Effect of Socio-Economic Characteristics of Households on Housing Condition in Bauchi Metropolis, Bauchi State, Nigeria

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Abstract. Housing across the world has remained an indispensable phenomenon that affects every facet of humans. Its relevance is so evident that it imparts on man's socio-physical and mental welfare irrespective of his socio-economic status, colour or creed. The correct socio-economic position is linked to people seeking inexpensive and decent housing. This study assessed the socio-economic characteristics of households and their housing condition in the Bauchi metropolis. The study adopted a quantitative approach where 380 questionnaires were administered to house hold-heads in this study. The households were sampled through stratified random sampling to generate data on their socio-economic characteristics, housing conditions, existing facilities and amenities, physical and environmental characteristics. The data collected were subjected to descriptive statistics with mean ranking and ordinal regression to examine the significance of the various variables. The findings of the study revealed that socio-economic characteristics affect housing conditions in the study area. The study also revealed that compared with the medium and high-density areas where the housing situation and all basic infrastructures are fair and foul, the low-density area had its housing condition with all basic infrastructures in good condition. It was recommended that the government provide adequate social facilities as a matter of urgency, renovate the declining ones, and implement development control standards in the medium and high-density areas. Furthermore, individuals should incorporate a good maintenance culture for their property to improve housing and environmental characteristics.

Keywords: neighbourhood; satisfaction; housing.

INTRODUCTION

A person's socio-economic features can be used to describe household economic inequality that represents his or her social class, status and economic place in society and plays a vital role in improving the well-being of the individual household and the entire society [24, 53]. Socio-economic characteristics vary from one family to another, which provides a social picture at a glance, such as occupation, income, and education [2]. The quality of life is closely related to housing, and other factors such as employment, wages, education, work-life balance, satisfaction with life and the perceived quality of society determine housing [51]. Housing has been one of the main pillars of the individual's satisfaction and has been considered "to be the determinant of the health and the quality of life" [23, 50].

Household size, religion, gender, marital status, ethnicity, education, occupation status, income, respondent age, family patterns, and resident tenure type (or system) are essential socio-economic characteristics that affect the housing condition, the positions of people in society, occupational status and other resources [31, 33]. Therefore, human needs for housing are not simply inherent; instead, housing needs are developed within a socio-economic context [36]. The individual socio-economic characteristic has a strong influence on their housing [28]. Suppose it is to fully appreciate the essence of a house in the context of human habitation. The relationship between socio-economic characteristics and housing must be considered [49].

Much body of empirical research has been conducted over the years on housing conditions and their effects on individuals [34]. Residential qual-

ity has been shown to differ in trend from one region to another, and housing quality is higher in the city's outskirts than in other city residential areas. Having analysed and compared the housing quality trend, author [38] revealed that poor housing quality has serious adverse effects on the environment and the health of city residents. Substandard accommodation, inadequate basic infrastructure facilities, overcrowding, inadequate ventilation in homes and workplaces, and non-compliance with building by-laws and regulations were described in the study as the problems that helped the degeneration. He reported that the poor housing conditions in the urban cities of Nigeria, especially at the core areas in the capital city of Ondo and Osun state, respectively.

Authors [41] studied the quality of residential neighbourhoods and the efficiency of residential communities in Jos, Nigeria. Their study reveals that a person's status translates into his earnings, affecting his choice of location and form of residence. On the other hand, researchers [44] discovered that the patterns of residential segregation in Bauchi Metropolis are mainly based on income, religion ethnicity and that the factors influencing residential segregation identified are mainly individual and aggregate socio-economic characteristics, individual preference/choice of neighbourhood. However, virtually none of these studies considered the impact of household socio-economic characteristics on housing conditions (particularly in Bauchi), which is a gap this study intends to bridge by ascertaining the effect of socio-economic characteristics of households on housing conditions in the Bauchi metropolis.

literature review

Concept of Socio-Economic Characteristics. Authors [7, 48] stated that "socio-economic characteristics connotes the position of an individual or family in a community to the prevailing average standards of cultural possession, effective income, material possession, prestige and social participation". The social scope includes authority, occupational reputation, and education and community status, while the economic scope includes job income, homeownership and financial assets; and it could also be divided into three categories, that is, low socio-economic status (SES), middle SES, high SES, high SES [57]. Socio-economic features vary from household to household, offering a social profile at a glance,

such as work, income and education [2]. Lower-income groups tend to have more friends, associates and family than higher-income groups in the housing estate [21].

