

Significance of Gender Differences on Housing in Nigeria: a Case Study of Osun State University Osogbo

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Abstract

In many cases, housing designs are gendered in tune with societal expectations from both sexes. However, existing research shows that gender transcends mere classifications into male and female. Based on the nexus between gender and housing, a clear contextual understanding of the dynamics is vital to housing policies and design. This study, therefore, examines gender-based responses to housing attributes by deconstructing gender into the degree of masculinity or femininity rather than just being male or female. Upon a successful pilot study, questionnaire-based primary data were obtained by multi-stage sampling technique from 222 staff members of Osun State University Osogbo. Secondary data were obtained from the Academic Planning Unit of the University. Data obtained were descriptively analysed. Findings show similarities and differences based on gender (male/female) and gender identity. Gender similarities and differences were found in the importance of housing attributes, the perceived impact of housing attributes on domestic tasks, and the desirability of housing attributes. Results also show that respondents with Feminine Female (FF) gender identity placed high importance on housing attributes required to support frequently performed domestic tasks. In addition, only FF considered the availability of neighbourhood markets and schools ($D=0.02$) highly impactful on household tasks. The study concluded that responses to housing attributes are gendered with variations concerning gender, gender identity and gender roles. It further established a relationship between responses to housing attributes and the domestic gender roles of respondents in the study area. Therefore, the study recommends adequate attention to gender in housing design, policy and process.

Keywords: Gender identity, housing design, gender roles, gender equity, housing attributes, sustainable development, Nigeria.

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1.0 INTRODUCTION

Terminologies such as sex, gender identity and equity are some social concepts connected to sustainable development goals (SDGs). While sex can be defined as the biological classes of male and female to which humans belong, based on sex characteristics and chromosomes, gender, on the other hand, refers to social, behavioural, and cultural attributes, expectations, and norms associated with being male or female (Hosein et al., 2020).

While sex might be irreversible, gender roles are dynamic and can be learnt. This suggests that variations are expected in gender roles across cultural, social, ethnic, and racial contexts globally (Esariti et al., 2021). In his submissions (Daniel, 2013), technological advancement, status, natural disasters, and conflicts may trigger a change in gender roles in societies. Therefore, at the family, community and city levels, tasks are assigned along gender lines (Wood & Eagly, 2010). Based on historical evidence, gender roles confine both genders, but women receive the short end of the stick. In the Global South, for example, the brunt of urbanisation is mainly felt by women because they are domesticated. At the same time, male folks are permitted to get paid employment, which gives them an economic advantage (Blanka et al., 2019). According to Cerrato & Cifre (2018), western societies' are not exempted from gender stereotyping because women mainly do household chores.

The World Bank (2020) defined gender identity as an innate and personalised experience of gender which may be at variance with the sex at birth or societal expectations. Other equally essential terms are gender equity and inclusivity. One of the main factors that can make sustainable development achievable is enforcing gender equality as a fundamental human right (World Bank, 2020). Stereotyping or gender labelling of men and women's domestic roles enables discrimination, inequality, and unhealthy societal expectations (Altinova & Duyan, 2013). The spatial organisations of the domestic sphere, neighbourhoods and most cities are in sync with traditional gender roles; therefore, women do not benefit equally as men in urban environments.

Consequently, the built environment attributes compel women to cope with the inefficiencies in planning policies, interior designs of buildings, and the entire urban design (Singha, 2018). This assertion is further buttressed by Daniel (2013), reporting that rather than designing the kitchen for American women, all the features were set up to meet how male folks use the kitchen. Moreover, evidence from

earlier studies affirmed that though women spend most of their time in the housing environment, they are rarely involved in or consulted for their actual needs (Agbola, 1990; Mackinzie, 1989; Hayden & Wright, 1976).

In a report by (UN Habitat-Women, 2020), gender inequalities are evident in a housing shortage in middle-income countries because women between 15 and 49 years of age are over-represented in a slum or slum-like settlements. Furthermore, the designed housing environment fails to meet the needs of women but instead constrains them physically, socially and economically. Given the importance of housing, the United Nations formally recognised adequate housing as a fundamental human right in 1966, which consequently became part of the SDGs. Essentially every human being, regardless of gender or age, should have access to safe, secure, affordable and appropriate housing; hence the design of all layers of the built environments should be gender-inclusive (Global Platform for Sustainable Cities, 2021).

The body of knowledge on housing is replete with studies such as residents' satisfaction with housing attributes (Olarenwaju & Adelaja, 2020), housing quality and its predictors (Babalola et al., 2019), housing needs and preferences (Kam et al., 2018), preferences for housing attributes (Mulliner & Algras, 2018), design factors as determinants of neighbourhood quality (Makinde, 2020), the effects of residential environmental factors on residents' housing satisfaction (Onifade, 2021) and the influence of housing attributes on housing satisfaction (Adegbile et al., 2019). As expected, varied definitions and concepts resulting in various assertions have been made on the diverse subject of housing quality and residential satisfaction depending on the focus of scholars.

However, Ibem et al. (2015) affirmed that residents' evaluation of housing attributes adequacy and residential satisfaction are the two central concepts used to evaluate the extent to which housing schemes meet residents' needs and expectations. In addition, Ibem et al. (2015) further affirmed that residential satisfaction measures the extent to which housing occupants feel contented or happy with the quality of their housing conditions (housing units and the surrounding environment) and the extent to which their current housing situation meets their physical, economic, physiological and psychological needs. Despite the advancement of research on housing, the need to gain more insight into the interaction between gender and the built environment is thus evident. Globally, studies in this area still need to be conducted; however, a few that has been conducted show that experiences, behaviour and attitudes towards various aspects of the built environment are mostly gender-differentiated. These include spatial perception and utilisation, mobility patterns (Amole, 2012), and gender differences in the housing preferences and values of the urban poor (Ayoola & Oladokun, 2016). Furthermore, Shrestha (2000) opined that preferential treatment is given to domestic spaces being occupied by male house heads because they dwell in luxurious spaces while women suffer the debilitating effects of home accidents and diseases arising from ineffective house designs. The proportion of this imbalance is escalated in housing schemes at community and city scales; furthermore, the patriarchal system in most parts of the world precludes women from being active players in housing development (Manyire, 2002; Shawki, 2007).

