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ANALYSIS OF HOUSING INTERIOR SPACES PREFERENCES OF CIVIL WORKERS IN ABUJA

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Abstract
Understanding housing interior space preferences is essential for improving residential satisfaction and the effectiveness of public housing provision. This study examines the interior space preferences of civil workers in Abuja, Nigeria, focusing on nine optional and tradable spaces within dwelling units: dining space, laundry, store, ensuite bedroom, toilet separated from the bedroom, study room, prayer room, ante room, and visitors' toilet. By situating these spaces within the concept of user-driven and flexible housing design, the study contributes to the theoretical understanding of how optional interior spaces function as negotiable elements in residential layouts. A quantitative research approach was adopted using structured questionnaires administered to Federal civil servants in ministries in Abuja. A sample size of 2,133 respondents was drawn from a population of 40,884 using the Slovin formula, while respondents were selected through simple random sampling. Descriptive statistics and inferential analysis using the Chi-square test were employed to examine preferences and the influence of income levels on interior space choices. The results indicate strong preferences for dining spaces, ensuite bedrooms, stores, ante rooms, and visitors' toilets, reflecting occupants' needs for functionality, privacy, and social interaction. In contrast, laundry spaces, study rooms, prayer rooms, and toilets separated from bedrooms were less preferred. The findings demonstrate that income significantly shapes preferences for most interior spaces and highlight the importance of incorporating tradable interior spaces in housing design. The study therefore recommends flexible, user-centered housing designs and income-sensitive housing policies to enhance residential satisfaction and the effectiveness of government housing schemes in Abuja.

Keywords
Interior space preferences, Residential satisfaction, Civil workers' housing, User-centered housing design, Housing customisation

1. INTRODUCTION

Rapid urbanisation in Abuja has led to a sharp rise in housing demand in recent years. This surge in the city's population and housing needs is largely driven by factors such as population growth, economic expansion, and increased migration, all of which place significant pressure on urban infrastructure and housing markets [1]. [2] projects that Africa's urban population will exceed 300 million by 2050, further intensifying the strain on already overburdened housing systems. This accelerated urban growth has revealed severe housing shortages, contributing to what many scholars describe as an emerging housing crisis across much of the continent [3].

[4] observes that despite the increasing volume of housing developments, many designs lack cultural sensitivity and fail to reflect the socioeconomic realities of end users and local contexts. Contemporary housing projects are often shaped by global architectural trends that prioritise standardisation over cultural relevance, resulting in a homogenised built environment [4]. Such approaches frequently neglect local cultural practices, social norms, and values, thereby distancing residents from their living environments and producing spaces that conflict with everyday patterns of living and social interaction [5]. In many African cities, including the Federal Capital Territory, Abuja, Nigeria, this misalignment between design and socioeconomic context has exacerbated housing challenges, as uniform design solutions have proven inadequate in addressing the diverse needs of urban communities [1].

Moreover, housing interior spaces constitute a critical component of residential design. The spatial configuration of housing is closely linked to the socioeconomic dynamics of its occupants, reflecting how people live, interact, and organise daily activities. This strong relationship between space and occupants' socioeconomic characteristics is well established in architectural discourse, where buildings are understood as expressions of the cultural and social practices of their users. Rather than serving solely functional

purposes, buildings also function as cultural artefacts that embody the values, beliefs, and traditions of their inhabitants [6]. [6] further examine the profound connection between spatial organisation and sociocultural values, with particular emphasis on African contexts. Their work highlights that many African societies maintain distinctive socio-spatial practices grounded in communal living, which continue to shape contemporary housing layouts despite the enduring influence of colonial architectural models.

Global architectural trends continue to shape housing layouts in regions with strong sociocultural traditions, including Abuja. The proliferation of standardised residential designs, largely influenced by Western architectural models and economic globalisation, has contributed to a degree of homogenisation in housing forms. Nevertheless, these imported designs are often modified to ensure cultural and socioeconomic appropriateness within local contexts. For instance, in Nairobi, study by [7] shows that contemporary high-rise apartment buildings commonly incorporate domestic servant quarters (DSQs) to accommodate the prevailing practice of employing live-in domestic workers. Choi's examination of spatial arrangements in Kenyan apartment designs underscores the ongoing importance of DSQs in preserving household privacy and supporting cultural norms through the spatial separation of domestic staff from core family living spaces. Such design adaptations demonstrate the persistence and adaptability of local sociocultural values despite the influence of global architectural trends.

Residential satisfaction is strongly shaped by the spatial organisation of dwelling units, which comprises several interrelated factors. [8] describe overall layout as the arrangement of rooms and the relationships between them. An effective layout enhances spatial flow, ensures visual privacy, and supports a healthy indoor environment by minimising awkward or unhygienic transitions between spaces. When housing layouts are well structured, they improve functional efficiency by enabling residents to move easily between different activities. Efficient circulation, achieved through appropriate furniture arrangement and well-considered door-opening relationships, further supports ease of movement and helps reduce stress and frustration among occupants [9]. In addition, adequate space provision for daily activities, along with sufficient storage solutions, encourages orderliness and minimises clutter, thereby making a positive contribution to overall residential satisfaction [10].