Components of Socio-Economic Characteristics. In measuring the socio-economic domain, the following have been identified as some of its indicators: sex/gender, age, marital status, religion, length of residence, occupation, education, income and household size [6, 32, 35].

Occupation. Occupation is referred to in a broad perspective as a persistent activity that a person wants or is gratified to do to live well as a valued citizen. It is essential to consider that another can ignore what one considers valued, as an occupation is a relative category that is subjectively self-defined. An individual's occupation is, directly and indirectly, connected to their socio-economic status [42]. According to Occupational Therapists, occupation is accepted and illustrated as contributing to people, groups, and populations' quality of life [55].

Education. There are two critical explanations for using schooling as a concept for calculating socio-economic status, aside from face validity. First, during their lives, those who complete additional years of education may experience various positive outcomes. Their incomes may be higher, employment easier to obtain, and better health care [17, 15]. As a result of the commitment of individuals and society to education, there are also likely to be spill over effects on the household and culture. In other words, other forms of socio-economic status are directly linked to higher levels of education. To the point that, for example, these other factors are difficult to quantify, permanent as opposed to even after income regulation.

Income. Household size, age and gender of household members, household composition, schooling, health, social capital, assets and endowments and jobs, among others, are the significant factors influencing household income. There are also community variables that influence household revenues substantially, such as weather, prices and infrastructure [13]. The empirical evidence indicates that household size and composition are closely linked to household income. Household size and dependency ratio decreased per capita household income [54]. The schooling of household members is also found to positively influence household income, among other factors [22]. The income influence of the

age of household members, however, may be unclear. Households with younger workforce members are more likely to engage in non-farm occupations, gaining higher incomes in exchange. However, households with older workers appear to obtain more job experience, allowing households to earn higher incomes [54].

Ethnicity/Race. Researchers in the field glommed 'ethnicity' and tried to define and describe it differently in various ways. These include a distinctive marker of the communal legacy of a community that is shared and passed down over the generations [16]; a political and ideological show of an ethnic group; a peoplehood problem [11]. A sense of group identity can be extracted from real or perceived commonalities, including religion, language, and ethnicity [9]. Ethnicity is becoming a means by which some individuals get a job, be promoted to higher positions/posts, ID card to an association/organisation membership, and get resources such as land, particularly in urban areas [18].

Racial segregation in housing has also contributed to unequal access to various facilities offered by local agencies for most blacks. In disadvantaged communities, in general, and African American neighbourhoods, elected officials were more likely to slash spending and programs than in more comfortable areas [56].

Marital Status. Authors [1] investigated whether high-income married earners are more likely than a comparable single, low-income earner to live in suitable housing conditions. It utilises data from the Group Advantage Panel Study and, with propensity-score matching, discrete-time survival analysis. Results show that married high-income earners have a fair and decent housing situation than their single counterparts do. Authors [12] in America analysed housing conditions among a subset of singles, the never-married; simultaneously, they analysed possible variations in the relationship between several housing condition determinants for singles compared to the married. The results showed that certain factors such as age, gender, and several children affect the probability of maintaining good housing conditions than for married compared to singles.

Household Size. The household is the smallest decision-making unit in any society, and the decision taken daily affects the household and has a collective long-term effect globally [4]. Author [3] observed that "as the size of households declines,

participation in community development activities rises and reinforces past perceptions that community members with small household sizes will participate more than large households due to the heavier burden of household maintenance". Author [6] reports that "African household descent was patrilineal, even when the mothers were unmarried and that kinship was agnatic, consisting of extended families including three generations, and children are often raised separately from their biological parents in households, marriage was less important than descent".

Age. In [52] reported that young adults (both white and non-white) migrated to different urban areas, while families/older families (white and non-white) moved away from urban centres to suburban areas. As a result, household housing demand is linked to the age of individuals [19]. Author [40] studied the impact of demographics on the housing market. It was noted that younger generations who tend to live independently of their families have also contributed to an increase in housing demand and that housing markets are heavily affected by these demographic factors.

