the city to the outer edge of the city (Thomas, 2016), as such, work opportunities for black people were often far from home. Commuting inequity was created in the context of this segregation. This meant long commuting time, long-distance between work and home and high transport costs for black people, especially the low-income earners. However, the government failed to address the post-apartheid challenges and provide an efficient and effective public transport system (Thomas, 2016). While some recent projects such as the Bus Rapid Transit (BRT) are trying to improve transport services, the overall response to improve the transport needs of the low-income population is weak (Thomas, 2016).

Public transport is essential to many households and commuters in South Africa. The use of formalised public transport in South Africa is not always possible in all areas (Lucas, 2011), therefore, informal transport such a minibus taxi becomes a necessity (Teffo et al., 2019). It is reported that approximately 7.5% of poor households have no access to taxi, bus or train (Stats SA, 2014). The majority of the poor members of society generally use public transport[1] (Thomas, 2016). Stats SA (2013) reported that approximately 91% of low-income populations depend on public transport for their daily activities. Individuals from poor households make fewer public transport trips per day than individuals from non-poor families (Stats SA, 2014). It is reported that minibus taxis serve approximately 15 million commuters every day across South Africa (Saferspace, 2018). According Stats SA (2019), 24% of the working population in South Africa use minibus taxis for work trips. Therefore, there is no doubt that public transport remains a necessity to low-income populations and the poor.

In general, the ability of urban dwellers to broaden employment horizons and to participate in the labour force depends on transport (Allan and Farber, 2019). However, limited transport

[1] modes included as public transport are not specified in Thomas (2016).

options may lead to limited opportunities, unemployment, poor quality of life, social exclusion and poverty (ibid.). Stats SA (2013) reported that low-income earners spend between 29% to 67% of their income on transport. It is reported that transport constituted 17% of total household consumption expenditure between 2010 and 2011 (Stats SA, 2015). According to Stats SA (2015), the most expensive mode of transport is "taxis with an average per capita monthly cost of R561, followed by bus transport (R502) and by trains (R402)". It should be noted that the taxis referred to in Stats SA (2015) include metered taxis, minibus taxis and other private vehicles that provide unscheduled transport at a fee. The most impoverished workers such as domestic workers spend a substantial portion (percentage not stated) of their income on transport to work (Kerr, 2018). The cost of using taxis is higher than buses or metro train (Kerr, 2018). Against this background, there is an urgent need to address transport needs of low-income populations and the poor.

The minibus taxi industry plays a significant role in transporting people from different areas of the city to work and other trips. As mentioned earlier, the minibus taxi is the most accessible transport mode in South Africa; the state does not subsidise minibus taxi operations (Kerr, 2018).

2.3.3 What shapes transport mobility patterns?

Empirical evidence shows that gender roles shape mobility patterns (Mahadevia and Advani, 2016; Parker and Rubin, 2017). The World Bank (2016) acknowledges that transport mobility patterns of women and men are different. Women's mobility patterns are more complex and heterogeneous than men's patterns, especially in developing countries. Women play multiple roles in their households, thereby reducing mobility as well as their economic activity (Mahadevia and Advani, 2016). Generally, women tend to take care of children, older parents and the sick (World Bank, 2016). According to Saferspaces (2018), South African women spend significant time performing care work. In addition, the care work performed by women depends on accessibility of public transport (Saferspace, 2018). Women tend to juggle household responsibilities and paid work responsibilities, resulting in daily activities tied to household (Mahadevia and Advani, 2016). This may lead to social exclusion of women in society if public transport is not accessible. Transport and mobility have significant contributions to women's empowerment through access to different activities such as employment and other vital services.

Globally, there has been an increase in women's mobility partly due to changes in gender roles and to an extent, a modern way of living (Mahadevia and Advani, 2016). According research done by de Regt (2010:240) on Ethiopian domestics in Yemen "there is an increase in women's mobility; women who were previously confined to their homes, villages, or neighbourhoods are now travelling long distances and crossing international borders to take up paid labour". The study done by Turdalieva and Edling (2018) in Kyrgyzstan shows that mobility of women is complex and driven by practical factors. Another research done in South Africa by Parker and Rubin (2017) shows that mobility of mothers in Johannesburg city is affected by socio-demographic factors such as household structure, living arrangements and family size. Such challenges may be considered universal. Mothers carry the burden for mobility of their children. They worry about safe public transport for their children to go to school (Parker and Rubin, 2017).

The rate of women's labour force participation has increased over the years, even though it varies across nations (UN, 2015). The increase in women's mobility may require transport planners and policymakers to rework transport policies to suit women's mobility and transport needs (Mahadevia and Advani, 2016). Mahadevia and Advani (2016) emphasise that there are gender differences in transport mobility needs in developing countries that require gender-sensitive policy responses. The World Bank (2016) concurs that there is gender difference in transportation, especially when it concerns physical security and safety. Moreover, provision of transport infrastructure and services has traditionally not taken gender differences into account in transport planning (World Bank, 2016; Matthews, 2017). A better understanding of gender difference in transport mobility helps better designing of transport policies that can improve gender equity.

The next section, 2.3.4 discusses the factors affecting mode choice.

2.3.4 Factors affecting mode choice

The analysis of factors affecting modal choice is essential in urban management and transport planning in order to understand travel demands of different population groups and transport users (Cheng *et al*., 2019). The key to understanding urban transport problems and potential solutions is to know how transport users make modal choices. This section addresses the second sub research question, "what are the factors that influence the mode choice of domestic workers". The section is also linked to the third sub research question, "what are the challenges experienced by domestic workers in accessing transport service". One of the most important

goals of transport planning is to match transport supply with demand (Fontoura et al., 2019). Literature shows that modal choice is affected by a wide range of factors (Madhuwanthi, Marasinghe, Rajapakse, Dhurmansa and Nomura, 2015; Guzman and Oviedo, 2018; Bartoseiwicz and Pielesiak, 2019; Cheng *et al*., 2019; Egset and Nordfaern, 2019). For the purpose of this study factors affecting modal choice are classified into four categories namely: practical factors, socio-demographic factors, psychosocial factors, and structural factors.

a) Practical factors

The first set of factors to be discussed is practical factors. Practical factors include transport dimensions such as comfort, route, cost, distance, safety and security (Lopez-Saez *et al*., 2014; Madhuwanthi et al., 2015; Bartoseiwicz and Pielesiak, 2019). *Distance* is a transport dimension that is significant in modal choice. Unlike long-distance journeys, short distance journeys are mostly made on foot and bicycle ((Bartoseiwicz and Pielesiak, 2019). According to research done by Kerr (2018) in South Africa, poor people often live far from work and end up spending more money on transport. To save transport money, some low earning workers may walk or cycle long distances to work and spend more time travelling (Kerr, 2018).

Transport cost is a dimension that heavily burdens transport users, primarily low-income populations (Guzman and Oviedo, 2018). Lack of affordable transport may force low-income earners to walk or cycle for long-distance journeys in order access workplaces as well as other important destinations (Ye and Titheridge, 2019). Previous research indicates that travelling long distance translates into more transport costs (Erman and Kara, 2018). There is a high possibility that transport costs prevent the unemployed from searching employment as well as reducing employment horizons, which may lead to poverty. It can be assumed that transport costs can contribute to a cycle of poverty for domestic workers and the low-income earners in general.

Safety and security are other dimensions of practical factors that influence transport mode choice. According to the International Transport Forum (ITF) (2018:20), "safety means avoiding accidents while security implies preventing crime and abuse". Maslow's hierarchy of needs shows that safety and security are fundamental human needs (Maslow, 1943). Everyone in the society needs transport that is safe. Fear for personal safety and security influences modal choice (Madhuwanthi et al., 2015; Stark and Meschik, 2018). It can be noted that transport users such as women, children and the elderly may be vulnerable to crime, violence or abuse

in public transport (Stark and Meschik, 2018). Women are believed to suffer harassment and violence in public transport and spaces (Matthews, 2017).

Women are assumed to be "open persons" (World Bank, 2016); hence they are more vulnerable to harassment and abuse in public transport than men (Ng and Acker, 2018). It is reported that the level of violence against women and girls is high in public transport and adjacent spaces (The World Bank, 2016; ITF, 2018). Mabaso and Matthews (2018) highlight that in South Africa, safety is lacking on trains, particularly Metrorail, and women are more vulnerable to crime. In the National Land Transport Act of 2009, it is stated that "the Minister must take any measures relating to public transport - promote the safety of passengers" (SA, 2009:18).

Graglia (2016) is of the opinion that safe, affordable and reliable public transport builds confidence in women when they travel. Cities such Rio de Janeiro, Brazil; and Dubai, UAE implemented various measures to ensure women's safety and security in public transportation (Dunckel-Graglia, 2013). Women-only transport is one of the transport initiatives taken by other countries such as Mexico (Dunckel-Graglia, 2013). This initiative has been met with mixed feelings in the sense that other people are of the opinion that women-only transport does not solve the root cause of violence and harassment of women in public transport (Dunckel-Graglia, 2013).

As discussed in Section 2.2.3, unfavourable working conditions such as long working hours may worsen the situation of safety and security of domestic workers when commuting, especially if they finish work late. Even though in other countries, working hours of domestics are regulated, some employers do not adhere to rules and regulations (Bundlender, 2016).

b) Socio-demographic factors

The second set of factors to be discussed is socio-demographic factors. Socio-demographic factors include characteristics such as marital status, age, educational level, income level, gender and household structure (Lopez-Saez et al., 2014; Ng and Acker, 2018; Cheng *et al*., 2019). In the study done by Madhuwanthi et al. (2015) age, marital status and household structure were listed as socio-demographic factors that influence mode choice of commuters. *Income level* is one of the critical characteristics of socio-demographic factors that affects the way people live and the choices they make in life. Income is one the factors with direct influence on transport mode choices (Souza *et al*., 2018). As compared to low-income earners, high-income earners have more transport options partly due to affordability. The majority of domestic workers earn low wages and salaries; as such their choices for mode of transport will

always be influenced by income. Dinkelman and Ranchhod (2012) affirm that domestic work is one of the lowest paid jobs in South Africa. Research done by Souza *et al*. (2018) in Brazil shows that income has direct influence on access to good transport and wealthier individuals have access to better transport infrastructure.

Household structure affects mode choice, for example, size of the household, number of adults and number of children in the family (Madhuwanthi et al., 2015; Cheng *et al*., 2019). McCarthy, Delbosc, Currie and Molly (2017) highlight that dependent children from high income households are more likely to use the car as mode of choice for their trips, while children from low-income households are more likely to use public transport.

c) Psychosocial factors

The third set of factors to be discussed is psychosocial factors. Psychosocial factors include elements such as perceptions, attitudes, social norms and intentions (Lopez-Saez *et al*., 2014; McCarthy *et al*., 2017). The Theory of Planned Behaviour (Ajzen, 1991), acknowledges that psychosocial factors such as attitude, norms, and perceptions influence the modal choice. The theory describes human behaviour as deliberate and planned (*ibid*.). Cheng *et al*. (2019) highlight that people's attitudes predict mode choice better than other traditional objective measures such as travel time and frequency. The use of specific modes of transport may stem from beliefs, for example, (Egset and Nordfjaern, 2019), cars may be seen as symbol of wealth; walking can be regarded as dangerous in certain areas, and public transport can be considered as dirty. Transport users may either develop a negative or positive attitude towards specific modes of transport.

d) Structural factors

Structural factors include the built environment and transport infrastructure (Cheng *et al*., 2019). The *built environment* can influence modal choice and commuting distance through several vital attributes, such as land-use mixture, building density, diversity, design and accessibility (Sun, Ermagun and Dan, 2017). Mixed land-use is a concept that embraces location of different types of land use close together, for example, commercial, residential, recreational and institutional (Litman, 2019). The concept of mixed land-use and high density encourages urban dwellers to walk and cycle for short distance journeys as well as using public transport (Litman, 2019). The intention of mixed land-use is that people work close to home; shop close to home; and children attend schools that are close to home. As a result, commuting distances are reduced especially if affordable housing is located in an area with job

opportunities (Litman, 2019). This concept reduces the need for motorised vehicles. Neighbourhoods that are easily accessible encourage transport users to use public transport and nonmotorized vehicles such as cycling. However, in the context of South Africa, there have been strong arguments for development of "well-located" housing of low-income people based on arguments about reducing transport costs and distance (Todes, 2003; Klug, Rubin and Todes, 2013).

According to Lopez-Saez et al. (2014) availability of transport infrastructure substantially influence modal choice of commuters. Transport infrastructure, such as dedicated infrastructure for walking and cycling, can encourage people to use non-motorised transport (Cheng *et al*., 2019). Dedicated infrastructure for pedestrians and cyclists improves safety and security from car drivers. As mentioned earlier, cycling is regarded as one of unsafe modes of transport (Xia *et al*., 2017). However, non-motorised transport modes are beneficial to the low-income population as they are cheaper to use as compared to other modes of transport such as private cars. It would be necessary for city planners to consider implementation of transport infrastructure to improve safety and security in communities with low-income population and the poor.

2.4 CONCEPTUAL FRAMEWORK

Based on the literature, the conceptual framework has been developed for the study. The relationship between domestic workers and transportation is complex. Figure 2.1 shows the conceptual framework for the study.

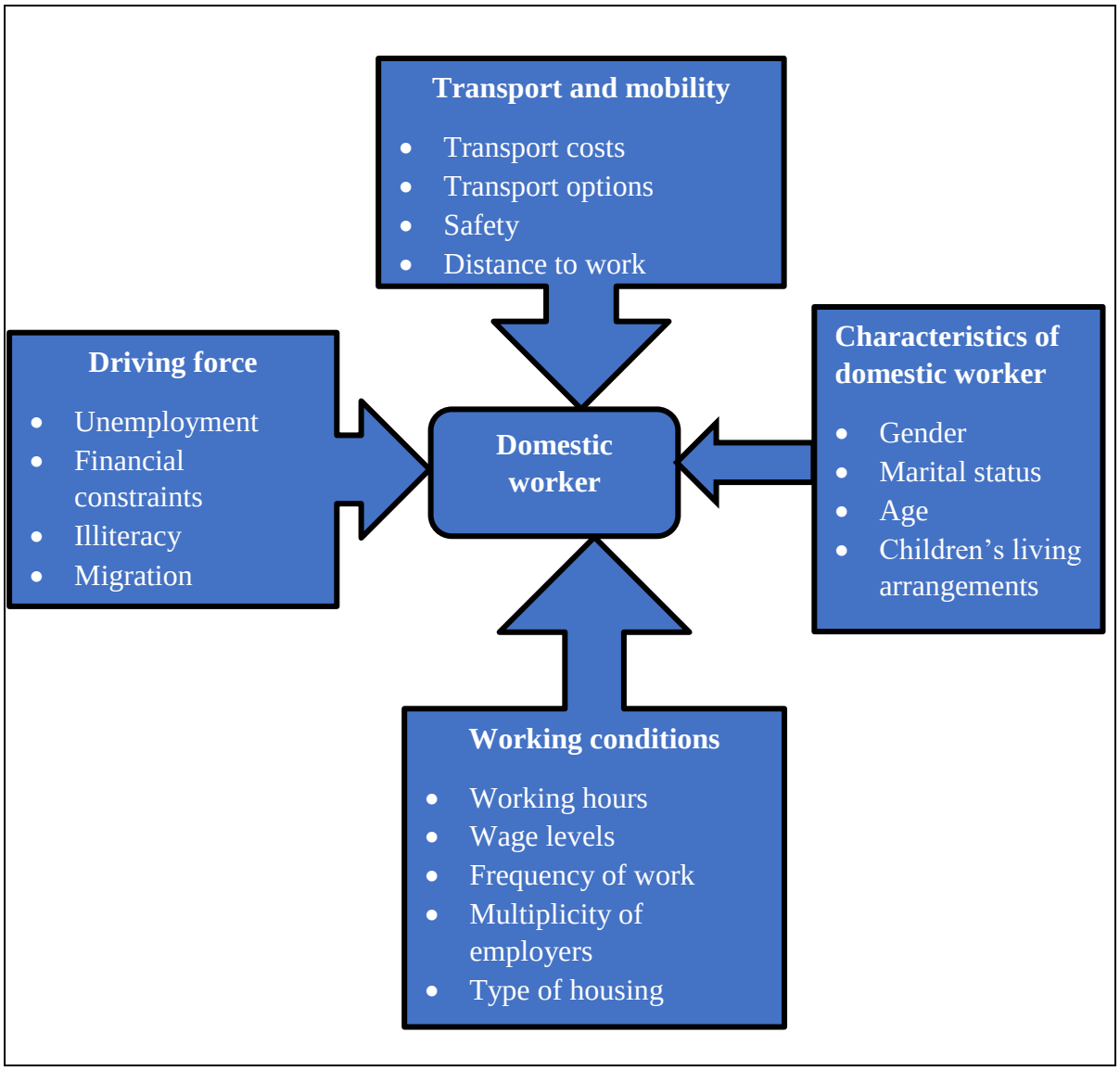


Figure 2. 1: Conceptual framework

Source: Own synthesis

Taking indications from the content presented in Figure 2.1, the relationship between transport mobility and domestic workers is complex. Literature suggests that driving forces for engaging into domestic work include: unemployment, financial constraints, illiteracy and migration (Marais and van Wyk, 2015).

In order for domestic workers to access their workplaces or broaden employment horizons, they need transport. Transport is a critical element in domestic workers' lives that enable them to accomplish daily activities. At the same time, transport imposes challenges such as high transport costs, few transport options and cases of harassment in public transport. This can result in transport disadvantage. Transport disadvantage is generally characterised by various issues such as access to transport, location and characteristics of a person. Delbosc and Currie (2011) highlight that areas that are too remote from daily activities (work, shopping, education) are regarded as disadvantaged. Depending with individual characteristics, domestic worker workers as a group are more likely to face transport disadvantage because of factors such as income and transport accessibility.

Generally, public transport is the main mode of transport in many cities for low-income populations and the poor (Cheng *et al*, 2013). Domestic workers earn relatively low wages that may translate into insufficient funds for daily commuting. As compared to high-income earners, low-income earners bear excessive commuting costs (Zhao, 2015). Many large gated communities in South Africa are not within public transport influence areas; as such, access to public transport is a challenge (Landman and Badenhorst, 2014).

However, some of the transport problems are associated with the working conditions. This is in line with research done by Zhao (2015) on the commuting burden of low-income workers in Beijing, indicating that residential location of low-income earners has influence on commuting time and costs.

Domestic workers working long working hours may be vulnerable to harassment in public transport if they travel too early in the morning or too late at night. Research done by Dunckel-Graglia (2013) in Mexico reveals that the majority of women surveyed thought that women-only transport was a safer option for women, but only if men respect this initiative.

The World Bank (2016) pointed out that investments in women's safety in public transport is critical in increasing women's access to jobs, healthcare and education. The solutions for items listed in the outcomes of Figure 2.4, need integrated planning and implementation of policies and legislation as well as constant monitoring and evaluation. The World Bank emphasised that comprehensive transport interventions require involvement of multi-sectoral strategies to attain greater impact.

2.5 CONCLUSION

The main focus of Chapter 2 was to conceptualise transport mobility and domestic workers as well as addressing some of the research sub-questions. The chapter started by providing a background on domestic workers. It can be noted that the domestic worker industry is dominated by women even though there is a substantial number of men working in the industry. Some of the push factors for women to become domestic workers are unemployment, financial constraints and lack of education.

Migrant domestic workers can either be international migrants or internal (rural-urban migrants). Domestic workers face a wide range of challenges, from low wages to long working hours. Gauteng province is one of the provinces where domestic workers earn relatively high wages. The minimum wage setting in South Africa was introduced in September 2002 and is prescribed according to Area A (metropolitan areas) and Area B (non-metropolitan areas).

There are different factors that shape transport mobility patterns. Gender roles influence mobility patterns and contribute to women's participation in society. A better understanding of gender difference in transport mobility helps better designing of transport policies that can improve gender equity.