Housing preference and choice have gained increasing scholarly attention, both as tools for forecasting future housing trends and for assessing past patterns of residential decision-making [11]. [12] note that housing preference and choice remain widely researched across numerous academic disciplines. Preference may be understood as an individual's response when making decisions among several available alternatives [13]. Within housing studies, preference and choice are often used interchangeably or regarded as closely related concepts [14], with the appropriate combination of preferences contributing to the creation of a high-quality living environment [15].[11] further distinguish between the two concepts by defining housing preference as the relative attractiveness of a housing option, while housing choice refers to the actual decision or behaviour of the property buyer. Similarly, [16] argues that although preference and choice are frequently treated as identical, they are not the same, even though they are closely related. Housing preference therefore reflects how individuals prioritise various housing attributes based on their socioeconomic characteristics [17]. Consequently, a wide range of factors influencing housing preferences and decisions has been extensively examined. These include intrinsic factors, such as cost and size, as well as extrinsic factors, including exterior design, spatial qualities, neighbourhood characteristics, and other locational attributes [18]. Variations in housing preferences are partly attributable to differences in housing attributes across locations and social contexts, making it difficult to generalise research findings and underscoring the need for context-specific studies of housing preferences [11]; [18].

Within this broader discourse, interior space preference represents a specific dimension of housing preference that focuses on how occupants prioritise different functional spaces within a dwelling unit. Interior space preferences are shaped by an interplay of socioeconomic capacity, cultural practices, household composition, and lifestyle patterns [19]. In residential design, some spaces are considered essential for basic habitation, while others are regarded as optional or tradable spaces that households may include, exclude, or modify depending on their needs and available resources. Such optional spaces often reflect deeper sociocultural values relating to privacy, social interaction, religious practices, and domestic organisation. Examining these spaces therefore provides insight into how residents negotiate spatial priorities within the constraints of housing design, particularly in rapidly urbanising contexts where standardised housing layouts may not adequately respond to diverse user needs.

Housing internal spaces preference is an aspect of housing preference that has received a very little attention of researchers over the years. In residential architecture, the configuration of internal spaces plays a vital role in shaping occupants' well-being and everyday experiences. Key considerations such as functional efficiency, privacy, and spatial layout are especially critical for ensuring comfort and usability in high-density urban settings like Abuja [20]. Preferences for particular types of internal spaces within a dwelling are influenced by an interconnected set of social, economic, and cultural factors. Previous studies have consistently shown strong links between sociocultural characteristics and preferences for housing interior

spaces [8]. [6] further argue that choices related to housing interior spaces are closely associated with both socioeconomic and sociocultural conditions. Several studies have also demonstrated relationships between individual preferences, social expectations, and the perception that a home's interior reflects the identity and values of its owner [21]. [8] note that interior spaces can carry different meanings for people from diverse cultural backgrounds. For example, a Hausa man from northern Nigeria may have high preference for a larger number of bedrooms with a high level of privacy, along with a very spacious living room, rather than incorporating spaces such as an anteroom, dining area, study, or prayer room. This preference may be linked to cultural and religious practices, including polygamous family structures and reliance on neighbourhood mosques for religious activities. In contrast, an Igbo man from eastern Nigeria may prefer fewer bedrooms while placing greater emphasis on spaces such as a study, dining area, and anteroom, reflecting differing cultural norms and lifestyle patterns. Nonetheless, rapid urbanisation and globalisation have significantly altered both the physical form and cultural expressions of housing and interior spaces, particularly in fast-growing cities such as Abuja, Nigeria's capital [22].

Psychologists recognise that individual needs and desires are inherently unique, shaped by differences in personal experiences, perceptions, beliefs, and objectives. This perspective equally applies to housing preferences, which are fundamentally goal- and value-driven [23]. Nevertheless, there are observable similarities in the preferences and needs of specific social groups whose members share comparable experiences, beliefs, and perceptions [23]. As a result, the relevance and validity of housing preference studies are often population-specific. In Nigeria, the housing preferences of government workers remain under-researched, despite this group representing a population with shared experiences, common housing values, and similar housing needs arising from the nature of their employment and their unique employer. A significant number of past government housing schemes designed for this segment of the workforce failed largely due to the absence of prior investigations into their housing preferences [24]. Given that government workers constitute a substantial proportion of the national workforce, a focused study of their housing preferences would provide valuable insights for policymakers and housing professionals, supporting the development of effective policies and a more sustainable housing market. Although housing preference and choice continue to attract considerable scholarly attention across various disciplines [12], limited research has specifically addressed workers' preferences regarding housing interior spaces. It is against this background that the present study examines the housing interior space preferences of Federal civil service workers in Abuja, Nigeria.

Despite extensive research on general housing preferences, most studies focus on broad housing attributes such as location, dwelling type, cost, and exterior design (Elsheshtawy, 2022; Abiodun & Alabi, 2023). Few have examined the configuration of optional or tradable interior spaces such as dining areas, study rooms, prayer rooms, or ante rooms and how these spaces reflect occupants' socio-cultural practices and lifestyle needs [25]; [26]. Focusing on interior spaces fills this critical gap because these spaces directly shape daily routines, privacy, cultural activities, and social interactions, offering a more contextually grounded and behaviourally meaningful perspective on residential satisfaction .

It is against this background that the present study examines the housing interior space preferences of Federal civil service workers in Abuja, Nigeria. Only optional interior spaces that can be traded off due to socioeconomic and sociocultural factors are examined. These include dining, anteroom, ensuite bedroom, laundry, store, study, prayer room, toilet separated from bedroom, and visitors' toilet.

Optional interior spaces, such as dining areas, ante rooms, and visitors' toilets, support communal interaction and hospitality, while private spaces like ensuite bedrooms, study rooms, and prayer rooms provide personal or household-specific privacy [19]; [26]. The configuration of these spaces influences patterns of communication, cooperation, and social support within households, thereby contributing to family cohesion and intra-household harmony. Thus, interior spatial preferences reflect not only functional needs but also social and cultural values that sustain household relationships.

Figure 1 illustrates the relationships between income levels, sociocultural factors, and residential interior space preferences. The model shows that both income and sociocultural factors are expected to directly influence the prioritisation of optional interior spaces within dwelling units. Higher income may enhance the ability to afford certain spaces, while sociocultural norms and household practices determine which spaces are valued or prioritised. The figure also indicates a potential interaction effect, where the influence of sociocultural factors on interior space preference may vary depending on income level. Optional interior spaces considered in this study include dining, ensuite bedroom, laundry, store, study, prayer room, ante room, toilet separated from bedroom, and visitors' toilet, as identified in the previous paragraph.