Gender. The word "gender" covers the sexual roles, behaviours and values that cultures and societies deem suitable for men and women to be socially identified [20]. Therefore, the sex of an entity is thus culturally and socially constructed [27]. Gender disparities were added to the others found by those interested in depicting 'unfairly structured cities' to be gender-sensitive [37]. Housing interactions are often significantly impacted by age, which intersects with gender to establish dynamic differences in the state of housing. For example, single, divorced or widowed women with a high proportion of senior citizens living alone are not more likely than younger women to be exposed to good housing conditions [58].

Religion. It is possible to consider religion in two linked but distinct forms, material and spiritual. Religion is materially conceived as establishments, social classes and religious interests (i. e. institutions/officials). From a theological viewpoint, religion is concerned with social and individual conduct models that help believers organise their daily lives [8]. Authors [30] argue that religion influence gender fairness through a variety of mechanisms including socialisation of ethical values and norm, and emphasis on separate

spheres of conscientiousness where women hold familiar roles and are subordinate, and through political activities. Religious identity is more critical than ethnic identity and serves to activate ethnicity. Religious and ethnic differences have led to segregation trends pronounced in Bauchi and Jos and most states in Northern Nigeria [25. In most northern towns and cities, prevalent violent ethnoreligious failures have led to new phenomena in neighbourhood/settlement structures [26].

Concept of Housing Condition. "Housing is defined as "the process of providing adequate physical infrastructure and social amenities (services) to a large number of residential buildings permanently in planned, decent, healthy and sanitary communities to meet the basic and special needs of the population" [47]. Several variables have been highlighted to have significantly contributed to housing, including socio-economic status, income status, consumer education level, etc. As stated by [29], a good quality house should include a good roof to keep out rain and downpour; good walls and doors to protect against bad weather conditions and to keep out animals; sun shades around the house to protect it from direct sunlight in hot weather and retain reasonable heat in cold weather condition; wire netting at windows and doors to keep out insects like house flies, mosquitos etc.

Any of the many variables that make up the standard of housing are the house's physical condition. In every neighbourhood, housing quality should be such that it meets minimum health requirements and good living standards but should also be affordable for all household categories [10]. In Nigeria, [4] reported that the Public Health Laws of Nigeria (1959) stipulates conditions required of a residence in Nigeria. Section 6 of the law explains conditions of nuisance, whose existence makes housing units unsanitary and hazardous. Houses should not be damp, poorly ventilated, littered with waste or lack basic sanitary facilities. In addition, it stipulates that residential units should be accessible by road, have sound drainage systems, appropriate waste management facilities, and daily and safe water supply sources. The physical condition of the abode is among several variables that create housing quality.

Theory of Housing Adjustment. The theory that is most relevant to housing conditions is that of Housing Adjustment. Housing Adjustment theory developed by [43] defines the way households determine their housing conditions as a dynamic process shaped by social context, the characteristics of dwelling units, and communities. The authors identified the two criteria used by households to evaluate their housing conditions to be the family norm and cultural norms. The primary implication of the Family Housing Change theory is that housing conditions are susceptible to social and economic backgrounds, the physical characteristics of housing units, and communities. In this case, family and cultural expectations reflect the "aspired" or "ideal" housing situation that individuals most want to have in their lifecycle at any point in time. This afore listed inclination of housing condition served as the base of this study.

It is clear from the above theory that housing conditions depend on the context of society and economics, the physical characteristics of housing units, and communities. Therefore, this study aims to determine how individual socio-economic characteristics have influenced housing in the Bauchi metropolis.

Conceptual Framework for Socio-economic Characteristics and Housing Condition presents in Figure 1.
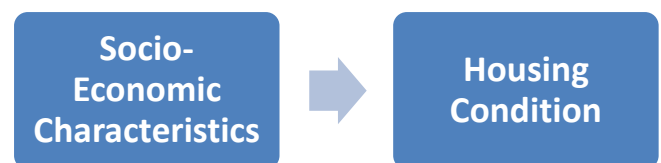
Figure 1 – Socio-Economic Characteristics Affecting Housing Condition

METHODOLOGY

Bauchi Metropolis comprise eight administrative wards (units). These are Hardo Ward, Dan'iya Ward, Makama A Ward, Makama B Ward, Dan Amar A Ward, Dan Amar B Ward, Dawaki Ward and Dankade Ward, respectively. The research methodology adopted is a quantitative approach. A 5-point Likert scale-based questionnaire was developed and administered to 380 households in the study area. The sample selection was adapted from other social science researchers

(such as [45, 12]) in Nigeria. Two neighbour-hoods were selected from each residential density zone, and a total of 63 households were systematically sampled from each of the residential neighbourhoods making a total of 380 households. The data collected for the study was analysed through descriptive statistics (mean ranking) using SPSS Version 22.