One of the challenges that live-out domestic workers face is transport accessibility. Live-out domestic workers commute more often than live-in domestic workers. The discussion on factors affecting mode choice in Section 2.3.3 noted the practical factors, socio-demographic factors, psychosocial factors, and structural factors. Understanding modal choices is the key to understand urban transport problem and solutions. The last part of the chapter provided the conceptual framework for the study. The next chapter focuses on the research methodology of the study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to describe the research and methodology used to conduct this study. The conceptualisation and structuring of the research problem and the research objectives were introduced in Chapter 1 and 2. The primary aim of the study is to investigate the transport mobility patterns of female domestic workers working in Centurion. This chapter starts with Section 3.2 to describe the study site, Centurion in order to give context to the study.

3.2 STUDY SITE

The study was conducted in Centurion. Figures 3.1 and 3.2 show the location of Centurion and main transport routes.

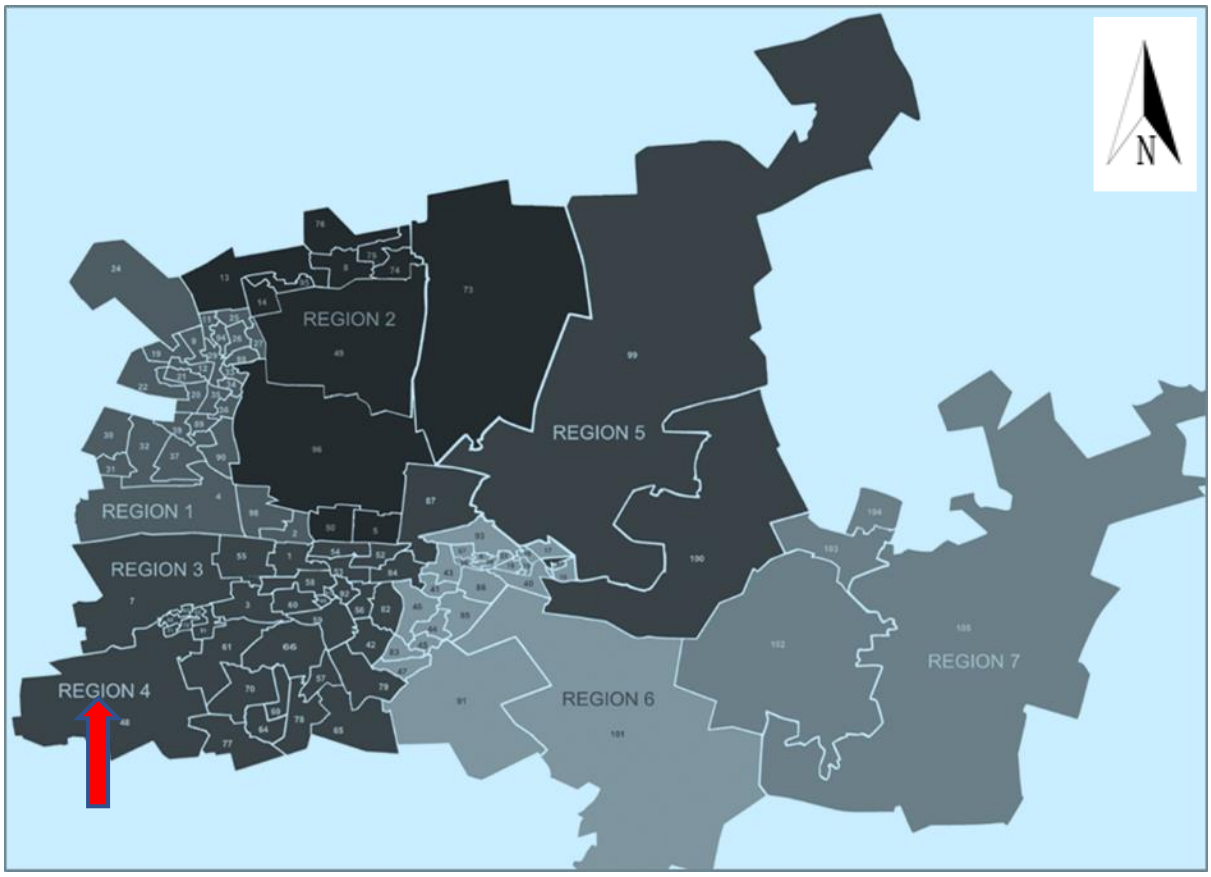


Figure 3. 1: City of Tshwane Map

Source: City of Tshwane (2016)

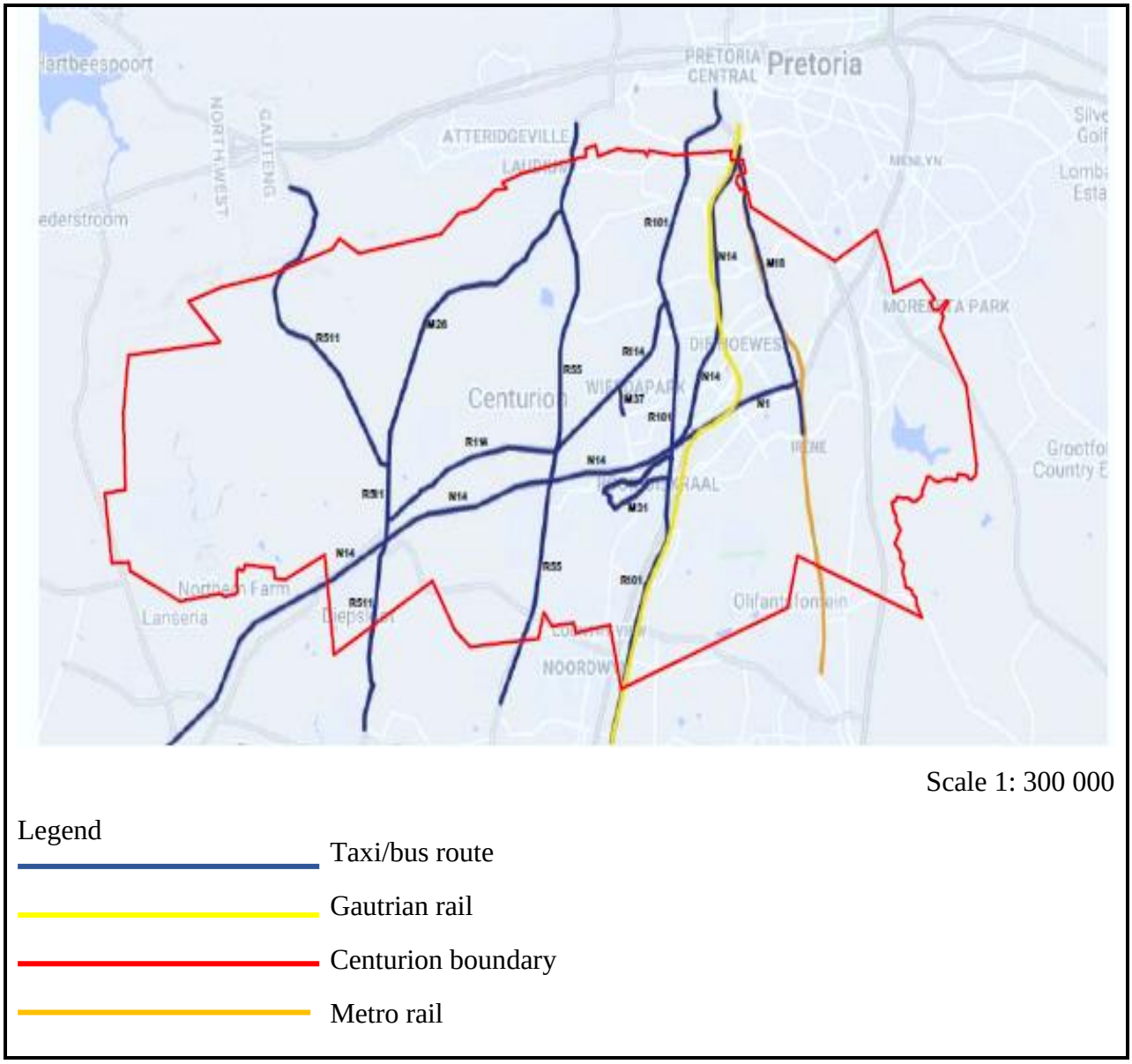


Figure 3. 2 Main transport routes in Centurion

Source: Author's own construction based on Google Earth base map and City of Tshwane (2016)

Centurion is situated in Region 4 of the City of Tshwane in the Gauteng Province of South Africa (see Figure 3.2). Centurion is a suburb of approximately 236 580 people and covers an area of approximately 395km^2 (Stats SA, 2014). Centurion was formerly an independent municipality with its town council; however, since 2000 it became part of the City of Tshwane Metropolitan Municipality (Stats SA, 2016). Centurion is located alongside Midrand, between City of Tshwane and City of Johannesburg. The Centurion Central Business District (CBD) is the most influential node in Region 4 linking Johannesburg and Tshwane (City of Tshwane, 2019). Centurion is associated with major transport links, for example Gautrain railway line runs through the centre of Centurion; metro railway as well runs through Centurion; roadways

links to Johannesburg, Tshwane, Krugersdorp and O.R. Tambo International (City of Tshwane, 2016). The largest taxi rank in Centurion is found at the CBD next to Centurion Mall. Bus operators that service Centurion include Tshwane Bus Services, Gautrain Buses, PUTCO, A Re Yang, JR Choeu, Starbus, Metrobus, Thari and ABS.

Centurion has grown since 1994, partly due to the relocation of many businesses into the area (Property24, 2019). The dominating economic activities are government services, finance and business services, manufacturing and trade sectors (City of Tshwane, 2016). Centurion offers city dwellers various types of housing such as stand-alone private houses, gated communities, housing estates and high-rise building apartments. In South Africa, some of the gated communities are located in private areas associated with poor access to public transport (Landman and Badenhorst, 2014).

The research design followed in this study is discussed next.

3.3 RESEARCH DESIGN

Research design is defined as "types of inquiry within quantitative, qualitative, and mixed methods approach that provides specific direction for procedures in a research design" (Creswell, 2014:12). This study followed an empirical approach to collect the primary data using a survey.

The three broad research designs identified by Creswell (2014) are: (a) quantitative, (b) qualitative and (c) mixed methods. Quantitative research method can be described as a research approach that involves collection of numerical data (Bryman and Bell, 2014). Mamun, Hafsa and Banik (2014:8) describes quantitative research as "an inquiry into an identified problem, based on testing a theory, measured with numbers and analysed by using statistical techniques". The objective of quantitative research method is to quantify data and generalise results from a sample to population of interest (Park and Park, 2016). Data collection in quantitative research method is structured (Park and Park, 2016). Data analysis is statistical (Rahman, 2017).

Qualitative research method involves the analysis of "subjective meaning or social production of issues, events, or practices by collecting non-standardised data and analysing texts and images rather than number and statistics" (Flick, 2014:542). One of the advantages of qualitative research method is that it understands the human experience in specific settings in a holistic manner (Rahman, 2017). In addition, it provides a basis for an in-depth description of discovery (Park and Park, 2016).

Mixed methods research is an approach that entails integration of quantitative and qualitative methods into a single study (de Vos, Strydom, Fouche and Delport, 2019). The use of mixed methods research in a study has a potential to provide better inferences (Creswell and Plano Clark, 2018). However, this method needs researchers to have some skills in both quantitative and qualitative methods, time and resources for data collection and analysis (Creswell and Plano Clark, 2018).

It has been argued that there is no perfect research method (Choy, 2014). This study performed quantitative study using survey design. The rationale behind survey method is that surveys are most suitable for large population. The characteristics of quantitative research are mentioned above. Data collected can be analysed quicker as compared to other methods (Creswell, 2014). Findings from quantitative research can be generalized (Creswell, 2014). Moreover, various transport mobility research projects have used the quantitative approach because of the advantages associated with the approach mentioned in the above paragraph (Delbosc and Currie, 2011; Tyrinopoulos and Antoniou, 2013; Vella-Brodrick and Stanley, 2013; Ye and Titheridge, 2019). The researcher cannot determine whether the responses provided by the participant are true or not true (Creswell, 2014).

3.4 SAMPLING PLAN

This section provides a discussion of the population and the sample of this study. It is usually not practical to include the whole of the research population in a survey; as such, researchers select a sample of the population (Williamson and Johanson, 2018). Figure 3.3 presents the onion concept of the sampling plan and how population is reduced to a sample.

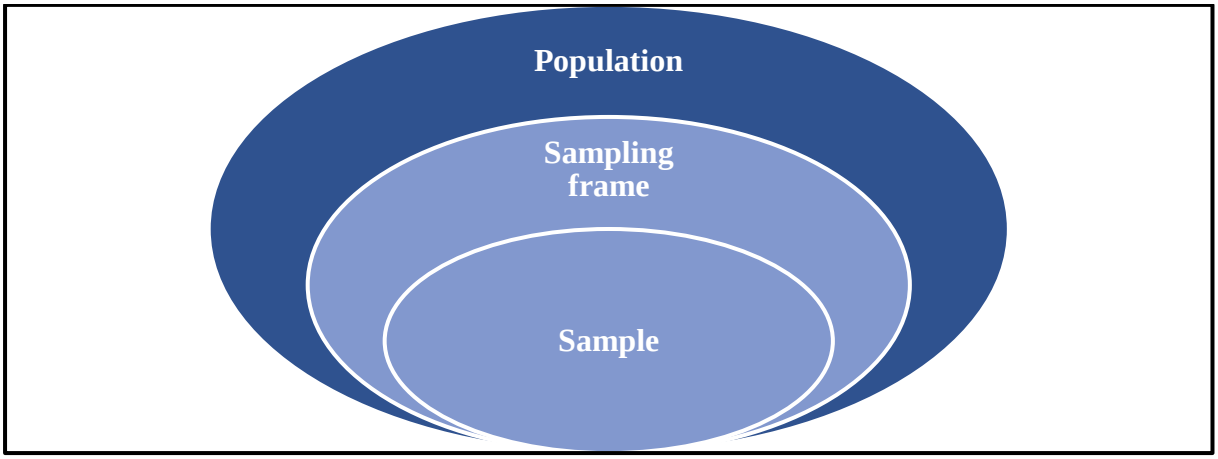


Figure 3. 3: Concept of sampling plan

Source: Williman (2011)

Population refers to a complete set of elements which have at least one characteristic in common (Williamson and Johanson, 2018). Population describes the target population of the study. For the purpose of this study, the population for this study comprised the female domestic workers working in Centurion.

Sampling frame can be described as the subset of the population from which a sample is selected (Williamson and Johanson, 2018). It is also known as the working population. A sampling frame of domestic workers working in Centurion was not available for selection of sampling elements. Based on the recommended sample size by de Vos *et al*. (2019) the sample size (N=100) is regarded as sufficient in a quantitative research to perform basic statistical procedures. To determine the sample of female domestic workers needed in this study, non-probability sampling was used.

There are various types of non-probability sampling including, convenience sampling, snowball sampling, quota sampling and purposive sampling (Williamson and Johanson, 2018). For the purpose of this study, purposive sampling was used to determine the sample of the sample. Purposive sampling is a non-probability sampling that is based on the judgement of the researcher in selecting a sample which best serve the purpose of the study (Grinnell and Unrau, 2008). The participants were located from bus stops around gated communities in Centurion as well as meeting areas for domestic workers.

3.5 RESEARCH INSTRUMENT

There are several ways of collecting data. A survey was used to collect primary data of the study. Survey research uses various data techniques such as questionnaires, interviews, mail and observation techniques (Williamson and Johanson, 2018). For the purpose of the present study, questionnaires were utilised to collect data from female domestic workers working in Centurion. The questions related to the main question of the study were compiled in a questionnaire. The questions in the survey were based on reviewed literature on transport mobility and domestic workers.

The questionnaire consisted of six sections (A-F) (see Appendix A). Questions in Section A consists of screening questions to determine whether the participant is part of the required population of the study. Participants that are considered ineligible in the study were excluded from the study. The correct demographic target for the study was ensured by screening the target population. The target population consisted of “live-out” female domestic workers who were older than 18 years of age and below the age of 65.

In Section B, the general information about participants were gathered. The variables that were critical to this study were: income, transport cost, family structure, age, area of residence and work arrangements. These variables affect modal transport choice. Section C consisted of questions about transport mobility patterns. Section C addresses the first sub-question, "what are the modes of transport used by domestic workers working in Centurion for work and everyday life". Section D involved questions on factors that influence transport modal choice; hence, the section addresses the second sub-question, "what are the factors that influence the mode choice of domestic workers".

Transport users experience different problems in daily travel. Section E contained statements about transport challenges experienced by female domestic workers. Section E addresses the third sub-question, "what are the transport challenges experienced by domestic workers in accessing transport service". Lastly, Section F contained various transport interventions that can be implemented to improve daily travel for domestic workers. Section F is linked to the fourth sub-question, "what are the perceptions of domestic workers on transport interventions that may be implemented to ease daily travel". Although this survey consists of closed-ended questions, there are few open-ended questions that were converted into quantitative responses.

3.6 FIELDWORK

This section discusses the process of data collection and fieldwork for this study. Primary data was collected after ethical clearance of the study was granted. The ethical clearance certificated granted by the University of Witwatersrand is attached as Appendix B. Primary data was collected using a questionnaire. The questionnaire was pre-tested on 10 domestic workers using a pilot study before conducting the main survey. Reliability and validity of the questionnaire were improved by pre-test carried out during the month of September year 2019. The data collection was conducted during the month of September in the year 2019 in Centurion after pre-tests were completed. The researcher distributed the questionnaires between Monday and Friday between 13:00 to 18:00 around public spaces such as bus stops, parks as well as their meeting areas (such as, outside school premises)

The researcher approached potential participants and introduced herself. The potential participants were informed about the current research and asked whether they might consider participating in the survey. The participants were notified that: (1) participation was voluntary and they were under no obligation to participate; (2) they were free to withdraw from participation at any time and without giving any reasons; (3) identity would be anonymous and

no one would be able to connect them to their answers; and (4) a summary of findings would be provided on request. Participants signed a consent form (see Appendix C and D) to show that they had been informed about the research; and they are willing to take part in the research. Potential participants that were interested were screened by questions to determine whether they would form part of the study population required. Once the screening was done, the participant completed the questionnaire while the researcher was present in order to reduce the number of incomplete questionnaires. The researcher read out the questions to the participant as some of the participants could not read. To make the questionnaire easy to fill in, the instructions were made simple and easy to understand to avoid confusion.

3.7 DATA ANALYSIS

The presentation of the research findings is in Chapter 4 and 5. Descriptive statistics, cross-tabulations and SPSS statistical software package were used to analyse quantitative data. When data collection process was finished, survey data was exported to SPSS software. SPSS is a statistical software used by researchers for statistical data analysis. SPSS statistical software package provided the researcher with basic statistical functions including descriptive statistics and cross-tabulations. The researcher was able to create visuals such as charts from SPSS.

Descriptive statistics are numbers that quantify findings in a visual nutshell through the use of tables, graphs and charts (Steinberg, 2015). Shears (2018) highlights that descriptive statistics enable interpretation and comparison of quantitative data. The presentation and interpretation of the results were done in the form of tables, bar graphs and pie charts. Cross-tabulation was a technique used to illustrate the relationship between two variables. Cross-tabulation enables examination of relationships within data sets which may not be apparent when analysing total survey responses (Steinberg, 2015). Cross-tabulation tables are presented and interpreted in both Chapter 4 and 5.

Finally, a conclusion was drawn from the results. The conclusion and recommendations are in Chapter 6.

3.8 CONCLUSION

The purpose of this section was to discuss the research design and methodology used in the study. The chapter started by providing a background on the study site, which is Centurion in the City of Tshwane. The primary data was collected during the month of September year 2019 in Centurion. The target population comprised female domestic workers working in Centurion.

There was no sampling frame for domestic workers in Centurion; therefore, a sample size of 100 was sufficient for this study. Purposive sampling was used for selection of study sample. Descriptive statistics, cross-tabulations and SPSS statistical software package were used to analyse quantitative data for this study. The research findings are presented in Chapters 4.

