# EFFECT OF HOUSING CHARACTERISTICS ON MENTAL HEALTH OF URBAN DWELLERS IN MINNA, NIGER STATE, NIGERIA

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**MTech/SET/2018/9186**

**DEPARTMENT OF URBAN AND REGIONAL PLANNING**

**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**

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**A THESIS SUBMMITTED TO THE POSTGRADUATE SCHOOL, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY IN URBAN AND REGIONAL PLANNING**

## ABSTRACT

This study focused on the effects of housing characteristics on mental health of urban dwellers in Minna. The study employed quantitative approach using 243 structured questionnaires administered through multi-stage sampling procedure to regrouped Minna 36 main residential areas into 10 main residential wards, while purposive sampling was used to select three (3) main wards, one from each density group (High, medium and low density).The study found out that the housing characteristics in the study areas shows that on neighbourhood basis, bungalow is the most predominant type of building in the study area with (31%). The study also assessed the mental health and well-being of the respondents in the study areas was examined by using General Health Questionnaire scheduled on a 4-point ordinal scale (0 to 3) with higher scores suggestive of more distress using twelve indicators (six positive and six negative). The mental health of residents was loaded as the dependent variable while types of building (0.030), wall material (0.268), roof material (0.096), age of building (0.095), ownership status (0.012), number of rooms (0.040), access to water (0.021), source of water (0.241), quality of water (0.408), toilet (0.039), condition of building (0.058) and environmental quality (0.040) was loaded as independent variables. The result shows that an $R^2$ value of 0.37 was recorded for the analysis; that 37% of the mental health challenge of the residents is as a result of the housing characteristics of the residents. The analysis was significant at a p-value of 0.042 since the p-value is less than 0.05 acceptable at 95% confidence interval. The study also revealed that there is a statistically significant variation in the pattern of mental health stress experienced by the respondents in the three residential densities of low, medium, and high. Invariably, this also implies that neighbourhood characteristics contributes directly or indirectly to the level of mental stress experienced by the respondents. In conclusion, housing is not only the provision of physical shelter but also a complex source of the residents' mental health and well-being. Hence the study recommends that the government, through its relevant authorities saddled with the responsibility must ensure that building standards are strictly adhered to in the process of constructing residential buildings. This will help alleviate some of the challenges faced by house users which ultimately affect their mental health.

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# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background to the Study

Among the numerous environmental challenges facing developing nations including Nigeria, the problem of housing is probably top of the list. Housing goes beyond a roof over one's head; it is the totality of the dwelling, the home, the immediate environment and the community (WHO, 2004). Housing is characterized as "inadequate" if it fails to have basic facilities, infrastructure and services including adequate space, ventilation, proper collection and disposal of waste facility, proper sanitation, electricity, water supply and general environmental quality (Krieger and Higgin, 2002; WHO, 2004).

Adequate housing remains vital to human health, comfort and general well-being (Habib *et al.,* 2009). According to Astrolabe (2002) adequate housing should provide three basic needs to its occupants and users. These include physical, emotional and intellectual needs. It is generally agreed that in order to achieve total health and well-being, factors to be considered should go beyond mere biomedical and accommodate other factors such as housing. This has led to a shift in the minds of researchers to put more emphasis and attention on housing impacts in order to understand the link between housing and mental health. The exact link between poor housing and mental health is complicated and difficult to quantify (Astrolabe, 2002).

Research based on the various sources of housing and mental health data indicates that poor housing is associated with increased risk of cardiovascular diseases, respiratory diseases; depression and anxiety, rheumatoid arthritis, nausea and diarrhoea, infections, allergic symptoms, hypothermia, physical injury from accidents and food poisoning.

Housing characteristics are the various aspects of housing which include housing type, housing ownership, housing quality, living space and housing environment. Mental health refers to many aspects of people's well-being, such as psychological well-being and emotional well-being (Rohe and Stegman, 1994). Housing affects mental health in many aspects, but scholars have paid closer attention to: ownership and housing types (singlefamily dwelling versus multistory dwelling), living space, housing quality and the housing environment (Zumbro, 2014). Ownership of a dwelling is assumed to affect mental health through four different pathways, namely, housing quality, economic reasons, prestige and freedom (Zumbro, 2014). The quality of owner-occupied housing is usually better than rental housing (Iwata and Yamaga, 2008; Rossi and Weber, 1996). People who live in owner-occupied housing therefore experience a more comfortable life and are thus blessed with better psychological well-being. In addition, homeowners economically benefit from self-owned housing because homeownership offers better financial security, and housing is an important component of wealth for a family (Jantti and Sierminska, 2007; Walder and He, 2014; Xie and Jin, 2015).

In addition to the influence of ownership, the housing type is also significantly related to mental health. In general, people who live in storey dwellings show worse mental health than people who live in block of flats (Evans, Wells and Moch, 2003). However, the underlying mechanisms regarding the linkages between housing types and mental health are not very clear. Evans *et al* (2003) suggest that one possible mechanism might be that people who live in a multilevel building are more likely to suffer social isolation and have more difficulty in accessing play spaces on the ground. Their mental health is not as good as people who live in block of flats. If someone has developed a mental health problem, high quality and stable housing is key to maintaining good mental health and is important for recovery.

Research have shown that poor housing conditions are also a strong predictor of general life satisfaction (DCLG, 2015). Understanding the causal links between housing and mental health is complex because poor housing situations can make people's mental health worse and poor mental health can make housing situations worse (Department of Health, 2011; Appleton and Molyneux, 2007). Many works have highlighted that people with mental health problems are much more likely to live in poor quality accommodation (Kyle and Dunn, 2008) and are dramatically overrepresented amongst people who are homeless (Rees, 2009), they are also twice as likely as the general population to be unhappy with their housing and four times more likely to say that it makes their health worse (Social Exclusion Unit, 2004). Whilst housing can have positive and negative effects on mental health, poor housing detracts from mental health more than good housing improves it (Kearns *et al.,* 2010).

Stable housing is important for helping people to access formal support services and maintain their independence. It also helps people build good relationships with neighbors and improves their access to informal social support (Man, 2005). This means that improving the stability and quality of housing helps to improve mental health outcomes and prevent premature deaths including suicides (Leff *et al* 2009). If someone experiences mental health crisis particularly one that leads to hospitalization it can further lead them to losing their home (NHS Confederation, 2011), thereby negatively impacting on the individual, process and status, further increasing healthcare costs and delays discharge (McDaid and Park, 2016). Despite these large personal and financial costs, mental health and housing services are poorly integrated (Molyneux, 2011). Over the years, Minna has witness sporadic housing development in all parts of the town, yet whether the houses are good enough to positively affect mental health or not is unknown. Thus, the need to

investigate the peculiar relationship that exist between housing dynamics and mental health of residents in Minna.

## 1.2 Statement of the Research Problem

Housing deficiency in Developing Countries, particularly Nigeria arise as a result of high rate of urbanization and subsequent demand for houses by the growing population. Studies have shown, "that over a period of three decades from (1952-1982) the population of most urban areas increased fivefold", recording over 1000% increase over the three decades. The right to adequate housing that is safe, secure, healthy, available and inexpensive is enshrined in the Habitat agenda with the goal of providing adequate shelter for all (UN Habitat, 2001). According to Pison House Company (2010), there are about 10.7 million houses in Nigeria, irrespective of the policies, organisations and regulations which the Nigerian Government has put in place since independence in 1960, there is still shortage of housing, especially for the low income segment and society.

Housing problem is not just an issue of too few housing units but that of the poor quality and lack of basic services in high proportion to the total housing stock. Studies of real life experiences have shown that majority of the low-income earners in developing countries live in substandard housing and poor quality neighborhood which can affect their mental well-being. It is pertinent to note, that large number of Nigerians who have a roof over their heads still expresses varying degrees of housing need due to the poor and unserviceable nature of the housing. High cost of building materials is identified as one of the major challenges militating against adequate housing supply (Agbola, 1989). Basically, the challenges here include that of scarcity and high cost of importing building materials especially those with foreign components. The situation is worsened by low

patronization and consumption of locally made building materials by most Nigerians who have developed high taste for imported goods.

Minna is currently characterized by rapid growth of squalid and slum conditions of environmental sanitation, overcrowded settlements, poor waste disposal management, pollutions, inadequate water supply to dwellers and unreliable power supply. These housing and environmental challenges have numerous health consequences ranging from physical to mental. Many studies conducted in developed and some developing Asian countries such as Malaysia and China showed some relationship between housing

characteristics and mental health, (Shenghua, 2019; Shadiya *et al.,* 2015). Research gaps such as the impact of housing conditions, housing affordability and tenure on mental health, needs to filled and added to the body knowledge by seeking to understand the effects of housing characteristics on the mental health of urban dwellers in Minna.

## 1.3 Research Questions

1. What is the socioeconomic attributes of the urban residents of Minna?
2. What are the characteristics of housing attributes in the study area?
3. What is the mental status and wellbeing of the residents in the study area?
4. How does housing characteristics influence the mental health status of the residents? 5. How does mental health status of residents vary across neighbourhood densities?

## 1.4 Aim and Objectives of the Study

The aim of this study is to assess the effects of housing characteristics on mental health of urban residents in Minna, with a view to suggesting ways of enhancing harmonious relationship between housing and mental health of urban dwellers.

The specific objectives of the study are to:

1. Assess the socioeconomic characteristics of the residents.
2. Assess the nature of housing characteristics in Minna town.
3. Examine the mental health of residents in the study area.
4. Examine the effect of housing characteristics on mental health of residents.
5. Assess the variation on the mental health of residents across neighbourhood densities in the study area.

### 1.5 Significance of the Study

The study revealed the relationship between the effects of housing characteristics and mental health in certain neighbourhoods of Minna and provide information on housing dynamics such as housing type and ownership, living space, housing quality and housing environment. The study provides information to individuals, planners and builders on adequate provision on infrastructure to improve the standard of living and also employ the services of professionals when building.

Housing is of central importance to quality of life. Ideally it minimizes disease and injury, and contributes much to physical and mental health. Over and above its basic purpose to provide shelter against the elements and a focus for family life, the home environment should afford protection against hazards to health arising from the physical and social environment. The majority of the world's population, however, live in shelter that does not meet basic health requirements. For increasing numbers of people, available shelter not only fails to protect them, but also exposes them to health risks which are largely preventable (WHO, 2004). Perhaps surprisingly, although a great deal of attention has been given to examining the ways in which hazards in the work environment impact on workers' health, much less attention has been given to health hazards in the home

environment. Of course, increasingly, in many parts of the world, the home environment is also the work environment, posing additional potential hazards to mental health.

Housing and environmental factors such as high levels of noise, poor air quality, inadequate refuse storage and collection facilities, poor food storage and preparation facilities, temperature extremes and high humidity, overcrowding, poor lighting, inadequate or inappropriate construction materials, building defects and pests may also influence mental health significantly (WHO, 2004).

## 1.6 Scope of the Study

This study is restricted to three (3) selected residential neighbourhoods in Minna, namely: Chanchaga, Tunga and GRA representing three main the density types of high, medium and low respectively. The study focuses on the nature of housing characteristics, the study examined the mental health of the residents in the study area, the effect of housing characteristics on the mental health of residents and the variation on the mental health of residents across the densities in the study area.

## 1.7 The Study Area

### 1.7.1 Location of Minna

Minna, the capital of Niger state is located in the middle belt region of Nigeria (Figure 1.1). The settlement is located on Latitude 9$^{o}$37'N and Longitude 6$^{o}$33'E (Longman, 2003; FUT Minna, 2008 and 2013). The town became a major collection point for agricultural product in 1915 following the extension of the Lagos-Jebba rail line which attracted investment and people. Minna became the capital of Niger state in February, 1976. The town begins from Chanchaga in the south and Bosso (Figure 1.2 and 1.3) in the north with

easy accessibility from all parts of the country (Mohammed, Olaleye, Umar and Jibrin, 2015).