RESULTS

Socio-economic characteristics of households in Bauchi Metropolis. From the respondents' responses (revealed in table 1), the result indicates that most decision-makers in the households within the metropolis of Bauchi were citizens.

Table 1 − Socio-Economic Characteristics of Respondents

	Variables	High Density, % (N)	Medium Density, % (N)	Low Density, % (N)	TOTAL
Sex	Male	26 (67)	30.2 (78)	24 (62)	80.2 (207)
	Female	8.1 (21)	3.1 (8)	8.5 (22)	19.8 (51)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Age	Under 30	10.1 (26)	15.5 (40)	19.0 (49)	44.6 (115)
	31– 60	20.2 (52)	17.1 (44)	10.9 (28)	48.1 (124)
	61 and above	3.9 (10)	0.8 (2)	2.7 (7)	7.4 (19)
	TOTAL	34.1 (88)	33.3 (86)	32.6(84)	100 (258)
Marital Status	Single	10.9 (28)	15.9 (41)	15.1 (39)	41.9 (108)
	Married	21.7 (56)	16.7 (43)	14.3 (37)	52.7 (136)
	Divorced	0.4 (1)	0.8 (2)	2.3 (6)	3.5 (9)
	Widowed	1.2 (3)	0.0 (0)	0.8 (2)	1.9 (5)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Tribe of Respondents	Hausa/Fulani	29.5 (76)	30.6 (79)	15.5 (40)	75.6 (195)
	Yoruba	2.7 (7)	0.8 (2)	3.1 (8)	6.6 (17)
	Igbo	0.0 (0)	0.8 (2)	7.8 (20)	8.5 (22)
	Others	1.9 (5)	1.2 (3)	6.2 (16)	9.3 (24)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Occupation	Civil	17.4 (45)	12.0 (31)	11.6 (30)	41.1 (106)
	Business	8.5 (22)	8.9 (23)	10.9 (28)	28.3 (73)
	Farmer	3.5 (9)	3.9 (10)	2.7 (7)	10.1 (26)
	Others	4.7 (12)	8.5 (22)	7.4 (19)	20.5 (53)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Income	Less than 30,000	8.1 (21)	10.1 (26)	9.7 (25)	27.9 (72)
	N31,000–N60,000	8.1 (21)	16.3 (42)	14.7 (38)	39.1 (101)
	N61,000–N90,000	10.1 (26)	3.9 (10)	4.7 (12)	18.6 (48)
	N91,000 and above	6.2 (16)	3.1 (8)	5.0 (13)	14.3 (37)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Educational Status	Informal Education	1.6 (12)	3.5 (9)	1.9 (5)	7. (18)
	Primary School	10.5 (27)	8.1 (21)	7.4 (19)	26.0 (67)
	Secondary School	9.3 (24)	11.6 (30)	6.6 (17)	27.5 (71)
	Diploma	7.4 (19)	8.5 (22)	12.8 (33)	28.7 (74)
	First Degree	5.4 (14)	1.6 (4)	3.9 (10)	10.9 (28)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Religion of Respondents	Islam	31.4 (81)	31.8 (82)	28.7 (74)	91.9 (237)
	Christianity	1.9 (5)	1.2 (3)	3.5 (9)	6.6 (17)
	Others	0.8 (2)	0.4 (1)	0.4 (1)	1.6 (4)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)
Household Size	Less than 5	29 (11.2)	26 (10.1)	30 ((11.6)	85 (32.9)
	6–10 persons	12.8 (33)	15.9 (41)	12.8 (33)	41.5 (107)
	11–15 persons	5.4 (14)	3.9 (10)	4.3 (11)	13.6 (35)
	16–20 persons	3.5 (9)	3.1 (8)	2.7 (7)	9.3 (24)
	21 persons and above	1.2 (3)	0.4 (1)	1.2 (3)	2.7 (7)
	TOTAL	34.1 (88)	33.3 (86)	32.6 (84)	100 (258)

26% were male from the high density, 30.2% from the medium density and 24% from the low density. While 8.1% from the high density, 3.1% from the medium and 8.5% from the low density were women. Respondents within the age range of 31-60 years were 20.2% from the high density, 17.1% from the medium density 10.9% from the low density. Respondents with an age bracket of 61 years and above are 3.9% from the high density, 0.8% from the medium density and 2.7% from the low density. These findings correspond with findings by [14]. Single respondents accounted for 10.9% from the high density, 15.9% from the medium density and 15.1% from the low density. The survey indicates that 21.7% of the respondents were married from the high density, 16.7% from the medium and 14.3% from the low density. At the same time, 0.4%divorcees were from the high density, 0.8% from the medium density and 2.3% from the low density. Widow's account for 1.2% of the high density and 0.8% of the low density.