In the local Nigerian settings, scholars have also done some gender-related studies. For instance, usage patterns of domestic facilities in students' housing at the University of Ilorin varied across gender lines, according to Amole (2012). According to Asiyanbola's (2004) findings, gender differentials exist in housing experience, perceptions and the impact on domestic space utilisation. Similarly, using Ibadan city as a case study, Asiyanbola (2010) examined gender and urban infrastructural poverty. The study's results reveal significant gender relationships in urban infrastructural experiences and other personal demographic attributes such as income, stage in the family cycle and size.

In light of the above, it is evident that studies on gendered housing development are not new, but those addressing gender identity and housing are scarce. More importantly, the adequacy of housing attributes and residential satisfaction, the most important theoretical concepts in the post-occupancy evaluation of housing, is rarely studied from the gender lens.

A further gap in the literature has been observed in the methods of conducting studies on housing attributes and those related to gender. Most of the studies either selected household heads who were often male or specifically selected female household heads (often single mothers) or elicited information from women only, regardless of the household type. However, rather than obtaining information from one gender, comparing the genders will be necessary to provide better insight into the differences between their opinions.

Specifically, there is a lack of understanding of the similarities and differences in the way gender and gender identity influence the importance attached to housing attributes, the perceived impact of housing attributes on domestic activities, as well as the desirability of housing attributes. Therefore, this study aimed to examine responses to housing attributes among Osun State University Osogbo, Osun State, Nigeria staff members by deconstructing gender into the degree of masculinity or femininity beyond just being male or female.

■ 2.0 LITERATURE REVIEW

Based on this study's focus, the literature review is in these areas: the concepts of housing attributes adequacy and residential satisfaction, and (ii) theoretical and conceptual approaches to gender perception of housing.

2.1 Gender and Housing

The concept of housing is multifaceted and affects almost everyone on the planet; among other functions, adequate housing is considered a shield for its inhabitants and a fundamental human right critical to meeting the Sustainable Development Goals (SDGs). It is the human right of every woman, man, youth, and child to have safe, secure, affordable, and appropriate housing, with a home and a community in which to live in peace and dignity (Global Platform for Sustainable Cities, 2021.)

This is unsurprising given that housing is pivotal to individuals' and households' overall well-being and total quality of life and impacts society (Adegbile et al., 2019). The National Housing Policy of Nigeria (2012) states that housing is the process of providing safe, comfortable, attractive, functional, affordable and identifiable shelter in a proper setting within a neighbourhood, supported by continuous maintenance of the built environment; for the daily living activities of individuals and families within the community, while reflecting their socio-economic and cultural aspirations and preferences. Housing attributes refer to the different characteristics or features of housing. These are components which make up the various aspects of housing. Housing is mostly studied through an assessment of its attributes; this explains why many housing studies, such as post-occupancy evaluation studies, housing quality studies, housing satisfaction studies and others, usually involve an assessment of housing attributes (Ajayi, 2018). Housing attributes have been used in various forms and combinations in different studies. Vahid (2015), in a study of users' priority of housing component preferences in Malaysia, found space organisation, adequacy of ventilation, space characteristics, air conditioning, adequate daylight distribution and floor finishing to be primary structural

housing attributes influencing preferences of house buyers. However, housing attributes are often not studied as a primary research subject; instead, they are often employed in studies such as post-occupancy evaluations, housing quality, housing preferences, housing satisfaction, housing prices, and housing demand. For example, in a study of factors influencing users' satisfaction in public and private estates in Lagos, Ebiriade & Umeh (2015) ranked users' satisfaction with the following physical attributes: aesthetics (building height, entrance/lobby design, external appearance, colour of the building and building form); use of space (floor to ceiling height, proportion of windows/walls, size of flat, vertical circulation, horizontal circulation, adequacy of car parking space, space utilisation, adequacy of refuse disposal and adequacy of landscaping area); building enclosure (structural integrity, electric fitting, orientation of flat, windows: material and water tightness, durability of external building finishes, sanitary fittings: number of hand basins and water closet, view from window and water tightness from rain); health: personal & environment (adequacy of natural ventilation, adequacy of daylight distribution, water quality, cleanliness of public area and acoustic quality); and locational characteristics (appropriateness of site for erection of residential building, availability of convenience store/markets, ease of access by public transport, uninterrupted water supply, postal services and uninterrupted power supply). Social attributes employed were maintenance facilities, safety and security, social needs and community development.

Literature has established the pivotal roles of housing attribute adequacy and residential satisfaction in the conceptual underpinning of housing satisfaction (Ibem et al., 2015). Moreover, globally, scholars have made substantial efforts to examine the effects of various housing attributes and neighbourhood characteristics on housing satisfaction (Onifade & Saibu, 2020). For instance, in a study in Vietnamese settings, housing and housing properties were found to have substantial effects on housing satisfaction and life satisfaction (Tran & Van Vu, 2018). Similarly, in Bursa, Turkey, the effect of housing and neighbourhood satisfaction on the perception of happiness was evaluated, and it was reported that all the qualities of the housing, such as the number of rooms or the type of housing, affect individual satisfaction with housing (Gür et al., 2020). As stated by Francescato et al. (2017), apart from residents' satisfaction with their housing units, the housing units' social and immediate physical settings should also be satisfactory from the occupants' point of view.

Further, the study (Francescato et al., 2017) highlighted fifteen aspects: density/crowding, safety/security, aesthetics/appearance, site facilities, access to friends, and site location/access to the community. Others include maintenance, economic costs, sense of community, management policy, personal freedom/privacy, community perception, neighbour perception, personality attributes and demographic characteristics (Francescato et al., 2017). Therefore, housing satisfaction can be defined as evaluating the extent to which housing units, services, and social environment meet residents' housing needs, expectations and aspirations. (Onifade, 2021).

Gender-related differences in aspects of housing and the surrounding environment have been studied using various approaches, most of which can be categorised into gender differences in affective responses to housing, such as preferences, satisfaction and place attachment, and behaviour in space, such as the use of space, responses to crowding, territoriality and privacy (Ajayi, 2018).

