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Perceptions, Preventive Practices, and Sociodemographic Determinants of Non-Communicable Diseases Among Women of Reproductive Age in Ilorin, Kwara State, Nigeria: A Cross-Sectional Survey.

AbdulRauf Segun Ibraheem

ibraheemabdulrauf@ymail.com

Federal Teaching Hospital Birnin Kebbi.

Babangida Saleh Ibrahim

Kano State Centre for Disease Control and Prevention, Kano Independent Research Centre Trust

Kamaldeen Funsho Ibraheem

Children's Specialist Hospital

Ahmed Ibrahim

Ministry of Livestock Development. Ilorin

Chiderah Becky Ibrahim

Transcorp Hilton.

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Abstract

Background

The burden of non-communicable diseases is increasingly rising among women of reproductive age in Nigeria due to changing lifestyles, urbanization, and environmental risk factors. Therefore, this study aimed to assess perceptions, preventive practices, and sociodemographic determinants of non-communicable diseases among women of reproductive age in Ilorin West Local Government Area, Kwara State, Nigeria. The findings are intended to identify gaps in awareness and behaviour to guide public health interventions, targeted health education, and early detection strategies among this vulnerable population.

Methods

A healthcare facility-based descriptive cross-sectional study was conducted among 608 adult females. Participants were selected from public healthcare facilities using a multistage sampling technique. Data were collected via interviewer-administered questionnaires in English and Yoruba, and the results were analyzed using SPSS software.

Results

The respondents' mean age was 28.08 ± 7.9 years, with the majority possessing tertiary education (52%) and working as artisans (36%). Perceptions of non-communicable diseases were predominantly positive (mean score 21.28/25), with 85.4% of respondents categorized as having a positive perception. Preventive practices were highly favourable (mean index 5.78/7); 90.6% of respondents fell into the good practice category, reporting high rates of regular fruit and vegetable consumption (97.2%) and physical exercise (87.3%). However, participation in formal non-communicable disease health education sessions was notably low (20.4%). Occupation was a significant determinant, as unemployed women were less likely to engage in positive preventive behaviours.

Conclusion and Public Health Importance:

Women of reproductive age in the study area demonstrate commendable positive attitudes and favourable preventive behaviours against non-communicable diseases. However, the low participation in structured health education highlights an urgent public health need to reinforce community-based awareness programs, integrate non-communicable disease screening into maternal health platforms, and implement targeted interventions for unemployed and economically disadvantaged women.

BACKGROUND

Non-communicable diseases (NCDs), also known as chronic diseases, tend to have a long duration and result from a combination of genetic, physiological, environmental, and behavioural factors.[1] NCDs, including cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes, are the leading cause of death globally, accounting for over 74% of all deaths worldwide.[2] These four main NCDs account for 80% of all premature NCDs mortality.[2] NCDs were once considered to be a disease of affluence or old age, but the current trends are showing a concerning rise among young populations, including women in their reproductive years, particularly those living in low- and middle-income countries like Nigeria.[2,3] The burden of NCDs has emerged as a critical public health challenge in Nigeria. Due to rising urbanization, sedentary lifestyles, unhealthy diets, and exposure to environmental risk factors, women, particularly those of reproductive age, are increasingly vulnerable to chronic diseases.[4] This population is crucial, as their health directly impacts both maternal and child health outcomes.[5]

Women of childbearing age (15–49 years) are a high-risk population whose health will dictate family and community well-being. Yet, while very significant, these women are frequently not aware of or less knowledgeable about the danger signs and early warning features of NCDs, such as hypertension, diabetes, cancers, and cardiovascular diseases.[6,7] Consequently, poor knowledge, myths, and low self-perceived risk can be linked to delayed diagnosis as well as weak adoption of preventive health behaviours.[8] Understanding women's perception and preventive behaviour against NCDs is needed to inform effective community-level interventions. There have been numerous studies that have reported that low awareness and inappropriate health-seeking behaviour contribute significantly to the rising global prevalence of NCDs.[6]

In Ilorin West Local Government Area (LGA) of Kwara State, Nigeria, there is a significant change in lifestyle patterns, with greater exposure to processed foods, sedentary occupations, and environmental stressors, increasing the risk of NCDs.[6] Within this semi-urban area, a change in socio-economic status may be impacting lifestyles, but local data are lacking on how reproductive-aged women conceptualize and act to prevent NCDs.[6] Therefore, this research aims to assess awareness and preventive practices about NCDs among reproductive-age women in Ilorin West LGA. Findings will provide vital information about gaps in awareness, risk perceptions, and patterns of behaviour, thereby guiding public health interventions towards early prevention and detection of NCDs among the vulnerable population. It will also be significant in designing targeted health education and early intervention strategies to mitigate the rising epidemic of NCDs among women in this region.