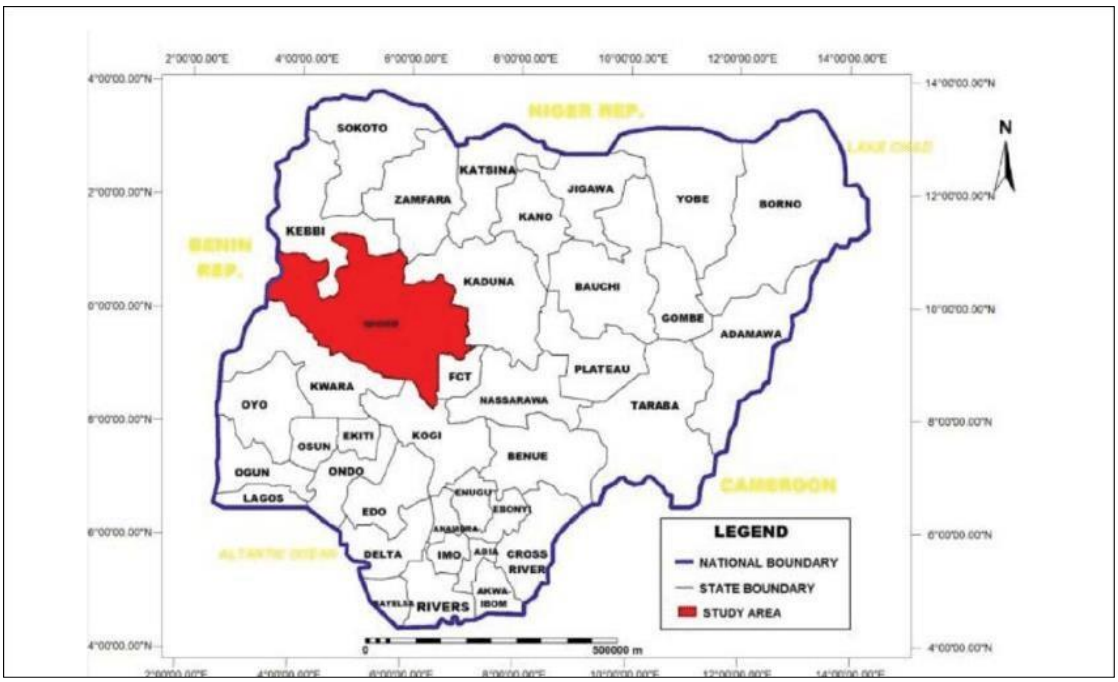


**Fig 1.1:** Map of Nigeria showing Niger State
**Source:** Source: Niger State Bureau of Statistics (2012)

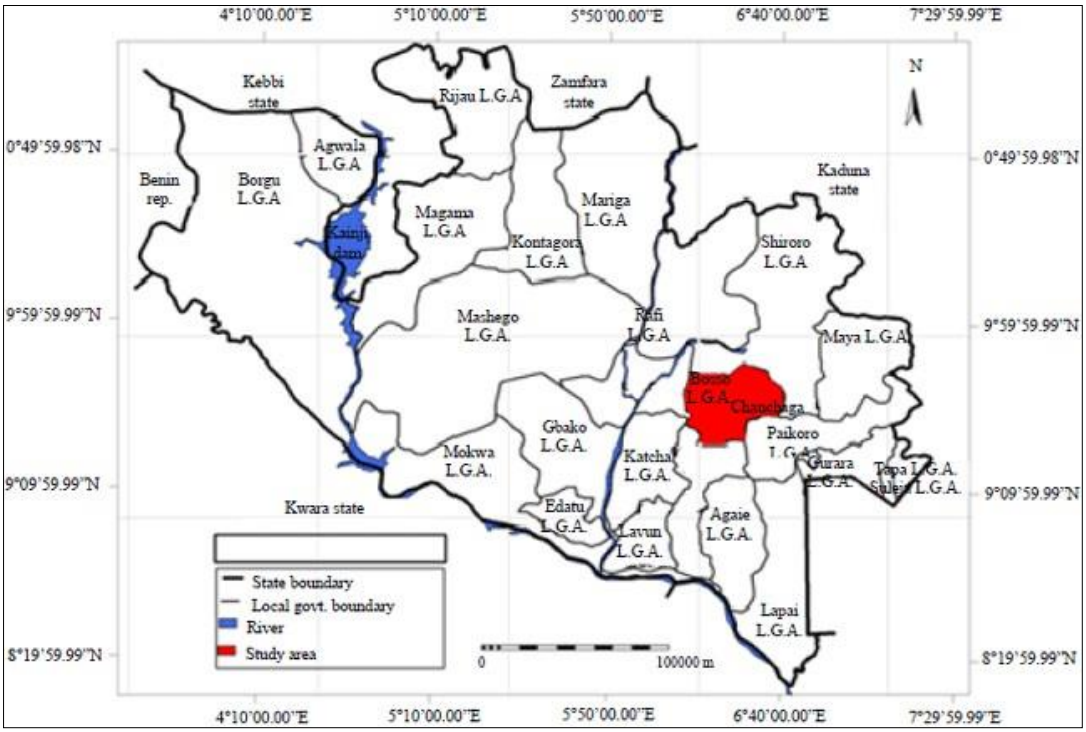


**Figure 1.2:** Chanchaga and Bosso LGA in the Context of Niger State
**Source:** Niger State Bureau of Statistics (2012)

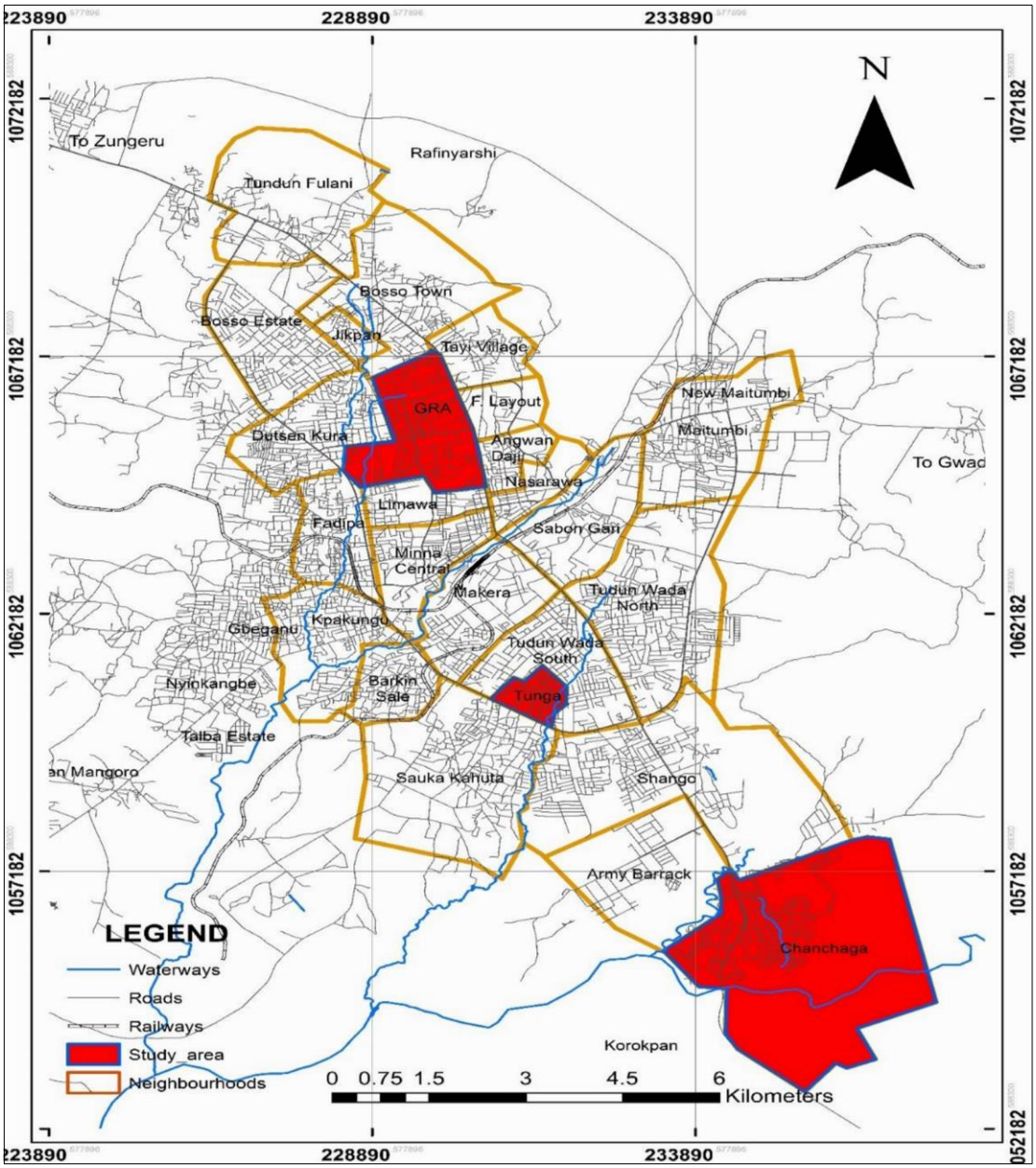


**Fig Figure 1.3:** Minna, the Study Area
**Source:** Digitzed by the Author, (2021)

### 1.7.2 Weather and climate of Minna

Minna experience a system weather that is generally moderate, with lows of $24^0$ C and highs of $30^0$ C in the dry season, just around April. The State experiences two distinct seasons the dry and wet seasons. The annual rainfall varies from about 1,600mm in the south to 1,200mm in the north. The duration of the rainy season ranges from 150 to 210 days or more from the north to the south.

Mean maximum temperature remains high throughout the year, hovering about 32°F, particularly in March and June. However, the lowest minimum temperatures occur usually between December and January when most parts of the state come under the influence of the tropical continental air mass which blows from the north. Dry season in Niger State commences in October (NSBS, 2012).

### 1.7.3 Vegetation of Minna

The vegetation is tall grassland, with very much woody area close to river valleys. The town is close to the hydro-electric generation plant in Shiroro. There is a large artificial lake which is now a tourist attraction and a source of fishing for the inhabitants. The state is richly endowed with natural resources in abundance. The most important asset cherished very much by Nigerlites is the fertile land. Added to this is even climate of the geographical area which is characterized by very rich annual rainfall. To crown it all, a wide variety of mineral and material resources are known to be available in the state. Therefore, whether the interest is agriculture or industry, Niger state has the capacity to sustain it. This is why Nigerlites are collectively resolved that Nigeria's strive for selfreliance and sufficiency in food production could be facilitated and rapidly realized in Niger State. The state has numerous exportable commodities begging for patronage (NSBS, 2012).

### 1.7.4 Population of Minna

The 2006 national population census (Provisional Result) puts the population of Minna at 201,429 (105,803 males and 95,626 females). The projected population of Minna in 2021 at growth rate of 3.2% is 463,000. (NPC, 2006).

### 1.7.5 History of Minna

Niger State was created on 3rd February, 1976 from the defunct North-Western State during the regime of General Murtala Ramat Mohammed. However, the State actually

began functioning on April 1st of that year with Minna town as its administrative capital. (NSBS, 2012). Minna is basically a Gwari town and it got its name from ancient ritual performed yearly by the Gbagyi founders of the town to observe the beginning of the New Year. The word itself in Gbagyi means 'to spread fire'. It came into existence because the Gbagy is used to put out every bit of fire in the area, even in all the kitchens in the town on the last day of every year. About three days to the last day of every year the Priest of the town and some members of the traditional council members would travel to Lafiagi, a village on the boundary between Bida emirate and Paiko district about 60 kilometers away, to bring new fire to Minna. Lafiagi itself is a Gbagyi-speaking village in the present day Nupe Emirate of the State. (NSBS, 2012).

### 1.7.6 Economy of Minna

The cherished asset of Niger State is its fertile land. However, the potentials are yet to be fully explored, the Climate and availability of wide variety of mineral and agricultural resources also attest to the economic potentials of the State. Every government that has come to power endeavored to provide good infrastructure such as roads, electricity, water and communication facilities, to make way for interested investors. (NSBS, 2012).

Some natural and mineral resources found in the State include: Talc, Gold, Ball clays, Silica, Sand, Marble, Copper, Iron, Felspar, Lead, Kaolin, Casserole, Columbite, Mica, Quartzite, and Limestone. The three Hydro Electric Power Stations in the Country at Kainji, Jebba and Shiroro are all situated in Niger State. (NSBS, 2012).

### 1.7.7 Commercial activities in Minna

The commercial activities in Minna are trading, Leasing, buying and selling of goods and services commercial farming, banking, retail/wholesale, carpentry, commercial motorist,

fishing, mining, and brass work, to mention but a few. The major agricultural products produced in Minna are; Cotton, guinea corn, and ginger. The economy also supports cattle trading, brewing, Shea nut processing and gold mining. Traditional industries and crafts in Minna include leather work and metal working (NSBS, 2012).

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

In late decades, in created nations, consideration has been moved from gross flimsiness and unsanitary conditions to issues related with indoor air quality and other substance and physical dangers that exist in the private condition. As far as health impacts, consideration has likewise changed from serious bleakness to psychosocial prosperity. In any case, despite the fact that enhancements have happened, housing conditions in a native people group keep on displaying third-world like qualities with flimsy housing and unsanitary conditions (absence of running water and sewage offices) in numerous networks. (Smith, 1990).

The scope of medical issues which can be ascribed to poor housing conditions is enormous, from mental and physiological impacts to explicit ailments shifting in the level of related bleakness. There is a huge and noteworthy assortment of logical writing that exhibits convincingly that there are immediate causal relationship between various parts of poor housing and specific health conditions. Medical issues that have been related with poor housing incorporate the irresistible ailments, non-irresistible respiratory maladies, for example, asthma, and social and mental issues. The writing has distinguished three essential parts of poor housing that are legitimately connected to weakness results: congestion, sogginess and molds, and sanitation and fundamental housing quality (Molyneux, 2011).

## 2.1 Theoretical / Conceptual Framework

A house is the major location for family life and the place where family members spend the majority of their time. It is a basic foundation for life and there is extensive evidence of the importance of the home environment in influencing the educational achievement

and health of family members. Knowing that absent of the house is assessments of mental health. Housing is a basic human need that Maslow explained in the hierarchy of needs; and it is the first level of need similar to food and drink (Man, 2005).

Housing quality refers to the physical condition of a person's home as well as the quality of the social and physical environment in which the home is located (Krieger and Higgins, 2002). Aspects of housing quality include air quality, home safety, space per individual, and the presence of mold, asbestos, or lead. Housing quality is affected by factors like a home's design and age. Poor quality housing is associated with various negative health outcomes, including chronic disease and injury and poor mental health. The quality of a home's neighborhood is shaped in part by how well individual homes are maintained, and widespread residential deterioration in a neighborhood can negatively affect mental health (Krieger and Higgins, 2002).

Some authors have suggested that specific aspects of housing type may impact on the mental health (Evans, Wells and Moch, 2003); factors such as dwelling type and street layout may impact on mental health via psychosocial processes linking the external environment to affective outcomes. Evans *et al.* (2003) hypothesises that living in highrise or multi-unit dwellings (that is housing units occupied by a number of separate households), may impact negatively on mental health through the processes of personal control and social support. For example, lacking the ability to exert territorial control over shared spaces may result in diminished informal social control, and lack of shared space that provides opportunities for social interaction may lead to decreased social support. Cross-sectional studies provide evidence of association between such factors and mental health outcomes, although this is moderated by other factors (Evans *et al.*, 2003).

However, there have been few studies which have attempted to identify such psychosocial processes, or to investigate mechanisms linking housing and mental health.

Houses that are owned are generally in better condition than rented accommodation. Rental housing is generally of poorer quality, have effect on mental health and more insecure. Home-ownership seems to confer both psychological and material advantages on owner occupants, (Dunn, 2002) although a recent systematic review concludes the evidence is not strong. Owning a home have less effects on mental health than renting a house (Kearns *et al.*, 2010). Leases, though they vary from country to country, do not give the same security to tenants as a house title gives to an owner.

However, this is not a static situation, in part because the housing market is such a pivotal part of the general economy and in an economic recession, home-owners, who bought in a boom, may be left with negative equity in their houses. In this case, home-ownership may be less secure than rental housing, particularly if the home-owner is made unemployed or becomes chronically ill. Mortgage payment commitments and the costs of maintaining housing can be stressful and the quality of housing that can be afforded on reduced incomes may be less health promoting than rental housing that can be afforded for the same expenditure (Kearns *et al.*, 2010).

Housing environment is a combination of both physical factors such as where you live and the people around you both in your home but also on a wider community scale

(Wright and Kloos, 2007). Other environmental factors that can have a significant impact on mental health include poverty, crime, and environmental racism. For example, research has found that a person's housing environment can play a role on their mental health. Another study found that crime as well as the fear of crime had a substantial effect on mental well-being (Lawlor *et al.*, 2002).