CHAPTER 4: RESEARCH FINDINGS AND ANALYSIS – PROFILE OF DOMESTIC WORKERS

4.1 INTRODUCTION

The main research question of the study was "what are the transport mobility patterns of female domestic workers working in Centurion?" To answer the main question of the study, four sub-question were developed. The aim of Chapter 4 is to present research findings and analysis on profile of domestic workers, while Chapter 5 present research findings and analysis on transport and mobility. The research findings presented in this chapter are organised into four themes and analysis of the results in this chapter is presented at the end of the chapter.

4.2 GENERAL INFORMATION

This section provides a profile of domestic workers working in Centurion, including details about their lives, such as age, income, marital status and family composition. The general information on domestic workers was gathered from Section B of the questionnaire (see Appendix A). Section B consisted of both closed-ended question and open-ended questions that were converted into quantitative responses.

4.2.1 Age categories of domestic workers

The age categories of the study were economically active population. The respondents were between the age range of 18 to 64 years. Figure 4.1 below shows the age categories of the domestic workers who participated in the study.

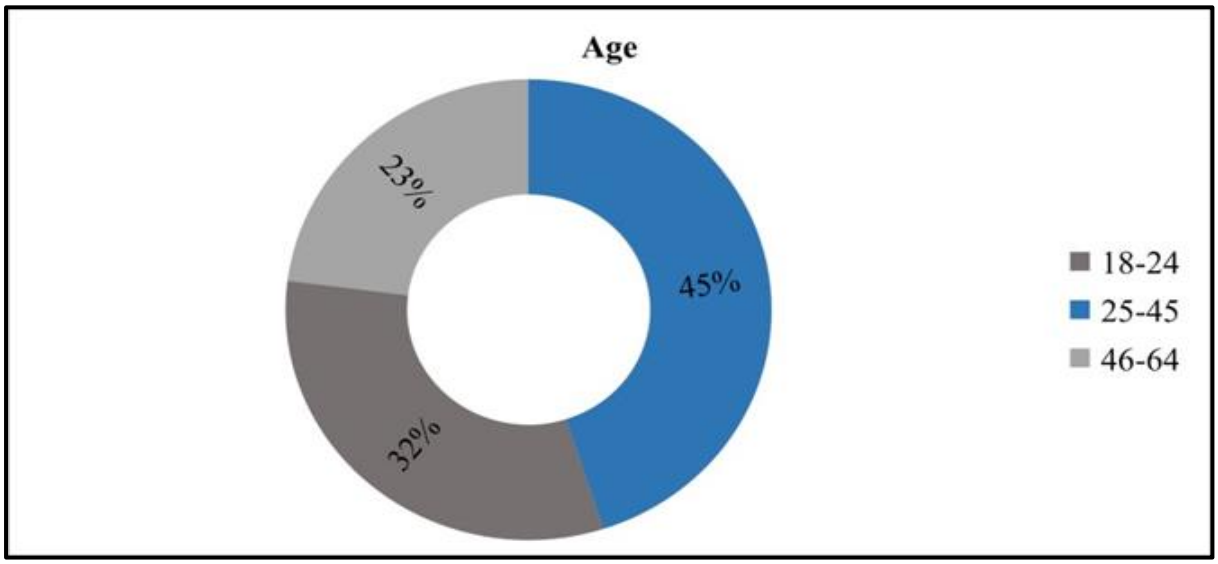


Figure 4. 1: Age categories

The total number of domestic workers who participated in the study was 100 (N=100). The results of the study show that the largest proportion of domestic workers who responded to the study were between the ages of 25 and 45 years with a percentage of 45%. Thirty-two percent of respondents were between 18 and 24 years, while 23% were between 46 and 64 years. In South Africa, the age profile of domestic workers has changed over the years (Budlender, 2016). In 2013, the majority of domestic workers (62%) in South Africa were between the age of 30 to 49 (Budlender, 2016).

4.2.2 Marital status

Figure 4.2 below, shows the marital status of the respondents.

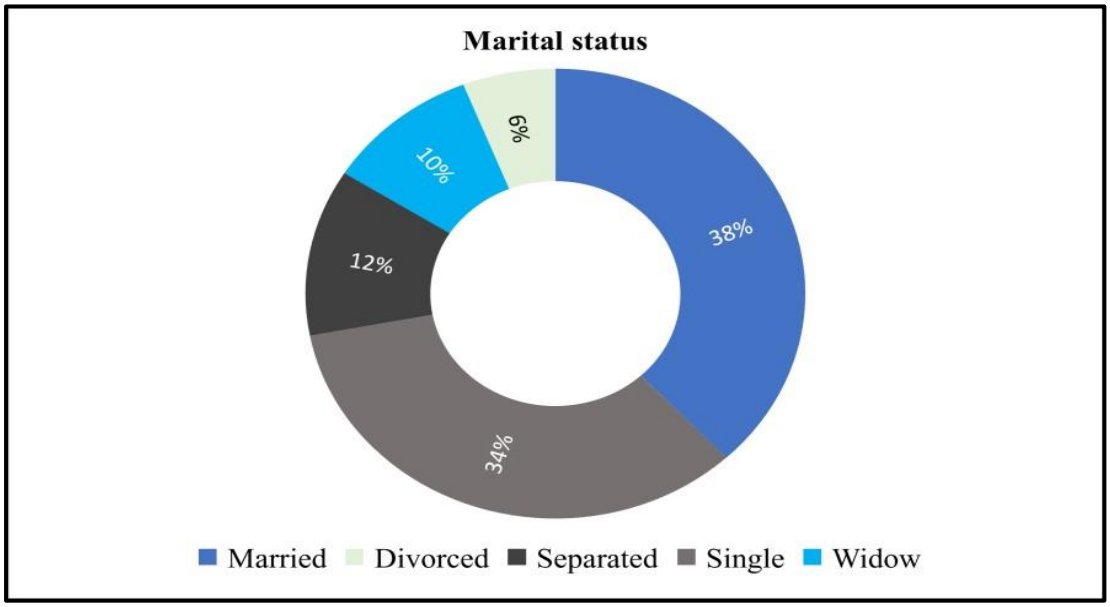


Figure 4. 2: Marital status of respondents

The majority of the respondents are not married (62%). The respondents who are single (34%) are slightly fewer than the respondents who are married (38%). Some 10% of respondents are widows, while 12% of respondents are separated. The smallest group of respondents are divorced (6%).

4.3 FAMILY DYNAMICS

Family dynamics relate to aspects such as household composition, head of household and childcare.

4.3.1 Household composition

Household composition is an important dimension that shapes livelihood and mobility patterns. This study included questions on children; number of children the respondents had; and who

lived with their children. Table 4.1 shows the respondents with children as well as the number of children.

Table 4. 1: Household composition of respondents

Do you have children?		
Answer Choices	Responses (N =100)	
Yes	67%	67
No	33%	33
How many children do you have?		
Number of children	Responses (N=100)	
0	33%	33
1	9%	9
2	25%	25
3	19%	19
4	10%	10
5	4%	4

The results indicate that 67% of the respondents have children, while 33% of the respondents do not have children. Of those who do have children, 25% have two children, 19% of three children, and 10% have four. As emerges from responses discussed below, some domestic workers leave their families in search of work in other countries or places.

4.3.2 Head of household

The respondents were asked to indicate who the head of their households were.

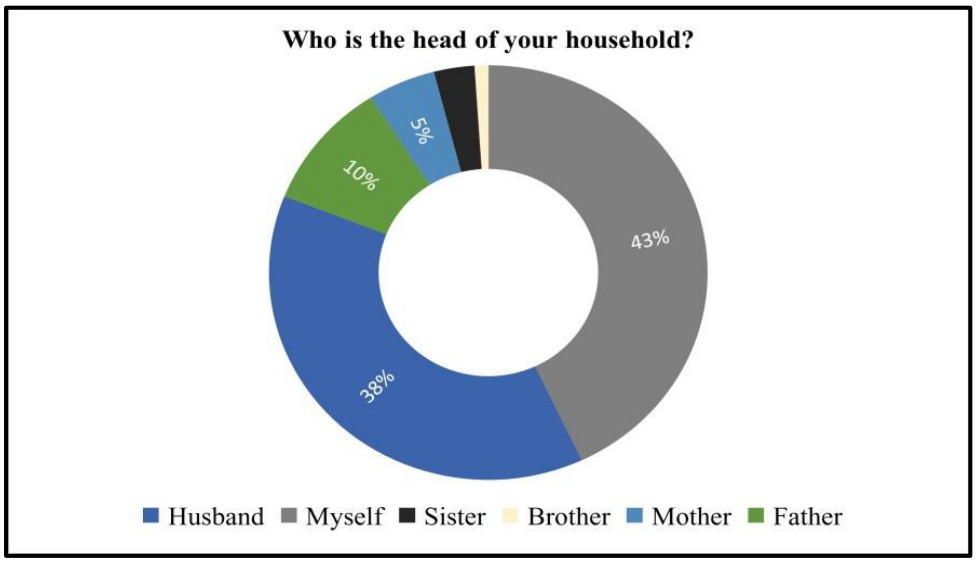


Figure 4. 3: Head of household

The majority of households are female-headed households (51%), most of whom are the domestic workers themselves (43%). Thirty-eight percent of the households are headed by their husbands, while households headed by brothers consist of the smallest percentage (1%). According to Stats SA (2018), female-headed households are more common in provinces with large rural areas than urban areas (Eastern Cape, 47%; Limpopo, 46%; and KwaZulu-Natal, 45%). However, this study shows the majority of households are headed by women.

4.3.3 Childcare

The respondents were asked about who takes care of their children while they were working.

Table 4. 2: Childcare

If you live with your children, who takes care of them while you are working? (N=100)	
Answer Choices	Responses (Total = 38)
Day care centre	13%
School	16%
Older children (do not need to be taken care of)	5%
Relative	4%
If you do not live with your children, who lives them?	
Answer Choices	Responses (Total = 29)
Relative	6%
Grandmother	18%
Sister	5%

Out of 67, 38 respondents live with their children, while 29 out of 100 do not live with their children. The first section of Table 4.2 provides information on childcare for those who live with their children. The results indicate that 16% of all respondents living with their children reported that their children attend school while they are working. Thirteen percent of the respondents indicated that their children are left at day care centres. Some 5% of respondents have older children that do not need to be taken care, while 4% indicated that they leave their children with relatives while they are working.

The second section of Table 4.2 shows information on childcare for those who do not live with their children. The results indicate that 18% of the respondents reported that their children live with grandmothers. The rest of the responses are relatively evenly distributed across relatives

(6%) and sisters (5%). Living arrangements of children impact on various issues such as type of work, transport used and type of housing.

4.4 HABITATION

Respondents were asked questions pertaining where they live, the type of housing they live in and whether they have a second home.

4.4.1 Residential areas of domestic workers working in Centurion

Centurion is a suburb located in Region 4 of City of Tshwane. Centurion is located alongside Midrand, between City of Tshwane and City of Johannesburg. The surrounding areas of Centurion include Tembisa, Atteridgeville and Diepsloot as shown in Section 3.2 and Figure 4.5 of this study. The Centurion CBD is the most significant node in Region 4 linking Johannesburg and Tshwane (City of Tshwane, 2019). Centurion is associated with major transport links, for example Gautrain railway line runs through the centre of Centurion; metro railway as well runs through Centurion; roadways links to Johannesburg, Tshwane, Krugersdorp and O.R. Tambo International (City of Tshwane, 2016). Figure 4.4 shows the areas in which domestics workers working in Centurion live.

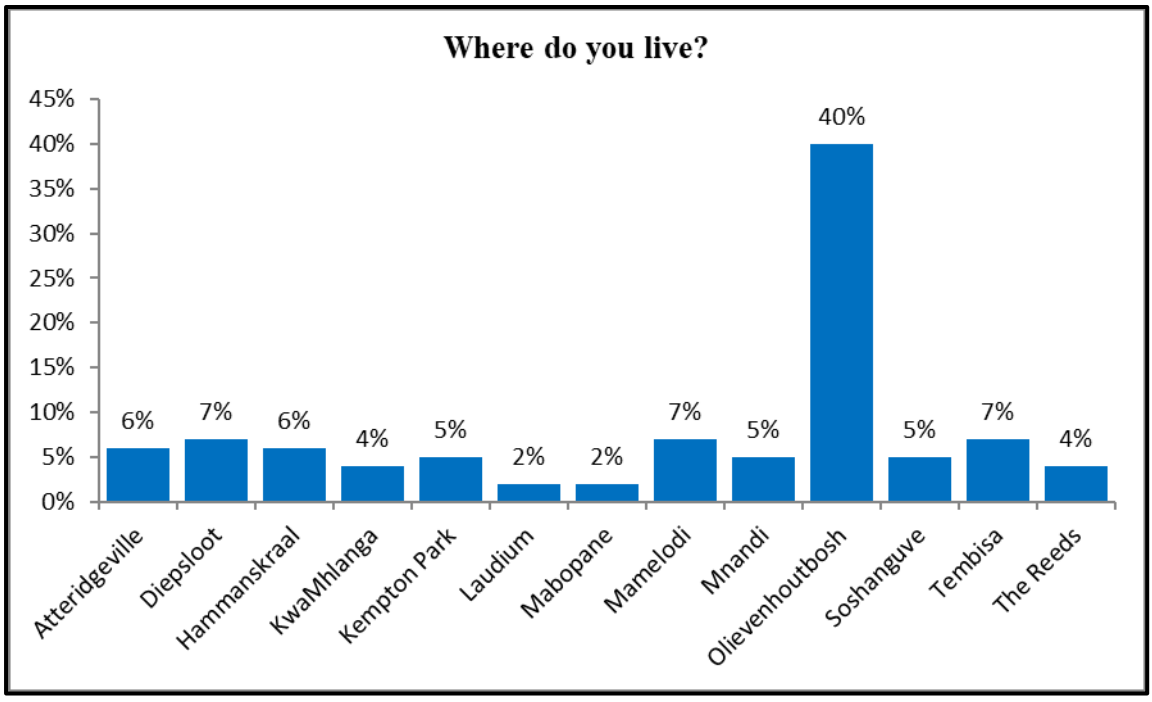


Figure 4. 4: Residential areas for domestic workers working in Centurion

The largest proportion of the respondents are from Olievenhoutbosch (40%), a township located in Centurion along route R55. Respondents from Olievenhoutbosch live near their

workplaces. The nearest areas where the respondents work are Thatchfield Estates and Blue Valley Estates. These gated communities are less than a kilometre from Olievenhoutbosch (Google Maps, 2019). The Reeds, Laudium and Mnandi are located within Centurion. Townships such as Hammanskraal, KwaMhlanga and Mabopane are not close to Centurion. According to Google Maps (2019), KwaMhlanga is approximately 102km from Centurion; Hammanskraal is approximately 76km from Centurion; Soshanguve is approximately 80km from Centurion; and Mabopane is approximately 60km from Centurion. Because of geographic distances, respondents from areas that are not close to Centurion travel longer distances and their commuting time is longer. However, the majority of the respondents do not commute every day to and from work (see Section 5.2.2). Commuting time is presented in Section 5.2.2. Figure 4.5 shows the location of residential areas for domestic workers working in Centurion.

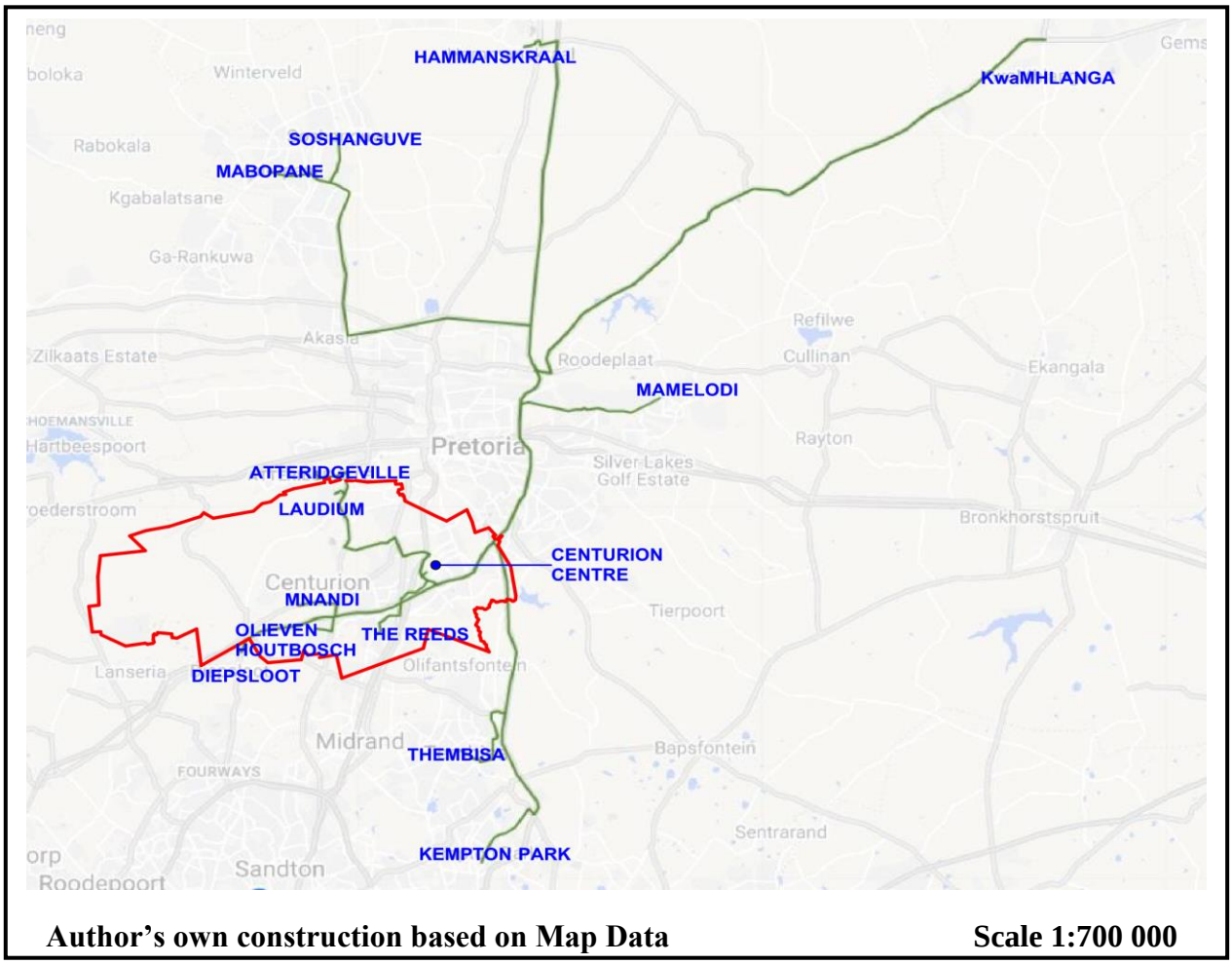


Figure 4. 5: Location of residential areas of respondents[2]

[2] The distances shown in Figure 4.5 are from Centurion Centre Author's own construction based on Google Earth base map

4.4.2 Domestic workers' habitation

In South Africa, municipal governments are aware of and acknowledge housing challenges that domestic workers face (Tonkin, 2010). Domestic workers should have access to affordable decent housing (Tanzer, 2013). Figure 4.6 shows the types of housing in which the respondents live.