Scholars have tried to explain gender from different angles, most especially the psychological and biological perspectives. In earlier studies, gender differences have been attributed to processes within the human mind, socially structured gender role development and functioning; and biological differences related to reproduction. However, Ajayi (2018) asserts that three main theories of psychological gender differences are prominent: the evolutionary theories, the cognitive, social learning theory and the sociological or social role theory. Esariti et al. (2021) opined that the tasks of female folks in the domestic space are usually unpaid and are in three broad categories: childbearing, rearing responsibilities and community management. Thus, traditional gender roles affect how men and women manage work, family interaction and their perception of the built environment (Cerrato & Cifre, 2018). While not much can be seen in the changes in gender roles in developing countries, there is a gradual shifting of the needle towards gender-neutral housing design and spatial organisation in the Global North.

In most third-world economies, women spend more time than men on unremunerated home chores. They need help developing home-based income-generating activities due to poor housing design, lack of home appliances and technologies, and poor housing conditions that harm women's physical and mental health (Global Platform for Sustainable Cities, 2021). To stem this tide, advocates globally have been pushing the gender mainstreaming agenda, which is the integration of a gender perspective into the preparation, design, implementation, monitoring and evaluation of policies, regulatory measures and spending programmes, to promote equality between women and men and combat discrimination (European Institute for Gender Equality, 2019).

Men and women are usually allocated different and often contrasting social and domestic roles as defined by society have been found to generate differences in their housing and neighbourhood concerns (Ajayi et al., 2020; Sobantu, 2020). Since the neighbourhood is an integral part of the city, differences in gender perceptions would have a strong bearing on housing unit configurations and influence the eventual outlook on the city (Shawki, 2007). In order to create a 'non-sexist' city in which the urban environment is planned equally for women and men - the gender perspective needs to be prioritised in urban planning (Beebeejaun, 2017). Hansen (2014), in a study of gender differences in place attachment and residential mobility, opined variations in both genders. Differences in gender ideologies could explain these differences; those adhering to more traditional ideologies of gender were more likely to feel more attached to the place where they live.

Viljoen et al. (2020) report on the gendered colouration of housing in Australia into male and female; housing features that border on perceptions, security and comfort are tagged feminine, while masculinity is depicted with physical components within the house. Abdur Raheem & Luper (2016) affirm that gender differences permeate the entire spatial configuration of urban planning; therefore, varied expectations and behaviours are experienced by both genders in domestic residences, commercial, recreational and other social spaces in urban cities.

In an earlier study by MirafTAB (2001), it was reported that rather than living in rented apartments in city centres, male household heads prefer informally built owner-occupied housing in urban fringes instead of female-headed households. According to MirafTAB (2001), these preferences were stimulated by women's needs for companionship and shared childcare responsibilities that inner-city neighbourhoods provide.

Gender inequalities are also evident in health outcomes concerning housing, most of which cannot be separated from domestic gender roles. Women are more at risk of environmental air pollution than men (Holmen et al., 2002). Therefore poor housing design, such as poorly ventilated kitchens, and poor environmental conditions, such as poor waste management (like burning of refuse in nearby dumps), pose a greater danger to women than to men. Women are also more prone to domestic injury because they spend more hours at home than men (Evci et al., 2006). Access to good-quality housing (including comfortable temperatures, adequate sanitation and illumination, sufficient space, safe fuel or connection to electricity, and protection from pollutants, injury hazards, mould, and pests) impacts women's overall health. It often influences the quality of life (Franklin, 2020). In addition, reduced overcrowding and good-quality housing decrease infection and

mortality rates of communicable diseases such as COVID-19; proper ventilation and air quality are also critical for contagion control (UN Women, 2020). These are examples of the cyclical effect of marginalised gender needs in housing.

These problems uncover the necessity for more detailed information on gender-specific needs concerning housing, which will be instrumental to a gender-sensitive approach in housing design and policy in which the actual needs of women are brought to the fore and addressed equally as those of men. Hence this study. Although studies on gender and housing are growing, some gaps still exist in the literature. Studies abound on gender differences; however, gender similarities have gained little attention in the study of gender. In a recent systematic review of 124 studies on the relationship between health and urban housing, lack of attention to gender issues and the intersection of gender with other axes of inequity were some of the gaps identified (Turcu et al., 2021).

In the Nigerian context, gender and housing are emerging fields, and only a few studies exist. Apart from the contextual gap, studies by Opoku & Abdul-Muhmin (2010) and Asiyabola (2013) found gender differences in the importance of interior and exterior spaces. Venter & Marais (2006) also affirmed differences in household housing satisfaction across the gender divide. However, these studies did not include gendered domestic roles concerning housing features which appears to be a crucial means of gendered interactions with housing features.

Since housing comprises various components, studies on housing usually require housing to be deconstructed into its constituent features, also referred to as housing attributes, to make detailed examination possible. The heterogeneous nature of housing implies that housing conditions tend to vary even when the same house typologies and environmental circumstances are concerned; this constitutes a limitation if particular housing types are to be studied. However, housing attributes constitute a constant classification that remains similar regardless of typologies and geographical location differences. Thus, in order to eliminate this limitation, rather than restricting the enquiry to specific sets of housing in a geographical location, it is advantageous to assess the responses, that is, reactions of individuals to housing attributes based on their overall experience of housing which will generate a more robust perspective.

Furthermore, when examining individual responses to housing attributes from the gender perspective, a balanced perspective from the different genders is essential; therefore, responses must be obtained from men and women having similar socio-economic characteristics for comparability; a population having such a profile is obtainable in organisations such as government secretariats and academic institutions. However, in studying such a population, it is advantageous that the people under study usually live among other people within the society rather than living secludedly within an exclusive homogeneous community of staff working in the same organisation. This is because while the former presents the everyday challenges most people face concerning housing, the latter is limited due to the peculiar controlled nature of such staff quarters. Therefore, the organisation which constitutes the study population must be one where residential staff quarters are nonexistent. The staff live in various parts of the city in similar housing conditions as other people. As such, findings will also be applicable beyond the specific population being studied to the broader society.