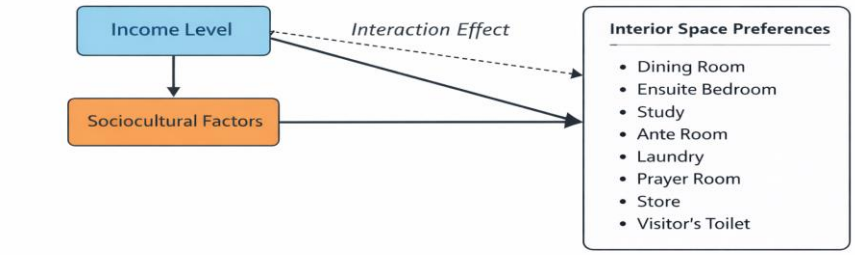

Figure 1: Conceptual model of the relationship between income, sociocultural factors and interior spaces preferences

2. MATERIALS AND METHOD

A survey research design was employed for this study, with data collected through the use of a structured questionnaire. The instrument was divided into two sections: Section A captured the demographic characteristics of the respondents, while Section B focused on their preferences regarding housing interior spaces. The questionnaire was pilot-tested with seven participants and subsequently revised several times based on the feedback received. This iterative process served to validate the research instrument and ensure its reliability.

The study population comprised Federal civil service workers employed in all Federal Ministries in Abuja, excluding parastatals, due to time and financial limitations (see Table 1). This group of workers occupies the lower end of the hierarchy within the Federal civil service and experiences more severe housing challenges than other categories of workers in Abuja. A representative sample of 2,133 was derived from the total population of 40,884 Federal civil servants in Abuja using Slovin's formula, which is widely recognised as a practical and statistically reliable method for determining sample sizes in large populations where population variability is unknown [27]. The formula, applied with a 5% margin of error (Equation 1), ensures adequate precision for the study (see Table 1).

$$(n = N/[1 + N(e)^2]) \quad (1)$$

All Federal Ministries in Abuja were included in the survey, and questionnaires were distributed to workers in each ministry using a simple random sampling technique. Microsoft Excel was used to generate random numbers for the list of employees in each of the Federal ministries. The lists were sorted by the random values, and the employees that were first on the lists up to the number that is equivalent to the sample size foe each of the Federal ministries were used. The collected data were analysed using descriptive statistics in the form of percentages, as well as the chi-square test.

Table 1: Sample Size

S/N	Federal Ministries in Abuja	Number of Staff	Sample Size
1	Federal Ministry of Agriculture and Rural Development	1756	81
2	Federal Ministry of Aviation	1432	78
3	Federal Ministry of Commerce and Tourism	1510	79
4	Federal Ministry of Communications	1602	80
5	Federal Ministry of Defense	1508	79
6	Federal Ministry of Education	1708	81
7	Federal Ministry of Environment	1398	78
8	Federal Ministry of Federal Capital Territory	1221	75
9	Federal Ministry of Finance	1572	80
10	Federal Ministry of Foreign Affairs	1369	77
11	Federal Ministry of Health	1701	81
12	Federal Ministry of Industries, Trade and Investment	1565	80

13	Federal Ministry of Information and Culture	1498	79
14	Federal Ministry of Interior	1467	79
15	Federal Ministry of Justice	1385	78
16	Federal Ministry of Labour and Employment	1521	79
17	Federal Ministry of Petroleum Resources	1682	81
18	Federal Ministry of Niger Delta Affairs	1305	77
19	Federal Ministry of Science and Technology	1499	79
20	Federal Ministry of Solid Minerals	1381	78
21	Federal Ministry of Special Duties	1297	76
22	Federal Ministry of Transportation	1582	80
23	Federal Ministry of Water Resources	1557	80
24	Federal Ministry of Women Affairs	1206	75
25	Federal Ministry of Power, Works and Housing	1810	82
26	Federal Ministry of Youth and Sports	1640	80
27	Federal Ministry of Budget and National Planning	1712	81
	Total	**40884**	**2133**

Source: IPPIS (2024) and Author's Compilation (2024)

3. RESULTS AND DISCUSSION

Out of 2,133 copies of questionnaire administered, 1749 retrieved and valid. This translates to approximately 82% return rate, which is a good representation of the population.

3.1 Respondents' Demographic Profile

3.1.1 Gender of the Workers

More than half of the respondents were male (61.1%), while females accounted for 38.9% of the sample (Figure 2). This suggests a higher representation of males within the Federal Civil Service in Abuja compared to their female counterparts. However, this finding alone is insufficient to conclude that males outnumber females across the entire Nigerian Civil Service Commission. The observed disparity in gender distribution among Federal civil service workers may partly reflect cultural characteristics associated with the Hausa population, where women are traditionally less engaged in formal employment and more involved in domestic responsibilities, while men are more likely to participate in paid work outside the home. In addition, the predominance of male respondents aligns with the observation by [28] that males often constitute the majority of participants in housing-related studies. From this result, it can be inferred that the dominance of male respondents may have implications for housing typology choices, as gender composition can influence housing preferences and related decision-making.