The study also reveals that about 29.5% of respondents are Hausa/Fulani from the high density, 30.6% from the medium density and 15.5 % from the low density. 2.7% are Yoruba from the high, 0.8% in the medium, and 3.1% in the low-density area. 0.8% and 7.8 % are Igbo from the medium and low-density areas, respectively and others tribes accounted for 9.3% in the whole study area. This finding corresponds with other studies such as [14, 45].

The households' occupation shows that civil servants constitute 41.1% in the whole study area, about 17.4%percent from the high-density area, 12.0% from the medium density, and 11.6% from the low-density area. Respondents engaged in high-density areas are 8.5% and 8.9% in the medium density area. Farmers accounted for 3.5% in the high-density area, 3.9% from the medium density and 2.7% from the low-density area. This indicates that most of the respondents in the study area have the means to derive some income. These findings correspond with findings by studies such as [14, 45].

Also, analysis of households' income indicates that 8.1% of respondents from the high density earn less than N30, 000, 10.1 % from the medium density and 9.7% from the low-density area. Those who earn an income of N31,000 to N60,000 constitutes 8.1% from high density, 16.3% from the medium density, while 14.7% from the low density. Those who earn an income

within the range of N61,000 to N90,000 constitutes 10.1% from high density, 3.9% from the medium density, while 124.7% from the low density. Those who earn N91, 000and above constitute 6.2% from high density, 3.1% from medium density and 5.0% from low density. This corresponds with findings from the study of [45].

The result of households' educational level shows that 1.6% of respondents from high density have been too informal schools, 3.5% of respondents from medium density and 1.9% from the low density. Those with primary school certificates constitute 10.5% from the high density, 8.1% from the medium density, and 7.4% from the low density. Those with secondary school certificates constitute 9.3% from high density, 11.6% from medium and 6.6%. Those with diploma certificates constitute 7.4% from high density, 8.5% from medium density and 12.8% from low density. First-degree holders accounted for 5.4% from high density, 1.6% from medium density, and 3.9% from low density. These are similar to the findings by [14], which stated that the majority of households heads within the high-density area of the Bauchi metropolitan area have post-secondary school certificates. Other studies with similar findings include [1, 46, 14].

Also, the study revealed that 31.4% of the respondent from high density, 31.8% of the households from medium density and 28.7% from the low-density practice Islam as a religion.1.9% of the respondents from High density, 1.2% from the medium density and 3.5% from the low-density practice Christianity as faith while only 0.8% from the high density, 0.4% from medium density and 0.4% from low-density practice other forms (s) of religion. This corresponds with [45] findings, which stated that the majority of respondents of the residents of the Bauchi metropolitan area practice the Islamic religion. Other studies with similar findings include [1, 46, 14].

Also, the study reveals that 29% of respondents from high density had less than five members within the fold of their households, 26% from medium density and 30% from the low density. 12.8% from high density, 15.9% from medium density and 12.8% from the low density of the study area stated that they were have 6-10 persons in their households. Household size of 11-15 members is 5.4% of the respondent from the high density, 3.9% from medium density and 4.3 % are from the low density. Respondents with households' members between 16-20

household members are 3.5% from the high density, 3.1% from the medium density and 2.7% from the low density. This study corresponds with findings by [14].

Housing Condition in Bauchi Metropolis

Housing Condition in High Density Areas. The findings on the housing condition in the high-density areas in Table 2 reveal that the well's condition is found to be in good condition, ranked 1stwith M=3.88, SD=1.06.