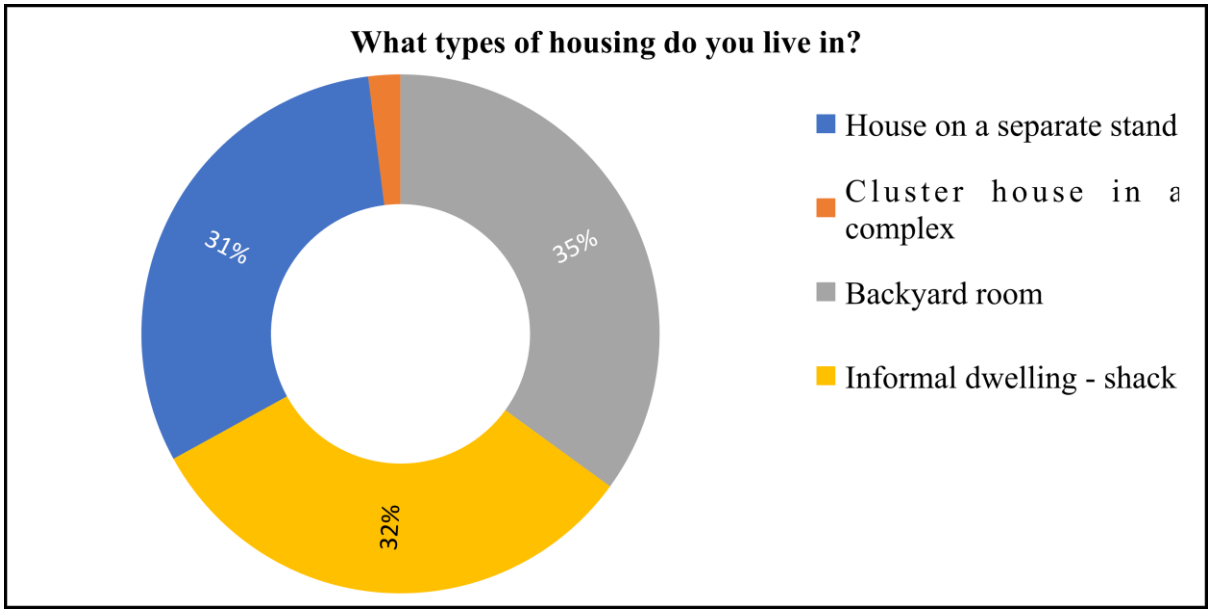


Figure 4. 6: Habitat of respondents

The types of housing in which the respondents live is almost proportionally distributed among houses on a separate stand (31%); backyard room (35%); and shack (32%). According to Stats SA (2019), the majority of households in City of Tshwane live in formal dwellings. The shacks in this study include all forms of shacks. The study did not ask whether the houses respondents living in are rented or self-owned places. To illustrate the relationship between types of house and where the respondents live, cross-tabulation, Table 4.3 was created.

Table 4. 3: Cross-tabulation of where respondents live and the type of housing

Where do you live? * What types of housing do you live in? Cross-tabulation						
		What types of housing do you live in?				Total
		House on a separate stand	Cluster house in a complex	Backyard room	Informal dwelling - shack	
Where do you live?	Atteridgeville	4	0	0	2	6
	Diepsloot	1	0	3	2	6
	Hammanskraal	3	0	1	2	6
	KwaMhlanga	4	0	0	0	4
	Kempton Park	2	0	2	1	5
	Laudium	0	0	1	1	2
	Mabopane	0	0	2	0	2
	Mamelodi	4	0	1	2	7
	Mnandi	2	0	2	1	5
	Olievenhoutbosch	9	1	12	18	40
	Soshanguve	0	0	5	0	5
	Tembisa	2	0	2	3	7
	The Reeds	0	1	4	0	5
Total		31	2	35	32	100

From Table 4.3 the following points can be made:

1) Eighteen percent of respondents reside in Olievenhoutbosch in shacks. Twelve percent of respondents live in Olievenhoutbosch in backyard rooms, while 9% live in houses on a separate stand. Only 1% lived in a cluster house in a complex.
2) Four percent of respondents are residing in Atteridgeville in houses on a separate stand, while 2% live in shacks.
3) Some 6% of respondents were from Hammanskraal, and 3% lived there in houses on a separate stand; 2% lived in shacks and only 1% lived in backyard rooms.
4) Three percent of respondents are from Diepsloot and live in backyard rooms; 2% live in shacks; and only 1% live in a house on a separate stand.
5) Only 2% of respondents reside in Mabopane and live in backyard rooms, while all respondents from Soshanguve live in backyard rooms (5%). Similarly, only 2% of the respondent reside in Laudium and live there in backyard rooms and shacks.
6) The respondents residing in The Reeds live in cluster houses (1%) and backyard rooms (4%). Domestic workers living in The Reeds work in houses near where they live.

4.4.3 Home

Table 4.4 shows whether the respondents have second homes and the location of their second homes.

Table 4. 4: Home

Do you have a second home			**If yes, where?**		
Answer Choices	Responses		Answer Choices	Responses	
Yes	56%	56	Local	39%	22
No	44%	44	Outside South Africa	61%	34
Outside South Africa					
Swaziland			1		
Zimbabwe			16		
Lesotho			11		
Malawi			6		
Local					
Mpumalanga			7		
Rustenburg			3		
Limpopo			6		
Hammanskraal			4		
Durban			1		
Free State			1		

The respondents were asked to indicate whether they have second homes and the location of their second homes. The majority of the respondents do have second homes (56%). The majority of respondents (61%) with second homes are from other countries listed in Table 4.4, while 39% indicated that their second homes are within South Africa. Sixteen percent of respondents with second homes are from Zimbabwe, while 11% are from Lesotho, and Swaziland and Malawi together account for 7%.

Respondents with second homes within South Africa are from Mpumalanga (7%), Rustenburg (3%), Hammanskraal (4%), Durban (1%), Limpopo (6%) and Free State (1%). It should be noted the study did not request respondents to indicate whether their second homes are in rural areas or urban areas. To illustrate the relationship between types of housing and second homes, cross-tabulation was developed.

Table 4. 5: Cross-tabulation of second homes and types of housing

What types of housing do you live in? * Do you have a second home Cross-tabulation				
		Do you have a second home		Total
		Yes	No	
What types of housing do you live in?	House on a separate stand	9	22	31
	Cluster house in a complex	2	0	2
	Backyard room	21	14	35
	Informal dwelling - shack	24	8	32
Total		56	44	100

The highest proportion of respondents (43%) with second homes lived in shacks. Twenty-one percent of respondents with second homes lived in backyard rooms, while 9 out of 56 (16%) live in houses on separate stands. Only 2 out of 56 respondents with second homes live in cluster houses. Most domestic workers with second homes live in shacks and backyard rooms. To illustrate the relationship between living with children and second homes, cross-tabulation was developed.

Table 4. 6: Cross-tabulation between second home and children

Do you live with your children? * Do you have a second home Cross-tabulation				
		Do you have a second home		Total
		Yes	No	
Do you live with your children?	Yes	20	20	40
	No	23	5	28
Total		56	44	100

The results indicate that 23 out of 56 respondents who did not live with their children had second homes, while 20 out of 44 respondents living with their children had second homes. Respondents with second homes are migrant workers (both international and internal migrants).

4.5 WORKING CONDITIONS

Respondents were asked questions concerning working conditions such as working time, number of working days and the type of work they do.

4.5.1 Number of working days

The respondents were asked the number of days that they work during the week.

Table 4. 7: Number of days that respondents work per week

How many days do you work per week		
Number of days	Responses (N=100)	
1	1 %	1
2	10%	10
3	27%	27
4	25%	25
5	27%	27
6	9%	9
7	1%	1

Twenty-seven percent of respondents work three days per week, similarly 27% worked five days per week, while 25% of respondents reported that they work four days per week. The smallest proportion of respondents (1%) came from two groups of domestic workers working once a week and those working seven days a week. The rest of the respondents were relatively evenly distributed across two days (10%) and six days (9%). The findings reveal that some households do not employ domestic workers on a full-time basis. In order to summarise the association between monthly income and number of working days, cross-tabulation was undertaken. Table 4.8 shows a cross-tabulation between monthly income and number of working days in a week that respondents work.

Table 4. 8: Cross-tabulation between income and number of working days

Income in Rands * How many days do you work per week? Cross-tabulation									
		How many days do you work per week?							Total
		1	2	3	4	5	6	7	
Income in Rands	less than 2000	1%	5%	0%	0%	0%	0%	0%	6%
	2001-3000	0%	1%	10%	3%	7%	2%	0%	23%
	3001-4000	0%	4%	17%	21%	18%	6%	1%	67%
	More than 4000	0%	0%	0%	1%	2%	1%	0%	4%
Total		1%	10%	27%	25%	27%	9%	1%	100%

Table 4.8 shows the following:

1) The results indicate that the highest percentage of respondents (21%) work four days per week and earn an income of between R3001-4000.
2) Respondents earning more than R4000 constitute a smaller percentage (4%) and they work between 4-6 days per week.
3) A considerable number of respondents (56) earn between R3001-4000 when they are working between 3-5 days per week. To be more specific, 17% work three days per week; 21% work four days per week; and 18% work five days per week.
4) Twenty-three percent of the respondents work between 2-6 days per week.
5) Six percent of respondents who work between 1-2 days per week indicated that they earn less than R2000.
6) One percent of respondents working once a week earn an income of less than R2000. Similarly, 1% of respondents working two days and seven days earned between R2001-3000 and R3001-4000 respectively. Another 1% reported that they work four days per week and earned more than R4000. Five percent of respondents working two days per week indicated that they earn less than R2000.

4.5.2 Labour provided to other households

Table 4.9 shows the number of respondents that work for other households as well as number of households serviced.

Table 4. 9: Households serviced

Do you work for other households?		
Answer Choices	Responses	
Yes	62%	40
No	38%	60
How many households are you working for?		
Answer Choices	Responses	
1	38%	38
2	42%	42
3	12%	12
4	8%	8

The respondents were asked whether they do work for other households. It should be noted that the questionnaire of the study did not ask specific locations of the other places where they

work. The results indicate that the majority of respondents (62%) work for other households, while 42% of respondents work for two households. Twelve percent of the respondents work for three households while 8% work for four households. Research done by Ajibade (2018) in South Africa shows that domestic workers working in Waterfall Estate work for more than one household. Research done in Turkey shows that domestic workers work for several families (Erman and Kara, 2018). In India, domestic workers work with multiple employers who prefer flexible engagements (Bino et al., 2018).

4.5.3 Work experience

Table 4.10 shows the length of time that respondents have been working as domestic workers.

Table 4. 10: Work experience

How long have you been working as a domestic worker? (Years)		
Answer Choices	**Responses**	
0-2	19%	19
3-5	44%	44
6-8	13%	13
9-11	12%	12
More than 11	12%	12

The respondents were asked about how long they had been working as domestic workers. The highest proportion of the respondents (44%) have worked as domestic workers for 3-5 years. Nineteen percent of the respondents have work experience of between 0-2 years, while 13% had worked for about 6-8 years. Twelve percent of the respondents have worked for 9-11years, similarly 12% of respondents had worked for more than 11 years.

4.5.4 Duties and tasks

Domestic work is not uniform; work is performed under wide range of conditions (du Toit, 2013). Domestic workers provide a wide range of household of services including housekeeping, elderly care, disability, gardening and childcare. Table 4.11 shows the duties and tasks of domestic workers working in Centurion.

Table 4. 11: Duties and tasks

What are your duties and tasks?		
Answer Choices	**Responses**	
Housekeeping	74%	74
Childcare	20%	20
Elder care	3%	3
Care for the sick	3%	3

The respondents were asked to indicate their duties and tasks. The majority of the respondents indicated that they do housekeeping (74%), while the smallest proportion was elderly care (3%) as well as care for the sick (3%). It can be assumed that duties and tasks of domestic workers are determined by the form of help required by the employer.

4.5.5 Time schedules

The time schedules for work are divided into three categories; first one being time to wake up, followed by time to start work, then time to finish work. Respondents were asked the time they wake up; start and finish work.

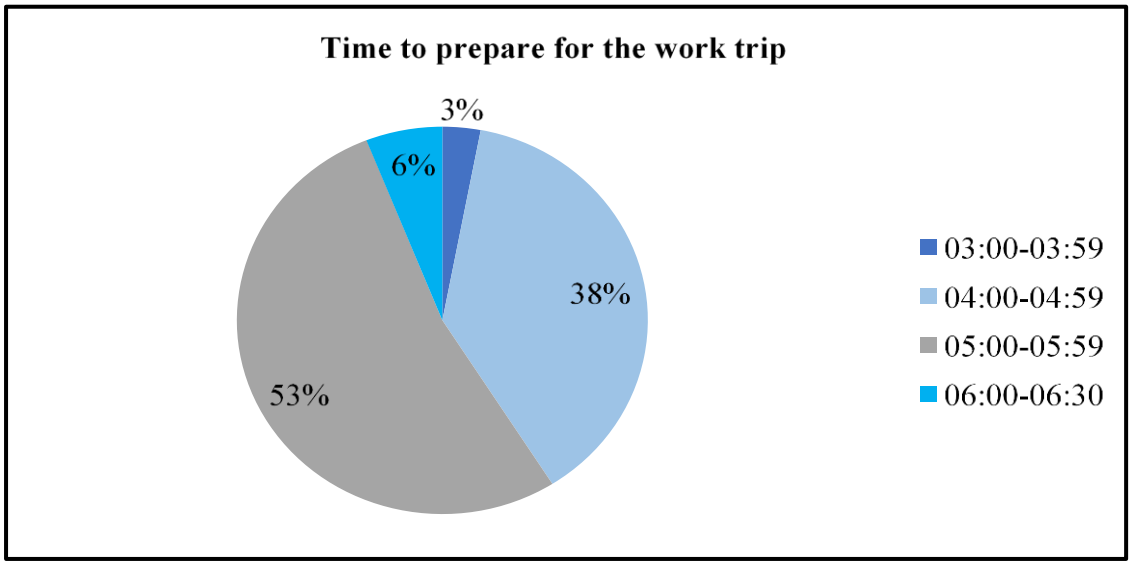


Figure 4. 7: Time to prepare for work trip

More than half of the respondents (53%) wake up between 05:00 – 05:59 to prepare for work. Thirty-eight percent of respondents wake up between 04:00 – 04:59 while 6% of the respondents wake up between 06:00 – 06:30. It is interesting to note that there are some workers

waking up as early as 03:00 – 03:59. Table 4.12 shows cross-tabulation of where respondents live and the time they wake up.

Table 4. 12: Cross-tabulation of residential areas and time to wake up

Where do you live? * What time do you wake up to prepare for your work trip? Cross-tabulation						
		What time do you wake up to prepare for your work trip?				Total
		03:00-03:59	04:00-04:59	05:00-05:59	06:00-06:30	
Where do you live?	Atteridgeville	0	1	5	0	6
	Diepsloot	0	0	5	2	7
	Hammanskraal	0	5	1	0	6
	KwaMhlanga	1	2	1	0	4
	Kempton Park	0	3	2	0	5
	Laudium	0	0	2	0	2
	Mabopane	0	1	1	0	2
	Mamelodi	2	4	1	0	7
	Mnandi	0	3	2	0	5
	Olievenhoutbosch	0	14	22	4	40
	Soshanguve	0	3	2	0	5
	Tembisa	0	2	5	0	7
	The Reeds	0	0	4	0	4
Total		3	38	53	6	100

Respondents who wake up as early as 03:00-03:59 are from Mamelodi and KwaMhlanga. These two areas are among the furthest areas from Centurion. The largest proportion of respondents wake up between 05:00-05:59 and reside in Olievenhoutbosch.

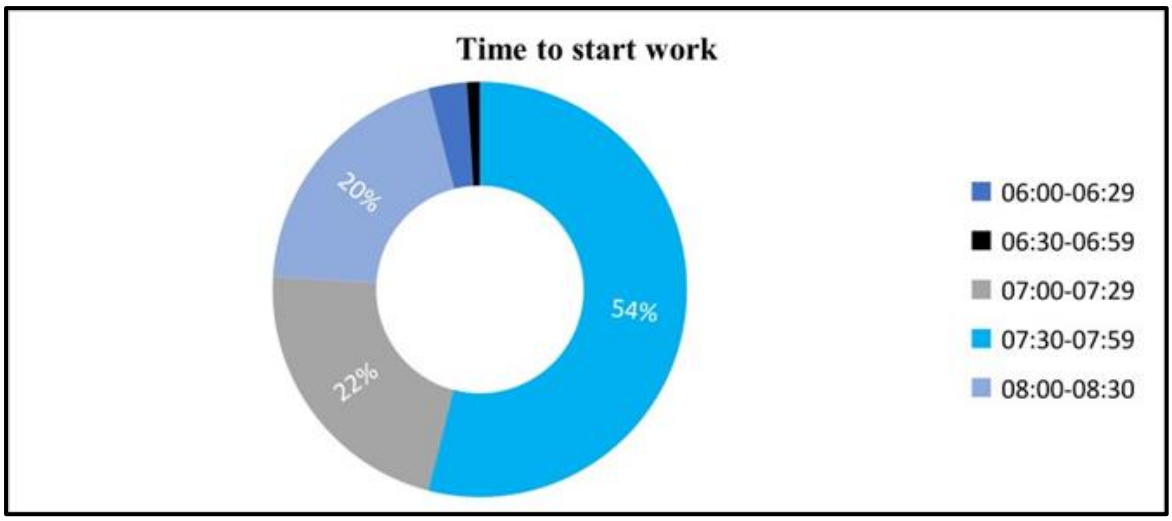


Figure 4. 8: Time to start work

The majority of the respondents (54%) start work between 07:30 - 07:59. Twenty-two percent of respondents start work between 07:00 – 07:29, while 20% of the respondents start work between 08:00 – 08:30. Three percent of respondents start work as early as 06:00 – 06:29. Figure 4.9 indicates the time respondents finish work.

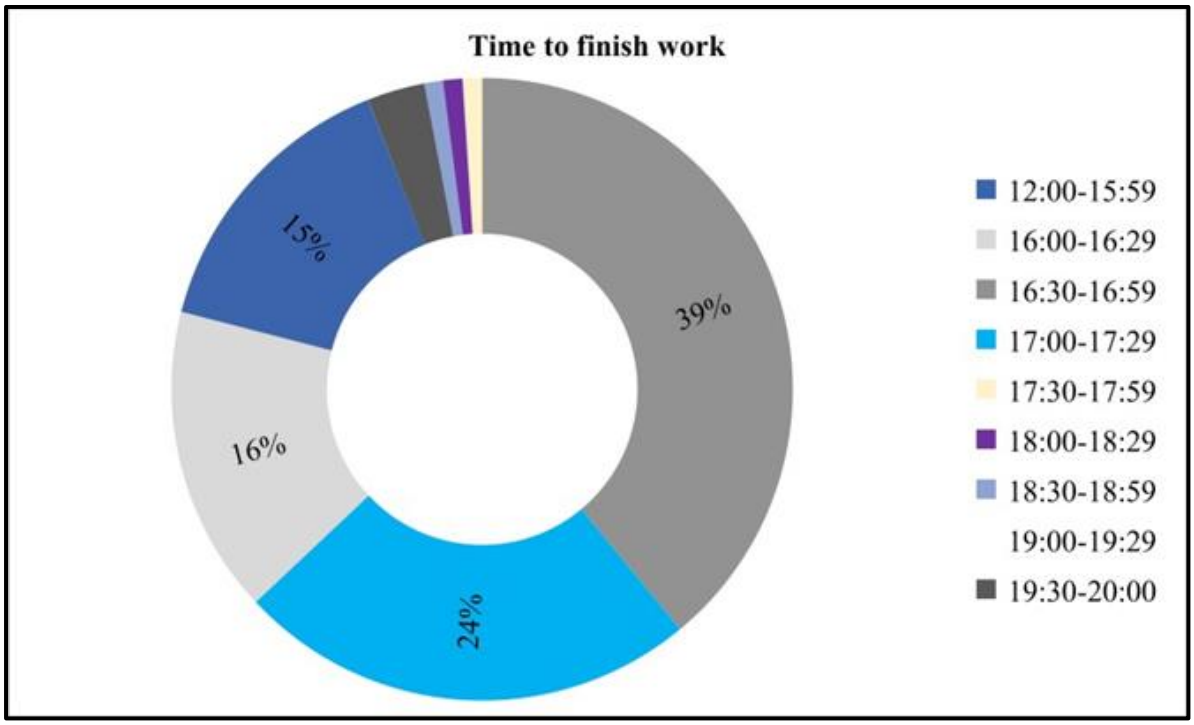


Figure 4. 9: Time to finish work

There was a wide range of time which the respondents finished work. This finding is in line with Cock (1980). The highest proportion of respondents (39%) finish work between 16:30-

16:59. Sixteen percent of respondents finish work between 16:00 – 16:29, while 15% of respondents finish work between 12:00-15:59. Some 3% of respondents finished work after normal working hours (19:30 – 20:00).

4.5.6 Type of work preferred

The broad classifications of domestic workers are live-in and live-out domestic workers. Table 4.13 shows the type of work preferred by domestic workers working in Centurion as well as their reasons behind their choices.