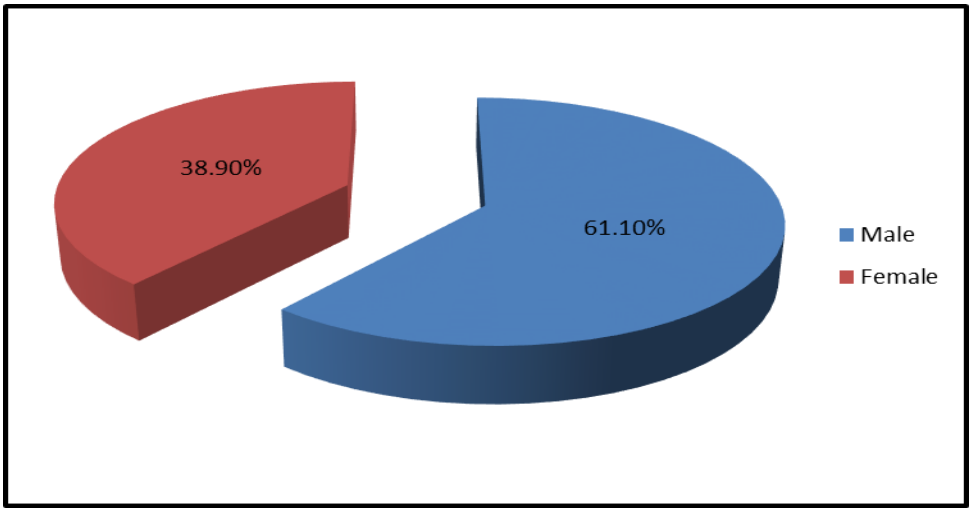

Figure 2: Gender of the Workers
Source: Author's Field Survey, 2024

3.1.2 Age distribution of the workers

An analysis of the age distribution of Federal civil service workers indicates that 40.3% of the respondents were between 36 and 45 years, 21.7% were aged 26–35 years, 18.2% fell within the 46–55 age bracket, 14.7% were above 55 years, and 5.2% were between 18 and 25 years, as shown in Table 2. The predominance of respondents within the 36–45 age group reflects the age requirements and employment regulations of the Nigerian Civil Service Commission, which also apply to the Federal civil service in Abuja. This distribution suggests that the majority of respondents are mature adults, thereby increasing the likelihood of obtaining reliable information on housing preferences in the study area. It can further be inferred that many workers within these age categories are married or of marriageable age, with family responsibilities that necessitate the provision of adequate and satisfactory housing.

Table 2: Age Distribution of the Workers

Age Groups	**Frequency (N)**	**Percentage (%)**
Above 55years	257	14.7
46 - 55 years	318	18.2
36 - 45 years	704	40.3
26 - 35 years	379	21.7
16 - 25 years	91	5.2
Total	**1749**	**100.0**

Source: Author's Field Survey, 2024

3.1.3 Educational level of the workers

With respect to educational attainment, 82.4% of the respondents in active civil service possessed tertiary qualifications, namely Higher National Diploma (HND) or a first degree. This was followed by respondents with Nigerian Certificate in Education (NCE) or Ordinary National Diploma (OND) at 9.9%, those with secondary school education at 3.9%, and those with primary school education or no formal education at 1.9% each. As illustrated in Figure 3, the distribution clearly shows that respondents with tertiary education constitute the overwhelming majority of the study population. These findings corroborate the assertion by [29] that civil servants with tertiary education constitute a significant proportion of the Nigerian Civil Service workforce. Furthermore, the results indicate variations in educational attainment that correspond to differences in staff stratification, placement, and assigned job roles within the service. It is therefore important to note that disparities in educational background are likely to influence housing preferences, including expectations regarding ancillary facilities and residential amenities.

Figure 3: Educational Level of the Workers
Source: Author's Field Survey, 2024

3.1.4 Marital status of the workers

In terms of marital status, the majority of the respondents (81.4%) were married, followed by widowed individuals (9.8%), divorced respondents (5.4%), while single respondents constituted 3.4% of the sample (Table 3). The predominance of married respondents supports the observation by [28] that a large proportion of the population is married. It also aligns with the assertion of [30] that key household events, such as marriage and cohabitation, significantly influence decisions related to first-time homeownership. Accordingly, the housing needs and requirements of married workers, often involving multiple household members living together as a family, should be carefully considered in the architectural design of their homes to ensure adequacy and functionality.

Table 3: Marital Status of the Workers

Marital Status	Frequency (N)	Percentage (%)
Married	1424	81.4
Widow/Widower	171	9.8
Divorced	94	5.4
Single	60	3.4
Total	**1749**	**100.0**

Source: Author's Field Survey, 2024

3.1.5 Employment status and the grade levels of the workers

The employment status of the respondents was categorised into full-time, part-time, and contract appointments. As presented in Table 4, the majority of the workers (81.8%) were employed on a full-time basis, while 18.0% were part-time staff and only 0.2% were contract workers. The predominance of full-time employees indicates that the sample provides a reliable representation for assessing housing preferences among Federal civil service workers in the study area.

Regarding grade levels, approximately 49.6% of the respondents fell within grade levels 01–09, followed by those on grade levels 10–14 (36.5%), while 14.0% were on grade level 15 and above, as also shown in Table 4. The variation observed between employment status and grade levels was statistically significant (χ^2 = 26.426, p = 0.000). A closer examination of employment categories further reveals that a substantial proportion of workers on full-time appointments are legally recognised and gazetted employees, making them adequately representative for a study of this nature. In contrast, part-time and contract staff in Federal Government establishments are not gazetted under the Nigerian Civil Service.

Table 4: Employment Status and the Grade levels of the Workers

Employment Status	Frequency (N)	Percentage (%)
Full time	1430	81.8
Part time	315	18.0
Contract	04	.2
Total	**1749**	**100.0**
Grade Levels	**Frequency (N)**	**Percentage (%)**
01-09	867	49.6
10-14	638	36.5
15 and above	244	14.0
Total	**1749**	**100.0**

Source: Author's Field Survey, 2024

3.1.6 Monthly income of the workers

Regarding the monthly income of the respondents, 30.3% earned between ₦91,000 and ₦160,000 per month, while 27.2% received ₦161,000 to ₦230,000. Those earning above ₦231,000 accounted for 21.4%, and respondents earning between ₦30,000 and ₦90,000 constituted 21.0% of the sample (Figure 4). This finding supports the general public perception that Federal civil service workers earn relatively substantial monthly incomes, as the Federal Government establishes the benchmark for the national minimum wage across the states of the federation.