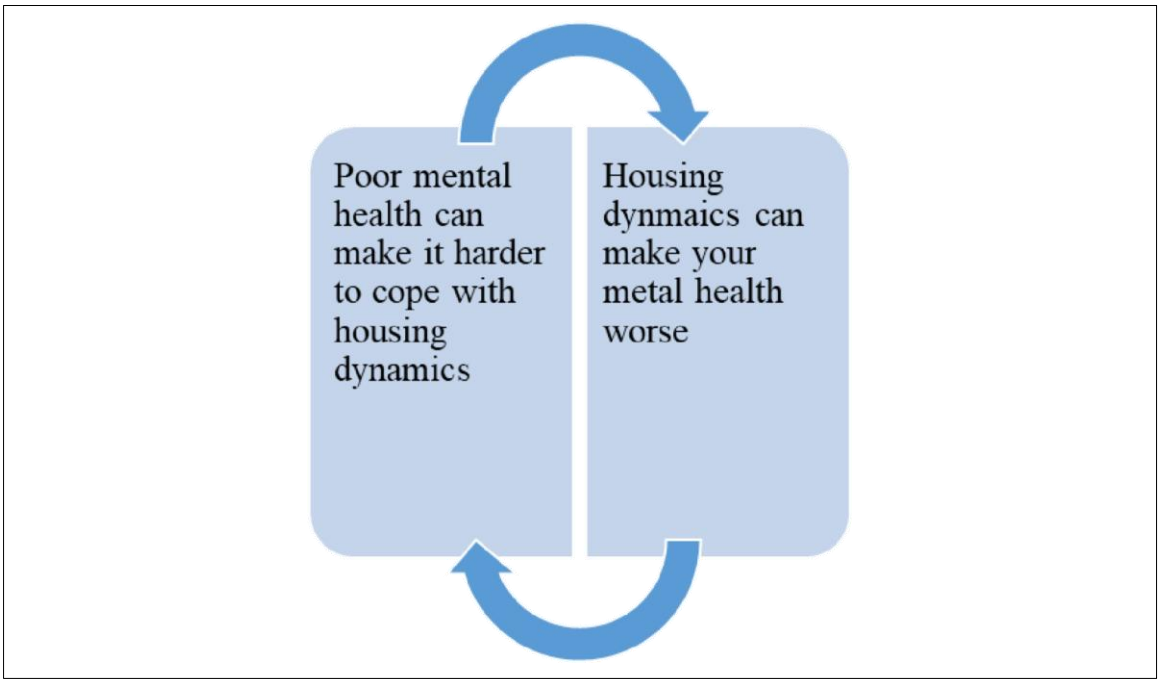


**Figure 2.1:** A schematic diagram that shows the relationship between housing characteristics on **Source:** mental health Author, (2021)

## 2.2 Types of Housing in Nigeria

### 2.2.1 The rooming houses

The rooming houses are the most common, most favored type of housing units in Nigeria. They account for over 50% of the total dwelling units in the country. Rooming houses are usually bungalows with rooms on both sides and a common corridor. It is also commonly called ‘face me i face you’ because of the way the rooms are arranged. Each house could have about 4 rooms on either side, for a total of eight rooms. It is usually a multi-family dwelling since each family occupies one or two rooms at time (Agbola, 1989).

A rooming house, also called a "multi-tenant house", it is a "dwelling with multiple rooms rented out individually", in which the tenants share bathroom and kitchen facilities.

Rooming houses are often used as housing for low-income people, as rooming houses (along with Single Room Occupancy units in hotels) are the least expensive housing for single adults. Rooming houses are usually owned and operated by private property owners

(Freeman, 2018). Rooming houses are better described as a "living arrangement" rather than a specially "built form" of housing; rooming houses involve people who are not related living together, often in an existing house, and sharing a kitchen, bathroom, and in some cases a living room or dining room. (Martin *et al* 2001).

### 2.2.2 Single Storey

The single storey buildings us the type referred to as ‘upstairs’ in Nigeria before the advent and widespread use of cement and other reinforcement materials. This type is built with mud and the decking with planks and this limit the carrying capacity to only one storey, hence the term upstairs (Agbola, 1989). Single storey is any level part of a building with a floor that could be used by people (for living, work, storage, and recreation). The terms floor, level, or deck are used in a similar way, except that it is usual to talk of a "14storey building", but "the 14th floor". The floor at ground or street level is called the "ground floor" (i.e. it has no number, the floor below it is called "basement", and the floor above it is called "first") in many places. In other places, ground floor and first floor are synonymous, leading to conflicting numbering of floors depending between different national varieties of English (Parkes and Kearns, 2004).

Houses commonly have only one or two floors. Buildings are often classified as low-rise, mid-rise and are not well-defined. A single-storey house is often referred to, particularly in the United Kingdom, as a bungalow. The tallest skyscraper in the world, Burj Khalifa, has 163 floors English (Parkes and Kearns, 2004).

### 2.2.3 Block of flats

A building consisting of many flats, usually called a block of flat is a modern addition to residential development pattern in Nigeria. Such a block of flat is multi-family dwelling

unit. Each flat has its own facilities and utilities. As such no two units share any of these because it is a self-contained unit it prevents rancor and inter-personal or inter-family squabbles which are common in rooming building (Agbola, 1989).

### 2.2.4 Bungalows

The bungalow can be designed as a rooming house, a single flat, or two flats. As a single residential unit with its own compound, facilities and utilities it is in high demand especially if the location is in a quite environment (Agbola, 1989). Bungalows are most often one-story houses, although they often also include an additional half story, usually with a sloped roof. There are various types of bungalows, including raised bungalows that have basements partially above ground to let in additional sunlight. There are also some that branch away from the original definition by adding additional levels such as lofts and half levels. Common features of the bungalow include a dormer window and a veranda.

To a large extent, they are the most popular residential and commercial house in Nigeria. These types of houses are economical to build while maintaining luxury and durability.

Bungalow houses are either detached or semi-detached. The detached ones are a single standing property that does not share any walls with any other structure. These properties type due to its isolation are usually very private. The semi-detached ones are joined together by a common wall in the middle. One side of each house shares a common wall while the other side is detached. These types of houses in Nigeria can be found in both rural and urban areas of the country.

### 2.2.5 Duplex

The duplex is the newest addition to the house types in the Nigerian housing market. It is a self-contained single family residential unit with the living room, sinning and kitchen on the ground floor, while the bedrooms are on top. It became relatively prominent during the 1970's especially during the 'oil boom' era (Agbola, 1989). Duplex are stacked apartments on two different floors which often looks like either two houses put together or a large single house sharing a wall between halves; see a duplex like two different houses in the same house. Similar structures with three or four housing units or floors are called triplex or fourplex. Duplex houses are more common in cities although city dwellers have been known to establish such buildings in their hometowns. Like bungalows, duplexes in Nigeria are usually two types; detached and semi-detached. The only difference is, while bungalows are grounded, Duplexes are usually story high. Duplexes are very common in the Government Residential Area of states in Nigeria (Markus, 2004).

## 2.3 Home Ownership

Home ownership refers to the financial arrangements under which someone has the right to live in a house or apartment. The most frequent forms are tenancy, in which rent is paid to a landlord, and owner-occupancy. The basic forms of ownership can be subdivided, an owner-occupier may own a house outright, or it may be mortgaged. In the case of tenancy, the landlord may be a private individual, a non-profit organization such as a housing association, or a government body, as in public housing. (Raw, 2001).

### 2.3.1 Types of home ownership

#### 2.3.1.1 *Owner-occupancy*

Owner occupancy is a form of housing tenure where a person, called the owner-occupier, owner-occupant, or home owner, owns the home in which he lives. This home can be house, apartment, condominium, or a housing cooperative. In addition to providing housing, owner-occupancy also functions as a real estate investment. Some homes are constructed by the owners with the intent to occupy. Many are inherited. A large number are purchased, as new homes from a real estate developer or as an existing home from a previous landlord or owner-occupier (Lowry, 1991).

A house is usually the most expensive single purchase an individual or family makes, and often costs several times the annual household income. Given the high cost, most individuals do not have enough savings on hand to pay the entire amount outright. In developed countries, mortgage loans are available from financial institutions in return for interest. If the home owner fails to meet the agreed repayment schedule, a foreclosure (known as a repossession in some countries) may result. Many countries offer aid to prospective homebuyers to make their purchases. These measures include grants, subsidized mortgages, and mortgage guarantees. Prospective homebuyers may have to meet certain qualifications to qualify for government aid, such as being a first-time homebuyer or having an income below a certain threshold.

#### 2.3.1.2 *Cooperatives*

Cooperatives is a legal entity, usually a cooperative or a corporation, which owns real estate, consisting of one or more residential buildings; it is one type of housing tenure. Housing cooperatives are a distinctive form of home ownership that has many

characteristics that differ from other residential arrangements such as single family home ownership, condominiums and renting (Whitehead, 2003).

The corporation is membership-based, with membership granted by way of a share purchase in the cooperative. Each shareholder in the legal entity is granted the right to occupy one housing unit. A primary advantage of the housing cooperative is the pooling of the members' resources so that their buying power is leveraged, thus lowering the cost per member in all the services and products associated with home ownership (Whitehead, 2003). Another key element in some forms of housing cooperatives is that the members, through their elected representatives, screen and select who may live in the cooperative, unlike any other form of home ownership.

Housing cooperatives fall into two general tenure categories: non-ownership (referred to as non-equity or continuing) and ownership (referred to as equity or strata). In non-equity cooperatives, occupancy rights are sometimes granted subject to an occupancy agreement, which is similar to a lease. In equity cooperatives, occupancy rights are sometimes granted by way of the purchase agreements and legal instruments registered on the title. The corporation's articles of incorporation and bylaws as well as occupancy agreement specifies the cooperative's rules (Whitehead, 2003).

#### 2.3.1.3 *Condominium*

In the United States of America and in most Canadian provinces, is a type of living space similar to an apartment but independently sellable and therefore regarded as real estate. The condominium building structure is divided into several units that are each separately owned, surrounded by common areas that are jointly owned (Martin and Joomis, 2007).

Residential condominiums are frequently constructed as ordinary apartment buildings, but there has been an increase in the number of "detached condominiums", which look like single-family homes but in which the yards (gardens), corridors, building exteriors, and streets as well as any recreational facilities (like a pool or pools, bowling alley, tennis courts, golf course, etc), are jointly owned and jointly maintained by a community association (Page, 2002).

Unlike apartments, which are leased by their tenants, condominium units are owned outright. Additionally, the owners of the individual units also collectively own the common areas of the property, such as corridors/hallways, walkways, and laundry rooms, as well as common utilities and amenities, such as elevators, and so on. Many shopping malls are industrial condominiums in which the individual retail and office spaces are owned by the businesses that occupy them while the common areas of the mall are collectively owned by all the business entities that own the individual spaces. The common areas, amenities, and utilities are managed collectively by the owners through their association, such as a homeowner association (Page, 2002).

#### 2.3.1.4 *Public housing*

Public housing refers to provision of residential housing and its attributes to the people by the government. It is usually geared towards ameliorating the difficulties faced by the people particularly the low-income earners in accessing decent housing for themselves. Public housing is a form of housing tenure in which the property is owned by a government authority, which may be central or local (Shaw, 2004). Government owned housing units made available to low- income individuals and families, at no cost or for nominal rental rates, are specifically called public low income housing. But studies have revealed that governments in developing countries have found it increasingly difficult, if

not impossible, to construct sufficient amount of public housing and to extend community infrastructure and services to meet the needs of urban areas (Shaw, 2004).

Public housing was birthed as a solution to the proliferation of slums and squatter settlements but Housing specialists have revealed that public housing has failed to provide decent housing, claiming that it has succeeded in segregating tenants by income, race, and that it has isolated residents from the larger community (Oishi and Schimmack, 2010).

#### 2.3.1.5 *Private housing*

This consists of houses owned and managed by private individuals in the society. They are characterized by different structural designs and provision of ancillary services within and outside the houses depending on the taste, preference and economic buoyancy of the owners. (Junaidu, 2007). Private housing is a form of housing tenure in which the property is owned by a private developer or by non-profit organizations. Although the common goal of public housing is to provide affordable housing, the details, terminology, definitions of poverty, and other criteria for allocation vary within different contexts.

## 2.4 Housing Quality

One in three people in the UK live in poor quality housing (Barnes *et a*l, 2013). However, this is even more common for people with mental health problems (Kyle and Dunn, 2008). This is partly because they are poorer than average but also because mental health problems can make it difficult to manage the physical upkeep of a property (Pearson,

Montgomery, and Locke, 2009).

The poor physical condition of a property is strongly predictive of people's mental health problems (Smith, Albanese, and Truder, 2014; Evans *et al.*, 2000). There is particularly

strong evidence for the negative impact of damp (Krieger and Higgins, 2002), mould (What Works Wellbeing, 2017), and cold (Gibson *et al.,* 2011). These kind of housing issues also make physical health worse and this can impact on mental health and recovery (Barnes *et al,* 2013). The stress caused by the poor physical condition of a property has a large negative impact on mental health (Barnes *et al.,* 2013).

In addition to this stress, poor quality housing can also increase social isolation and low self-esteem (Krieger and Higgins, 2002). For example, if a house is in poor condition, residents are often embarrassed to invite guests over Poor housing quality has a negative impact, regardless of the type of housing tenure (home ownership, private rented and social housing). However, poor housing conditions are not random, they are concentrated among poor and minority communities compounding existing inequalities and vulnerabilities (Hernandez *et al.,* 2016; Evans *et al,* 2003). Bad housing conditions are common in the private rented sector and people with mental health problems are overrepresented in this kind of accommodation (Smith *et al.,* 2014; Barnes, 2013;

Ellaway and Macintyre, 1998).

Despite significant investment such as the national Decent Homes programme there are also many social housing properties in poor condition. It is important that people feel that their home provides a place of security and refuge. A study by Dunn (2002) showed problems with the physical condition of a property made people feel insecure and much less hopeful about the future. There is some evidence that the negative impacts are more severe on women and children as well as older people because they generally spend more time at home (Evans *et al.,* 2002). Experience of poor housing can have a severe and longterm impact. Even if people currently live in good quality housing, their physical and

mental health is often affected by experiences of housing deprivation in earlier life (Marsh *et al.,* 2000).