Table 4. 13: Type of work preferred

What would you prefer: to be a live-in or live-out domestic worker?		
Answer Choices	**Responses**	
Live-in	21%	21
Live-out	79%	79
What are your reasons for your choice?		
Answer Choices	**Responses**	
Freedom	34%	34
Married	15%	15
To live with my family	31%	31
To save money	20%	20

The majority of respondents (79%) prefer to be live-out domestic workers, while 21% prefer to be live-in domestic workers. Both forms of domestic employment are associated with advantages and disadvantages. Live-in workers are more vulnerable to abuse because of the nature of the job (Social Law Project, 2014). As compared to live-in domestic workers, live-out domestic workers commute more often and face challenges that come with commuting. Thirty-four percent of respondents that prefer live-out work reported that they feel free living outside their employers' premises, while 15% stated they are married. Because of family responsibilities, women with children or that are married are more likely to live-out. The results reveal that 31% of respondents prefer to live with their families. The twenty percent that prefer live-in work indicated that they save money if they are staying within their employers' premises.

4.5.7 Types of housing of employers

In Centurion there are different types of housing. According to Property24 (2019), Centurion has a wide choice of many gated communities. Gated communities are large sources of

employment, especially for domestic workers. Examples of gated communities are Blue Valley, Copperleaf Golf Estate and Centurion Golf Estate. Figure 4.10 shows the type of housing in which the respondents are working in.

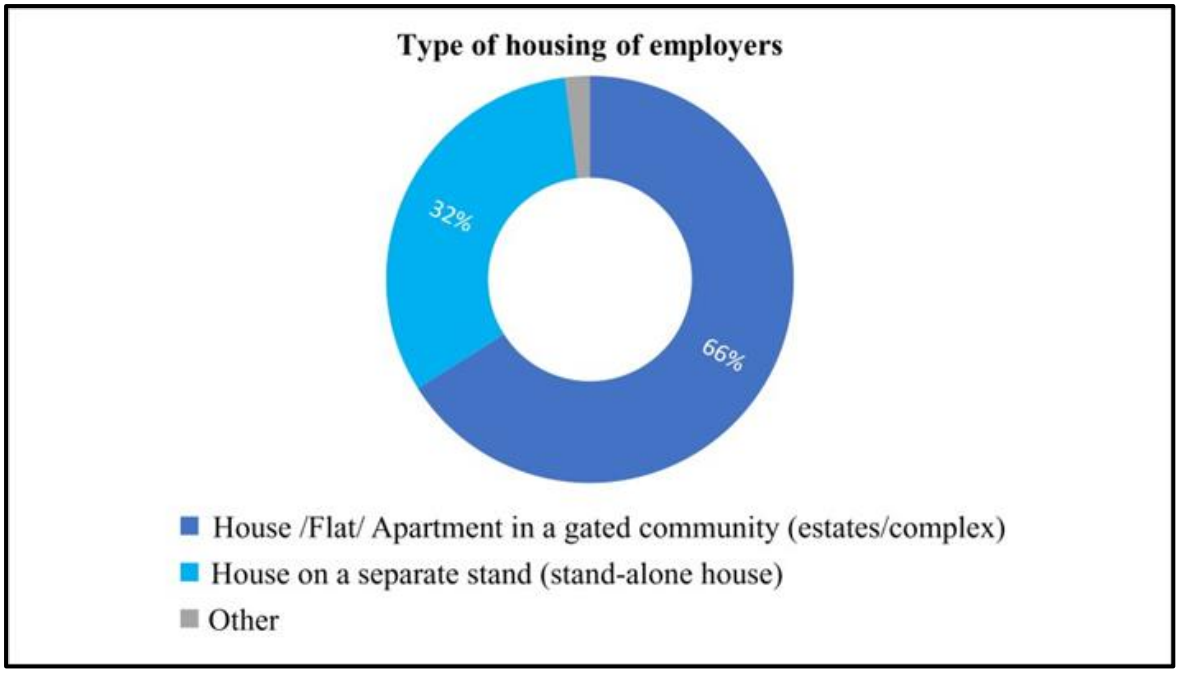


Figure 4. 10: Type of housing

The majority of respondents (66%) worked in Estate houses, while 32% worked in stand-alone houses. Previous research done on gated communities in South Africa by Landman and Badenhorst (2014) reveals that many are located in areas dominated by private transport where public transport is poor. It can thus be expected domestic workers will find them difficult to access, as found by Abijade's (2018) in his small study of domestic workers in Waterfall estate, a large gated community in Johannesburg. The section below, discussing the transport findings, explores these issues in the case of Centurion.

4.6 ANALYSIS OF RESULTS

The aim of this chapter was to present research findings and analysis on profile of domestic working in Centurion. General information was collected from participants in order to provide a profile for domestic workers working in Centurion. Graphs, charts and tables were used to present the research findings. Cross-tabulation was used to illustrate relationships between different variables. SPSS version 26.0 was used to create cross-tabulation.

Analysis of profile of domestic workers working in Centurion include details about their lives, such as age, income, marital status and family composition. According to the South African Bill of Rights, Section 28(1)(f)(i), "children under the age of 18 are not permitted to perform work that is inappropriate for a person of that child's age". Therefore, this study only focused on domestic workers between the age range of 18 to 64 years. The largest portion of domestic workers who responded to the study were between the ages of 25 and 45 years. Between the year 2001 and 2004, the average age of domestic workers working in South Africa was about 40 years (Dinkelman and Ranchhod). In 2013, the majority of domestic workers in South Africa were between the age of 30 to 49 (Budlender, 2016).

The trends in the domestic labour provided by domestic workers in developing countries can be different from developing countries. Countries experiencing an increase in aging population may have a greater proportion of domestic workers providing elderly care. In this study, the majority of domestic workers working in Centurion provide labour for housekeeping.

Dinkelman and Ranchhod (2012) report that the majority of domestic workers working in South Africa are local people. However, based on respondents in this study, it is revealed that the majority of domestic workers working in Centurion are migrant workers from Southern Africa (Swaziland, Zimbabwe, Lesotho and Malawi). As emerges from responses discussed, some domestic workers leave their families in search of work in other countries or places. Children's living arrangements differs from one person to another, depending with circumstances of a person. Of those who do have children, the largest portion of domestic workers working in Centurion live with their children. The General Household Survey 2018 shows that the situation of children not living with either parent was most common in Eastern Cape, Kwazulu-Natal and Limpopo (Stats SA, 2019). The majority of domestic workers with second homes live in backyard rooms and shacks. Backyard rooms and shacks are some of the cheapest form of housing for low-income earners. The General Household Survey 2018 shows that in the City of Tshwane about 83% of households in live in formal dwellings.

The largest proportion of respondents reside in Olievenhoutbosch, a township located in Centurion along route R55 of which the largest proportion wake up between 05:00-05:59. KwaMhlanga is the furthest that some respondents live and it is approximately 102km from Centurion. Respondents who live in KwaMhlanga spend between 61-100 minutes to travel to work. It is also interesting to note that the majority of respondents with second homes are from Southern Africa, either South Africa itself, or more often from surrounding countries. Time

schedules for domestic work to start and finish work are by no means uniform; the time schedules are purely agreements between employers and employee due to widely diverging circumstances. There are respondents who finish work late (between 18:00-20:00) and end up travelling home at night; as such, it reduces their safety when commuting from work.

According to Stats SA (2018), female-headed households are more common in rural areas than urban areas. However, this study shows that the majority of households are headed by women, most of whom are the domestic workers themselves. Since women tend to earn less than men, it can be assumed that women who are heads of their households bear a great burden of maintaining the household, supporting dependents and making decisions that affect all the members of the household.

CHAPTER 5: RESEARCH FINDINGS AND ANALYSIS - TRANSPORT AND MOBILITY

5.1 INTRODUCTION

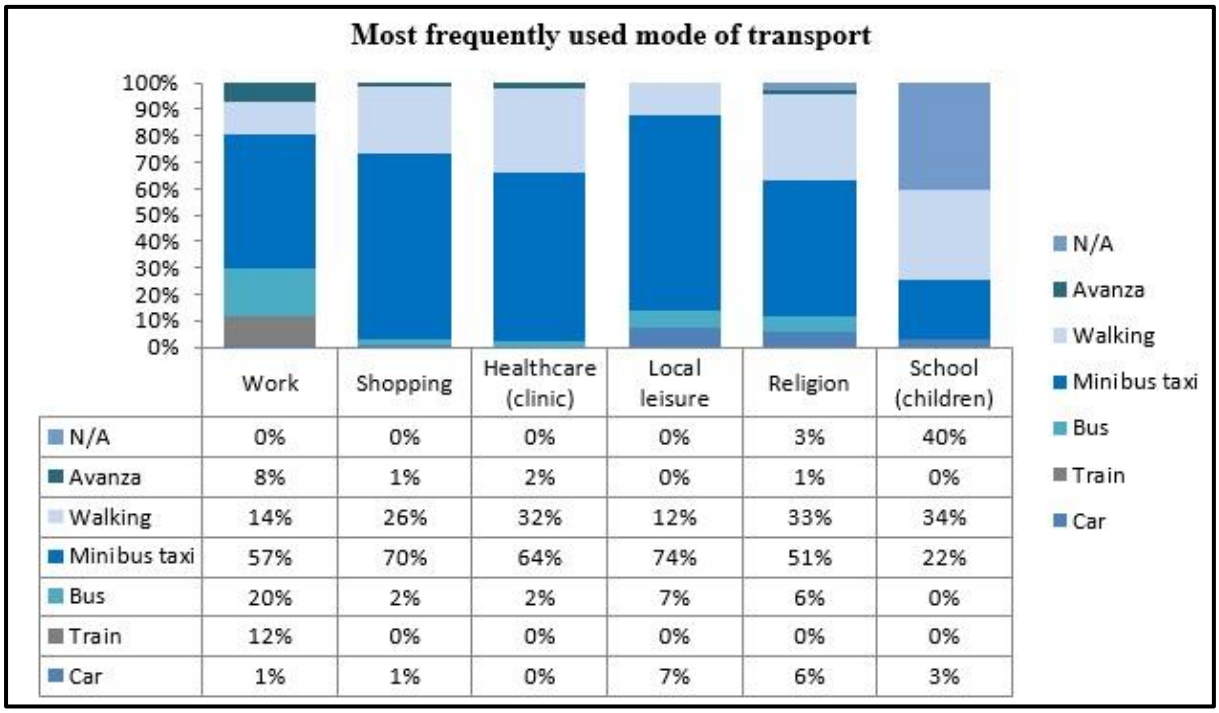
The purpose of this section is to present research findings on transport and mobility. Specific information regarding modes of transport, transport dimensions, commuting time, transport challenges and transport interventions will be presented. The research findings in this chapter are organised into four themes and analysis of the results in this chapter is presented at the end of the chapter.

5.2 MOBILITY PATTERNS

Respondents were asked questions relating to mode of transport, commuting time, and walking time.

5.2.1 Most frequently used mode of transport

The respondents were asked to indicated the most frequently used mode of transport for activities such as work and shopping.



	Work	Shopping	Healthcare (clinic)	Local leisure	Religion	School (children)
N/A	0%	0%	0%	0%	3%	40%
Avanza	8%	1%	2%	0%	1%	0%
Walking	14%	26%	32%	12%	33%	34%
Minibus taxi	57%	70%	64%	74%	51%	22%
Bus	20%	2%	2%	7%	6%	0%
Train	12%	0%	0%	0%	0%	0%
Car	1%	1%	0%	7%	6%	3%

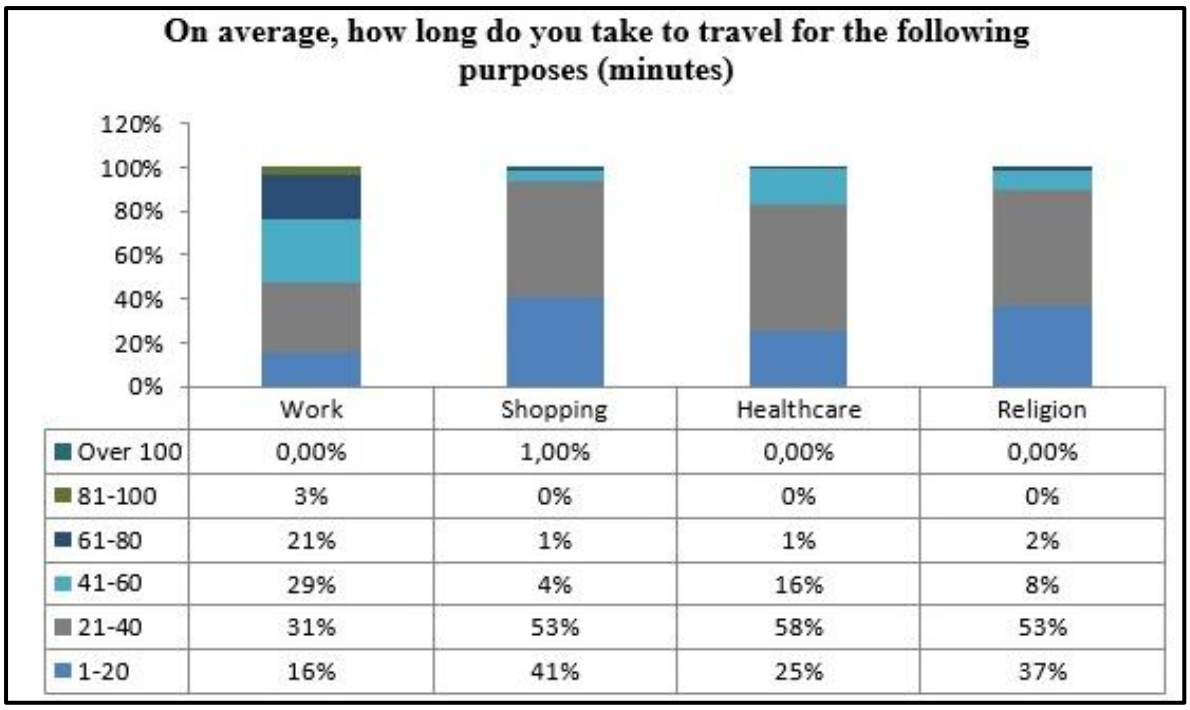
Figure 5. 1: Most frequently used mode of transport

The results indicate that the most frequently used mode of transport for work (57%), shopping (70%), healthcare (64%), local leisure (74%) and religious (51%) trips is the minibus taxi. In South Africa, the most frequently used mode of transport to work is the car (33.7%) [walking - 20.4%; bus - 4.5%; minibus taxi – 24%; train – 2.1%] (Stats SA, 2019:59). However, in the City of Tshwane the most frequently used mode of transport to travel to work is the car (City of Tshwane, 2015). In this case, domestic workers are low-income earners that can hardly afford to own a car; as such they rely on public transport. A considerable number of transport users in South Africa rely on minibus taxis (Stats SA, 2019). Twenty percent of respondents reported that they frequently use bus to travel for work purposes, whereas 14% mostly walk to and from work.

Thirty-four percent of respondents indicated that their children mostly walk to school. This finding is in line with General Household Survey 2018, whereby the majority of school children walk to school. Some 26% of respondents walk for shopping. Similarly, 32% walk for healthcare trips, 33% as well walk for religious trips. Some respondents reported that they used the train for work trips (12%). Avanza is a type of vehicle that operates as a taxi for short distances mostly for areas where a minibus taxi does not operate. Respondents using Avanza for work purpose are 8%, whereas 2% of respondents use Avanza for shopping and 2% of respondents most frequently use Avanza for shopping and religious purposes.

5.2.2 Commuting time

The respondents were asked to indicate average commuting time per trip for the purpose of work, shopping, healthcare and religion.



	Work	Shopping	Healthcare	Religion
Over 100	0,00%	1,00%	0,00%	0,00%
81-100	3%	0%	0%	0%
61-80	21%	1%	1%	2%
41-60	29%	4%	16%	8%
21-40	31%	53%	58%	53%
1-20	16%	41%	25%	37%

Figure 5. 2: Commuting time in minutes

The results for commuting time show a degree of variation across different activities. The highest proportion of respondents (31%) spent about 21-40 minutes to travel to work, similarly with shopping (53%), healthcare (58%) and religion (53%). As mentioned earlier, commuting time is influenced by various factors such as cost, distance, safety and reliability. The City of Tshwane (2015) shows that the average travel time to work for commuters in Tshwane is 50 minutes, which is more than what the highest proportion of respondents spend travelling to work. About 28% of commuters in the City of Tshwane spent over one hour travelling to work (City of Tshwane, 2015).

Some 3% of respondents spend between 81-100 minutes travelling to work; 21% of respondents spent between 61-80 minutes; 29% of respondents spend between 41-60 minutes and 16% of respondents spent between 1-20 minutes travelling. Commuting time is correlated to location of residential area as shown in Table 5.1. Domestic workers who live far from work are more likely to spend more time travelling.

To travel for shopping purposes, 41% of respondents spent about 1-20 minutes; 4% of respondents spent between 41-60 minutes; and 1% of respondents spend about 61-80 and over 100 minutes respectively. Usually people shop near where they live; in this case the highest percentage of respondents spend less time travelling for shopping purposes.

For healthcare purposes, 25% of respondents spend about 1-20 minutes; 16% of respondents spend about 41-60 minutes and only 1% of respondents spend about 61-80 minutes travelling. Lastly, for religious purposes, 37% of respondents spend about 1-20 minutes; 8% of respondents spend about 41-60 minutes; only 2% of respondents spend about 61-80 minutes. People are more likely to use healthcare facilities near where they live. However, there some people that may be in areas where there are no healthcare facilities. In other cases, people may be willing to travel longer distances in search for better healthcare services. Table 5.1 below, shows a cross-tabulation between travel time and areas of residence of respondents.

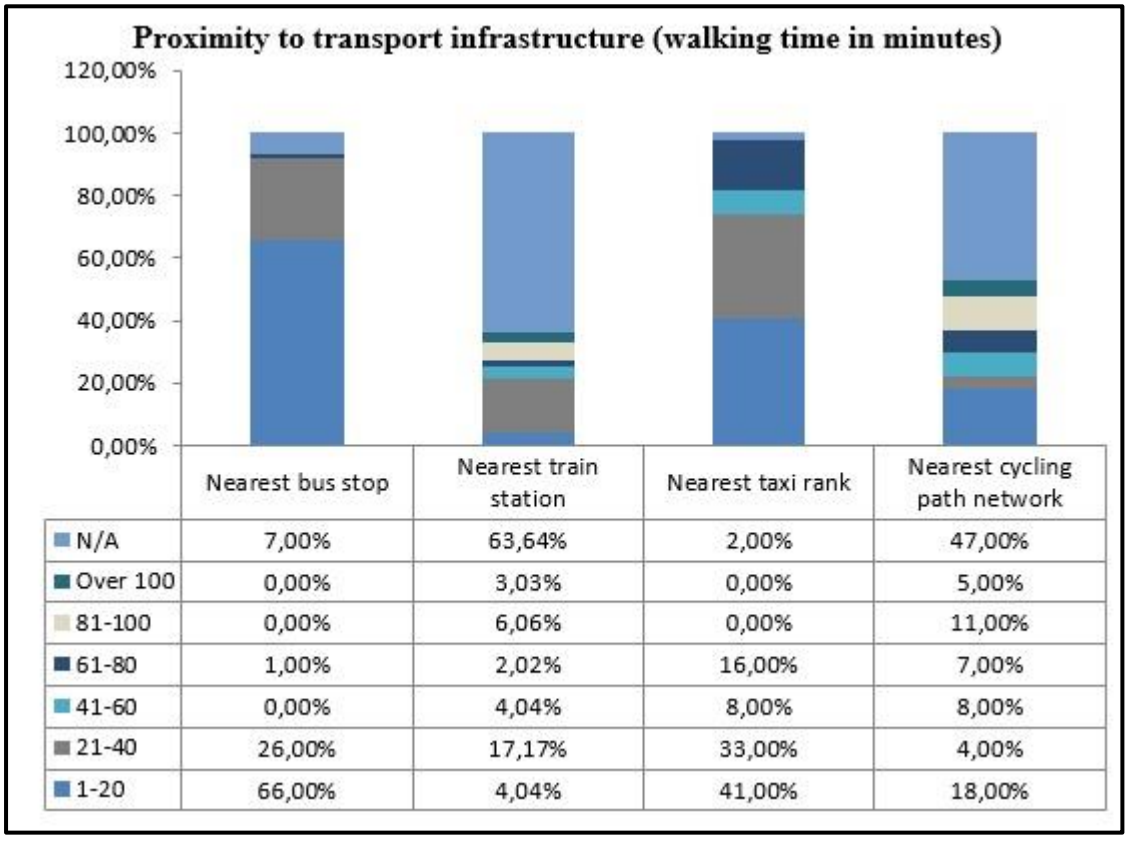
Table 5. 1: Cross-tabulation of travel time and area of residence

Where do you live? * On average, how long do you take to travel for the following purposes (minutes) Cross-tabulation							
Count							
		On average, how long do you take to travel to work (minutes)					Total
		1-20	21-40	41-60	61-80	81-100	
Where do you live?	Atteridgeville	1	0	5	0	0	6
	Diepsloot	4	2	1	0	0	7
	Hammanskraal	0	0	2	4	0	6
	KwaMhlanga	0	0	0	2	2	4
	Kempton Park	0	0	1	4	0	5
	Laudium	0	0	2	0	0	2
	Mabopane	0	0	0	2	0	2
	Mamelodi	0	0	2	5	0	7
	Mnandi	0	3	2	0	0	5
	Olievenhoutbosch	10	**21**	8	1	0	40
	Soshanguve	0	0	3	1	1	5
	Tembisa	0	2	3	2	0	7
	The Reeds	1	3	0	0	0	4
Total		16	31	29	21	3	100

The results indicate that highest proportion of respondents (21) residing in Olievenhoutbosch spend between 21-40 minutes travelling to work. Only a few respondents residing in KwaMhlanga (2) and Soshanguve (1) spend between 81-100 minutes travelling to work. Respondents who spend least time (1-20 minutes) travelling to work are from Atteridgeville (1), Diepsloot (4), Olievenhoutbosch (10) and The Reeds (1).