It is also important to note that at the time the field survey was conducted, Nigeria's national minimum wage stood at ₦30,000. Consequently, workers' monthly income levels are likely to have a significant influence on housing choices, whether to rent, purchase, or build, given that housing investment is highly capital intensive.

Figure 4: Monthly Income of the Workers
Source: Author's Field Survey, 2024

3.1.7 Household size of the workers

The analysis indicates that the largest proportion of households (43.2%) comprised 3–4 persons, followed by households with 5–6 members (28.2%) and those with 1–2 members (20.0%). Households with 7–8 persons accounted for 3.7%, while those with more than eight members constituted 1.6% of the sample (Table 5). The inclination toward larger family sizes in Nigeria appears to be gradually decreasing due to factors such as unemployment, rising living costs, and economic recession, among others. Consequently, household size is likely to influence housing needs and the associated preferences for residential space and design.

Table 5: Household Size of the Workers

Household sizes	Frequency (N)	Percentage (%)
1 – 2 persons	349	20.0
3 – 4 persons	813	46.5
5 – 6 persons	494	28.2
7 – 8 persons	65	3.7
Above 8 persons	28	1.6
Total	**1749**	**100.0**

Source: Author's Field Survey, 2024

3.1.8 Tribe of the workers

Approximately 43.2% of the respondents were from the Hausa/Fulani ethnic group, followed by Yoruba (29.8%), Igbo (21.6%), while 5.4% belonged to other ethnic groups outside the three major classifications in Nigeria (Figure 5). This distribution aligns with the reconnaissance survey conducted at the Federal Ministry of Employment and the Federal Ministry of Finance, which indicated that Hausa/Fulani workers constitute a larger proportion of the Federal civil service workforce in Abuja compared to other ethnic groups. The inference drawn is that many Yoruba and Igbo workers currently in active Federal civil service migrated from their regions of origin to Abuja in pursuit of improved economic opportunities for themselves and their families. Given that Nigeria is a multi-ethnic society, it is therefore essential to assess housing preferences across diverse ethnic groups. This finding supports the argument by [11] that changes in demographic, socioeconomic, and sociocultural conditions within specific locations influence housing preferences and behaviour. It also aligns with the view of [31], who emphasises the importance of evaluating housing preferences in relation to cultural characteristics.

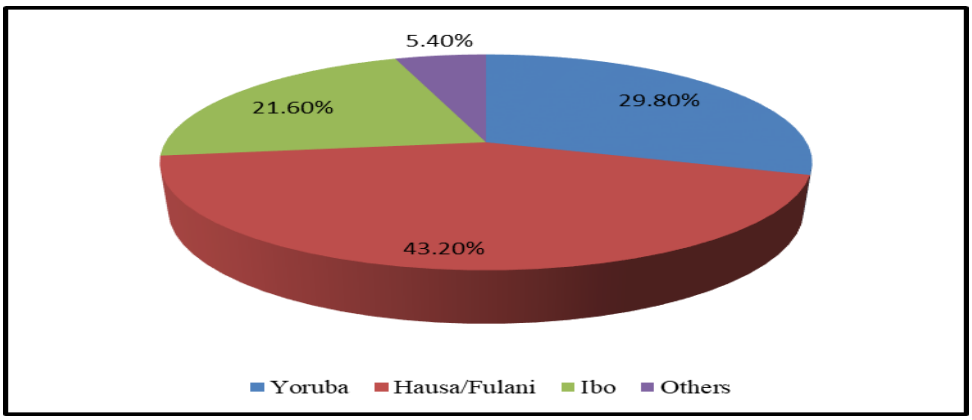

Figure 5: Tribe of the Workers
Source: Author's Field Survey, 2024

3.2 Analysis of housing interior space preferences of the respondents

The interior spaces of a building are very important aspect of housing preferences. Thus, this study investigates the interior spaces preferences of the Federal civil service workers in Abuja. The findings of the investigation are presented in the Table 6 below.

3.2.1 Dining area

The study revealed that 59.8% of the respondents had high preference for dining space, out of which low-income workers, middle-income workers, and high-income workers share are (29.0%), (22.1%) and (8.7%) respectively. This was followed by those with moderate preference (27.2%), where low-income workers, middle-income workers, and high-income workers account for 13.8%, 8.9% and 4.5% respectively, while 7.3% (1.8% and 5.5%) of all the workers across the three income groups had no preference for a dining space within the house; though, 5.7% of them did not disclose their preference for dining space. The significant test ($X^2 = 32.806$, $p = 0.000$) suggests a strong relationship between income and dining space preference. This means that preference for dining space increases with increase in income level.

3.2.2 Laundry area

It is evident from the study that preference for a laundry space was not a common phenomenon among the middle-income earners in the major Nigerian city. The results of analysis in Table 6 shows that the bulk (74.2%) of the respondents had no preference at all for laundry space, 6.8% did not prefer it, while 1.3% of them were indifferent in their opinion. On the contrary, 9.7% and 8.1% other respondents had moderate and high preferences for laundry space in their house. It is observed that low-income workers (34.0%) reject laundry spaces the most, which may be due to financial constraints. However, high-income workers (9.7%) are more likely to include laundry space. The strong p-value (0.000) indicates a significant difference in preferences based on income.