Owing to the preceding, the study of individual responses to housing attributes with individual gender identities and domestic gender roles among the staff of Osun State University will help provide information on the gender-specific needs of individuals, which will assist in the implementation of gender mainstreaming in housing design and policy.

3.0 METHODOLOGY

3.1 Study Settings

The study was conducted in Osogbo, the capital city of Osun State (Figures 1 and 2). As presented in Figure 3, the main campus of the University is located in the Oke-Baale axis of the town, and the remaining five campuses are evenly distributed across the State.

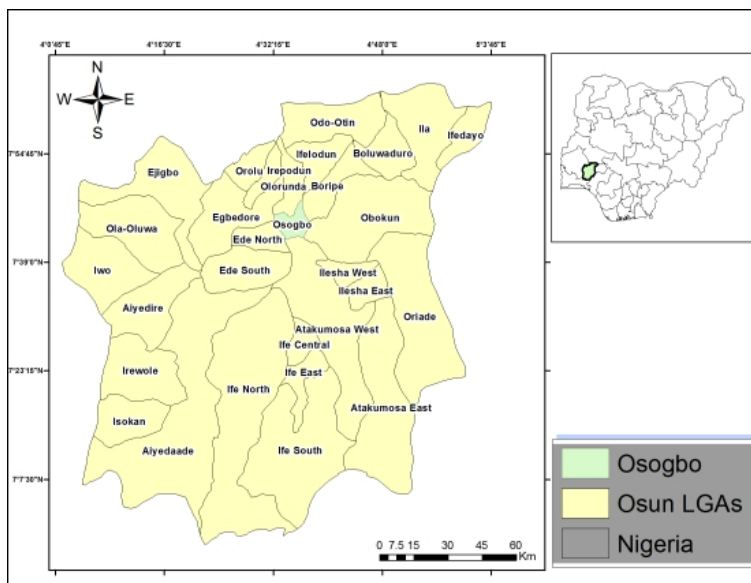


Figure 1: Osogbo Local Government Area within the context of Osun State
Source: Department of Urban and Regional Planning, Osun State University (2021)

The climate, geology, vegetation and soil of Osogbo and its environs are similar to what is obtained throughout the State, with few exceptions. The region's classification applies to the campus site within Osogbo and its environs. The unique aspect is the people and their socio-economic characteristics.

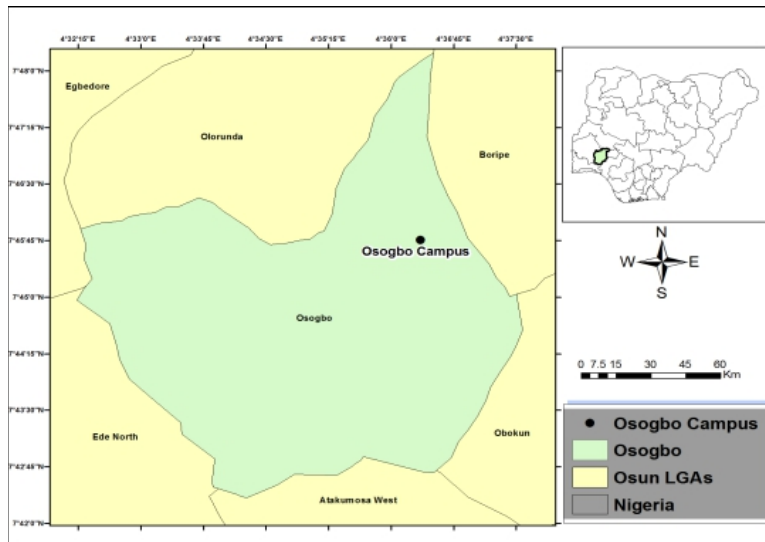


Figure 2: Map of Osogbo LGA showing Osogbo Campus (UNIOSUN)
 Source: Department of Urban and Regional Planning, Osun State University (2021).

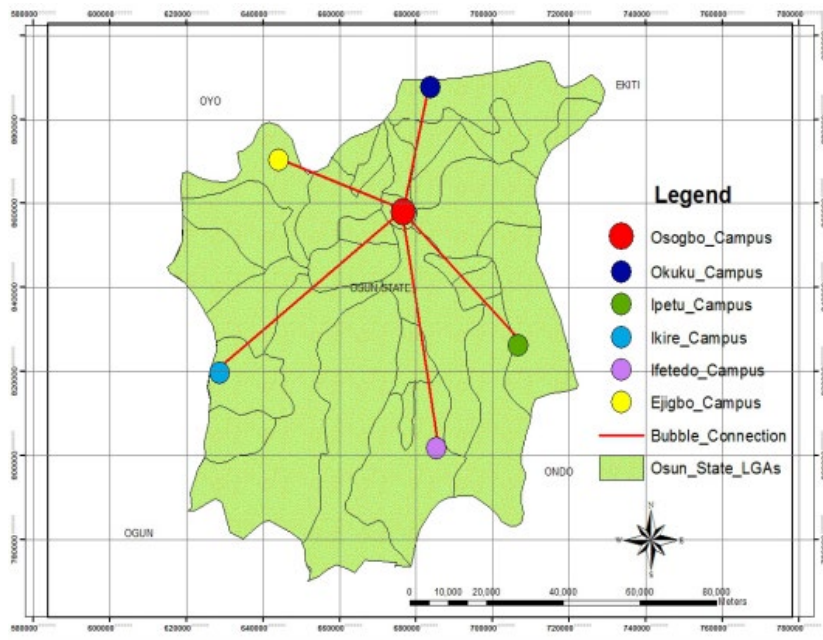


Figure 3: Spatial and Locational Relationships between the six Campuses
 Source: Department of Urban and Regional Planning, Osun State University (2021)

3.2 Population, Sample And Sampling Procedure

Both primary and secondary data sources were used in this quantitative-based empirical study. Based on the official figures drawn from Osun State University Annual Report (2018), data on staff strength formed the study population. The focus of the study was on people living normally among other people within the society who are faced with challenges in the aspect of housing common to people at large. Thus their responses will not be swayed by the influences of controlled homogeneous residential staff quarters. Therefore the study did not focus on any particular set of buildings, and at the time of this study, official residential quarters for staff were nonexistent. The study spanned all the cadres of staff in the University. The study focuses on gender and housing with an emphasis on people's interactions with housing attributes based on gender and as expressed through responses such as the level of importance placed on specific attributes of housing, the level of impact the attributes are perceived to have on domestic tasks in the household, and level of desirability of attributes. Housing, as

implied in the study, includes the housing unit, neighbourhood, and the various features that constitute them. Gender is conceptualised as the male/female categorisation, individual gender identities and domestic gender roles.