5.2.3 Proximity to transport infrastructure

Figure 5.3 provides information on how much time is spent walking to the nearest transport infrastructure such bus stops and train stations for work trips.



	Nearest bus stop	Nearest train station	Nearest taxi rank	Nearest cycling path network
N/A	7,00%	63,64%	2,00%	47,00%
Over 100	0,00%	3,03%	0,00%	5,00%
81-100	0,00%	6,06%	0,00%	11,00%
61-80	1,00%	2,02%	16,00%	7,00%
41-60	0,00%	4,04%	8,00%	8,00%
21-40	26,00%	17,17%	33,00%	4,00%
1-20	66,00%	4,04%	41,00%	18,00%

Figure 5. 3: Proximity to transport infrastructure

To walk to the nearest bus stop, the majority of respondents (66%) indicated that they spend about 1-20min, whereas 26% of respondents spend about 21-40 minutes and only 1% of respondents spend 61-80 minutes. In Region 4 of the City of Tshwane, about 30% of residents reported that they do not have access to bus service/ they do not know about the service (City of Tshwane, 2015).

Access to rail transport in South Africa is limited. There are certain areas in this study where there is rail transport, for example Kempton Park, Mamelodi and Soshanguve. In the City of Tshwane, Regions 1 and 3 are the areas which are well served by trains (City of Tshwane, 2015).To walk to the nearest train station, the highest proportion indicated that they spend about 21-40 minutes; whereas the 4% of respondents spend about 1-20 minutes and 41-60 minutes respectively; 2% of respondents spend about 61-80 minutes; 6% of respondents spent about 81-100 minutes and 3% of respondents spent over 100 minutes. It is reported that only 11% of residents of the City of Tshwane are within a 15 minute walk to the train station.

In this study, to walk to the nearest taxi rank, the highest proportion of respondents (41%) spend about 1-20 minutes; 33% of respondents spend about 21-40 minutes; 8% of respondents spend about 41-60 minutes; and 16% of respondents spend about 61-80 minutes. In terms of cycling, the highest proportion (47%) reported that there no cycling paths around where they live. It is reported that the majority of residents of Tshwane are within a walking distance to a taxi service (City of Tshwane, 2015).

5.2.4 Walking time

Figure 5.4 shows time taken from stops to workplaces of respondents.

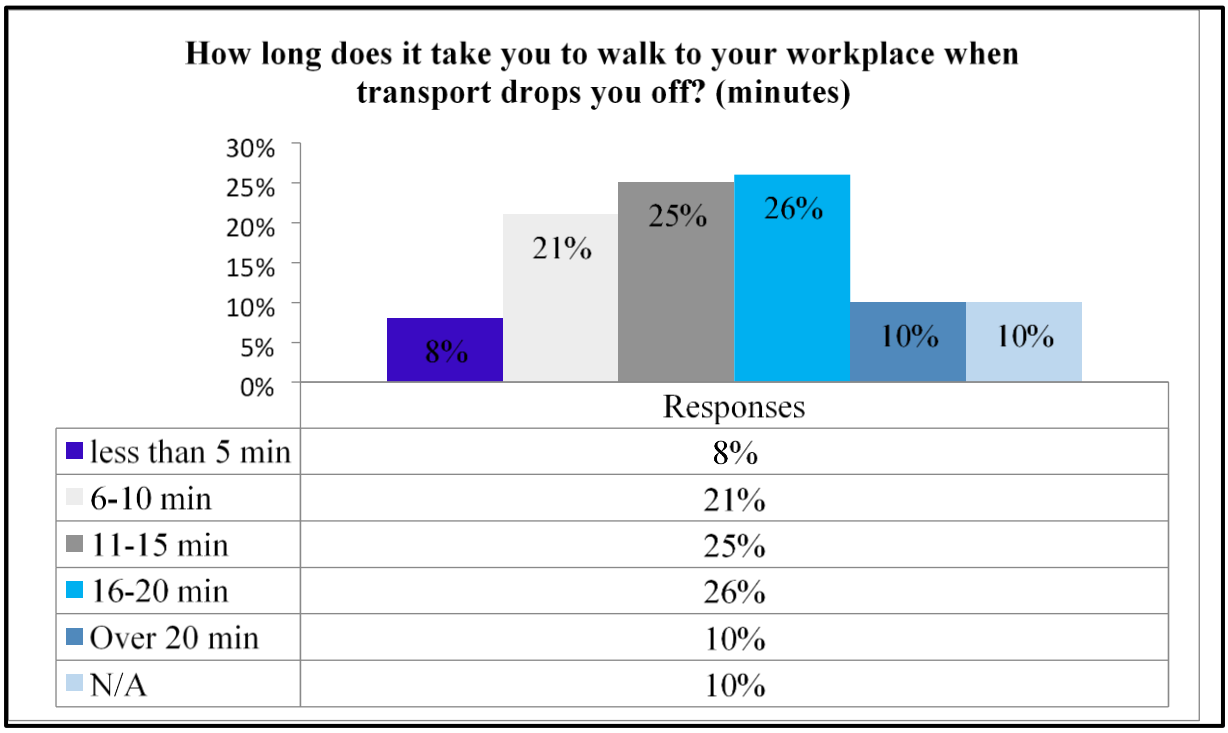


Figure 5. 4: Walking time

The results indicate that the highest proportion of respondents spent about 16-20 minutes walking from their bus stops to their workplaces, whereas 25% spent about 11-15 minutes; 21% spent about 6-10 minutes; 8% of respondents spent less than five minutes; and 10% spent over 20 minutes. N/A refers to respondents who walk from their homes to workplaces. Respondents who walk to work live near their workplace.

5.3 FACTORS INFLUENCING MODE CHOICE

There are many factors which influence mode choice among different individuals. Respondents were asked about their income and to rate the transport dimensions using Likert scale.

5.3.1 Monthly income

Income is important to this study because it affects the way people live and the choices they make in life. Income is one of the factors with direct influence on transport mode choices (Souza *et al*., 2018). The monthly income recorded is from domestic work and derives from one or more salaries that they receive from this work. Figure 5.5 indicates monthly income of the respondents

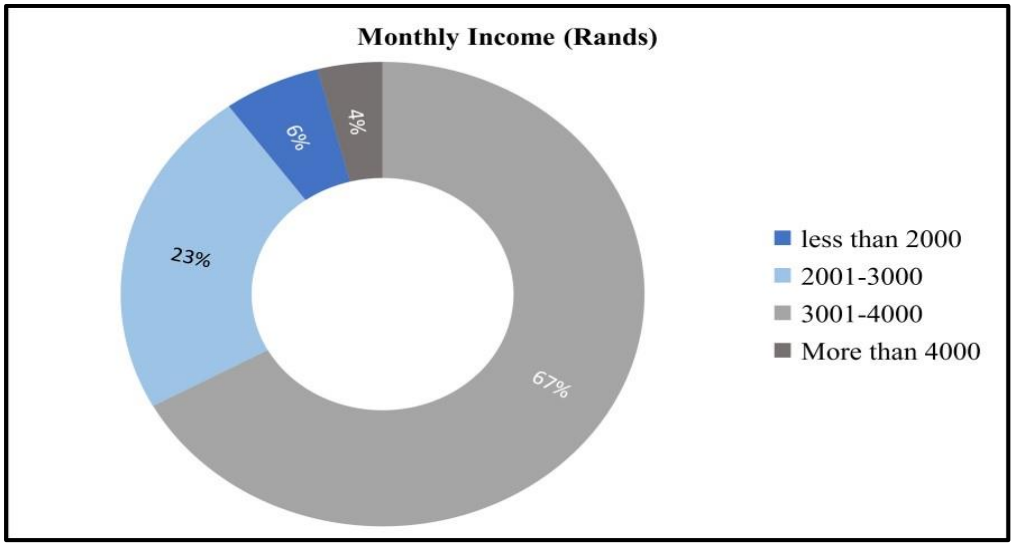


Figure 5. 5: Monthly income of respondents

The majority of respondents (67%) indicated that they earn an income of between R3 001- R4 000. Some 23% of the respondents indicated that they earn an income between the range of R2 001 - R3 000 while 6% of the respondents earn an income as low as less than R2 000. Only a smaller percentage of the respondents (4%) earn an income of more than R4 000. According to the survey done by City of Tshwane (2015) more than half of the households in the City of Tshwane earn R3 500 or less per month, which is equivalent to what the majority of respondents are earning per month. Monthly income of respondents is correlated to number of working days of domestic workers per week. The relationship between monthly income and number of working days is illustrated in Table 4.8. The results show that the higher the number of working days per week, the higher the income of respondents.

5.3.2 Transport dimensions

Respondents were asked to rate the importance of transport dimensions in choosing mode of transport. To rate the importance of transport dimensions, a five-point Likert scale was used.

For the purpose of interpretation, the items were collapsed into three categories; not important, neutral and important.

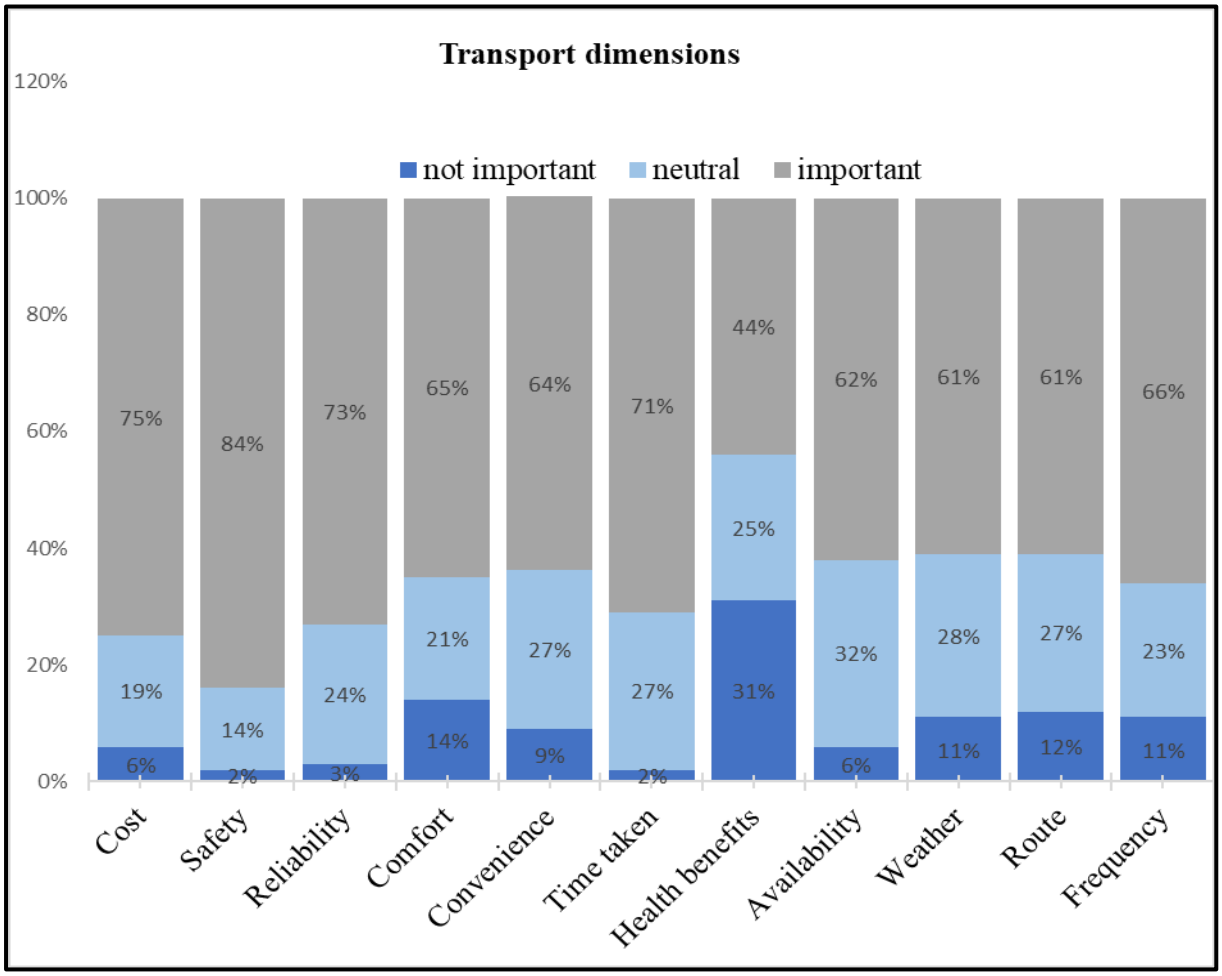


Figure 5. 6: Transport dimensions

The results indicate that the most important dimension when choosing mode of transport is safety (84%), followed by cost (75%), reliability (73%), time taken (71%), frequency (66%), comfort (65%), convenience (64%), availability (62%), weather (61%), route (61%) and health benefits (44%). This finding is in line with previous research indicating that transport users tend to choose transport mode in relation to practical factors such as cost, distance, availability and comfort (Lopez-Saez *et al*., 2014; Madhuwanthi et al., 2015; Bartoseiwicz and Pielesiak, 2019).

5.4 TRANSPORT CHALLENGES

There are various challenges that commuters face when travelling or accessing transport.

5.4.1 Transport cost

The question on transport cost was asked to determine how much money domestic workers spent on transport on a daily and monthly basis for commuting to and from work.

Table 5. 2: Daily transport cost

What is your daily transport cost to and from work. (Rands)		
Answer Choices	Responses	
R20-30	22%	22
R31-40	57%	57
R41-50	12%	12

Transport cost recorded in this study is only for work trips. The majority of respondents (57%) pay between R31-40 to commute to and from work. Twenty-two percent of respondents pay between R20-30 for commuting to and from work, while 12% pay between R41-50. The findings are in line with 1Life (2019), whereby on average in South Africa, people spend about R30 daily to travel to and from work. Transport cost is influenced by various factors for example, distance travelled and mode of transport used. Depending on mode of transport used, domestic workers living far from their workplaces are more likely to spend more on transport. Figure 5.7 below shows monthly transport cost of the respondents. Monthly transport cost recorded in this study ranges from R300 to R1100.

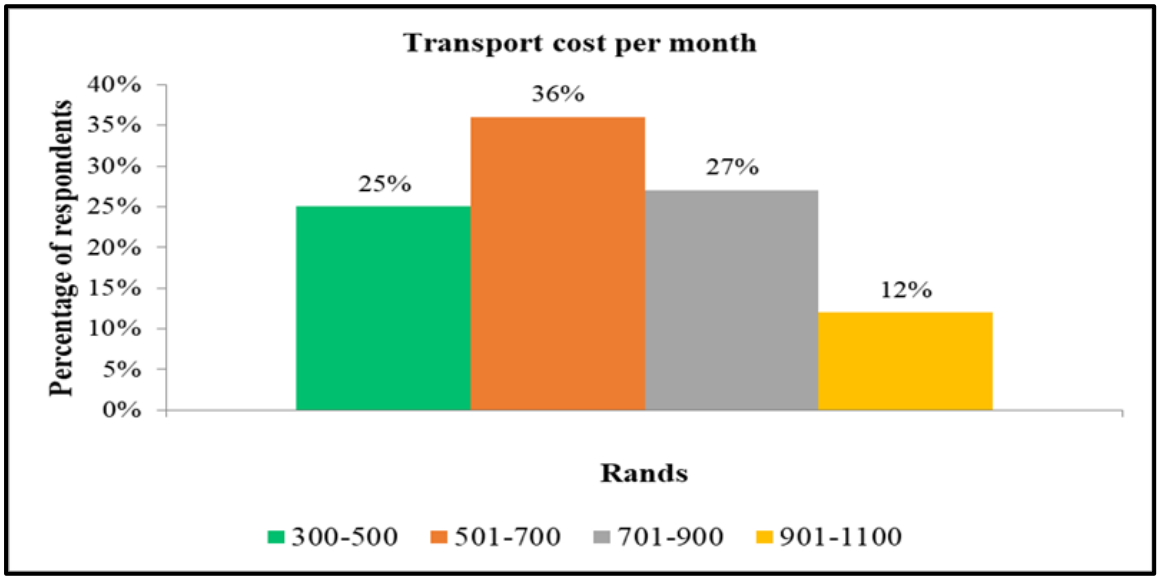


Figure 5. 7: Transport cost of respondents

The highest proportion of the respondents (36%) spent between R501-700 per month on commuting to and from work. Twenty-seven percent of the respondents spent between R701-900, while 25% of the respondents spent between R300-R500. The smallest percentage of the respondents (12%) spent between R901 – R1 100. On average, respondents spend more than 15% of their income on transport each month. It can be argued that 15% is significant amount for someone earning a minimum wage which is relatively low. On average, transport users who use taxis in South Africa spend R561 per month, while those who use bus transport spend R502 and those who use trains spend R402 per month (Stats SA, 2015). The table 5.3 and 5.4 below shows a cross-tabulation between income and transport cost per month and per day.

Table 5. 3: Cross-tabulation between income and transport cost

Income in Rands * What is your transport cost per month? Cross-tabulation						
Count						
		What is your transport cost per month?				Total
		300-500	501-700	701-900	901-1100	
Income in Rands	less than 2000	6	0	0	0	6
	2001-3000	8	10	4	1	23
	3001-4000	11	24	23	9	67
	More than 4000	0	2	0	2	4
Total		25	36	27	12	100

The largest proportion of domestic workers spend between R501-700 and earn between R3001-4000, followed by those spending between R701-900.

Table 5. 4: Cross-tabulation between income and daily transport cost

Income in Rands * What is your daily transport cost to and from work. (Rands) Cross-tabulation						
		What is your daily transport cost to and from work. (Rands)				Total
		20-30	31-40	41-50	N/A	
Income in Rands	less than 2000	3	2	1	0	6
	2001-3000	8	11	2	2	23
	3001-4000	11	41	9	6	67
	More than 4000	0	3	0	1	4
Total		22	57	12	9	100

The largest proportion of domestic workers (41) earning R3001-4000 spend between R31-40 on transport, daily. N/A in the table represent domestic workers who walk to work.