However, there are many proven interventions that can have transformative impacts. For example, a randomised control trial conducted by Harkness *et al.* (2004) showed that savings from reduced mental health service use outweighed the cost of housing improvements and better housing management. These benefits can sometimes be achieved by moving to better quality accommodation (Pevalin, *et al.,* 2008) but the process of moving can also be stressful and disruptive such as losing long established social support networks (Thomson *et al.,* 2002).There are some indications that housing design can have a preventative effect and reduce the likelihood that residents will experience poor mental health but the evidence is mixed (Thomson *et al.,* 2001). People living in newer and better maintained buildings tend to have better mental health. They also move less often and use fewer health services (Harkness *et al.,* 2004).

The overall impact of home improvement schemes is usually greater if people experiencing mental health problems are prioritised (Page, 2002). There is strong evidence that warmth and energy efficiency interventions can have a positive effect on mental health particularly for vulnerable individuals (Gibson *et al.,* 2011). Reducing cold has been shown to be one of the cheapest and most reliable housing improvements for increasing someone's wellbeing (Thomson *et al.,* 2009). However, the effectiveness of these interventions depends on the existing housing quality and careful targeting is required. Harker (2006) identifies that cold and damp housing has a particularly severe effect on the mental health of children increasing their chances of experiencing stress, anxiety, and depression. However, it is difficult to isolate this effect from other factors (e.g. poverty and poor quality education) because "children living in poor housing conditions have often experienced considerable adversity besides substandard housing"

(Harker, 2006).

## 2.5 Indoor Housing Conditions

### 2.5.1 Dampness

Dampness is the defect that water enters to the building with any part especially, at ceiling, walls or floor. Dampness can lead the problem to the building (Martin *et al.*, 2001). The popular of element that always occurs the dampness is wall (internal and external), beam, soffit slab, and ceiling. Dampness in a building is the common cause of building failure. The building that is built with loose material can attempt the water freely enter to the building. And when dampness enters to the building dampness will occur and the weakness of the building structure especially wood frames (Martin *et al.*, 2001).

Exposure to damp and mouldy environments may cause a variety of mental health effects, or in some people have no affect at all. Some people are sensitive to moulds. For these people, moulds can cause nasal stuffiness, throat irritation, coughing or wheezing, eye irritation, or, in some cases, skin irritation (Shaw, 2004). People with mould allergies may have more severe reactions. Immune-compromised people and people with chronic lung illnesses, such as obstructive lung disease, may get serious infections in their lungs when they are exposed to mould. These people should stay away from areas that are likely to have mould, such as compost piles, cut grass, and wooded areas. Damp housing also impacts on people's mental health. Studies have shown some association between dampness and mould with depression and general well- being (Shaw, 2004).

### 2.5.2 Cold homes

Much English housing stock is in poor condition and is energy inefficient. Around a third of all properties fail to meet the decent homes standard, with failure to meet the thermal

comfort criterion (26% of total stock) the most common cause. Many homes have inefficient heating systems and the presence of a central heating system does not necessarily result in warmer homes. Issues of affordability and fuel efficiency are important when considering the health implications of cold housing. Those experiencing fuel poverty, defined as needing to spend over 10% of their income on energy to maintain an adequate standard of warmth, are likely to be particularly vulnerable. The ability to keep the home warm enough in winter, and in particular the worry that can be associated with such concern, has been shown to be associated with poor health outcomes (Evans *et al.,* 2000). Colder temperatures in winter are also linked to excess winter deaths. The biggest causes of these winter deaths are cardiovascular and respiratory conditions, particularly for older age groups.

Boardman (1991) has argued that a major reason why Britain has comparatively more winter deaths than other colder countries, is the general quality of the housing stock. However, there is little association between deprivation and excess winter mortality.

Lawlor *et al.* (2002) argue that the relationship between excess winter deaths and deprivation has been inadequately investigated but found that excess winter deaths were not associated with deprivation Whilst there has been debate over the relative importance of indoor and outdoor temperatures in contributing to the burden of winter deaths, recent research has pointed to a link between indoor temperatures and excess winter deaths. There is a growing body of evidence suggesting that those living in cold homes are more likely to experience ill health, which in turn may lead to excess winter deaths, particularly in older age groups (Wilkinson *et al.*, 1998; Wilkinson *et al.*, 2000; Wilkinson *et al.*, 2001; Wilkinson *et al.*, 2004). In particular, vulnerability to cold-related death may in part be caused by inadequate home heating (Wilkinson, 2001).

Recent evidence from the warm front evaluation (Warm Front Study Group, forthcoming) demonstrates that warmer homes are associated with lower risk of cold-related death than colder ones. Indoor temperature is a main function of a dwelling's energy efficiency

(Wilkinson, 2001) and such findings indicate that improving domestic energy efficiency will deliver important health benefits.

## 2.6 Mental Health

According to the World Health Organization (WHO), mental health is “a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2004). Mental health refers to our cognitive, behavioral, and emotional wellbeing, it is all about how we think, feel, and behave. The term 'mental health' is sometimes used to mean an absence of a mental disorder. Mental health can affect daily life, relationships, and even physical health. Mental health also includes a person's ability to enjoy life - to attain a balance between life activities and efforts to achieve psychological resilience. Mental health problems may arise due to stress, loneliness, depression, anxiety, relationship problems, death of a loved one, suicidal thoughts, grief, addiction, self-harm, various mood disorders, or other mental illnesses of varying degrees, as well as learning disabilities (Amanda, 2013).

### 2.6.1 Types of mental health

#### 2.6.1.1 Depression

Depression is a feeling of low mood that lasts for a long time and affects your everyday life. It can make you feel hopeless, despairing, guilty, worthless, unmotivated and exhausted. It can affect your self-esteem, sleep, appetite, sex drive and, sometimes, your physical health. In its mildest form, depression doesn’t stop you leading a normal life, but it makes everything harder to do and seem less worthwhile. At its most severe, depression can make you feel suicidal, and be life-threatening (Robson, 2002).

It may also involve feelings of guilt, fatigue, and irritability. During a depressive period, people with bipolar disorder may lose interest in activities that they previously enjoyed, experience sleeping difficulties, and even have thoughts of suicide. Both manic and depressive episodes can be frightening for both the person experiencing these symptoms as well as family, friends and other loved ones who observe these behaviors and mood shifts. Fortunately, appropriate and effective treatments, which often include both medications and psychotherapy, can help people with bipolar disorder successfully manage their symptoms (Rees, 2009).

#### 2.6.1.2 Anxiety

Anxiety refers to strong feelings of unease, worry and fear. Because occasional anxiety is a normal human experience, it's sometimes hard to know when it's becoming a mental health problem but if your feelings of anxiety are very strong, or last for a long time, they can be overwhelming (Rees, 2009).

#### 2.6.1.3 Phobias

A phobia is an extreme form of fear or anxiety triggered by a particular situation (such as going outside) or object (such as spiders), even when there is no danger. A fear becomes a phobia if it lasts for more than six months, and has a significant impact on how you live your day-to-day life (Reynolds and Robinson, 2005).

#### 2.6.1.4 Eating problems

Eating problems aren’t just about food. They can be about difficult things in your life and painful feelings, which you may be finding hard to express, face or resolve. Focusing on food can be a way of disguising these problems, even from yourself (Reynolds and

Robinson, 2005).

#### 2.6.1.5 Self-harm

Self-harm is a way of expressing very deep distress, where you take actions to cause yourself physical pain. You may not know why you are self-harm, but it can be a means of expressing feelings that you can't put into words or think clearly about. After selfharming you may feel a short-term sense of release, but the cause of your distress is unlikely to have gone away (Reynolds and Robinson, 2005).

## 2.7 Housing and Mental Health

If someone has developed a mental health problem, high quality and stable housing is key to maintaining good mental health and is important for recovery. People with mental health problems are much more likely to live in poor quality accommodation (Kyle and

Dunn, 2008) and are dramatically overrepresented amongst people who are homeless (Rees, 2009). They are also twice as likely as the general population to be unhappy with their housing and four times more likely to say that it makes their health worse (Social Exclusion Unit, 2004). Whilst housing can have positive and negative effects on mental health, poor housing detracts from mental health more than good housing improves it (Kearns *et al.,* 2010). One in five adults in England report that housing problems have had a negative impact on their mental health in the last five years and GPs also identify housing issues as a common contributing factor to their patients' poor mental health. Poor housing conditions are also a strong predictor of general life satisfaction (DCLG, 2015). Understanding the causal links between housing and mental health is complex because poor housing situations can make people's mental health worse and poor mental health can make housing situations worse (Department of Health, 2011; Appleton and Molyneux, 2007). It can also be hard for research to separate the specific impact of poor

housing from other social factors – such as poverty, debt, and discrimination which are very commonly associated (Bowen and Mitchell, 2016; Sederer, 2016).

There is broad agreement within the existing literature that a combination of physical and social actors drives the impact of housing on mental health, including: Physical condition of the property Gibson *et al.* (2011), local environment, affordability of rent or mortgage Bentley *et al.* (2011), physical security Barnes *et al.* (2013), social connections with neighbours Oishi and Schimmack (2010), and impact of housing on identity and selfesteem (Evans *et al.*, 2003). One of the primary functions of housing is to provide a shelter from outside aggression. Beyond that function, however, a dwelling is defined as a holding space, a physical and psychological envelope within which intimacy will appear and develop where each and every individual will find an opportunity to be himself or herself. Thus, what was just a house will become a home. Integrity of body and mind are dependent upon this possibility of living in intimacy. (Leventhal and Brooks 2003).

The need for a private space differs from one individual to another and varies according to culture, but the pathogenic effects of homelessness, lack of control, deportation, being uprooted, and intrusion are indications of the real importance of this need. A house loses its protective value when troubles from the outside break in and intrude on an individual. The concept of private space is akin to that of private property. Poor quality housing, providing insufficient protection from the outside, from noise, from scrutiny, and intrusion can be the source of major suffering. Such events may generate pathological manifestations such as anxiety, depression, insomnia, paranoid feelings, and social dysfunction. (Gomez and Hombrados, 2002). Bad circumstances in neighbourhood relations may generate social pathologies: aggressiveness, vandalism, depression, anxiety, somatic complaints, and even paranoid feelings and ideas.

Social tensions arise when common spaces fail to act as buffer zones between private and public space or when neighbours try to use them as private spaces, Green (2002) encumbering them with personal items such as prams or bicycles, using them as private meeting places (groups of noisy adolescents), and so forth. Feeling safe in the intimacy of one's home, good neighbourhood relations, respect for the boundaries provided by those parts of buildings common to all, are all essential to the feeling of well-being in housing.

In addition, symptoms of stress, anxiety, irritability, depression, even social misconduct (violence, vandalism), and alteration of attention capacities at school in children may be related to noise exposure in relation to the housing conditions. It is also accepted that stressful housing conditions can aggravate pre-existing psychiatric pathologies (Evans *et al.,* 2003). Substandard housing affects multiple dimensions of health. There is evidence that, in part, poor housing conditions contribute to increasing exposure to biological (e.g., allergens), chemical (e.g. lead) and physical (e.g., thermal stress) hazards, which directly affect physiological and biochemical processes. In addition, concerns about substandard housing and fear of homelessness are psychosocial stressors that can lead to mental health problems. Preliminary research has suggested that residents' perceptions of their homes (e.g., pride in and satisfaction with their dwelling and concerns about indoor air quality) are associated with self-rated health status. (Dunn and Hayes, 2000).

## 2.8 Home Ownership and Mental Health

The number of Americans who own a home increased steadily since the second half of the 20$^{th}$ Century and until the early 2000's. Today, over 70 per cent of Americans aged 50 and over own a home. The underlying assumption of U.S. pro-ownership policies is

that owning a home brings important social and economic benefits. Compared to renters, homeowners enjoy increased residential stability, reduced neighbourhood segregation, higher political and social participation and better outcomes for children (Gabe and Williams, 2011). Increasing rates of homeownership at the aggregate level mask persistent inequalities, with subgroups having substantially lower chances of accessing the housing ladder or doing so later in their life course. For example, at the peak of homeownership rates in 2004, less than half of Black and Hispanic households owned a home, compared to more than 70 per cent of white house holds (Kearns *et al.*, 2000).

In 2015, the median age of first access to homeownership was 31, but the median age for black first time buyers was 37 and only around half of Black Americans owned a home when they reached the age of 50. An important, yet untested, hypothesis is that acquiring a home later in life may still lead to improvements in mental health and wellbeing similar to those observed for younger buyers. Depression in older age is a significant problem in the United States: Approximately 7% of Americans above the age of 74 suffer from major depression and 17% from depressive disorders (Evans *et al.*, 2000).

Major depression is the leading cause of years lived with disability worldwide and the fifth leading cause of disability adjusted life years in North America. Acquiring a home in later life may influence mental health through several mechanisms. Studies suggest that homeownership is associated with better quality of housing Halpern, (2007), which is in turn associated with lower levels of mental distress and better positive affect (Evans *et al.*, 2003). Housing conditions are an important determinant of mental health in later life compared to their younger counterparts, older people spend more time in their home due to reduced functioning, access to transportation and social networks (Sukei, 2013).

Although most Americans reach the housing ladder in their thirties, late homeowners may also reap mental health benefits of homeownership arising from having greater residential stability, better housing quality and living in less segregated neighborhoods (Hopton and Hunt, 2007). There has been extensive research into the associations between mental health and housing tenure. This has provided mixed evidence about whether tenure itself is driving the different mental health outcomes or whether this reflects other characteristics such as income or education (Bentley *et al.,* 2012; Macintyre, 1998). Homeowners tend to have better mental and physical health this is associated with their increased residential stability and higher incomes. Housing quality is also highly associated with home ownership because people have more wealth and feel the security to invest in their homes (Evans *et al.,* 2002).

A large national study has shown that life satisfaction varies substantially between different housing tenures. People who own their home outright have the highest average life satisfaction, whilst the lowest is private renters (DCLG, 2015). There is extensive evidence to show that areas with higher concentrations of social housing have worse physical and mental health than average. Private renters are also more likely to experience poor mental health than the general population. It is important to avoid oversimplification.

Different tenures experience different housing stressors (Ellaway and Macintyre, 1998).

There is strong evidence that homeowners with high mortgage debts are at high risk of mental health problems. Nettleton and Burrows (2000) argue that the psychological impact of mortgage debt is particularly severe because of cultural norms about 'individual responsibility' and 'independence' that are associated with home ownership.

Polack, (2004) looked at whether moving housing tenure had an impact on mental health.