Due to the nature of this study, data were collected at different stages. Firstly, the study population was stratified into seven cadres based on the University's organisational structure: principal officers, deans/provosts/university administrators, heads of departments and units, senior non-academic staff, junior non-academic staff, senior academic staff, and junior academic staff. (See Table 1).

Table 1: Summary of sample population and sample size

Category	Study population	Sample size (%)
Principal officers	6	6 (100%)
Deans/provosts/university administrators	15	15 (100%)
Heads of Departments and Units	30	30 (100%)
Senior Non-Academic Staff	205	41 (20%)
Junior Non-Academic Staff	256	52 (20%)
Senior Academic Staff	56	56 (100%)
Junior Academic Staff	107	22 (20%)
Total	675	222

At the second sampling stage, disproportionate sampling was used to survey respondents from each cadre; where the number of staff in a cadre is below 100, the total number was surveyed, while 20% was surveyed from cadres having 100 or more staff. Preliminary investigation showed that there were 675 staff; all principal officers, deans/provosts/university administrators, heads of departments and senior academic staff were surveyed, cumulating in 107 respondents, while 20% of senior non-academic staff, junior non-academic staff and junior academic staff were surveyed cumulating in 115 respondents. In total, 222 respondents were surveyed.

3.4 Data Collection

Information on responses to housing attributes concerning gender and gender identity was obtained through questionnaires in 2018. Data were obtained on the level of importance (value) placed on various attributes of housing and the perceived impact that housing attributes have on domestic gender roles. Data were also obtained on the level of desirability (affect) that respondents have for various attributes. Information was obtained regarding the different aspects of housing, such as physical/structural, spatial/functional, socio-physical, ambient, economic, locational, aesthetic and infrastructural aspects. These include dwelling unit features such as housing type, quality of fittings and fixtures, quality of design (adequacy of space, number of bedrooms, spatial layout), lighting, ventilation/ indoor air quality, availability of essential services (water supply, electricity, sewerage, refuse disposal), privacy, security, and respondents' responses to them. Also included were neighbourhood attributes such as infrastructure availability and accessibility to schools, healthcare services, markets, neighbourhood parks and access roads.

3.5 Data Analysis

Gender Identities of Respondents

The gender identities of staff in this study were evaluated according to Bem Sex Role Inventory (BSRI), which puts the range for reliability coefficients between 0.75 to 0.90 (Carver et al., 2013; Ozkan & Lajunen, 2005). As presented in Table 2, respondents' gender identities were evaluated using the short form of the BSRI to identify masculinity, femininity and gender-neutral staff (Bem, 1974). Using a 5-point scale (1 = very untrue of me, 5 = very true of me), rated their personality characteristics (24 items).

Table 2: BSRI items showing the categories of items

Category	Items
A. Neutral (androgynous)	<ol style="list-style-type: none"> 1. Very aggressive 2. Very dominant 3. Very excitable in a major crisis 4. Very worldly 5. Highly needful of others' approval 6. Feelings easily hurt 7. Cries very easily 8. Extreme need for security
B. Masculine	<ol style="list-style-type: none"> 1. Very independent 2. Very active 3. Very competitive 4. Can make a decision easily 5. Never gives up easily 6. Very self-confident 7. Feels very superior 8. Stands up well under pressure

Feminine	1. Very emotional 2. Able to devote self 3. Very gentle 4. Very helpful to others 5. Very aware of the feelings of others 6. Very understanding of others 7. Very warm in relations with others 8. Very kind
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Source: Ozkan & Lajunen (2005:105)

Responses to Housing Attributes concerning Gender

In the first instance, calculations were done based on gender (male/female). To examine which housing attributes respondents considered important, this question was asked "If you were to choose a house personally, what would be the rate of the importance of the following factors in making your choice? (5=very important, 4=moderately important, 3=neutral, 2=low importance, 1=not at all important)". Participants rated the importance of listed housing attributes using the 5-point Likert scale. Similarly, respondents rated the impact of housing attributes on their domestic tasks using this scale: (5= very high impact, 4= high impact, 3= moderate impact, 2= low impact, and 1= no impact at all). The level of desirability of housing attributes was examined using this scale: How much do you desire the following housing attributes and housing situations? (5= very desirable, 4= desirable, 3=neutral, 2= undesirable, 1= very undesirable). In order to examine the responses of the university staff to housing attributes based on gender identity, four values were computed. Firstly, individual mean scores were computed for each housing attribute. These consisted of total responses, i.e., gender aggregated data (male+female) and represented by Mean Score (MS). Secondly, gender-based responses to each housing attribute are represented by GBR. Next, the mean of all Gender-Based Responses, i.e. M_{GBR} , this value is stated under each table—finally, the deviations of GBR from M_{GB} (D). A positive deviation value for respondents of a given gender identity indicates that the attribute is fundamental, highly impacts domestic activities, or is desirable and vice versa. For example, a deviation score of 0.67 for male-masculine respondents on the importance of the type of building implies that this attribute is fundamental to males that are masculine when choosing a house.

4.0 RESULTS

This section discusses gender identity and staff responses to various housing attributes categorised into three, based on the type of response as value or importance of attributes, perception of their impact on domestic activities and desirability (affect) of the attributes.

4.1 Gender Identity

Results from this study indicate the dominance of the androgynous gender identity group (62.7%) among the staff of the University; about 36% were feminine, while surprisingly, only 1.3% of the entire respondents had masculine gender identity. It also became clear that no female respondent had a masculine gender identity, whereas about 28.9% of male respondents had a feminine gender identity, as presented in Table 3.

Table 3: Gender Identity across Biological Sexes

Gender identity Group	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Masculine	2	0	2 (1.3)
Feminine	26	36	62 (36.0)
Androgynous	62	46	108 (62.7)
Total	90 (52.3)	82 (47.7)	172 (100)

4.2. Responses to Housing Attributes concerning Gender

Summarised information on responses of the university staff to various housing attributes is presented in Tables 4-6.