3.2.3 Storage room

Analysis shows that 55.5% and 35.5% of the respondents indicated high and moderate preferences respectively for a store in their apartment. However, 6.1% of them were indifferent on the need for a store space whereas, 1.5% had no preference, while 1.4% other respondents do not prefer a store at all respectively. It is noticed that low-income (27.8%) workers show the highest preference for store. However, preference decreases with income, with high-income at 8.0%. The significant test ($X^2 = 24.297$, $p = 0.002$) indicates that income influences store space preference.

3.2.4 Ensuite bedroom

The analysis of the preference for ensuite bedroom space by the respondents as presented in Table 6 shows that 46.4% highly preferred it. However, there were variations in the preference for Ensuite bedroom among other respondents. For example, 37.7% indicated a moderate level of preference, while 6.3%, 6.0% and 3.6% did not prefer, were indifferent and did not prefer it at all. This means that 84.1% (46.4% and 37.7%), which represents larger percentage of respondents, preferred ensuite bedroom space. It could be deduced that all categories of income workers prefer mostly en-suite bedroom. This implies that majority of the respondents had taste for modern design.

3.2.5 Toilet separated from bedroom

Architectural design of building whereby toilet is separated from bedroom is gradually fading off. Hence, results in Table 6 revealed that 51.2% of respondents did not prefer toilet separated from bedroom, 30.7% did not prefer it at all, while 7.1% of them had high preference, 5.7% were indifferent in their opinion and 5.3% had moderate preference for toilet to be separated from bedroom space. Low-income (13.8%) and medium-income (9.9%) show stronger preference than high-income (4.3%). The p-value (0.000) confirms significant income-based differences.

3.2.6 Study area

Provision for a study space was one of the optional required spaces in the residential design. As shown in Table 6, 53.2%, 22.1% and 11.4% of the respondents indicated no preference at all, no preference and highly preference for a study space respectively. On the other hand, 9.9% and 3.4% of them had moderate preference and indifferent in their preference for it respectively. It is observed that low-income (26.6%) reject it the most, while high-income (7.9%) show some interest. The high p-value (0.632) indicates no significant association between income and preference for study spaces. The inference drawn is that respondents do not want study room, probably because they are workers and no long studying.

3.2.7 Prayer room

The preference for a prayer room as revealed in Table 6 shows that 34.4% of the respondents did not prefer a prayer room at all, followed by 29.7% who had no preference, while 17.1% had high preference for a prayer room. In contrast, 15.3% other respondents had preference, while 3.4% claimed they do not have preference for it. It is observed low-income workers (15.9%) and medium-income workers (13.6%) had a moderate preference for prayer room. However, high-income (5.0%) preferred it the least. The p-value (0.004) shows a statistically significant income-related difference.

3.2.8 Ante room

Ante room space in the design of residential apartment serves different purposes premised on the need for its provision. Results in Table 6 shows that 34.7%, 32.9% and 20.4% disclosed their preference for ante room as highly preferred, preferred and not preferred respectively. On the other hand, 9.3% were indifferent in their opinion, while 2.6% do not prefer ante room at all. The p-value (0.000) confirms a strong income-based difference in the preference of ante room.

3.2.9 Visitors' toilet

Visitors' toilet (rest room) or convenience was a very important facility needed for all in which visitors are no exemption. A well maintained and designated toilet for the use of visitors when they visit at residences could enhance healthy living. Results in Table 6 shows that 57.9% of respondents had high preference,

33.1% had moderate preference whereas, 4.7% and 1.0% had little preference and no preference at all, while 3.3% of them were indifferent. It is observed that low-income workers (28.6%) and medium-income workers (21.2%) showed strong preference for visitor's toilet. However, high-income workers (8.1%) had lower preference for visitor's toilet. The p-value (0.260) indicates no significant relationship between income and preference for visitor toilets.

Table 6: Preferences for Housing Interior Spaces

Housing Facilities	Workers' Income Groups	NPAA (%)	NP (%)	I (%)	P (%)	HP (%)	Total (%)	Chi-Square	Remark
Dining Space	Low	1.1	3.2	2.5	13.8	29.0	**49.6**	X^2 = 32.806 ,	S
	Medium	0.4	2.0	3.1	8.9	22.1	**36.5**	p = 0.000	
	High	0.3	0.3	0.1	4.5	8.7	**14.0**		
	Total	**1.8**	**5.5**	**5.7**	**27.2**	**59.8**	**100.0**		
Laundry Space	Low	34.0	4.6	0.7	5.8	4.6	**49.6**	X^2 = 59.778 ,	S
	Medium	30.5	1.5	0.5	2.3	1.8	**36.5**	p = 0.000	
	High	9.7	0.7	0.1	1.5	1.9	**14.0**		
	Total	**74.2**	**6.8**	**1.3**	**9.7**	**8.1**	**100.0**		
Store Space	Low	1.0	1.0	3.0	16.8	27.8	**49.6**	X^2 = 24.297,	S
	Medium	0.3	0.3	2.9	13.4	19.6	**36.5**	p = 0.002	
	High	0.1	0.3	0.2	5.4	8.0	**14.0**		
	Total	**1.4**	**1.6**	**6.1**	**35.5**	**55.5**	**100.0**		
Ensuite Bedroom	Low	2.2	3.5	2.8	18.2	22.8	**49.6**	X^2 = 16.375,	S
	Medium	1.2	2.5	2.3	13.6	16.9	**36.5**	p = 0. 037	
	High	0.2	0.2	0.9	5.9	6.7	**14.0**		
	Total	**3.6**	**6.3**	**6.0**	**37.7**	**46.4**	**100.0**		
Toilet separated from Bedroom	Low	4.5	18.4	2.8	10.1	13.8	**49.6**	X^2 = 33.222,	S
	Medium	4.4	13.8	1.8	6.6	9.9	**36.5**	p = 0.000	
	High	2.7	3.3	1.1	2.6	4.3	**14.0**		
	Total	**11.6**	**34.5**	**5.7**	**19.3**	**28.0**	**100.0**		
Study Space	Low	26.6	10.9	1.7	4.7	5.7	**49.6**	X^2 = 6.135, p	NS
	Medium	18.7	8.6	1.4	3.9	3.8	**36.5**	= 0.632	
	High	7.9	2.6	0.4	1.2	1.9	**14.0**		
	Total	**53.2**	**22.1**	**3.4**	**9.9**	**11.5**	**100.0**		
Prayer Room	Low	15.9	17.0	1.5	7.3	7.8	**49.6**	X^2 = 22.296,	S
	Medium	13.6	8.7	1.4	5.6	7.2	**36.5**	p = 0.004	
	High	5.0	3.9	0.5	2.5	2.1	**14.0**		
	Total	**34.4**	**29.7**	**3.4**	**15.3**	**17.1**	**100.0**		
Ante Room Space	Low	1.7	12.3	4.9	15.4	15.3	**49.6**	X^2 = 35.416,	S
	Medium	0.7	5.6	3.7	12.2	14.2	**36.5**	p = 0.000	
	High	0.2	2.5	0.7	5.3	5.1	**14.0**		
	Total	**2.6**	**20.4**	**9.3**	**32.9**	**34.7**	**100.0**		
Visitors' Toilet	Low	0.5	2.4	1.6	16.4	28.6	**49.6**	X^2 = 10.068,	NS
	Medium	0.4	2.1	1.3	11.5	21.2	**36.5**	p = 0.260	
	High	0.1	0.2	0.4	5.2	8.1	**14.0**		
	Total	1.0	4.7	3.3	33.1	57.9	**100.0**		