They specifically explored the effect of the UK government's 'Right to Buy' scheme and showed that changing tenure using this scheme did not, on average, reduce psychological

distress. However, demonstrating a causal relationship between homeownership and depression in older age is not straight forward. Individual characteristics from childhood to adulthood are likely to be associated with both homeownership and depressive symptoms in later life. In addition, healthier individuals enjoy longer and more stable careers Lowry S. (1999), increasing their ability to accumulate wealth and consequently access mortgage loans. Some of these concerns have led to a reassessment of the benefits of homeownership for children and adults. For example, recent evidence suggests that once selection is accounted for, many of the benefits of homeownership for children and young families disappear (Gilbertson *et al.*, 2005).

## 2.9 Neighbourhood Conditions and Mental Health

Along with conditions in the home, conditions in neighborhoods where homes are located also can have powerful effects on health. Social, physical and economic characteristics of neighborhoods have been increasingly shown to affect short- and long-term health quality and longevity. A neighborhood's characteristics may promote health by providing places for children to play and for adults to exercise that are free from crime, violence and pollution. Access to grocery stores selling fresh produce as well as having fewer neighborhood liquor and convenience stores and fast food outlets can make it easier for families to find and eat healthful foods. (Blaxter *et al.*, 2001).

Social and economic conditions in neighborhoods may improve health by affording access to employment opportunities and public resources including efficient transportation, an effective police force and good schools. Not all neighborhoods enjoy these opportunities and resources, however, and access to neighborhoods with healthpromoting conditions varies with household economic and social resources. Concentration of substandard housing in less advantaged neighborhoods further compounds racial and ethnic as well as socioeconomic disparities in health. (Blaxter *et al.*, 2001).

## 2.10 Neighborhood Effects

Beyond the condition of the housing unit itself, the site of the home may be a determinant of health. Neighborhood level effects on health have been documented; these include elevated rates of intentional injury, poor birth outcomes Suglia *et al.* (2011) cardiovascular disease, HIV, gonorrhea, 84 tuberculosis, depression, physical inactivity, and all-cause mortality in neighborhoods of low socioeconomic status, independent of individual level risk factors. Several features of these neighborhoods may contribute to poor health. Air quality may be poor because of their proximity to sources of vehicle exhaust emissions such as major roads, bus depots, airports, and trucking routes. (Perlin *et al.,* 2001). These sources also create substantial noise exposure, which may be associated with a range of adverse health effects. (Stansfeld *et al.,* 2000). Sites of improper waste disposal can harbor pests, which can then infest homes. Yet it is possible to design neighborhoods to promote health by considering sidewalk and street design, the presence of green spaces and recreational sites, and the location of schools, work, and shopping within walking distance of homes. (Jackson and Kochtitsk, 2001).

### 2.10.1 Neighbourhood characteristics

The characteristics of a neighbourhood have a significant impact on mental health, even after taking account of people's socio-economic status and the quality of their own home (Allen, 2000). The physical quality of neighbourhoods such as buildings in disrepair, availability of community facilities, green space etc. is particularly important (Coultard *et al.,* 2001). Evans *et al.* (2003) argue that the way in which buildings and roads are laid out, including details such as the door orientation, can influence patterns of social interaction. For example, encouraging people to congregate in communal areas.

Neighbourhoods can partially mitigate the impact of individual housing conditions on people's mental health. If people feel attached to their neighbourhood, they have higher wellbeing and lower stress than would be predicted based on the quality of their housing alone (Evans *et al.*, 2002).

This process also works in reverse if people feel unhappy and unsafe within their neighbourhood, this can negatively affect their mental health, and even high quality housing is not enough to mitigate the impact (Coultard *et al.*, 2001). A neighbourhood can have profound effects on people's sense of safety and community. In a study of people with mental health problems who were living in supported housing found that the sense of community in a neighbourhood was the strongest predictor of wellbeing. The perception of crime in an area affects people's sense of safety but also strength of social connections because it can cause reduced trust in neighbours (Ellaway and Macintyre, 1998).

Neighbourhood renewal programmes have been shown to improve the mental health of a whole community (Gibson, 2011; Blackman and Harvey, 2001). They can also help to reduce the health inequalities between different tenures (Macintyre, 2003). However, they must be carefully planned to minimise disruption, increased financial pressure on individuals, and severing established social ties (Thomson *et al.*, 2002). People who live in neighbourhoods that have plenty of green space have better mental and physical health, regardless of other socioeconomic factors (Gilloran, 2002). The study by Gilloran, (2002) also showed that individuals who moved to greener areas had significantly better mental health in the three years after moving. The overall impact of a neighbourhood on an individual's mental health (positive or negative) is moderated by the size of their 'activity space' how much of their time they spend within the neighbourhood (Whitehead, 2003).

If someone spends a lot of their time outside of their neighbourhood (i.e. they have a large activity space), the positive or negative effects will be smaller.

## 2.11 Housing and Residential Environment

Research indicates that residents' perceptions of urban environmental quality and satisfaction with their residential situation are determined by a large number of different physical and social aspects. The most important residential quality aspects appearing in the literature are social ties in the neighbourhood, safety risks (e.g., crime, traffic), environmental hygiene (e.g., noise, air pollution), and the presence of facilities (e.g., shops, greenery) (Stansfeld, 2000; Macintyre and Ellaway, 2000).

Personal characteristics studied (age, gender, and socioeconomic status) appear to influence quality judgments' only marginally. It is not only the measurable 'objective' aspects of the living environment that determine whether people are satisfied, but also the perception of these. These do not always parallel each other. Seldom objective and subjective aspects are studied in combination. Empirical evidence is still limited and there is no integrated model available yet (Whitehead, 2003). However, consensus exists that the field requires an interdisciplinary approach that integrates physical, spatial, social, and environmental aspects.

## 2.12 Overcrowding

Overcrowding is a condition where the number of occupants exceeds the capacity of the dwelling space available, whether measured as rooms, bedrooms or floor area, resulting in adverse physical and mental health outcomes. Crowding is a result of a mismatch between the dwelling and the household. The level of crowding relates to the size and design of the dwelling, including the size of the rooms, and to the type, size and needs of the household, including any long-term visitors. Whether a household is "crowded"

depends not only on the number of people sharing the dwelling, but on their age, their relationship and their sex (Evans *et al.*, 2003). For example, a dwelling might be considered crowded if two adults share a bedroom, but not crowded if those adults are in a relationship. Crowding relates to the conditions of the dwelling as well as the space it provides: people may crowd into particular rooms in their home to avoid cold or uninhabitable parts of the dwelling or to save on heating and other costs (Gabe and Williams, 2001).

The effects of crowding can be broadly defined as the hazards associated with inadequate space within the dwelling for living, sleeping and household activities. Crowding is considered to be stressful to health and well-being across different cultures and aspects of life in low-, middle- and high-income countries (Hyndman, 1990). Several studies have reported a direct association between crowding and adverse health outcomes, such as infectious disease and mental health problems. In addition, researchers have connected crowding to poor educational attainment. Worldwide, crowding is often a marker of poverty and social deprivation (Krieger and Higgins, 2002). It has been identified by the United Nations as one of five deprivations that suggest an informal settlement should be characterized as a slum. For example, the income constraints that compel people to live in dwellings with inadequate space for their needs can also mean that such households struggle to afford housing that is in good repair or to heat homes sufficiently (Evans and Saegert, 2002). In addition, crowding increases exposure to risk factors associated with home injury, social tensions and exposure to second-hand tobacco smoke.

Overcrowding has a large negative impact on the mental health of adults and children (Bashir, 2002). A number of studies have shown that mental health is the biggest concern for parents living in overcrowded accommodation (Cookson and Sillet, 2008). In one

study, 93 per cent of severely overcrowded families said their living conditions caused depression, anxiety, or stress (Reynolds and Robinson, 2005). People living in overcrowded accommodation also have significantly worse physical health (Barnes *et al.,* 2013). The difference in life satisfaction between homeowners and a person in overcrowded, private rented accommodation is bigger than the difference between those who are employed and unemployed (DCLG, 2015). There is also a strong association between overcrowding and accidental or violent deaths including suicide (Page, 2002).

# CHAPTER THREE

## 3.0 RESEARCH METHODOLOGY

### 3.1 Research Design

According to Selltiz, Wrightsman and Cook (1976) a research design is the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. This study adopted a quantitative method because the researches viewed used similar method.

## 3.2 Sources of Data Collection

### 3.2.1 Primary data

Primary data that was used include structured questionnaires, acquisition of study areas coordinate points, and physical observations during field survey. The types of primary data that was used are further explained as follows:

#### 3.2.1.1 *Structured questionnaire*

Structured questionnaire is another method of collecting data in a survey research (Cohen *et al.,* 2000; Bryman, 2004). Instead of a self-completion questionnaire, face to face questionnaire survey was used. This is because it is expected that the literacy levels of the potential respondents would vary. Not all respondents may be able read and comprehend the questions.

#### 3.2.1.2 *Direct observation*

Physical observation was used to gain firsthand knowledge of the existing situation on the study. The conditions of houses and environment was observed to validate and confirm responses from the residents. This was backed up with pictures.

#### 3.2.1.3 *GPS coordinates*

Coordinates of each of the selected areas for this research was acquired with the use of GPS to generate the entire study area map. Map of the study area shows the exact locations of these areas for easy accessibility.

## 3.2 Sampling Procedure

### 3.2.1 Sampling technique

A multi-stage sampling procedure was applied for the purpose of this research. In multistage sampling, large clusters of population are divided into smaller clusters in stages in other to make primary data collection more manageable (Bryman, 2004). The two local government areas that are part of Minna town are Bosso and Chanchaga. The first stage of sampling utilized the regrouping of Minna 36 main residential areas into 10 main residential wards by. This main wards are Fadikpe, GRA, Bosso, Kpakungu, Tunga, Maikunkele, Minna Central, Chanchaga, Jikpan, and Maitumbi. The second stage is the purposive selection of three (3) main wards, one from each density group (High, medium and low density). This was done to ensure that each density group was represented in the study.

### 3.2.2 *Sample frame*

The total estimated population of the three neighbourhoods and the estimated number of household in the study area is shown in Table 3.1 **Table 3.1 Estimated Population and Household Size**

| S/N | Study Area | 2006 Census Population | 2021 Projected Population | Estimated Household number |
|---|---|---|---|---|
| 1 | Chanchaga | 23,236 | 37270 | 6211 |
| 2 | Tunga | 6,494 | 10,416 | 1736 |
| 3 | GRA | 2576 | 4132 | 688 |
| | **Total** | **32,306** | **51,818** | **8,635** |

**Source: Author's field survey, (2021).**

### 3.2.3 Sample size

In other to arrive at a sample size that will serve as a good representative of the entire population, Dillman, 2007 sample size formula was used to estimate the sample size for the study. The Dillman (2007) provides the following formula for estimating desired sample sizes:

$$\text{Ns} = \frac{(Np)(p)\ (1-p)}{(Np-1)(\frac{B}{C})^2 + (p)(1-p)}$$

Where
Ns = completed sample size needed (notation often used is n)
Np = size of population (notation often used is N) p = proportion expected to answer a certain way (50% or 0.5 is most conservative)
B = acceptable level of sampling error (0.05 = ±5%; 0.03 = ±3%)
C = Z statistic associate with confidence interval (1.645 = 90% confidence level; 1.960 = 95% confidence level; 2.576 = 99% confidence level)
Hence substituting in the values will give;

$$\text{Ns} = \frac{(8{,}635)(0.5)\ (1-0.5)}{(8{,}635-1)(\frac{0.05}{1.96})^2 + (0.5)(1-0.5)}$$

$$\text{Ns} = \frac{2{,}159}{5.8682}$$

$$\text{Ns} = 243.45$$

Therefore the sample size is 243. A total of 243 questionnaires was administered in the study area

**Table 3.2 Analysis of Sample Size of the Study Area**

| S/N | Study Area | Analysis | | Sample size |
|---|---|---|---|---|
| 1. | Chanchaga | $\frac{6211 \times 243}{8635}$ | | 174.8 |
| 2 | Tunga | $\frac{1736 \times 243}{8635}$ | | 48.85 |
| 3 | GRA | $\frac{688 \times 243}{8635}$ | | 19.4 |

| | | | | |
|---|---|---|---|---|
| | **Total** | | | **243** |

**Source:** Author's field survey, (2021).

### 3.3 Method of Data Collection

The structured questionnaire was used to achieve all the objectives. Psychological wellbeing of the respondents will be measured using the "12-item version of the General Health Questionnaire (GHQ-12). The questionnaire will include three sections namely 1, 2, and 3. Section 1 seeks the socio-economic characteristics of the respondents. Section 2 assesses the dynamics of housing and environment in the study area. Section 3 of the questionnaire assesses respondent's mental health using the 12-item version of the General Health Questionnaire (GHQ-12). The number of questionnaires to be produced are 243, the questionnaire will be administered by the researcher and an assistant.

#### 3.3.1 Method of data analysis

Descriptive statistics for demographic and mental health related characteristics was summarized using mean standard deviation and range for continuous data while, for categorical data using frequencies and percentage was used. Picture presentation was used to show housing and environment conditions. The statistical package for social sciences, (SPSS), was used to analyze quantitative data acquired through questionnaire administration. The packages enabled the generation of descriptive statistics such as figures and frequency tables and percentages. The results was presented in tables and figures.

**Table 3.3: Summary of the Research Objectives and Methodology**

| **Research Objective** | **Data used** | **Instrument for data collection** | **Method of Analysis** |
|---|---|---|---|
| Assess the socioeconomic character of the residents | Gender, marital status, education, household size, and occupation among others | Questionnaire. | Descriptive statistics, tables and charts. |
| Assess the nature of housing characteristics in Minna town. | House ownership, condition and materials used for construction, types of building, access to water, age of building | Questionnaire administration. | Descriptive statistics, tables and charts. |
| Examine the mental health of residents in the study area | Concentration, decision making, sleep, happiness, confidence, depression, and stress among others | GHQ-12 mental stress assessment questionnaire | Descriptive statistics, weighted sum, and mean weighted index |
| Examine the effect of housing characteristics on mental health of residents | Processed data from objective two and three | Questionnaire | Multiple regression analysis |
| Assess the variation in the mental wellbeing of residents across neighbourhood densities in the study area | Process data from objective three | Questionnaire | ANOVA |

# CHAPTER FOUR

## 4.0 RESULTS AND DISCUSSION

### 4.1 Socioeconomic Characteristics of Respondents

#### 4.1.1 Gender of respondents

The gender distribution of respondents is presented in Figure 4.1. The result shows that majority of the respondents are Male (52%), while female respondents accounted for

48%. The result shows that the lowest proportion of female respondents was recorded in GRA with 39%, while Chanchaga area had the highest proportion of female (47%) respondents. The culture and religious background of the people plays a significant role to the rate at which the male and female folks respond to strangers.