Table 2 – Housing Condition in High-Density Areas of Bauchi Metropolis (N=88)

Physical Characteristics	Mean	Std. Deviation	Ranking	Remark
Well	3.8750	1.05930	1	Good
Tiles	3.8295	1.13686	2	Good
Sancerre	3.7841	.97614	3	Good
Cemented	3.7727	1.03643	4	Good
Burnt Bricks	3.6591	1.07089	5	Good
Aluminum	3.6477	1.13502	6	Good
WC Toilet	3.5568	1.12299	7	Good
Generator	3.5455	1.20257	8	Good
Well Equipped Kitchen	3.5227	1.17422	9	Good
Toilet and Bathroom Facilities	3.5000	1.21296	10	Good
Bore hole	3.4545	1.17355	11	Good
Kitchen without modern Facilities	3.3977	1.21806	12	Fair
Rendered and painted	3.3523	1.38165	13	Fair
Clay/Mud Block	3.3295	1.04740	14	Fair
Terrazzo	3.3295	.96754	15	Fair
Corrugated Iron Sheet	3.3068	1.08657	16	Fair
Electricity from public main	3.3068	1.20686	17	Fair
No finishing at all	3.2045	1.18573	18	Fair
Pit Toilet	3.1932	1.15329	19	Fair
Pipe Borne	3.1818	1.36074	20	Fair
Waste Disposal Facilities	3.0795	1.42411	21	Fair
Asbestos	3.0341	.96429	22	Fair
Kerosene Lamp	2.9205	1.01960	23	Fair
Rendered without Paint	2.7727	1.28410	24	Fair

The tiles floor finishing is also in good condition, ranked 2nd with M=3.83, SD=1.14, and sand create ranked 3rd with M=3.78, SD=1.98. Cemented floor finishes ranked 4th with M=3.78, SD=1.04 Burnt Bricks was also in good condition with M=3.66, SD=1.07 ranked 5th respectively. The condition of electricity/lighting (use of kerosene lamp) has M=2.92, SD=1.02 ranked 23rd and houses rendered without Paint has M=2.77, SD=1.28 and was ranked 24th. Therefore, the result above indicates that most of the physical characteristics of housing conditions were in fair condition while some were in good condition.

Housing condition in the Medium Density Area. Table 3 reveals the housing condition in the medium density of the Bauchi metropolis.

Table 3 – Housing Condition in Medium Areas of Bauchi Metropolis (N=76)

Physical Characteristics of Housing	Mean	Std. Deviation	Ranking	Remarks
Well	3.8684	1.01117	1	Good
Kerosene Lamp	3.6447	1.25117	2	Good
Sand Crete	3.5921	1.04789	3	Good
Burnt Bricks	3.5658	1.04990	4	Good
Cemented	3.5395	1.01247	5	Good
WC Toilet	3.5132	1.19436	6	Good
Generator	3.5000	1.25963	7	Good
Kitchen without modern Facilities	3.4079	1.28766	8	Fair
Corrugated Iron Sheet	3.4079	1.10969	9	Fair
Rendered without Paint	3.3816	1.28548	10	Fair
Pipe Borne	3.3684	.99119	11	Fair
Waste Disposal Facilities	3.3553	1.13964	12	Fair
Well Equipped Kitchen	3.3026	1.20022	13	Fair
Terrazzo	3.2632	1.03754	14	Fair
Rendered and painted	3.2368	1.32533	15	Fair
Pit Toilet	3.2237	1.29201	16	Fair
Aluminum	3.2237	1.15006	17	Fair
Toilet and Bathroom Facilities	3.1974	1.14333	18	Fair
Clay/Mud Block	3.1579	.99402	19	Fair
Electricity from public	3.1579	1.09609	20	Fair

Physical Characteristics of Housing main Source	Mean	Std. Deviation	Ranking	Remarks
Bore hole	3.0789	1.14033	21	Fair
No finishing at all	3.0526	1.35543	22	Fair
Asbestos	3.0000	1.32665	23	Fair
Tiles	2.9605	1.38025	24	Fair

The households in the study area agreed that the condition of the well is found to be in good condition with M=3.87, SD=1.01 ranked 1st, source of lightning (kerosene lamp) is also in good condition. On the other hand, the sand creates with M=3.64, SD=1.25 and M=3.59, SD=1.05 respectively and as such were ranked 2nd and 3rd respectively. On the other hand, their kitchen without modern facilities and corrugated iron sheet has M=3.40, SD=1.28 and M=3.40, SD=1.10 and was ranked 8th and 9th respectively. On the other hand, tiles were ranked 24th with M=2.96 SD=1.38 and were in fair condition. Therefore, the result above indicates that most of the physical characteristics of housing conditions were fair while few were good.