4.2.1 Value (Importance) of Housing Attributes

Table 4 presents the importance of housing attributes across the different gender categories. Responses to housing attributes to the value or importance placed on them varied among the different gender categories within the study population. While some responses were similar across the gender groups, other attributes received mixed responses.

Table 4: Importance of housing attributes concerning gender when choosing a house.

	Housing attributes <i>1 = Not at all important (≥ 1.00 and ≤ 1.80); 2 = Low importance (≥ 1.81 and ≤ 2.60); 3 = Neutral (≥ 2.61 and ≤ 3.40); 4 = Moderately Important (≥ 3.41 and ≤ 4.20), and 5 = Very Important (≥ 4.21 and ≤ 5.00)</i>	MS (N=172)	Deviation (D) +D = high importance; -D = low importance				
			MM	MF	MA	FF	FA
1	Electricity supply	4.63	0.67	0.31	0.17	0.22	0.13
2	Security	4.62	0.67	0.31	0.16	0.33	0.00
3	Water supply	4.60	0.67	0.28	0.15	0.25	0.00
4	Safety in the Building	4.59	0.67	0.28	0.10	0.22	0.00
5	Locational distance	4.56	0.67	0.25	-0.02	0.21	0.08
6	Availability of Crime Control Measures	4.52	0.67	0.23	-0.02	0.14	-0.07
7	Price	4.51	0.67	-0.10	0.11	0.15	0.08
8	Type of Building	4.49	0.67	0.03	0.09	0.17	-0.16
9	Accessibility by Public Transport	4.49	0.67	0.07	-0.01	0.25	-0.18
10	Waste management	4.49	0.67	-0.02	-0.04	0.02	0.00
11	Access roads	4.44	0.67	-0.22	0.14	0.10	-0.14
12	Neighbourhood Management and Maintenance	4.41	0.67	0.05	-0.15	0.20	-0.33
13	Natural ventilation	4.40	0.67	-0.06	0.01	-0.16	-0.09
14	Healthcare Centre in Neighbourhood	4.39	0.67	-0.02	-0.23	-0.16	0.07
15	Noise control	4.39	0.67	-0.17	0.04	-0.19	-0.04
16	Age of Building	4.38	0.67	-0.17	-0.15	0.03	-0.11
17	Privacy from Neighbours	4.38	0.67	-0.22	-0.20	0.06	-0.06
18	Adequacy of Space in the Compound	4.34	0.67	-0.25	-0.11	-0.16	-0.11
19	Neighbourhood layout	4.31	0.67	-0.09	-0.23	0.01	-0.46
20	Neighbourhood density	4.29	0.67	-0.33	-0.27	0.10	-0.37
21	Natural lighting	4.27	0.67	-0.48	-0.09	-0.19	-0.19
22	The beauty of Interior Finishes	4.27	0.67	-0.21	-0.22	-0.11	-0.42
23	Neighbourhood store/market	4.24	0.67	-0.18	-0.31	-0.22	-0.40
24	Quality of Architectural Design	4.22	0.67	-0.29	-0.15	-0.22	-0.52
26	Beauty/ Appearance of the House	4.22	0.67	-0.41	-0.28	-0.16	-0.35
27	Provisions for Social Interaction	4.00	0.67	-0.64	-0.54	-0.75	-0.31
28	Single dwelling in a Compound	3.90	0.67	-0.75	-0.56	-0.78	-0.72
29	Schools within Neighbourhood	3.73	-1.33	-0.52	-0.36	-0.50	-0.29
30	Presence of Neighbours in the same compound	3.43	-1.33	-1.33	-0.69	-0.44	-0.90

**Note: $M_{GBR} = 4.33$

Key: MM=Male Masculine, MF=Male Feminine, MA=Male Androgynous, FF=Female Feminine, FA=Female Androgynous

According to the gender aggregated results, the essential attribute was electricity supply (MS 4.63), followed by security (MS 4.62), water supply (MS 4.60), and safety (MS 4.59). Contrarily, the presence of neighbours within the same compound and the presence of schools within the neighbourhood had little influence on respondents when choosing a house.

However, the gender identities of respondents influenced the importance placed on housing attributes. Findings show that the building's electric power supply, water supply, security and safety were critical across all the gender categories (MM, MF, MA, FF and FA). This infers that providing basic amenities and security of lives and property is critical to all participants regardless of gender identity. This is not surprising since these attributes are generally required by everyone and needed to support most domestic tasks. These findings are in agreement with Oni (2021) that residents' satisfaction with housing is influenced by security, residents' community perception, facilities and amenities, safety to community association and engagement. Therefore, due to the importance placed on the availability and adequacy of these social and physical environmental attributes in this current study, concerted efforts are required by built environment professionals and policymakers to achieve the occupants' satisfaction with their housing units.

However, some gender differences were observed in respondents' opinions of specific attributes because some gender identity group(s) reported them as important housing attributes while others had contrary views. These housing attributes were: age of the building, locational distance, neighbourhood density, neighbourhood layout, neighbourhood management and maintenance, availability of crime control measures, provisions for social interaction, quality of architectural design, natural lighting, natural ventilation, noise control, good access roads, waste management, neighbourhood store/market, and healthcare centre in the neighbourhood. The contradictions observed in this study are similar to an earlier study's assertion that cities can mean opportunities to some but also constraints for others (Bendik, 2019). These findings suggest a complex relationship between gender identities and housing attributes; therefore, housing and city planners should consider the variations in gender identities to achieve gender equality and gender-sensitive urban planning.

4.2.2 Impact of Housing Attributes on Domestic Tasks

The results of the gender aggregated responses on the impact of housing attributes on domestic tasks revealed that electricity (MS 4.46) and water supply (MS 4.41), privacy (4.35), waste disposal (MS 4.31), as well as access roads (MS 4.30), had a high impact on domestic tasks (See Table 5). Likewise, landscaping, ceiling/wall finishes, and neighbourhood schools' presence moderately impacted domestic tasks. Since housing satisfaction reflects the degree to which occupants feel that their housing is helping them to achieve their goals (Jiboye, 2012), the provision and quality of highly impactful housing attributes are essential.