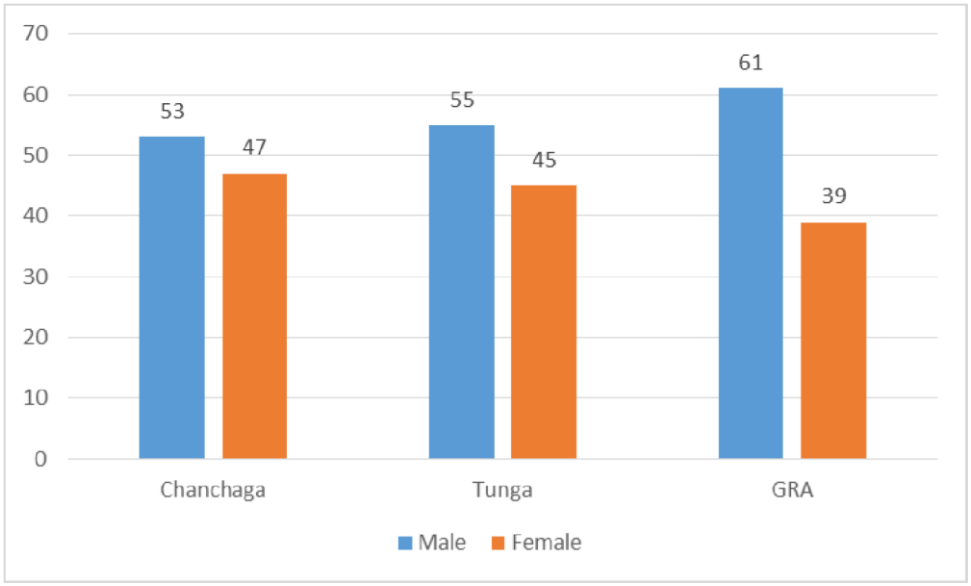

**Figure 4.1:** Gender of Respondents **Source:**
Author's field survey, (2021).

### 4.1.2 Age distribution of respondents

The age distribution of respondents was categorized into five groups of 10 years interval except for the first category. The study shows that majority of the respondents were above the age of 35 years and above. Table 4.1revealed that majority of the respondents are between the ages of 56-65 years (25%), 36-45 years (24%), and 26-35 years (19%) of age. This pattern can also observe in the age distribution of respondents across the various neighbourhoods.

**Table 4.1: Age Distribution of Respondents**

| Age | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| 18-25 | 27 (15) | 7 (14) | 1 (5) | 35 (14) |
| 26-35 | 31 (18) | 9 (18) | 5 (26) | 45 (19) |
| 36-45 | 41 (23) | 12 (24) | 5 (26) | 58 (24) |
| 46-55 | 33 (19) | 7 (29) | 4 (21) | 44 (18) |
| 55-65 | 43 (25) | 14 (14) | 4 (21) | 61 (25) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.1.3 Marital status of respondents

The marital status of the respondents was classified into four groups, namely; single, married, divorced, and widow(er). Figure 4.2 shows that majority of the respondents are married (76%). Singles accounted for 15% of the respondents, while divorcees and widow(er) accounted for 6% and 3% respectively. GRA reported the highest proportion of married respondents (89%), while Tunga area had the least proportion of married respondents (71%).

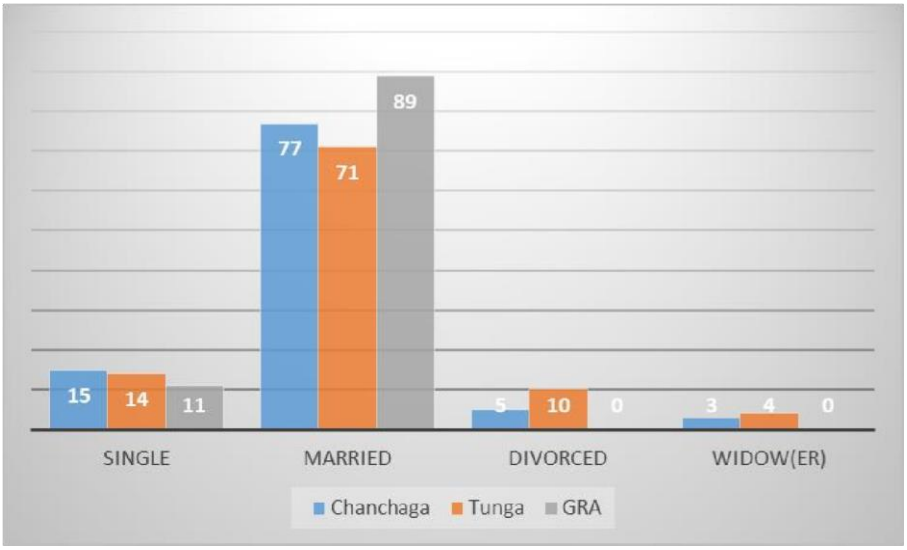


**Figure 4.2:** Marital Status

### 4.1.4 Occupation distribution of respondents

The occupation of respondents cuts across five core areas, namely, civil servants, business, artisan, farmer and unemployed. Table 4.2 shows that civil servants account for 40% of the respondents, which shows that they are in the majority. Businessmen and women accounted for 29%, while artisan accounted for 20%. This invariably shows that the occupation of the respondents in the study area revolves round civil service, businesses, and artisan works, which are characteristically attributed to metropolitan areas.

**Table 4.2: Occupation of Respondents**

| Occupation | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Civil Servant | 59 (34) | 32 (65) | 7 (37) | 98 (40) |
| Businessman | 46 (26) | 12 (25) | 12 (63) | 70 (29) |
| Artisan | 43 (25) | 5 (10) | 0 (0) | 48 (20) |
| Farmer | 15 (9) | 0 (0) | 0 (0) | 15 (6) |
| Unemployed | 12 (7) | 0 (0) | 0 (0) | 12 (5) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.1.5 Monthly income distribution of respondents

Five classes of income were identified in the study area, which ranges from below the national minimum wage of N30,000 to income levels of above N150,000. Table 4.3 revealed majority of the respondents (26%) earn between N30,000-N60,000, 25% earn N101,000-N150,000, while 24% earn N61,000-N100,000. This invariably shows that at least 75% of the earn between N30,000-N150,000. Table 4.5 also shows that 13% of the respondents earn more than N150,000, while 7% earn less than N30,000 equivalent of the minimum wage.

**Table 4.3: Monthly Income Distribution of Respondents**

| Income | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Less than N30,000 | 15 (9) | 2 (4) | 0 (0) | 17 (7) |
| N30,000-N60,000 | 52 (30) | 11 (22) | 0 (0) | 63 (26) |
| N61,000 - N100,000 | 44 (25) | 15 (31) | 0 (0) | 59 (24) |
| N101,000 - N150,000 | 37 (21) | 19 (39) | 5 (26) | 61 (25) |
| Above (N150,000 | 15 (27) | 2 (4) | 14 (74) | 31 (13) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.1.6 Education status of respondents

The educational attainment of respondents is presented in Figure 4.3. The study shows that five educational attainment level can be identified in the study area. The result revealed that majority of the respondents (64%), had attained tertiary education, 19% had attained secondary education, while 12% had attained postgraduate education. The study further revealed that only a fraction of the respondents had no formal (1%) and primary

(3%) education. Similarly, no report of persons with no formal or primary education was recoded in Tunga and GRA respectively.

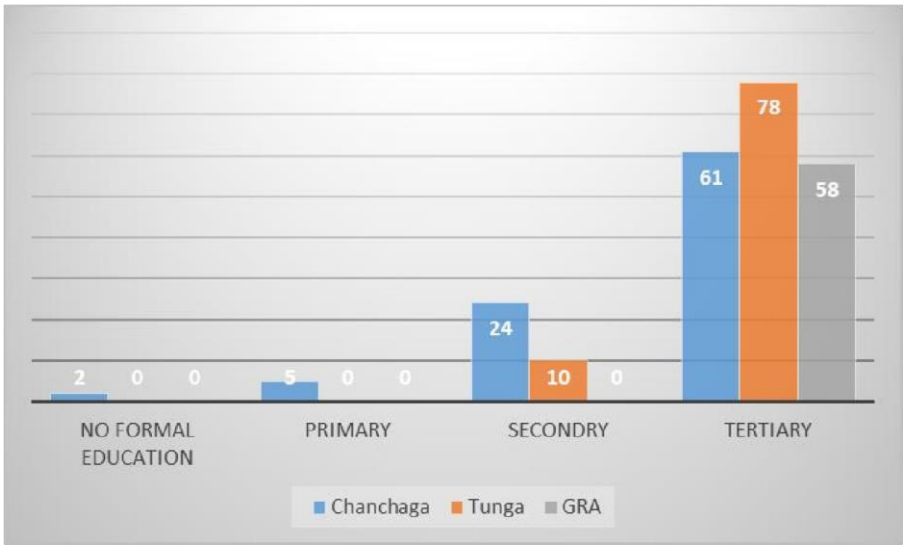


**Figure 4.3: Education Attainment of Respondents**

## 4.2 Housing Characteristics in the Study Area

This section assesses the nature of housing dynamics across the three neighbourhoods. The study focusing on issues of types of housing, materials for housing construction, quality of housing, ownership, and space distribution among others.

### 4.2.1 Types of buildings

Table 4.4 shows the type of dwelling units in the study area, the survey revealed that 31% resides in a bungalow house, 26% in a semi-detached house, 21% in a compound house and 22% in a tenement house. On neighbourhood basis, bungalow is the most predominate types of buildings in Chanchaga (29%) and GRA (68%), while the most predominant housing type in Tunga is semi-detached buildings (43%). Table 4.4 further shows that no record of compound and tenement buildings were reported in GRA. **Table 4.4: Type of Building**

| Type of Building | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Bungalow | 51 (29) | 11 (22) | 13 (68) | 75 (31) |
| Semi-Detached | 36 (21) | 21 (43) | 6 (32) | 63 (26) |
| Compound | 46 (26) | 5 (10) | 0 (0) | 51 (21) |
| Tenement | 42 (24) | 12 (24) | 0 (0) | 54 (22) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

**Plate I: Semi-detached house in the study area**

### 4.2.2 Types of materials used for building construction

Table 4.5 shows the type of materials used for wall and roof construction in the study area. The result sows that the primary material used for wall construction in the study area is cement block which accounted for 100% across the neighbourhoods except Chanchaga with 90%. The Table also shows the type of material used for roof construction. Table 4.8 shows that 65% of the houses were constructed with Aluminium sheet, while 35% of the houses were roofed with corrugated iron sheet. This pattern of roofing can be observed across the neighbourhoods.

**Table 4.5: Types of Building Materials used in the Study Area**

| Building Material | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| **Wall Material** | | | | |
| Mud | 17 (10) | 0 (0) | 0 (0) | 17 (7) |
| Cement Block | 158 (90) | 49 (100) | 19 (100) | 226 (93) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |
| **Roof Material** | | | | |
| Corrugated Sheet | 61 (35) | 18 (37) | 6 (32) | 85 (35) |
| Aluminium | 114 (65) | 31 (63) | 13 (68) | 158 (65) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.2.3 Age of buildings in the study area

The ages of buildings in the study area were classified into five groups: less than five years, 5-10 years, 11-20 years, 21-30 years, above 30 years. The study revealed that buildings within the ages of 11-20 years accounted 33% which is the majority (Table 4.6). Buildings within the ages of 5-10 years accounted for 30%, while 23% of the buildings are within the ages of 21-30 years (Table 4.9). Furthermore, the study revealed that 9% of the buildings were less than 5 years, while those above 30 years of age accounted for only 3%. In GRA, 84% of the buildings are between the ages of 11-20 years, while 16% of the buildings are within 5-10 years of age.

However, Tunga is characterised with older buildings compared to GRA and Chanchaga, where about 90% of the buildings are 11 to above 30 years and above. Tunga is one of the oldest neighbourhoods in Minna, hence, the old nature of buildings identified in the neighbourhood. Chanchaga on the other hand is characterised with new buildings; about 51% of the buildings between 0-10 years of age. Chanchaga is one of the Peri-urban neighborhoods of Minna, which has since been integrated into the city structure of Minna due to recent development along Chanchaga axis.

**Table 4.6: Age of Buildings in the Study Area**

| Age of Building | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Less than 5 | 23 (13) | 0 (0) | 0 (0) | 23 (9) |
| 5-10 years | 66 (38) | 5 (10) | 3 (16) | 74 (30) |
| 11-20 years | 44 (25) | 21 (43) | 16 (84) | 81 (33) |
| 21-30 Years | 37 (21) | 20 (41) | 0 (0) | 57 (23) |
| Above 30 years | 5 (3) | 3 (6) | 0 (0) | 8 (3) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.2.4 Ownership status of buildings

The study assessed the ownership structure of the buildings occupied by the respondents and the result is presented in Figure 4.4. The result shows that 58% of the buildings are occupied by the owners, while 42% were rented apartment. This shows that a significant proportion of the population lives in their own apartment. Table 4.7 shows that all the respondents interviewed in GRA lives in their own apartment, however, majority of the respondents in Tunga (57%) lives in rented apartment. According to Iwata and Yamaga, (2008), the quality of owner-occupied housing is usually better than rental housing.

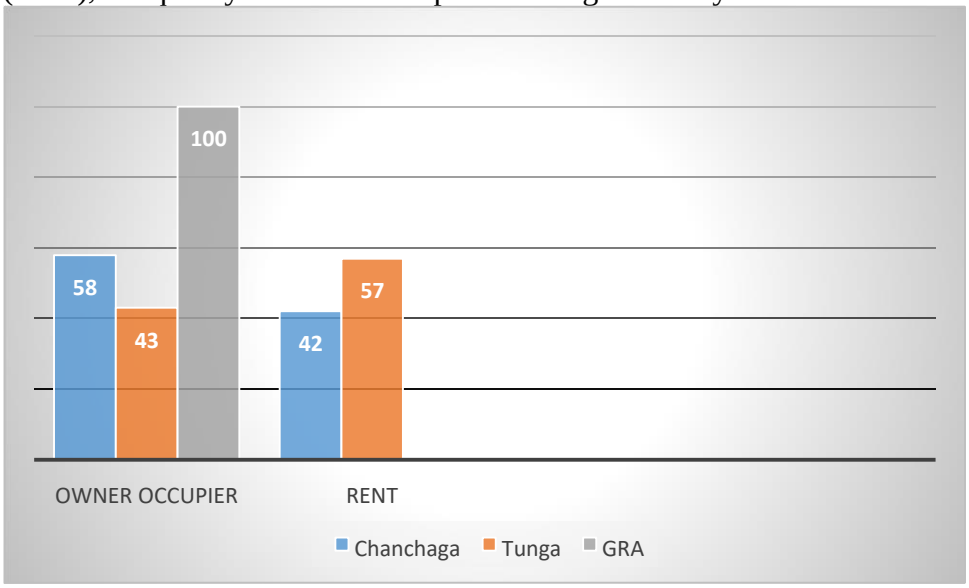


**Figure 4.4: Ownership Status of Buildings**

### 4.2.5 Number of rooms in the building

The study assessed the number of rooms available in the buildings and the result is presented in Table 4.7. The result revealed that majority of the buildings houses about 46 rooms (61%), while 21% of the buildings had 7-9 rooms. In addition, 16% of the buildings had 1-3 rooms, while 2% had 10 or more rooms. Buildings in GRA were reported to have 4-6 rooms (79%), and 7-9 rooms (21%).