Note: NPAA – Not Preferred at all; NP - Not Preferred; I – Indifferent; P – Preferred and HP – Highly Preferred; S – Significant; NS – Not Significant. **Source: Author's Field Survey, 2024**

4. CONCLUSION

This study examined the housing interior space preferences of Federal civil service workers in Abuja, with particular emphasis on optional and tradable interior spaces influenced by socioeconomic and sociocultural factors. The findings reveal that interior space preferences among civil workers are neither uniform nor arbitrary, but are significantly shaped by income level, household structure, cultural background, and contemporary lifestyle expectations.

The results indicate that dining spaces, ensuite bedrooms, stores, ante rooms, and visitors' toilets are generally preferred by a substantial proportion of respondents, reflecting a strong inclination toward functional efficiency, privacy, and social interaction within the dwelling unit. In contrast, laundry spaces, study rooms, and toilets separated from bedrooms attracted relatively low preference, particularly among low- and middle-income earners, suggesting the influence of affordability constraints, spatial trade-offs, and evolving residential practices. The preference for ensuite bedrooms and visitors' toilets across income groups further underscores the growing acceptance of modern residential layouts among civil workers in Abuja.

Statistical analysis confirms that income level significantly influences preferences for most interior spaces, including dining areas, laundry spaces, stores, ensuite bedrooms, prayer rooms, and ante rooms. However, preferences for study spaces and visitors' toilets were found to be independent of income, indicating that some interior space needs cut across socioeconomic categories. These findings reinforce the argument that housing interior spaces are deeply connected to residents' socioeconomic realities and cultural expectations, rather than being purely architectural choices.

Summarily, the study highlights a persistent mismatch between standardised housing designs and the actual interior space needs of civil workers, which has contributed to the poor performance of past government-led housing schemes in Abuja. By empirically demonstrating how interior space preferences vary among civil servants, this research contributes to housing preference literature and provides evidence-based insights for more responsive housing design and policy formulation in Nigeria's capital city.

Based on the findings of this study, the study recommends that user-centred design approaches that reflect the interior space preferences of civil workers should be prioritised. Given the varying preferences across income groups, housing designs should adopt flexible or modular interior layouts that allow residents to adapt spaces according to their socioeconomic capacity and cultural needs. This approach would reduce unnecessary construction costs while improving residential satisfaction. Public housing policies should recognise that interior space preferences of Federal civil service workers in Abuja are mostly income-dependent. Government-led housing schemes for civil servants should differentiate housing unit designs by grade level or income category, rather than applying a uniform design standard across all beneficiaries. Policymakers should reassess existing and future civil service housing programmes to ensure that interior space configurations align with documented user preferences. Incorporating preference studies at the planning stage would reduce housing abandonment, modification costs, and post-occupancy dissatisfaction.

Future studies should explore thorough empirical correlation examination between socioeconomic characteristics and internal spaces preferences of Federal civil service workers in Abuja.

REFERENCE

[1] Addae-Dapaah, K. (2021). Urban Housing Affordability Problem in Africa: A Search for Pragmatic Solution. Journal of Africa Real Estate Research. 21, 1–15.

[2] United Nations (2019). World Urbanization Prospects: The 2018 Revision; United Nations Department of Economic and Social Affairs Population Division: New York, NY, USA.

[3] Obeng-Odoom, F. (2014). Oiling the Urban Economy: Land, Labour, Capital, and the State in Sekondi-Takoradi, Ghana; Routledge: New York, NY, USA.

[4] Ganiyu, B.O. (2016). Strategy to Enhance Sustainability in Affordable Housing Construction in South Africa. Ph.D. Thesis, Cape Peninsula University of Technology, Cape Town, South Africa.

[5] UN-Habitat (2023). Africa Urban Agenda Programme. Available online: https://unhabitat.org/africa-urban-agenda-programme (accessed on 18 January 2026).

[6] Choi, J.Y. and Choi, J. (2024). Cultural Imprints on Urban Housing: A Spatial Analysis of Apartment Designs in Kenya, Ghana, and South Africa. Buildings 14, 3526. https:// doi.org/10.3390/buildings14113526.