In addition, both gender similarities and gender differences were found in this current study. The following housing attributes were found to have a high impact on domestic activities across all the gender categories, indicating gender similarities: adequacy of internal space, adequacy of external space, access roads, waste disposal, electricity supply, water supply, quality of building materials, natural ventilation, and privacy. These findings imply that these listed housing attributes have a significant influence on domestic tasks done by home occupants regardless of gender categories. Therefore future housing projects should consider including these gender-neutral attributes in driving housing satisfaction across the gender divide. Furthermore, gender-neutral housing can help accelerate the pace of achieving sustainable cities which work for everyone, according to guidance notes in the submission of UN Habitat-Women (2020).

Meanwhile, the internal design of spaces, noise control, type of floor finishes, type of ceiling and wall finishes, susceptibility of the building to weather, number of bathrooms, availability of neighbourhood market, school and healthcare centre, distance to work, and access point for public transport received mixed responses across the gender categories, indicating gender differences. For instance, only feminine females (FF) reported the availability of neighbourhood schools and markets as having a high impact on their domestic tasks (in each case, D=0.02 while D values for other gender categories were negative). This finding highlights a possible link between the Frequency of performing domestic tasks and the importance placed on the stated housing attributes. This result supports the findings of the Global Platform for Sustainable Cities (2021) that locating new housing developments close to markets and manufacturing centres can provide women with more job opportunities. Furthermore, good-quality school environments reduce the domestic task of women, as well as resulting in productive schooling for children and reduce their absenteeism from school due to health problems: for example, better floors (like concrete floors) instead of dirt floors reduces the rates of diarrhoea, anaemia and parasitic infestation in children (Global Platform for Sustainable Cities, 2021).

Table 5: Perceived impact of housing attributes on domestic activities concerning gender identity

	Housing attributes <i>1 = No impact at all (≥ 1.00 and ≤ 1.80); 2 = Low (≥ 1.81 and ≤ 2.60); 3 = Moderate (≥ 2.61 and ≤ 3.40); 4 = High (≥ 3.41 and ≤ 4.20), and 5 = Very high impact (≥ 4.21 and ≤ 5.00)</i>	MS (N=172)	Deviation (D) +D = high impact; -D = low impact				
			MM	MF	MA	FF	FA
1	Electricity supply	4.46	1.16	0.76	0.36	0.50	0.36
2	Water supply	4.41	1.16	0.43	0.37	0.56	0.34
3	Privacy	4.35	1.16	0.54	0.18	0.63	0.04
4	Method of waste disposal	4.31	1.16	0.47	0.16	0.33	0.27
5	Access roads	4.30	1.16	0.28	0.34	0.25	0.31
6	Quality of building materials	4.30	1.16	0.39	0.32	0.16	0.29
7	Natural ventilation	4.25	1.16	0.08	0.29	0.38	0.18
8	Adequacy of internal space	4.23	1.16	0.20	0.29	0.22	0.10
9	Adequacy of external space	4.17	1.16	0.20	0.18	0.10	0.03
10	Number of bathrooms	4.14	1.16	0.12	0.11	0.19	-0.08
11	Internal design	4.11	1.16	0.05	0.15	-0.03	0.07
12	Natural lighting	4.18	1.16	-0.03	0.26	0.11	0.23
13	Distance to work	4.10	1.16	-0.07	0.16	0.38	0.12
14	Availability of healthcare facilities	4.05	1.16	-0.38	0.10	0.22	-0.01
15	Distance to access point for public transport	4.00	1.16	-0.38	0.03	0.36	-0.16
16	Noise control	3.76	-0.84	0.08	0.23	0.33	-0.19
17	Availability of neighbourhood market	3.62	-0.84	-0.12	-0.06	0.02	-0.8
18	Susceptibility of a building to weather	3.60	-1.84	0.16	0.05	0.22	0.25
19	Availability of neighbourhood school	3.50	-0.84	-0.56	-0.06	0.02	-0.23
20	Type of floor finishes	3.40	-1.84	-0.20	0.03	0.27	-0.03
21	Type of ceiling and wall finishes	3.40	-1.84	-0.18	0.00	0.00	-0.14
22	Type of landscaping	3.35	-1.84	-0.28	-0.14	-0.09	-0.05

*** NOTE: $M_{GBR} = 3.84$

Key: MM=Male Masculine, MF=Male Feminine, MA=Male Androgynous, FF=Female Feminine, FA=Female Androgynous

4.3 Affect (Desirability of Housing Attributes)

According to the gender-aggregated data presented in Table 6,, the most desired housing attribute by respondents was en-suite bedrooms (MS 4.30). Other attributes in their order of desirability were fully detached plots (single family living in a compound) (MS 4.24), colourful

walls/floor finishes (MS 4.24), and large bedrooms (MS 4.20). On the other hand, densely populated dwelling apartment buildings were reported to be undesirable.

Furthermore, some gender similarities and gender differences were found in the type of housing situations respondents desired. A positive deviation value indicates high desirability, while a negative deviation value indicates low desirability. The busy neighbourhood was the only attribute for which there was a gender difference in the level of desirability; only the Male-Masculine gender group found it highly desirable, while others reported a shallow level of desirability. There was high desirability across all the gender categories for the following attributes indicating gender similarities: single-family dwelling in a private compound, single-floor building, large windows, large living room, large bedrooms, large kitchen, utterly green compound, colourful wall and floor finishes and bathroom/toilet in every bedroom. Findings indicate gender similarities in respondents' dissatisfaction with having neighbours within their premises. Housing attributes such as two families dwelling in the same compound, more than two families dwelling in the same compound, multiple-floor buildings, and mixed apartments were all found to have low desirability across all the gender categories.