**Table 4.7: Number of Rooms in the Building**

| Number of Rooms | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| 1-3 | 29 (17) | 9 (18) | 0 (0) | 38 (16) |
| 4-6 | 96 (55) | 37 (76) | 15 (79) | 148 (61) |
| 7-9 | 44 (25) | 3 (6) | 4 (21) | 51 (21) |
| 10 and above | 6 (3) | 0 (0) | 0 (0) | 6 (2) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.2.6 Access to water within the building premises

The study assessed the availability of water to households within the building premises and the result is presented in Table 4.8. Housing is characterized as "inadequate" if it fails to have basic facilities, infrastructure and services including adequate space, ventilation, proper collection and disposal of waste facility, proper sanitation, electricity, water supply and general environmental quality (Bashir, 2002; Kriger and Higgin, 2002; WHO, 2004).The result shows that 65% of the respondents do not have access to water within the building premises, while 35% had access to water within the building premises. Majority of the respondents without access to water within the building premises were reported in Chanchaga area (79%), and 41% in Tunga. All respondents in GRA had access to water within the building premises.

**Table 4.8**: **Access to water within the building premises**

| Water within premises | Yes | No | Total |
|---|---|---|---|
| Chanchaga | 37 (21) | 138 (79) | 175 (100) |
| Tunga | 29 (59) | 20 (41) | 49 (100) |
| GRA | 19 (100) | 0 (0) | 19 (100) |
| **Total** | **85 (35)** | **158 (65)** | **243 (100)** |

#### 4.2.6.1 Sources of water

The primary sources of water for the households is presented in Table 4.9. Pipe borne water accounted for 44%, well accounted for 25%, borehole 23%, and water vendor accounted for 9%. The primary source of water for residents in the GRA is borehole (74%) and pipe borne water (24%). However, majority of residents from Chanchaga (42%) and Tunga (47%) source their water primarily from pipe borne water. Well water is the alternative source of water for residents of Chanchaga (31%), while borehole is the alternative source of water for majority of residents of Tunga (22%).

**Table 4.9**: **Sources of water**

| Source | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Well | 54 (31) | 6 (12) | 0 (0) | 60 (25) |
| Pipe Borne | 73 (42) | 28 (57) | 5 (26) | 106 (44) |
| Borehole | 31 (18) | 11 (22) | 14 (74) | 56 (23) |
| Water vendor | 17 (10) | 4 (8) | 0 (0) | 21 (9) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

**Plate II**: A well in the study area area

**Plate III:** A pipe borne water in the study

#### 4.2.6.2 Quality of water available to households

The quality of water available to households in the study area was assessed and the result is presented in Table 4.10. The result shows that 42% of the households rated the quality

of water available as fair, while 28% rated the water available for domestic use as good. Similarly, 22% rated the quality of water available to them as poor (22%), while 8% rated the quality of water available to them as very poor. This shows that about 70% of the households enjoy fairly good quality of water, as against the 30% with against with access to poor quality water.

**Table 4.10: Quality of Water available to Households**

| Quality of water | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Good | 43 (25) | 11 (22) | 15 (79) | 69 (28) |
| Fair | 71 (41) | 28 (57) | 4 (21) | 103 (42) |
| Poor | 48 (27) | 6 (12) | 0 (0) | 54 (22) |
| Very Poor | 13 (7) | 4 (8) | 0 (0) | 17 (8) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.2.7 Type of Toilet used in the buildings

The type of toilet used in the study area is presented in Table 4.11. The study shows that 84% of the buildings are serviced with water closet, while 14% of the houses had pit latrine. However, all the houses with pit latrine were reported in Chanchaga area.

**Table 4.11: Type of Toilet used in the buildings**

| Toilet Type | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| | | 0 (0) | 0 (0) | |
| Pit Latrine | 33 (19) | | | 33 (14) |
| Water Closet | 142 (81) | 49 (100) | 19 (100) | 210 (86) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

### 4.2.8 Condition of building components

Many works have highlighted hat people with mental health problems are much more likely to live in poor quality accommodation (Kyle and Dunn, 2008). The study assessed the condition of various building components including wall, roof, floor, windows, and ceiling. Figure 4.5 shows the condition of building components in the study area. In Chanchaga area, 27% of the buildings had sagging roof, 24% had broken floor, 20% had cracked/falling walls, while distressed windows and leaking ceiling accounted for 11% and 2% respectively. Similarly, 14% of the buildings had sagging roof, 8% had cracked walls, 5% had broken floors, while distressed windows accounted for 4%. However, all the buildings assessed in GRA were devoid of the aforementioned defect, hence they were adjudged to be in a good condition.

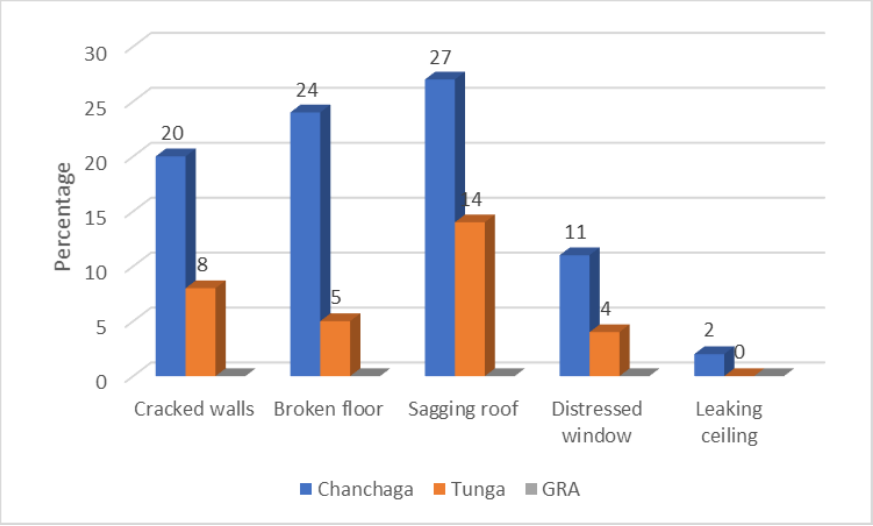

**Figure 4.5: Condition of Building Components**

**Plate IV: A cracked wall in the study area**

#### 4.2.8.1 Condition of kitchen

The condition of kitchen is presented in Table 4.12. The Table shows that 45% of the kitchens are in good condition, 33% in very good condition, while 19% is in a fair state. However, there is variation in the condition of kitchen across the neighbourhoods. For example, all the kitchens in GRA are in very good condition, while buildings in Tunga had majority of the buildings in good condition (55%), while 37% are in a very good condition.

**Table 4.12: Condition of kitchen**

| Kitchen Condition | Chanchaga | Tunga | GRA | Total |
|---|---|---|---|---|
| Very Good | 42 (24) | 18 (37) | 19 (100) | 79 (33) |
| Good | 83 (47) | 27 (55) | 0 (0) | 110 (45) |
| Fair | 42 (24) | 4 (8) | 0 (0) | 46 (19) |
| Poor | 8 (5) | 0 (0) | 0 (0) | 8 (3) |
| Very Poor | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| **Total** | **175 (100)** | **49 (100)** | **19 (100)** | **243 (100)** |

## 4.3 Mental Health and Wellbeing of Residents in the Study Area

### 4.3.1 Mental health and wellbeing of residents in Chanchaga

The mental health and wellbeing of residents was examined using the General Health Questionnaire scheduled on a 4-point ordinal scale (0 to 3) with higher scores suggestive of more distress using twelve indicators (six positive and six negative). The mental health and wellbeing of the residents is summarized and presented in Table 4.13. The result shows in aggregate the respondent's experienced mental stress in two of the six positive worded items; capability to think (0.55) and face up to problem (0.53). Similarly, in the negatively worded items, respondents experienced mental stress for four of the six items; loss of sleep (0.58), under stress (0.73), could not overcome difficulties (0.55), and feeling unhappy and depressed (0.68). Table 4.13 also revealed that low mental stress is experienced by the respondents in three of the six positive worded items; ability to concentrate (0.36), enjoy normal activities (0.38), playing useful part in things (0.38). It is also important to note that the residents do not feel any level of stress for two items, feeling reasonably happy (0.30) and thinking of self as worthless (0.30).

**Table 4.13: Mental Health and Wellbeing of Residents in Chanchaga**

| **Positively Worded Items** | **Weighted Score** | **MHI** | **Remarks** |
|---|---|---|---|
| Able to concentrate | 191 | 0.36 | Low Mental Stress |
| Capable of making decision | 288 | 0.55 | Mental Stress |
| Enjoy normal activities | 197 | 0.38 | Low Mental Stress |
| Feeling reasonably happy | 160 | 0.30 | No Stress at all |
| Face up to problems | 279 | 0.53 | Mental Stress |
| Playing useful part in things | 202 | 0.38 | Low Mental Stress |
| **Negatively Worded Items** | | | |
| Lost sleep over worry | 304 | 0.58 | Mental Stress |
| Under stress | 381 | 0.73 | Mental Stress |
| Could not overcome difficulties | 288 | 0.55 | Mental Stress |
| Feeling unhappy and depressed | 355 | 0.68 | Mental Stress |
| Losing confidence | 256 | 0.49 | Low Mental Stress |
| Thinking of self as worthless | 160 | 0.30 | No Stress at all |

**0.00-0.30= no mental stress; 0.31-0.50=low mental stress; 0.51-0.79=mental stress; 0.80-1.00=high mental stress**

### 4.3.2 Mental health and wellbeing of residents in Tunga

The mental health and wellbeing of respondents in Tunga is presented in Table 4.14. The study revealed that respondents experience low mental stress in five out of the six positively worded items of the GHQ. However, mental stress is reported for capability of making decision with a Mental Health index (MHI) of 0.56. The Table also shows that

the respondents also experience mental stress resulting from loss of sleep (0.64) and under stress (0.69). Low mental stress was also reported for three negatively worded items, "could not overcome difficulties (0.35), feeling unhappy and depressed (0.46), losing confidence (0.48)". No stress is reported to result from thinking as worthless having recorded an index of 0.08.

**Table 4.14: Summary of Mental Health Assessment in Tunga**

| Positively Worded Items | Weighted Score | MHI | Remarks |
|---|---|---|---|
| Able to concentrate | 53 | 0.36 | Low Mental Stress |
| Capable of making decision | 82 | 0.56 | Mental Stress |
| Enjoy normal activities | 66 | 0.45 | Low Mental Stress |
| Feeling reasonably happy | 73 | 0.50 | Low Mental Stress |
| Face up to problems | 64 | 0.44 | Low Mental Stress |
| Playing useful part in things | 72 | 0.49 | Low Mental Stress |
| **Negatively Worded Items** | | | |
| Lost sleep over worry | 94 | 0.64 | Mental Stress |
| Under stress | 101 | 0.69 | Mental Stress |
| Could not overcome difficulties | 51 | 0.35 | Low Mental Stress |
| Feeling unhappy and depressed | 68 | 0.46 | Low Mental Stress |
| Losing confidence | 70 | 0.48 | Low Mental Stress |
| Thinking of self as worthless | 12 | 0.08 | No Stress at all |

**0.00-0.30= no mental stress; 0.31-0.50=low mental stress; 0.51-0.79=mental stress; 0.80-1.00=high mental stress**

### 4.3.3 Mental health and wellbeing of residents in GRA

The mental health and wellbeing of respondents from GRA is presented in Table 4.15. The result shows that for positively worded items, respondents experienced low mental stress, ability to concentrate (0.42), facing up to problems (0.42), enjoy normal activities (0.42), and playing useful part of things (0.32). However, mental stress was reported for capability to make decision (0.51) and feeling reasonably happy (0.77). Furthermore, low mental stress was reported in the GRA for three negatively worded items, could not overcome difficulties (0.32), feeling unhappy and depressed (0.28), and loss of confidence (0.28). Similarly, mental stress was reported from loss of sleep (0.60) and under stress

(0.63). No stress was reported to have resulted from thinking of oneself as worthless (0.09) since only a number of the respondents do that.

**Table 4.15: Summary of Mental Health Assessment in GRA**

| Positively Worded Items | Weighted Score | MHI | Remarks |
|---|---|---|---|
| Able to concentrate | 24 | 0.42 | Low Mental Stress |
| Capable of making decision | 29 | 0.51 | Mental Stress |
| Enjoy normal activities | 24 | 0.42 | Low Mental Stress |
| Feeling reasonably happy | 44 | 0.77 | Mental Stress |
| Face up to problems | 24 | 0.42 | Low Mental Stress |
| Playing useful part in things | 18 | 0.32 | Low Mental Stress |
| **Negatively Worded Items** | | | |
| Lost sleep over worry | 34 | 0.60 | Mental Stress |
| Under stress | 36 | 0.63 | Mental Stress |
| Could not overcome difficulties | 18 | 0.32 | Low Mental Stress |
| Feeling unhappy and depressed | 16 | 0.28 | Low Mental Stress |
| Losing confidence | 16 | 0.28 | Low Mental Stress |
| Thinking of self as worthless | 5 | 0.09 | No Stress at all |

**0.00-0.30= no mental stress; 0.31-0.50=low mental stress; 0.51-0.79=mental stress; 0.80-1.00=high mental stress**

## 4.4 Effect of Housing Characteristics on Mental Health of Resident

Many works have highlighted that people with mental health problems are much more likely to live in poor quality accommodation (Kyle and Dunn, 2008). The study assessed the effect of housing attribute on the mental health of the residents using multiple-linear regression analysis. The mental health of resident was load as the dependent variable while types of building, wall material, roof material, age of building, ownership status, number of rooms, access to water, source of water, quality of water, toilet, condition of building and environmental quality was loaded as independent variables.