Housing condition in Low-Density Area. Respondents in the low-density area of the study area reported that the condition of toilets (WC toilets) was excellent condition with M=4.08 SD=1.02 ranking 1st (Table 4).

Table 4 – Housing Condition in Low-Density Areas of Bauchi Metropolis (N=94)

Physical Characteristics	Mean	Std. Deviation	Rank	Remark
WC Toilet	4.0851	1.02296	1	Good
Tiles	4.0213	1.00513	2	Good
Terrazzo	3.8723	1.09970	3	Good
Rendered and painted	3.8085	1.25532	4	Good
Well Equipped Kitchen	3.7553	1.19754	5	Good
Aluminum	3.7234	1.13027	6	Good
Well	3.7234	1.03076	7	Good
Cemented	3.7021	1.14375	8	Good
Generator	3.6915	1.98403	9	Good
Sand Crete	3.6702	1.19487	10	Good
Bore Hole	3.6383	1.04574	11	Good
Pipe Borne	3.4894	1.09490	12	Good
Pit Toilet	3.4787	1.04448	13	Good
Kerosene Lamp	3.4043	1.26422	14	Fair
R Rendered without Paint	3.4043	1.11026	15	Fair
Corrugated Iron	3.3404	1.10281	16	Fair

Physical Characteristics	Mean	Std. Deviation	Rank	Remark
Sheet				
Asbestos	3.2021	1.23201	17	Fair
Burnt Bricks	3.1915	.97580	18	Fair
Electricity from Public main Source	3.0745	1.25501	19	Fair
Toilet and Bathroom Facilities	3.0745	1.54669	20	Fair
Waste Disposal Facilities	3.0213	1.31965	21	Fair
Kitchen without modern Facilities	2.9681	1.22213	22	Fair
Clay/Mud Block	2.8723	1.17532	23	Fair
No finishing at all	2.6809	1.27180	24	Fair

The floor finishing was also in good condition, with tiled floors having M=4.02 SD=1.00 ranking 2nd and terrazzo floors with M=3.87 SD=1.00 ranked 3rd. Electricity from the primary Public Source has M=3.07, SD=1.25 and was ranked 19th. Therefore, the result above indicates that the majority of housing characteristics were in good condition.

Effect of socio-economic characteristics of households on housing condition in Bauchi Metropolis

Effect of socio-economic characteristics of households on housing condition in the study area. Ordinal Regression Analysis was used to investigate the effect of socio-economic factors on housing conditions. The explanatory factors with socio-economic features were placed into the entry form, while the dependent variables were entered as the housing condition. The ordinal regression model was used to generate the model summary, model coefficient test, and variables in the equation.

The variable in the equation table above in Table 5, which indicates the significant association between socio-economic variables and housing conditions. The table labelled variables in the equation contain information about each explanatory variable's contribution. Gender and occupation were the most important determinants of housing conditions since they have a considerable impact. Age, marital status, other types of work, income, education level, religion, and household size, on the other hand, were shown to have a less significant impact and hence did not add considerably to the model's predictive ability. As a result, the only socio-economic characteristics variables that persisted were gender and farming as a form of occupation.