5.4.2 Transport challenges experienced

Respondents were asked to rate statements concerning transport challenges experienced in daily travel.

Table 5. 5: Transport challenges

Transport challenges[3]	disagree	neutral	agree
Getting transport to my workplace is difficult	21%	23%	56%
Getting transport from my workplace is difficult	16%	24%	60%
Transport cost[4] is burden to me	10%	11%	79%
My salary covers monthly transport cost	10%	26%	64%
Bus transport is expensive for me	16%	19%	65%
There are no buses in my township	36%	17%	47%
There is lack of information on bus timetables and routes	13%	7%	80%
I do not have access to train transport	18%	11%	70%
I fear harassment in bus transport	24%	37%	39%
I fear harassment in train	24%	18%	58%
I fear harassment in minibus taxis	23%	32%	44%
Waiting time for transport is long in the morning to work	23%	21%	55%
Waiting time for transport is long after work	17%	21%	62%

In the City of Tshwane, the most common transport problems experienced are "expensive taxis, bus service availability/accessibility and buses which do not keep to schedules" (City of Tshwane, 2015:68). The most common challenge reported by respondents (80%) was lack of information on bus timetables and routes. Lack of information on bus transport may push transport users to use other modes of transport. Seventy one percent reported that they did not have access to train transport, whereas 79% indicated that transport cost was a burden for them. As mentioned earlier access to train is limited to certain areas. As compared to minibus taxis, train fares are cheaper. Other challenges that were common were long waiting time for transport, harassment in train (58%), and getting transport to and from work. Thirty-nine percent feared harassment in bus transport, while 44% feared harassment in minibus taxis. Forty-seven percent of respondents did not have access to bus transport. The most common problem in Region 4 of the City of Tshwane was availability/accessibility of bus services, while all other six regions reported expensive taxis as their main problem (City of Tshwane, 2015).

[3] The list of challenges was compiled by the researcher.
[4] The questionnaire did not ask whether the employers pay for the transport cost of their employees.

5.5 PERCIEVED TRANSPORT INTERVENTIONS

This section presents the perceptions of respondents on transport in general and the transport interventions which can be implemented to improve transport experiences.

5.5.1 Perceptions on transport

Respondents were asked to rate their perceptions on transport.

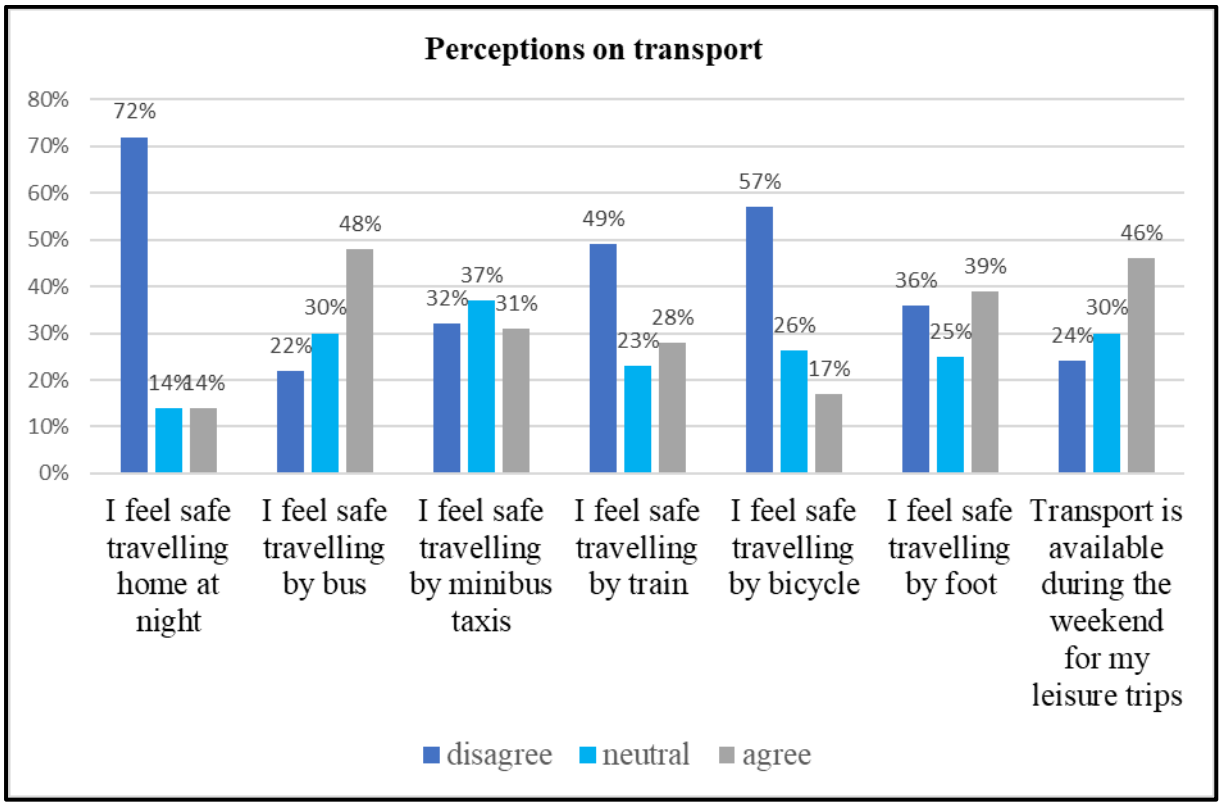


Figure 5. 8: Perceptions on transport

The majority of respondents (72%) did not feel safe to travel at night. Fifty-seven percent indicated that they did not feel safe using cycling transport, while 49% did not feel safe travelling by train. A considerable proportion of respondents (48%) felt safe using bus transport, whereas 39% felt safe travelling by foot. Forty-six percent of respondents reported that transport was not available during weekends for leisure trips.

5.5.2 Transport interventions

To make daily travel easier, there various transport interventions that can be implemented. The researcher made a list of questions for respondents to respond to.

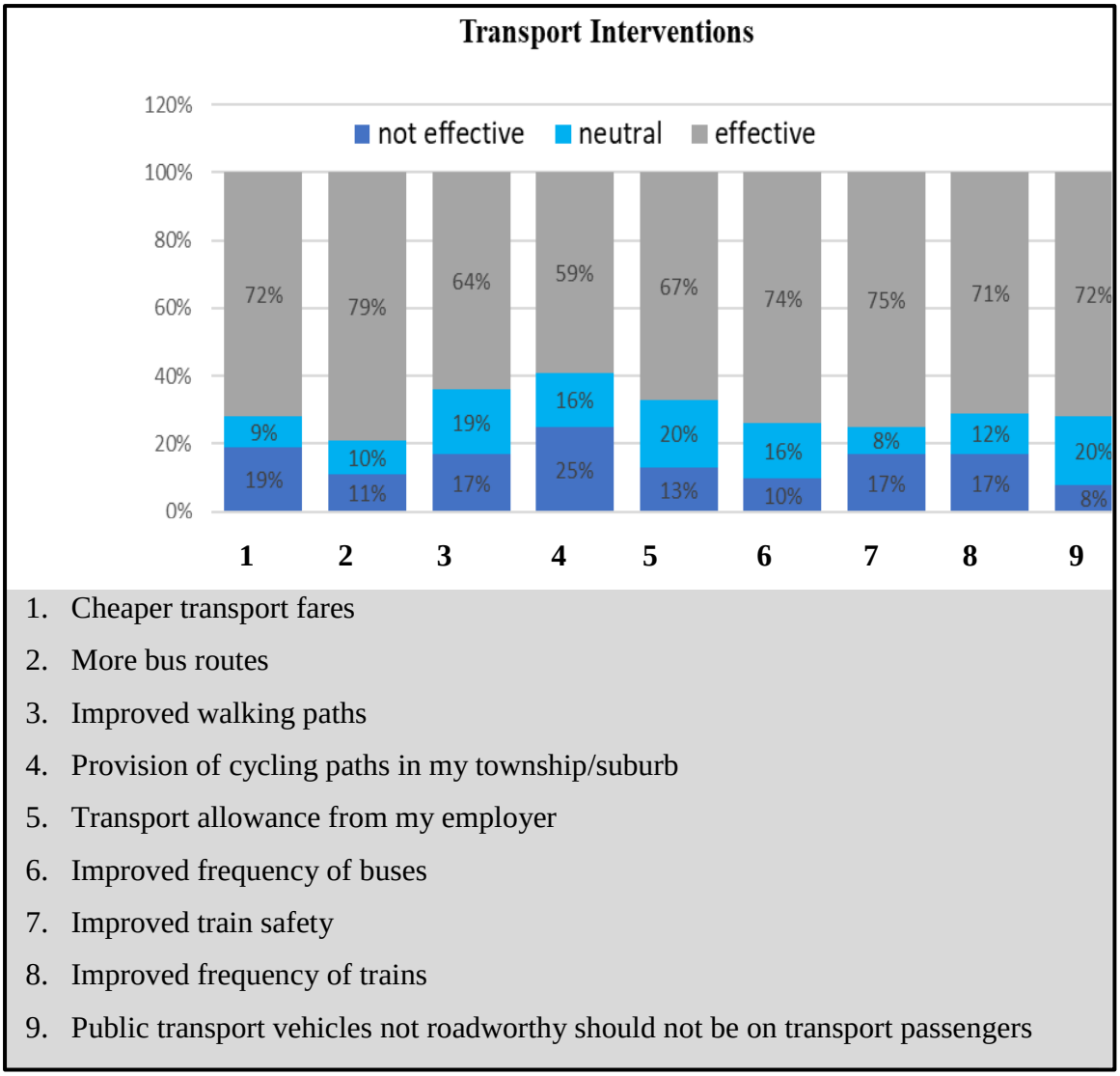


Figure 5. 9: Transport interventions

The majority of respondents rated all the suggested transport interventions as desirable. The most highly rated transport intervention deemed necessary is “more bus routes” with 79% of respondents supporting this intervention. Bus transport is cheaper than minibus taxis services.

Some 75% of respondents rated “improved train safety” as a desirable transport intervention. Transport users are more likely to shy away from unsafe modes of transport. “Improved frequency of buses” was rated as desirable by 74 out of 100 respondents. This intervention is linked to transport challenges in Section 5.5.2 whereby respondents reported that waiting time for transport is long. “Improved frequency of bus” has a potential to reduce waiting time for transport.

Another intervention deemed necessary is “cheaper transport fares” (72%). Cheaper transport fares may lead to less burden of high transport cost on domestic workers. As revealed in Section

5.4.1 respondents spend a considerable portion of their income on transport. Other interventions that may improve safety are “taking unroadworthy vehicles off the road” (72%), improved walking paths (64%), “provision of cycling paths” (59%). Lastly, “transport allowance” (67%), may as well lessen transport cost burden on domestic workers.

5.6 ANALYSIS OF RESULTS

The aim of this chapter was to present research findings and analysis of transport and mobility of domestic workers working in Centurion. People travel for different purposes of which the purposes are based on activities such as work, shopping, religion, recreational and educational (Madhuwanthi et al., 2015). Transport mobility patterns are interlinked with practical factors, socio-demographic factors, psychosocial factors, and structural factors (Madhuwanthi, Marasinghe, Rajapakse, Dhurmansa and Nomura, 2015; Guzman and Oviedo, 2018; Bartoseiwicz and Pielesiak, 2019; Cheng et al., 2019; Egset and Nordfaern, 2019).

In South Africa, approximately 11 million households use public transport as their mode of travel (Stats SA, 2015). According to Stats SA (2016), the most frequently used mode of transport for work trips used by women is taxi while men mostly use car for work trips. The General Household Survey 2018 shows that the most frequently used mode of transport in South Africa is car (Stats SA, 2019). The most frequently used mode of transport used by low-populations and the poor is public transport (Kerr, 2018). The Technical Report on National Household Travel Surveys 2013 shows that approximately 49% of workers from low-income households walk all the way to their workplaces, while 25% use taxis and 7% use buses (Stats SA, 2015). In this case, domestic workers are low-income earners that can hardly afford to own a car; as such they rely on public transport. This study shows that the most frequently used mode of transport by domestic workers working in Centurion for work, shopping, healthcare, local leisure and religious purposes is minibus taxi. Thirty-four percent of respondents indicated that their children mostly walk to school. This finding is in line with General Household Survey 2018, indicating that the majority of school children walk to school.

This study shows that the majority of domestic workers working in Centurion earn an income of between R3001 - R4000 which is higher than the minimum wage set for domestic workers by government of South Africa (see Section 2.2.4). In City of Tshwane about 51% of households earn R3 500 or less per month (City of Tshwane, 2015). Income of respondents is correlated to number of days one works per week (see Section 4.5.1). Respondents who work

more days a week get relatively higher income than someone who might be working once or twice a week.

One of the strategic objectives of the 1996 White Paper on National Transport Policy is to attain "affordable public transport, with commuter spending less than 10% of disposable income on transport" (Stats SA, 2015:1). It is reported that transport constituted 17% of total household consumption expenditure between 2010 and 2011 (Stats SA, 2015). It should be noted that the taxis referred to in by Stats SA (2015) include metered taxis, minibus taxis and other private vehicles that provide unscheduled transport at a fee. However, in this study, the taxis are only minibus taxis. This study shows that on average, the respondents spend more than 15% of their income on transport each month. Income spend on transport is interlinked to other factors such as commuting distance. The largest proportion of the respondents are from Olievenhoutbosch, a township located in Centurion. The furthest some of the domestic workers live is approximately 102km from Centurion. Even though some domestic workers may travel long distances to access their work places, this study shows that they do not work seven days a week; therefore, do not commute every day to and from work. According to Stats SA (2016), the average distance travelled in the City of Tshwane from place of origin to work is 26km.

According to the GCRO (2014), in Gauteng province, the majority of households live within a ten minutes' walk to the nearest bus stop, taxi stop or train station. In the current study, to walk to the nearest bus stop and taxi stop, the majority of domestic workers working in Centurion indicated that they spend about 1-20 minutes. In Gauteng province, on average women spend 50 minutes to commute to work (Stats SA, 2016). The travel times for people working in Gauteng were shown to be the longest as compared to other provinces (Stats SA, 2016). The report on Gender Patterns in Transport in South Africa shows that the majority of females (46%) spend between 1-30 minutes travelling to work, while the majority of males (48%) also spend the same time (Stats SA, 2016). In this study, the majority of domestic workers who live in Olievenhoutbosch spend between 21 to 40 minutes to travel from home to work

According to Stats SA (2016), the two main factors that influence mode choice of females in South Africa are time and cost, whereas in this study the main factors identified were safety and cost. The National Land Transport Act of 2009 says that passengers should be safe when using public transport (SA, 2009). However, in reality, rail transport is regarded by respondents as not safe (see Section 4.3.6). The Promotion of Equality and Prevention of Unfair Discrimination Act says that women should be able to get to work without fear of

discrimination. Safe, reliable transport is an important part of women being able to do this (SA, 2002).

The main transport problems experienced by female-headed households in South Africa were listed as lack of public transport; availability of public transport at night; access to public transport; cost related to public transport; reckless driving; crime or rude drivers; poor condition of roads; overload and congestion (Stats SA, 2016). The most common reported transport problem experienced by females was lack of public transport (Stats SA, 2016). According to the GCRO (2014) the main transport related problems for urban dwellers of the City of Tshwane are high cost of transport; rude drivers or passengers and unreliable service. However, in this study, the most common challenges reported by domestic workers working in Centurion were lack of access to train transport (70%), transport cost (79%) and lack of information on bus timetables and routes (80%). Transport cost of respondents who live far from their workplace is higher than those who live near their workplaces.

Respondents had different perceptions on transportation in terms of safety and security. The majority of domestic workers working in Centurion did not feel safe to travel at night and cycling. Previous research shows that cycling is not a safe mode of transport (Xia et al., 2017). Some of transport interventions listed by the researcher are cheaper transport fares; more bus routes; improved walking paths; and improved train safety. The majority of respondents rated all the transport interventions as desirable. The most highly rated transport intervention in this study is “more bus routes”.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The purpose of this chapter is to provide concluding remarks to the findings of the study. In Chapter 1, conceptualisation and structuring of research problem and the research objectives were introduced. Urban transportation enables access to places of employment, opportunities, goods and services (Coxon et al., 2019). Limited transport options may lead to limited opportunities, unemployment, poor quality of life, social exclusion and poverty (Allan and Farber, 2019). Transport needs of domestic workers are important, they need to be understood, addressed and integrated into city policies. The transport problems reported in South African documents such as the Comprehensive Integrated Transport Plan (Tshwane), National Household Travel Survey, General Household Surveys and GCRO are similar to the problems reported by respondents in this study.

The main question of the study is "what are the transport mobility patterns of female domestic workers working in Centurion?" Centurion is a suburb of approximately 236 580 people and covers an area of approximately 395km^2 (Stats SA, 2014). The suburb is situated in Region 4 of the City of Tshwane in the Gauteng Province of South Africa. Region 4 is one of the affluent regions in the City of Tshwane where some of the high-income earners live (City of Tshwane, 2016). As such, Centurion has potential for work opportunities for domestic workers. Some of the gated communities in which high-income earners live include Copperleaf Golf Estate, Southdowns Residential Estate and Blue Valley Golf Estate. The key findings are outlined in Section 6.2.

6.2 KEY FINDINGS

To answer the main question of the study, four sub-questions were formulated. Based on the findings of the study, the following key findings from the analysis of data are discussed in relation to the research questions.

1. **What are the modes of transport used by domestic workers working in Centurion for work and everyday life?**

The modes of transport that are available in Centurion include car, train, bus, minibus taxis, walking and Avanza services. This study reveals that the most frequently used mode of transport by domestic workers for work, shopping, healthcare, local leisure and religious

purposes is minibus taxis, while the largest proportion of school children walk to school. Car is a mode of transport that is expensive to own for the majority of domestic workers.

In the City of Tshwane, access to train is limited yet it is one of the cheapest modes to use in South Africa. Therefore, transport users in areas where there is no access to train use alternative transport modes. Avanza services are limited; often they operate within a residential area. Bus transport is also limited to certain routes. For example, in Olievenhoutbosch, the township has a mixture of informal housing (standalone shacks) and formal low-cost housing. Areas with informal housing such as shacks do not have proper road infrastructure that may be utilised by buses. Therefore, people residing in such areas without proper road infrastructure may not have access to bus transport. Minibus taxis have a wider coverage as compared to the other transport modes. However, minibus taxis are more expensive as compared to the other transport modes. Domestic workers living in Olievenhoutbosch are likely to walk and commute shorter distances.

2. What are the factors that influence the mode choice of domestic workers?

In urban management, it is essential to understand travel demands of different population groups so that the supply matches demand. Transport users tend to choose transport modes in relation to practical factors such as cost, distance, availability and comfort (Lopez-Saez et al., 2014; Madhuwanthi et al., 2015; Bartoseiwicz and Pielesiak, 2019).

The main factors that came on top of other factors are safety, cost, reliability and time taken to travel, while the least important transport dimension considered by respondents was health benefits. It can be noted that there was a slight change in factors considered important in modal choice between 2003 and 2013 in South Africa (Stats SA, 2013). In 2003 the factors which were considered important in modal choice are safety, travel time and travel cost, while in 2013 the considered important were travel time, time cost and flexibility (Stats SA, 2013).

Proximity to transport infrastructure such as bus stops, station or taxi ranks is crucial in modal choice. This study shows that the majority of respondents indicated that they spend about 1-20 minutes walking to the nearest bus stop. The majority of respondents reported that they are not near any train station and this is in line with a survey carried out in Tshwane (City of Tshwane, 2015).

3. **What are the transport challenges experienced by domestic workers in accessing transport services?**

The most common challenge reported by respondents were transport costs, lack of access to train transport and lack of information on bus timetables and routes. Lack of information on bus transport may push transport users to use other modes of transport.

This study shows that the highest proportion of the respondents spent between R501-700 per month on commuting to and from work. On average, respondents spend more than 15% of their income on transport each month. Some domestic workers residing in Olievenhoutbosch and working in nearby areas such as The Reeds, Amberfields Estates and Blue Valley Estate reported that they walk to and from work. Therefore, such respondents may not experience the burden of high transport cost.