Table 6: Level of the desirability of housing attributes and housing situations in relation to gender identity

	Housing attributes <i>1 = Very undesirable (≥ 1.00 and ≤ 1.80); 2 = Undesirable (≥ 1.81 and ≤ 2.60); 3 = Neutral (≥ 2.61 and ≤ 3.40); 4 = Desirable (≥ 3.41 and ≤ 4.20), and 5 = Very desirable (≥ 4.21 and ≤ 5.00)</i>	MS (N=172)	Deviation (D) +D = high desirability; -D = low desirability				
			MM	MF	MA	FF	FA
1	Bathroom/toilet in every bedroom	4.30	1.5	0.7	0.4	0.8	0.6
2	Single-family dwelling in a private compound	4.24	1.5	0.5	0.4	0.8	0.5
3	Colourful wall and floor finishes	4.24	1.5	0.6	0.3	0.8	0.5
4	Large kitchen	4.24	1.5	0.3	0.3	0.9	0.7
5	Large bedrooms	4.20	1.5	0.6	0.4	0.6	0.4
6	Large living room	4.18	1.5	0.4	0.4	0.7	0.4
7	Large windows	4.06	1.5	0.3	0.3	0.4	0.3
8	The kitchen is close to the sitting room	3.90	1.5	0.0	0.1	0.2	0.2
9	Large compound	3.84	1.5	0.7	0.5	0.8	0.4
10	Completely green compound	3.84	0.5	0.5	0.2	0.5	0.0
11	Single floor building	3.80	0.5	0.2	0.2	0.6	0.2
12	Busy neighbourhood	3.14	1.0	-0.8	-0.7	-0.9	-0.4
13	Two families dwelling in one compound	2.90	-1.0	-0.5	-0.9	-0.1	-0.5
14	Two-floor building	2.88	-1.0	-0.5	-0.4	-0.7	-0.5
15	Multiple floor building	2.46	-1.0	-1.2	-0.9	-1.2	-0.9
16	The kitchen is hidden away deep inside the house	2.36	-2.5	-0.9	-0.8	-0.8	-0.7
17	Mixed apartments	2.24	-2.5	-1.2	-0.9	-1.3	-0.5
18	More than two families in one compound	2.06	-2.5	-1.3	-1.0	-1.4	-1.0

** Note: $M_{GBR} = 3.5$

Key: MM=Male Masculine, MF=Male Feminine, MA=Male Androgynous, FF=Female Feminine, FA=Female Androgynous

5.0 DISCUSSION AND RECOMMENDATION

The findings of this study show differences in the gender identities of staff. The dominant gender identity was androgynous, a mixture of masculine and feminine traits. This result is consistent with an earlier study reporting that many males and females are classified as androgynous in an older Brazilian population (Carver *et al.*, 2013). This result shows that individuals vary in their gender identities regardless of biological sex; being male does not necessarily translate into being masculine, nor does being female necessarily translate into being feminine, as many individuals possess a combination of masculinity and femininity. This finding implies that issues which are typically classified as feminine and therefore regarded as pertaining only to females may, in actual sense, apply to some men and vice versa; thus, generalisations based on stereotyped assumptions about gender would be incorrect. Gender differences have been found to exist in various aspects of housing and the built environment, such as spatial experience, transportation patterns, work opportunities, work-family balance, housing preferences and satisfaction, use of space and relations within space. The assertion that men and women experience and interact with their housing differently is supported by this present study. This is because the responses to housing attributes found similarities and differences based on gender (male/female) and gender identity. This aligns with earlier studies (Asiyanbola, 2012; Shawki, 2007; Shrestha, 2000). Gender similarities and differences were found in the importance of housing attributes, the perceived impact of housing attributes on domestic tasks, and the desirability of housing attributes. Individual gender identities were found to be associated with the types and frequencies of performing domestic gender roles (domestic tasks); therefore, since each domestic gender role (task) is supported by specific attributes of housing, responses to the various housing attributes were also found to be gendered. Attributes required to support frequently performed domestic tasks were perceived to have a high impact on such domestic tasks and were rated highly important by those who most frequently perform the tasks in question. This finding implies architects because a gender-integrated design process could be adopted to help address inequality in the design of spaces and amenities. Housing attributes, including environmental components, should be designed such as to support the different domestic gender roles of diverse users adequately and likewise be used as tools to reduce the workload of women and free their time from unpaid domestic work, thus encouraging paid productive work to improve gender equality in the society at large.

For example, the absence of essential services such as good water supply means additional work and time spent sourcing for it by women and young girls who are usually allocated the responsibility.

Similarly, equal gender participation/input in all stages of housing projects, such as university staff housing, should be encouraged from brief taking through use and maintenance to help achieve gender equality in meeting the needs of diverse users. Feedback mechanisms should also be developed to assess the impact of design on gender roles to inform future design projects; for example, periodically running a gender-disaggregated post-occupancy evaluation. The findings of this current study show that responses to housing attributes are gendered and may be different or similar along the lines of individual gender identities. In addition, the resulting gender differences or similarities are also associated with the type of housing attributes required for the gendered domestic tasks (domestic gender roles). Since different domestic roles are carried out in different spaces, require different levels of support services and infrastructure, and shape specific patterns of activities in daily life. It implies that based on gender, individuals tend to relate differently to the different spaces, features, services and infrastructure that make up housing.

6.0 CONCLUSION

This study affirms that the role of gender in individual interactions with, and responses to housing attributes, transcends the mere characteristic of being male or female to individual gender identities and domestic gender roles. In conclusion, rather than a clear distinction between women and men in their interaction with and responses to housing attributes, this study found that overlaps exist as a result of variations in the gender identities of individuals regardless of their biological sex. This is such that the role of gender is based on the degree of masculinity or femininity which individuals possess, which is also linked with the type and Frequency of domestic tasks which individuals perform and cannot be isolated from the housing attributes required for different tasks; culminating in gendered responses to the attributes in question. However, certain housing attributes were found to be essential to both men and women, women perform domestic tasks and at high Frequency, and as such specific housing attributes necessary for the tasks were strikingly more vital to them (for example, neighbourhood schools and markets, neighbourhood roads and walkways as well as access to public transport). Based on the findings of this study, there is a need for the use of gender-responsive designs, as well as gender mainstreaming in policies relating to housing. By making provisions to cater equally to masculine and feminine needs, the needs of diverse individuals, whether male or female, will be addressed. Therefore, the study recommends that adequate attention should be given to gender in housing design, policy and process, and gender should be introduced into design education in learning institutions.

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