Table 4.16 shows the model summary of the regression analysis. The result shows that an $R^2$ value of 0.37 was recorded for the analysis. This implies that 37% of the mental health challenge of the residents is as a result of the housing dynamics of the residents. The analysis was significant at a p-value of 0.042 since the p-value is less than 0.05 acceptable at 95% confidence interval (Table 4.17).

**Table 4.16: Model Summary Table**

| R | $R^2$ | Adjusted $R^2$ | Standard error of the estimate |
|---|---|---|---|
| 0.22 | 0.37 | 0.34 | 1.15 |

**Table 4.17: ANOVA Table**

| Model | df | F | p-value |
|---|---|---|---|
| Regression | 11 | 1.03 | 0.042 |

Although the regression analysis was significant, only six housing attributes contributed significantly to the regression model (Table 4.18). The six housing attributes that contributed significantly to mental health and stress level of the residents include types of housing (0.030), house ownership status (0.012), number of rooms (0.040), access to water (0.021), toilet (0.039), and environmental quality (0.040). This implies that changes in the dynamics of housing type occupied, home ownership, number of rooms occupied by household, access to water, access to toilet facilities and types, and environmental quality of the residents affect the mental health status of the residents.

However, wall material (0.268), roof material (0.096), age of building (0.095), source of water (0.241), quality of water (0.408), and condition of building (0.058) do not contribute significantly to the mental health status of the residents in the study area. This factors have minimal effect on the mental wellbeing of the residents in the study area.

**Table 4.18: Regression Coefficients**

| | Unstandardized Coefficients | Standardized Coefficients | | | |
|---|---|---|---|---|---|
| **Model** | **B** | **Beta** | **Standard error** | **t** | **p-value** |
| (Constant) | 1.21 | | 0.49 | 2.48 | .014 |
| Types of Building | -0.02 | -0.02 | 0.07 | -0.23 | .030 |
| Wall Material | 0.17 | 0.07 | 0.15 | 1.11 | .268 |
| Roof Material | 0.25 | 0.11 | 0.15 | 1.67 | .096 |
| Age of building | -0.09 | -0.11 | 0.05 | -1.68 | .095 |
| Ownership Status | 0.02 | 0.01 | 0.15 | 0.12 | .012 |
| Number of rooms | 0.09 | 0.09 | 0.07 | 1.39 | .040 |
| Water Access | 0.04 | 0.02 | 0.16 | 0.28 | .021 |
| Source of water | 0.08 | 0.08 | 0.07 | 1.18 | .241 |
| Quality of water | -0.05 | -0.05 | 0.05 | -0.83 | .408 |
| Toilet | 0.13 | 0.06 | 0.15 | 0.86 | .039 |
| Condition of Building | 0.01 | 0.01 | 0.05 | 0.18 | .058 |
| Environmental Quality | 0.17 | 0.04 | 0.19 | 1.09 | .040 |

## 4.5 Mental Health Variation across Neighbourhood Density in Minna

The study examined the variation in the pattern of mental stress distribution among households in the three residential densities of high, medium, and low. Analysis of variance test (ANOVA) was carried out and the result is presented in Table 4.19. The ANOVA test recorded an F score of 90.24, a critical value of 3.28 and a p-value of <.001. The alpha value (p-value) recorded is less than 0.05 at 95% confidence level. Therefore, this implies that there is a statistically significant variation in the pattern of mental health stress experience by the respondents in the three residential densities of low, medium, and high. Invariably, this also implies that neighbourhood characteristics contributes directly or indirectly to the level of mental stress experienced by the respondents.

**Table 4.19: Variation in Mental Stress**

| | Sum of Squares | df | Mean Squares | F | p-value | Critical FValue |
|---|---|---|---|---|---|---|
| Between Groups | 362,302.17 | 2 | 181,151.08 | 90.24 | <.001 | 3.28 |

| | | | |
|---|---|---|---|
| Within Groups | 66,248.58 | 33 | 2,007.53 |
| Total | 428,550.75 | 35 | |

## 4.6 Summary of Findings

From the analysis of socioeconomic activities in the study areas, it was revealed that the majority of the respondents are male with (52%) while female were (48%). The housing dynamics in the study areas shows that on neighbourhood basis, bungalow is the most predominant type of building (29%) and GRA (68%) while the most predominant type of house in Tunga is semi-detahed buildings with (43%). The ownership status of the building revealed that the significant proportion of the population lives in their own apartment, majority of the respondent's in GRA live in their own apartment while some of the respondents in Tunga (57%) live in rented apartment. The result also shows that pipe borne water accounted for 44%, well accounted for 25%, borehole 23%, and water vendor accounted for 9%. The primary source of water for residents in the GRA is borehole (74%) and pipe borne water.

The result also shows that majority of the building houses about 4-6 rooms with (61%) while (21%) of the building had 7-9 rooms, (16%) had 1-3 rooms while (2%) had 10 or more rooms. The study revealed that (65%) of the respondent's do not have water within the premises while 35% had access to water within the building premises. The condition of the various building components in the study area shows that in Chanchaga area, 27% of the buildings had sagging roof, 24% had broken floor, 20% had cracked/falling walls, while distressed windows and leaking ceiling accounted for 11% and 2% respectively. Similarly, 14% of the buildings had sagging roof, 8% had cracked walls, 5% had broken floors, while distressed windows accounted for 4%. However, all the buildings assessed in GRA were devoid of the aforementioned defect, hence they were adjudged to be in a good condition.

Furthermore, the study also shows the mental health and well-being of the respondent's in the study areas and it was examined by using General Health Questionnaire, the questionnaire is scheduled on a 4-point ordinal scale (0 to 3) with higher scores suggestive of more distress using twelve indicators (six positive and six negative). In Chanchaga, the respondent's experienced mental stress in two of the six positive worded items; capability to think (0.55) and face up to problem (0.53). Similarly, in the negatively worded items, respondents experienced mental stress for four of the six items; lost of sleep (0.58), under stress (0.73), could not overcome difficulties (0.55), and feeling unhappy and depressed

(0.68).

The study also revealed that in Tunga the respondents experience low mental stress in five out of the six positively worded items of the GHQ. Furthermore, low mental stress was reported in the GRA for three negatively worded items, could not overcome difficulties (0.32), feeling unhappy and depressed (0.28), and loss of confidence (0.28). Similarly, mental stress was reported from loss of sleep (0.60) and under stress (0.63). No stress was reported to have resulted from thinking of oneself as worthless (0.09) since only a number of the respondents do that. The study also found out that there is a statistically significant variation in the pattern of mental health stress experience by the respondents in the three residential densities of low, medium, and high. Invariably, this also implies that neighbourhood characteristics contributes directly or indirectly to the level of mental stress experienced by the respondents.

# CHAPTER FIVE

# 5.0 CONCLUSION AND RECOMMENDATIONS

## 5.1 Conclusion

It is evident from the findings of the study that housing is not only the provision of physical shelter but also a complex source of resident's mental health and well-being. This therefore implies that changes in the dynamics of housing type occupied, home ownership, number of rooms occupied by household, access to water, access to toilet facilities and types, and environmental quality of the residents affect the mental health status of the residents.

## 5.2 Recommendations

Based on the findings of the study, the following recommendations are put forward to serves as guidelines towards sustainable living and management of the study areas and residential buildings at large.

i. Stakeholders in the construction industry should devise ways of providing quality and affordable housing for the medium and lower class of the society. This can be achieved through government's intervention in providing funding through mortgage banks to breach the housing deficit especially among the lower class of the society.

ii. Basic amenities such as water for domestic use must be prioritized in residential buildings. While it's the responsibility of the house owners to achieve this, government must play its role in ensuring pipe borne and other alternative sources of clean water is easily accessible and affordable to house

owners. This will help reduce the mental stress suffered by residents who have to go outside their premises to fetch water for domestic use.

iii. Where wells are the major or alternative source of the residents' water. They should be properly covered to avoid contamination and accidents.

iv. House owners should ensure that for rented apartments, adequate and spacious rooms are provided to avoid overcrowding. This will help alleviate some of the challenges faced by house users which ultimately affect their mental health.

v. House users must avoid congestion in their living spaces and ensure proper ventilation. Proper spacing in non-negotiable as evidence from the study has attributed such practices to result in mental stress.

vi. Stakeholders and residential housing owners should ensure that quality and professionally recommended materials are used for construction of houses and also endeavor to carry out periodic maintenance in order to achieve quality residences that are free poor conditions such as cracks and leaking roofs. vii. Routine mental health checkups should be encouraged among all social classes of the society. This can be achieved through subsidized health insurance programs targeted at the low income.

## 5.3 Contribution to Knowledge

This research is focused on the Effect of Housing Characteristics on Mental Health of Urban Dwellers in Minna, primary data was used in the research. Psychological wellbeing of the respondent's was measured using the 12-item version of the General Health Questionnaire. The findings of this research revealed that Housing is not only the

provision of physical shelter but also a complex source of resident's mental health and well-being. Neighborhood characteristics such as housing type occupied, home ownership, number of rooms occupied by household, access to water, access to toilet facilities and environmental quality contributes directly or indirectly to the level of mental health expressed by the residents.

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## APPENDIX I
## DEPARTMENT OF URBAN AND REGIONAL PLANNING
## SCHOOL OF ENVIRONMENTAL TECHNOLOGY
## FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

***QUESTIONNAIRE ON EFFECTS OF HOUSING DYNAMICS ON MENTAL HEALTH OF URBAN DWELLERS IN MINNA***

**Dear Respondent,**

This research field work is part of requirement leading to the award of the Degree of Master of Technology in Urban and Regional Planning. All information's supplied will be used purely for this academic purpose and shall be treated with utmost confidentiality. You are therefore kindly requested to tick ( ) from the options provided.

**Thank You Sir/ Ma**

**SECTION A: SOCIO ECONOMIC SURVEY OF RESPONDENTS**

1. **Area of Residence?** ……..
2. **Gender of respondent**: (a) Male __ (b) Female __
3. **Age (years)**: (a) 18-25__(b) 26-35 __ (c) 36-45 __(d) 46-55 __ (e) 56-65 __ (f) Above 65 __
4. **Marital status**: (a)Single __ (b) Married __ (c)Widow __ (d) Widower __(e) Separated __ (f) Divorced __
5. **Occupation**: (a) Civil servant __ (b) Student __(c) Self-employed __(d) Businessman__(f) Farmer__(g)Unemployed _
6. **Income level per month**: (a) less, than N5,000 __ (b) N5000-10,000 __(c) N10,001-20,000 __ (d) N20,001-30,000__ (e) N30,001- 40,000 __ (f) N40,001-50,000 __(g) above 100,000 __
7. **Highest level of western educational qualification**: (a) Primary__ (b) Secondary __ (c) Tertiary __ (d) None__

**SECTION B: HOUSING DYNAMICS**

8. **Type of building?** (a) Bungalow__ (b) Semi-Detached __ (c) Compound__ (d) Tenement
9. **Building materials?** (a) Mud __ (b) Concrete block __ (c) Burnt brick__ (d) Stone__ (e) Others (specify)
10. **Roof materials?** (a) Corrugated sheet __ (b) Aluminum __(c) Asbestos __ (d) Thatched __ (e) Others (specify)
11. **Building condition**? (a)Very good __(b) Good__ (c) Fair__ (d) Poor __ (e) Very poor__
12. **Age of the building?** (a) Less than 5 years __(b) 6-10 years __ (c) 11-20 years __ (d) 21-30 years__ (e) 30 years and above __
13. **Type of ownership?** (a) Self-owned __ (b) Public rental __ (c) Private rental__ (d) Dormitory__
14. **Living space?** (a) Below 225 square meters __ (b) 225-300sqm __ (c) 300-450sqm__ (d) 450 and above__
15. **Number of rooms in a building?** (a) less than 3 __ (b) 4-6 __ (c) 7-9 ___ (d) 10 and above
16. **Do you have your source of water in your premises?** (a) Yes__ (b) No__
17. **Water sources:** (a) Well __ (b) Pipe borne __ (c) Bore hole__ (d) Pond/stream__ (e) Water vendor__

18. **How will you rate the quality of your drinking water?** (a) Very poor__ (b) Poor __ (c) Fair__ (d) Good__
19. **Toilet type?** (a) Pit latrine__ (b) Water system__ (c) Bucket toilet__ (d) Open dump__ (e) Public toilet__
20. **Source of energy for domestic use?** (a) Fire wood/ charcoal__ (b) Kerosene __ (c) Gas__ (d) Electricity__
21. **Kitchen condition?** (a) Very good __(b) Good __ (c) Fair__ (d) poor __ (e) Very poor__
22. **Ceiling type?** (a) Asbestos __(b) Cardboard __ (c) POP__ (d) PVC __ (e) Concrete__
23. **Floor type?** (a) Concrete __(b) Tiles __ (c) Hardwood__ (d) Others (specify)__
24. **Wall type?** (a) Plastered__ (b) Not plastered__ (c) Others (specify)__
25. **Window type?** (a) Wooden __(b) Slide glass __ (c) Metal__ (d) Louver__ (e) Others (specify)__
26. **Ventilation type?** (a) Natural__ (b) Artificial__ 27. **Does your building have the following defects?**

| **Building defects** | **Yes** | **No** |
|---|---|---|
| Cracked walls | | |
| Broken floor | | |
| Sagging roof | | |
| Distressed window | | |
| Leaking ceiling | | |

**SECTION C: GENERAL HEALTH QUESTIONNAIRE (GHQ-12)**

**0 – Less than usual**

**1 – Not more than usual**

**2 - Rather more than usual**

**3 – Much more than usual**

28. Please assess the following mental health conditions as applicable to you

| **GHQ-12** | **0** | **1** | **2** | **3** |
|---|---|---|---|---|
| Able to concentrate | | | | |
| Lost much sleep | | | | |

| | | | | |
|---|---|---|---|---|
| Playing useful part | | | | |
| Capable of making decision | | | | |
| Under stress | | | | |
| Could not overcome difficulties | | | | |
| Enjoy normal activities | | | | |
| Face up to problems | | | | |
| Feeling unhappy and depressed | | | | |
| Losing confidence | | | | |
| Thinking of self as worthless | | | | |
| Feeling reasonably happy | | | | |