However, some domestic workers do not travel on a daily basis (see Table 4.7); as such certain problems may not be experienced on a daily basis. There is a relationship between income and number of working days as shown in Table 4.8. The results show that the higher the number of working days per work, the higher the income of respondents. The highest proportions of respondents work three days per work. It can be expected that domestic workers work for more than one household. The results show that respondents work for more than one household.

4. **What do domestic workers see as transport interventions that could ease daily travel?**

To make daily travel easier, there are various transport interventions that can be implemented. From the list that was compiled by the researcher, the main transport interventions regarded as desirable by domestic workers were “more bus routes”; “improved train safety”; “improved frequency of buses”; and “cheaper transport fares”.

Although the use of formalised bus transport may not always be possible, additional bus routes may reduce transport cost for commuters using who are currently using minibus taxis. Improvement in the provision of transport may not only reduce the burden of high transport cost on commuters but transport experiences of commuters.

Improved frequency of bus services has a potential to decrease the amount of waiting time thereby making bus services more reliable. This may result in improved transport experiences of commuters. Table 5.5 shows that a considerable number of respondents agree with the two statements – “waiting time for transport is long in the morning to work” (55%) and “waiting time for transport is long after work” (62%). To improve bus service in Tshwane and other

cities, the government should consider investing in public transport in key corridors (City of Tshwane, 2015).

6.3 SUMMARY OF FINDINGS ON PROFILE OF DOMESTIC WORKERS

The details about the lives of domestic workers working in Centurion were necessary to this study as some of it may have an effect on choices made in life; hence, there is an interconnection between their lives and transport mobility patterns. For example, family ties may affect decisions such as being a "live-in" or "live-out" domestic worker and work schedules may affect mode choice.

The age categories of the study were economically active population. The results of the study show that the largest proportion of domestic workers who responded to the study were between the ages of 25 and 45 years. In this study the majority of respondents are women who are not married. This study did not ask respondents whether their marital status had any effect on their work.

Family dynamics shape livelihood and mobility patterns. Respondents were asked questions about the head of their households, composition of their families and where their children live. As emerges from responses, some domestic workers leave their families in search of work in other countries or places. The results indicate that majority of the respondents have children. The majority of households are female-headed household, most of whom are the domestic workers themselves.

Respondents working in Centurion are from different locations in and outside Centurion. Domestic workers recorded in this study are from 13 different residential locations namely: Atteridgeville, Laudium, Soshanguve, Diepsloot, Mabopane, Tembisa, Hammanskraal Mamelodi, The Reeds, KwaMhlanga, Mnandi, Olievenhoutbosch, Kempton Park. The largest proportion of the respondents are from Olievenhoutbosch. KwaMhlanga is the furthest location from Centurion centre. Some of the respondents living in Olievenhoutbosch can walk work to their workplace. The type of housing in which the respondents live in is almost proportionally distributed among houses on a separate stand; backyard room; and shack. The concepts: mixed income developments, inclusionary housing and low-income housing close to high income areas may reduce the need to travel long distances to work (Todes, 2003; Klug et al., 2013). Living near workplaces can significantly reduce transport cost for domestic workers.

Domestic work is not uniform; working conditions, time schedules and duties for domestic workers varies from one employer to another. The results show that the majority of domestic workers working in Centurion perform housekeeping work. The majority of respondents indicated that they prefer live-out domestic work to live-in work. Starting and finishing time for work varies from one employer to another. Work schedules have significant on transport usage. As mentioned earlier, there is a relationship between income and number of working days. The results show that the higher the number of working days per work, the higher the income of respondents.

6.4 LIMITATIONS OF THE STUDY

The following limitations of the study are reported:

1. The main limitation is that the study did not include a qualitative element and that responses to open-ended questions were reduced to quantitative responses therefore it was not possible to know the some of the experiences and the why part of some questions.
2. Non-probability sampling method was used in selecting the sample of the study; as such, the results may not be generalised to a larger population on statistical grounds.
3. The study focussed exclusively on women domestic workers; yet there are also men working as domestic workers. According to Stats SA (2018), in the last quarter of the year 2017, there were 47 000 men employed as domestic workers.
4. The study had an age restriction of between 18 to 65; yet they are domestic workers that are under the age of 18 as well as over the age of 65.
5. The study did not collect data on supply of transport in the City of Tshwane; as such, analysis on the supply of transport between domestic workers' homes and their places of work was not possible.

6.5 IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH AND URBAN MANAGEMENT

The following recommendations are made with respect to future research and urban management:

1. To promote the concept of mixed-income housing developments and development of low-income housing close to higher income areas. Domestic workers in Centurion reported that transport cost was a burden for them. However domestic workers living in low-income areas were in a better position with regards to

transport and access. This supports arguments for mixed income developments, inclusionary housing and low-income housing close to high income areas as it is likely to have the potential to reduce commuting distances and the need to travel to work (Todes, 2003; Klug et al., 2013).

2. Mixed-income housing developments and development of low-income housing close to higher income areas are long term solutions. However, short-term solutions for challenges experienced by respondents include the following: (1) A subsidy scheme for passengers and all modes of public transport may be essential to reduce high transport costs experienced by commuters. In South Africa, modes such as minibus taxis are not subsidised by the government. (2) The government and private transport should work on development of accessible mobile applications and websites providing integrated transport information. (3) It would be important to introduce more bus routes in townships where there are less bus routes. (4) Fear to travel at night may be improved by security measures such as CCTV cameras in buses, street lighting and visible policing in areas perceived unsafe.
3. Future research may examine problems encountered by the local government in providing transport infrastructure and services in the City of Tshwane.
4. A significant number of migrant workers do not live with their children. Future research may explore the reasons why they left their children back home, and whether this is to do with the difficulties of caring for children while negotiating difficult transport conditions.
5. The implications of the findings on urban management include insights on transport challenges experienced by low-income earners; and perceived interventions that can make daily travel easier. These insights can be useful in policy making.
6. Since the majority of the domestic workers working in Centurion are migrant workers, the transport challenges (such as high transport costs) they experience may not be taken into consideration by city planners and policy makers.

6.6 CONCLUSION

Transport influence the way people move through a city as well as where people live, shop and work. Previous research reveals that lack of transportation may lead to poverty, social exclusion, transport inequalities and deprivation of opportunities (Pyrialakou et al., 2016;

Hernandez, 2018). In South Africa, low-income earners and the poor heavily depend on public transport (Kerr, 2018), as they may not afford to own private cars.

The results of the study reveal that the majority of women working as domestic workers in Centurion are migrant workers, mostly from within Southern Africa. More than half of the domestic workers have children. However, some of them left their children or families back home. As such, domestic workers who do not live with their children do not have a "double burden" of working and looking after children after a long day, and their transport problems are not as bad one might expect. It is interesting to note that the majority of households of domestic workers are female-headed. Household composition of domestic workers influence transport mobility patterns. Some of the transport challenges of experienced by domestic workers are connected to working conditions. The findings of the study revealed that working arrangements of domestic workers are not uniform. They do not all start and finish work at the same time. Wages of domestic workers have great influence on transport mode choice. Low income earners may not afford to own private cars. This has been reflected in this study (see Figure 5.1); overall, the majority of respondents rely on public transport for their travel needs.

This study shows that problems experienced by transport users in South Africa that are reported in the Comprehensive Integrated Transport Plan (Tshwane), National Household Travel Surveys, General Household Surveys and GCRO are similar to the problems experienced by domestic workers working in Centurion. To make daily travel easier for domestic workers and the low-income populations, it would be important for the government to work on comprehensive solutions such as mixed-income housing developments or inclusionary housing where a variety of income groups can live in close proximity. For domestic workers, access to housing close to work reduces the need to commute long distance and the burden of transport cost can be significantly reduced. The need to live closer to places of work and with better public transport not only allows people to access work opportunities but in the most affordable manner. Planning, implementation and continuous monitoring of transport infrastructure and services are important to improve the quality of living of urban dwellers.

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APPENDICES

APPENDEX A: QUESTIONNAIRE

INSTRUCTIONS TO COMPLETE THE QUESTIONNAIRE

This questionnaire contains a number of statements about transport and mobility. As a domestic worker working in Centurion area you are requested to fill in your answer or mark with an **X** the number that most accurately represents how you feel about each statement.

1.	Bus transport is expensive for me	Strongly disagree	1---2---3---4---5	Strongly agree

Example: If you strongly feel that **bus transport is expensive**, place an X on 5. On the other hand, if you feel **bus transport is not expensive**, place an X on 1. If you neither agree nor disagree with the statement place an X on 3.

SECTION A: SCREENING QUESTIONS

Please mark with an **X**

1. Are you a domestic worker working in Centurion?

	Yes		No

2. Are you over 18 years of age?

	Yes		No

3. Are you under the age of 65?

	Yes		No

If you answered **YES** to questions 1, 2 and 3 please proceed with answering the rest of the questions. If you answered **NO** to any of the questions above, please return the questionnaire to the researcher. We thank you for your participation in this study.

SECTION B: GENERAL INFORMATION

This section includes general information about participants. Please mark with an **X** or fill in your answer.

1.	Age in years	18-24		25-45		46-64		65+	
2.	Income (monthly) Rands	Less than 2 000	2 001- 3 000	3 000 – 4 000	3 001 – 4 000	More than 5 000			
3.	Transport cost (monthly)								
4.	Marital status	Married	Divorced	Separated	Single	Widow			
5.	Do you have children?	Yes		No					
6.	If yes, how many are they?								
7.	Do you live with your children?	Yes		No					
8.	If no, who lives with your children?								
9.	If yes, who looks after your children when you are working?								
10.	Who is the head of your household?								
11.	Where do you live? (area/suburb)								
12.	What types of housing do you live in?								
	1. House on a separate stand								
	2. Cluster house in complex								
	3. Backroom (Formal housing)								
	4. Flat								
	5. Informal dwelling - shack								
	6. Other (Specify)								
13.	Do you have a second home?								
14.	If yes, where?								
15.	How long have you been working as a domestic worker?								
16.	How many days do you work per week?								
17.	Do you work for other households?								
18.	If yes, where are you working?								

19.	What are your duties and tasks where you are working?				
20.	What time do you leave home for work?				
21.	What time do you start work?				
22.	What time do you finish work?				
23.	What would you prefer?	Live-in		Live-out	
24.	What are your reasons for your preference to live-in or live-out?				
25.	What time do you wake up to prepare for your work trip?				
26.	What type of home are you working in?				
	House /Flat/ Apartment in a gated community (estates/complex)				
	House on a separate stand (stand-alone house)				
	Other (Specify)				

SECTION C: TRANSPORT MOBILITY PATTERNS

1. Which mode of transport do you use most frequently for each of the following activities? Please mark with an X**.**

	Purpose of trip on a daily basis	**Car**	**Train**	**Bus**	**Minibus Taxi**	**Walk**	**Taxi**	**Other**
a.	Work							
b.	Shopping							
c.	Health care (Clinic)							
d.	Local leisure							
e.	Religion							
f.	School (your children)							
g.	Do you use multiple modes of transport to get to work?				Yes		No	
h.	If yes, which modes of transport do you to get to work?							

2. On average, how long do you take to travel for the following purposes (time in minutes) Please indicate your answer with an X**.**

	Purpose	1-20	21-40	41-60	61-80	81-100	Over 100
a.	Work						
b.	Shopping						
c.	Health care (Clinic)						
d.	Religion						

3.	**Proximity to transport infrastructure (walking time in minutes).** How far or close do you live from the following transport infrastructure? Please indicate your answer with an X.						
	Transport infrastructure	**1-20**	**21-40**	**61-80**	**81-100**	**Over 100**	**N/A**
a.	Nearest bus stop						
b.	Nearest train station						
c.	Nearest taxi rank						
d.	Nearest cycling-path network						
4.	How long does it take you to walk to your workplace after the transport has dropped you off? (minutes)						
5.	What is the daily cost of transport to work and back						

SECTION D: FACTORS INFLUENCING MODE OF TRANSPORT

There are various transport factors that influence mode of transport.

1.	**To what degree of importance are these transport factors attributes to you when choosing the mode of transport?** (1 = not very important, 2 = not important, 3 = neutral, 4 = important 5 = very important). Please circle your answer or mark with an X.			
a.	**Cost**	Not very important	1---2---3---4---5	Very important
b.	**Safety**	Not very important	1---2---3---4---5	Very important
c.	**Reliability**	Not very important	1---2---3---4---5	Very important
d.	**Comfort**	Not very important	1---2---3---4---5	Very important
e.	**Convenience**	Not very important	1---2---3---4---5	Very important
f.	**Time taken**	Not very important	1---2---3---4---5	Very important
g.	**Health benefits**	Not very important	1---2---3---4---5	Very important
h.	**Availability**	Not very important	1---2---3---4---5	Very important
i.	**Weather**	Not very important	1---2---3---4---5	Very important
j.	**Route**	Not very important	1---2---3---4---5	Very important
k.	**Frequency**	Not very important	1---2---3---4---5	Very important

SECTION E: TRANSPORT CHALLENGES

Transport users experience different problems in daily travel. This section contains statements pertaining transport challenges experienced by transport users.

1.To what extent do you agree or disagree with these statements? Please indicate your answer with an X or circle the answer that applies to you. (1 = Strongly disagree, 2 = Disagree, 3 = Neither, 4 = Agree, 5 = Strongly agree)				
a.	Getting transport to my workplace is difficult	Strongly disagree	1---2---3---4---5	Strongly agree
b.	Getting transport from my workplace is difficult	Strongly disagree	1---2---3---4---5	Strongly agree
c.	Transport cost is burden to me	Strongly disagree	1---2---3---4---5	Strongly agree
d.	My salary covers monthly transport cost	Strongly disagree	1---2---3---4---5	Strongly agree
e.	Bus transport is expensive for me	Strongly disagree	1---2---3---4---5	Strongly agree
f.	There are no buses in my township	Strongly disagree	1---2---3---4---5	Strongly agree
g.	There is lack of information on bus timetables and routes	Strongly disagree	1---2---3---4---5	Strongly agree
h.	I do not have access to train transport	Strongly disagree	1---2---3---4---5	Strongly agree
i.	I fear harassment in bus transport	Strongly disagree	1---2---3---4---5	Strongly agree
j.	I fear harassment in train	Strongly disagree	1---2---3---4---5	Strongly agree
k.	I fear harassment in minibus taxis	Strongly disagree	1---2---3---4---5	Strongly agree
l.	Waiting time for transport is long in the morning to work	Strongly disagree	1---2---3---4---5	Strongly agree
m.	Waiting time for transport is long after work	Strongly disagree	1---2---3---4---5	Strongly agree

2.	Can you please list other transport challenges not mentioned above that you experience in your daily travel?

3.What are your perceptions on transport? Please indicate your answer with an X or circle the answer that applies to you? (1 = Strongly disagree, 2 = Disagree, 3 = Neither, 4 = Agree, 5 = Strongly agree)				
a.	I feel safe travelling home at night	Strongly disagree	1---2---3---4---5	Strongly agree
b.	I feel safe travelling by bus	Strongly disagree	1---2---3---4---5	Strongly agree
c.	I feel safe travelling by minibus taxis	Strongly disagree	1---2---3---4---5	Strongly agree
d.	I feel safe travelling by train	Strongly disagree	1---2---3---4---5	Strongly agree
e.	I feel safe travelling by bicycle	Strongly disagree	1---2---3---4---5	Strongly agree
f.	I feel safe travelling by foot	Strongly disagree	1---2---3---4---5	Strongly agree
g.	Transport is available during the weekend for my leisure trips	Strongly disagree	1---2---3---4---5	Strongly agree

SECTION F: PERCEPTIONS ON TRANSPORT INTERVENTIONS

To make daily travel easier, various transport interventions can be implemented.

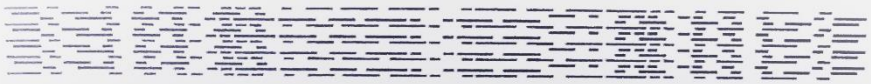
1. How effective do you think the following transport interventions would improve your daily transportation? Please mark your answer with an X or circle your answer, (1= not very effective, 2= not effective, 3= neutral, 4= effective, 5= very effective)				
a.	Cheaper transport fares	Not very effective	1---2---3---4---5	Very effective
b.	More bus routes	Not very effective	1---2---3---4---5	Very effective
c.	Improved walking paths	Not very effective	1---2---3---4---5	Very effective
d.	Provision of cycling paths in my township/suburb	Not very effective	1---2---3---4---5	Very effective
e.	Transport allowance from my employer	Not very effective	1---2---3---4---5	Very effective
f.	Improved frequency of buses	Not very effective	1---2---3---4---5	Very effective
g.	Improved train safety	Not very effective	1---2---3---4---5	Very effective

h.	Improved frequency of trains	Not very effective	1---2---3---4---5	Very effective
i.	Public transport vehicles not roadworthy should not be on transport passengers	Not very effective	1---2---3---4---5	Very effective

2.	Can you please add other interventions not mentioned above that you think may ease your daily travel?

Thank you for taking the time to complete the questionnaire!

APPENDIX B: ETHICAL CLEARANCE CERTIFICATE



SCHOOL OF ARCHITECTURE AND PLANNING
HUMAN RESERCH ETHICS COMMITTEE

SCHOOL OF ARCHITECTURE PLANNING

CLEARANCE CERTIFICATE
PROTOCOL NUMBER: SOAP039/06/2019

PROJECT TITLE:	Transport mobility patterns of domestic workers working in Centurion, City of Tshwane
INVESTIGATOR/S:	Babra Duri (Student No: 2248560)
SCHOOL:	Architecture and Planning
DEGREE PROGRAMME:	Master of Urban Studies (Urban Management)
DATE CONSIDERED	03 September 2019
EXPIRY DATE:	03 September 2020
DECISION OF THE COMMITTEE:	Approved

CHAIRPERSON B C Boshoff
(Dr Brian Boshoff)

DATE: 7/9/19

cc: Supervisor/s: Alison Todes

DECLARATION OF INVESTIGATORS
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to endure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature

10/sept/2019
Date

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APPENDIX C: PARTICIPANT INFORMATION SHEET

Dear Sir / Madam,

My name is **Babra Duri** and I am a Masters student in School of Architecture and Planning at the University of the Witwatersrand in Johannesburg. As part of my studies, I have to undertake a research project. The aim of this research project is to find out the transport mobility patterns and challenges for female domestic workers working in Centurion.

As part of this project, I would like to invite you to take part in an answering a questionnaire. This activity will involves answering a questionnaire and will take around 30-40 minutes.

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. The questionnaire will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and not disclosed to anyone else.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrec-medical.researchoffice@wits.ac.za

Yours sincerely,
Babra Duri

Researcher:
Babra Duri
2248560@students.wits.ac.za
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Supervisor:
Prof A. Todes
Alison.todes@wits.ac.za
011-7177702

Consent Form

Title of project: Transport mobility patterns of domestic workers working in Centurion

Name of researcher: Babra Duri

I …….. agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his / her research report	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes	YES	NO

…… (signature)

…… (name of participant)

…… (date)

APPENDIX C: INFORMAL CONSENT FORM

Script for obtaining informal oral consent

Hello, my name is Babra Duri. I am a Masters student in School of Architecture and Planning at the University of the Witwatersrand in Johannesburg. If you are willing to talk, I would like to speak to you about this research project. As part of my studies, I have to undertake a research project. I would like to find out the transport mobility patterns and challenges for female domestic workers working in Centurion. If this time is convenient for you to talk, I will tell you more about the research project.

I have a questionnaire here with me, containing a number of statements regarding transport mobility patterns of domestic workers. This activity will involve answering a questionnaire and will take around 30-40 minutes. My research will be written up as a dissertation, and when completed it will be available to access on the university website. The answers you give will form the basis of my research dissertation. Please note the following:

- Participation is voluntary and you are under no obligation to participate.
- You are free to withdraw at any time and without giving any reasons.
- Your identity will be anonymous and no one will be able to connect you to the answers.
- We will provide you with a summary of our findings on request.

Do you have any questions?
Do you give consent to participate in this research?
If you are ready, you may start answering the questions in the questionnaire. If you prefer not to continue, that is acceptable.