Table 5 − Variables in the equation

		Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[hc2 = 1.00]	-9.874	2.178	20.554	1	.000	-14.143	-5.606
	[hc2 = 2.00]	-4.456	1.912	5.428	1	.020	-8.204	-.707
	[hc2 = 3.00]	-.940	1.884	.249	1	.618	-4.633	2.753
Location	[Gender=1.00]	1.240	.363	11.681	1	.001	.529	1.950
	[Gender=2.00]	0a	.	.	0	.	.	.
	[Age=1.00]	-.601	.644	.870	1	.351	-1.862	.661
	[Age=2.00]	-.650	.586	1.229	1	.268	-1.799	.499
	[Age=3.00]	0a	.	.	0	.	.	.
	[Status=1.00]	-2.023	1.098	3.392	1	.066	-4.176	.130
	[Status=2.00]	-1.695	1.081	2.458	1	.117	-3.813	.424
	[Status=3.00]	-3.295	1.331	6.132	1	.013	-5.903	-.687
	[Status=4.00]	0a	.	.	0	.	.	.
	[Tribe=1.00]	-.436	.497	.770	1	.380	-1.411	.538
	[Tribe=2.00]	-1.463	.713	4.210	1	.040	-2.861	-.065
	[Tribe=3.00]	-.221	.643	.118	1	.731	-1.481	1.039
	[Tribe=4.00]	0a	.	.	0	.	.	.
	[Occupation=1.00]	-.384	.409	.882	1	.348	-1.186	.418
	[Occupation=2.00]	-.428	.417	1.050	1	.305	-1.246	.390
	[Occupation=3.00]	-2.407	.616	15.257	1	.000	-3.615	-1.199
	[Occupation=4.00]	0a	.	.	0	.	.	.
	[Income=1.00]	.010	.458	.000	1	.983	-.888	.907
	[Income=2.00]	-.567	.418	1.842	1	.175	-1.385	.252
	[Income=3.00]	-.287	.483	.354	1	.552	-1.233	.659
	[Income=4.00]	0a	.	.	0	.	.	.
	[Education=1.00]	.584	.678	.743	1	.389	-.744	1.913
	[Education=2.00]	-.134	.533	.063	1	.802	-1.178	.910
	[Education=3.00]	-.250	.501	.248	1	.618	-1.232	.733
	[Education=4.00]	-.045	.499	.008	1	.929	-1.022	.933
	[Education=5.00]	0a	.	.	0	.	.	.
	[Religion=1.00]	-1.586	1.099	2.081	1	.149	-3.741	.569
	[Religion=2.00]	-.834	1.179	.501	1	.479	-3.146	1.477
	[Religion=3.00]	0a	.	.	0	.	.	.
	[Family=1.00]	.319	.833	.147	1	.701	-1.314	1.953
	[Family=2.00]	.535	.822	.423	1	.515	-1.076	2.145
	[Family=3.00]	.964	.883	1.193	1	.275	-.766	2.694
	[Family=4.00]	.302	.912	.110	1	.740	-1.485	2.090
	[Family=5.00]	0a	.	.	0	.	.	.

Test of model coefficient

Table 6 indicates the test of the model coefficient which was used in checking whether the new model with explanatory variable (age, gender, marital status, tribe, income, education level, religion, household size, occupation and housing type) is an improvement over the baseline model (the null model). The goodness fittest of the model shows that the model is fitted and suitable for the analysis as it produced a highly significant p-value of .006.

Table 6 − Tests of Model Coefficients

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	444.475			
Final	398.342	46.133	25	.006

Model summary

The Pseudo R^2 in logistic regression is shown in Table 7, and it illustrates how the explanatory factors explain much variation in the outcome. For example, gender, age, marital status, tribe,

occupation, income, education, religion, and family size could explain 16.4% to 19.6% of the variables in the research conclusion.

Table 7 – Model Summary

Step	Cox & Snell R^2	Nagelkerke R^2
1	.164	.196

CONCLUSIONS

The study results showed that most households are engaged and have a means of earning money, the income level is low for all the three densities are generally low, and their household size is large. The result of the study is consistent with other reports that the housing situation is generally decent in current densities, although few are good and evil. Notably, the low densities have most of their basic infrastructures in good and fair condition. Furthermore, the study showed that socio-economic characteristics have a significant impact on housing conditions and that gender and agriculture as a type of occupation are the only variables with socio-economic characteristics that significantly impact the condition of housing. This complies with the results of [3] that gender is a determinant of the condition of housing. Authors [5] also claimed that occupation correlates positively and substantially with housing conditions.

The following suggestions are given to help improve the housing situation in Bauchi Metropolis to the findings and conclusions drawn from the study.

The approach to community engagement should be launched through residential communities in the metropolis of Bauchi, where people can be active in improving their housing conditions and maintaining available public facilities such as Pipe Borne water, roads etc.

There is an urgent need to provide integrated urban infrastructures and services to reduce existing deficiencies and meet the increasing need for rapidly expanding infrastructural facilities in the study area, especially in the high and medium densities where most of their infrastructures are unsatisfactory.

Poor housing conditions are intricately linked to and indeed informed by poverty, so the government has a definite role to play in addressing the nation's high unequal level of income. The government's programs for poverty alleviation should be stepped up to reduce the country's unemployment rate. In addition, the provision of employment opportunities is needed in the area.

Organised private sectors should promote small-scale companies and institutions to create job opportunities and high-quality education for people of the study region to improve their financial and social well-being.

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