[7] Choi, J.Y. (2018). Analysis of the Spatial Organization in the Context of Space Syntax Model for Apartment Unit Plans in Kenya; Seoul National University Graduates: Seoul, Republic of Korea.

[8] Mohammadi, M. P., Ahmad, A. S., Mursib, G., Roshan, M., and Torabi, M. (2014). Interior Layout Design Parameters Affecting User Comfort in EE Buildings. Asian Journal of Microbiology, Biotechnology and Environmental Sciences, 16(3), 579–587.

[9] Xu, X., Sunindijo, R. Y., and Mussi, E. (2021). Comparing User Satisfaction of Older and Newer on-Campus Accommodation Buildings in Australia. Facilities, 39(5–6), 389–410.

[10] Dinç, P., Özbilen, E., and Bilir, M. B. (2014). A Multi-dimensional Scale for Measuring Residential Satisfaction (rs) in Mass Housing Projects. Indoor and Built Environment, 23(6), 864–880.

[11] Jansen. S, Coolen, H and Goetgaluk, R (2011). The Measurement and Analysis of Housing Preference and Choice. Springer Science – Business Media.

[12] Rahadi, R. A., Wiryono, S. K., Koesrindartoto, D. P., and Syamwil, I. B. (2015). Factors Influencing the Price of Housing in Indonesia. International Journal of Housing Markets and Analysis, 8(2), 169–188.

[13] Triyuly, W. (2010). Identification of Household Preferences for Low-Income Communities in Palembang City Based on Hierarchical Cluster and Discriminate Analysis Methods. Proceedings of the National Seminar on Research Methods in Architecture Towards Education. Accessed 28th January., 2026.

[14] Zinas, B. Z. and Jusan, M. B. M. (2012). Housing Choice and Preference: Theory and Measurement. Procedia - Social and Behavioral Sciences, 49, Pp. 282–292. doi: 10.1016/j.sbspro.2012.07.026.

[15] Jansen, B. J. (2011). The Accidental City: Violence, Economy and Humanitarianism in Kakuma Refugee Camp, Kenya.Ph.D thesis, Wageningen University.

[16] Kim K. (2020). Payment Performance and Residency Discounts in the Rental Housing Market. Retrieved from https://doi.org/10.1111/1540-6229.12224 on 13th January, 2025

[17] Akewusola, R. A., Odunjo, O. O., Ayinla, A. K., Firdaus, U. T. M., and Akangbe, O. O. (2025). Analysis of building material preferences of civil workers in Abuja. FUDMA Journal of Sciences, 9(2), 262-270. https://doi.org/10.33003/fjs-2025-0902-3119

[18] Opoku, R. A. and Abdul-Muhmin A. G. (2010). Housing Preferences and Attribute Importance Among Low-Income Consumers in Saudi Arabia. Habitat International 34 (2): 219–27. https://doi.org/10.1016/j.habitatint.2009.09.006.

[19] Safarkhani, M. (2025). *Sustainability and spatial behaviour in residential environments: An integrated perspective*. Sustainability, 17(15), 6842.

[20] Saleem, S. and Alchalabi, O. (2025). An In-depth Analysis of Factors impacting Housing Satisfaction: A Systematic Review and Post-Occupancy Evaluation. International Journal of Sustainable Development and Planning, 2(1), 1 – 22.

[21] Høibø, O., Hansen, E. and Nybakk, E. (2018). Building Material Preferences with a Focus on Wood in Urban Housing: Durability and Environmental Impacts. Can. J. For. Res. 45, 1617–1627.

[22] Qurix, W., Emusa, H. and Ruth, M. (2023). Response of Gbagyi Traditional Building Pattern to Modern Architecture in Abuja, Nigeria. Seybold Report. 113 - 137. 10.5281/zenodo.10300285.

[23] Strzalka, K.B. (2019). What are the Students' Housing Preferences? A Case Study of Lublin, Poland. A published Master's Thesis in Real Estate and Construction Management, Kth Royal Institute of Technology School of Architecture and The Built Environment, Stolkham.

[24] Obiadi, B., Vitalis, I., Ivoke, H. I., Kikanme, E. and Mgbajiaka, C. (2021). Architecture, Urbanization and Urban Development in Nigeria: The Key Missing Link in Abuja Urban Housing Built Environment. IOSR Journal of Environmental Science Toxicology and Food Technology. 15. 49-67. 10.9790/2402-1507034967.

[25] Frontiers of Architectural Research. (2025). *Socio-cultural and spatial influences on housing preferences: A global scoping review.* 12, 100643.

[26] Yıldız, A. and Türkmen, Z. (2023). Interior spatial configuration and residential satisfaction. *Gaziantep University Journal of Social Sciences*, 22(4), 125–140.

[27] Taherdoost, H. (2017). *Determining sample size: How to calculate survey sample size*. International Journal of Economics and Management Systems, 2(2), 237–239.

[28] Odunjo, O.O. (2014). Housing Finance Strategies and Design Characteristics in the Urban Fringe of Ibadan, Southwest, Nigeria. Unpublished Ph.D Thesis, Ladoke Akintola University of Technology, Ogbomoso.

[29] Omiunu, O. G. (2014). Towards Sustainable Higher Education for an Increasing Population and Information Technology Dynamics. Journal of Education Research and Behavioural Science. 3. 116-121.

[30] Smits, A.W.M. and Mulder, C.H. (2008). Family Dynamics and First-Time Homeownership.Housing Studies 23(6): 917-933. doi:10.1080/ 02673030802416601.

[31] Mohammed, I. H. (2021). The Housing Preferences of Workers in Jakarta. Master Thesis. rijksuniversiteit.