MATERIALS AND METHODS

Study Area

The study was conducted among residents of Ilorin West Local Government Area (LGA), Ilorin, Kwara State, Nigeria. Ilorin West LGA was created in 1991 from the old Ilorin Local Government Area, and covers a land area of approximately 105 square kilometres with a population of 364,666, with women

constituting 47.4% according to the 2006 National Population Census.[9] Ilorin West LGA is divided into twelve (12) political wards, namely: Adewole, Ajikobi, Ubandawaki, Warrah-Osin, Alanamu, Oko-Erin, Magaji Ngeri, Ogidi, Oloje, Sarumi-Ojuekun, Baboko, and Badari. The LGA is a predominantly urban setting and is regarded today as the premier local council in the state, not only because it has historical antecedents but because it hosts the headquarters of the Ilorin Emirate Councils. The majority of the inhabitants of Ilorin West LGA practice Islam, while others practice Christianity. The predominant occupations of the inhabitants within the LGA include farming and trading, but a sizeable proportion of the people are civil servants.[10–12]

Study Population

The participants of this study were all adult females (18–49 years), who had been residing within Ilorin West LGA for the past 6 months and who satisfied the inclusion criteria.

Study Design

The design was a healthcare facility-based descriptive cross-sectional study.

Study Duration

This study was conducted over five months. (July to November, 2025)

Sample Size Determination

$n = \frac{z^2pq}{d^2}$, where; n = desired sample size, z = standard normal deviation, usually set at 1.96, which corresponds to a 95% confidence level, p = proportion gotten from the previous study, and, based on the nonavailability of recent similar studies in the study region, 50% (0.5) prevalence was presumed. q– complementary probability of p = 1-p = 1- 0.5 = 0.5, d = degree of accuracy desired, usually set at 0.05

n = $(1.96)^2$ x 0.5 x 0.5/ $(0.05)^2$, = 3.8416 x 0.25/0.0025, = 608.16

Therefore, the estimated sample size was approximately 608.

Sampling Technique

A multistage sampling method was used to select the respondents among the study population who satisfied the inclusion criteria.

Stage one (selection of wards and healthcare centres)

Ilorin West LGA has a total of 12 political wards. Four of the wards were chosen randomly using simple random sampling (balloting). Numbers were assigned to all wards for easy identification; then, the ballot papers were folded and placed in a ballot box, from which they were drawn. Four ballot papers were randomly selected consecutively after thoroughly mixing the contents of the box. The numbers on these selected ballot papers indicate the wards that were included in the study. Consequently, the public healthcare facilities within these selected wards were included in the study.

Stage two (selection of respondents)

Equal proportions of respondents were allocated to each ward; thus, a total of 152 respondents were required from each healthcare centre in the selected wards. This was to allow for equal representation of women of reproductive age from the LGAs. The respondents were recruited from the outpatient clinics of each health facility using a systematic random sampling method to minimize selection bias.

Sample Selection

All consenting adult women of reproductive age attending the selected healthcare facilities within Ilorin West LGA who gave written consent were recruited for the study. Critically ill patients and women who refused consent to participate in the study were excluded from the study.

Data Collection

The data were collected using pretested semi-structured and structured questionnaires developed by the researchers (Detail attached as supplementary file). Four trained research assistants, alongside the researchers, conducted the survey, which was interviewer-administered. The interview was conducted in English and Yoruba (the indigenous language). Each interview section lasted for about 10 minutes. The questionnaire was translated into Yoruba and then back-translated into English to ensure clarity for Yoruba-speaking respondents. This back-translation process aimed to preserve the original meaning of the questions. The data collected include demographic characteristics, the prevalence of non-communicable diseases (NCDs) among respondents, their perceptions of NCDs, and their preventive practices related to these diseases.

Data Analysis

At the end of the study, the administered questionnaires were sorted and coded serially. All data collected were analysed using the Statistical Package for Social Sciences 26 (IBM SPSS 2023 version). The information was analysed using descriptive statistics such as means, percentages, frequency distributions, and tabulations. The chi-square test was used to determine the association between sociodemographic profiles and preventive practices of NCDs among the respondents, and a p-value of less than or equal to 0.05 was considered statistically significant.

Ethical considerations

Ethical approval

and permission to conduct the study were obtained from the Research and Ethics Committee of Kwara State Ministry of Health, which oversees the affairs of the health care facilities within the Local Government Areas, and in collaboration with the Ilorin West LGA Medical Officer of Health, in accordance with the Declaration of Helsinki and Nigerian National Code of Health Research Ethics. Written informed consent was obtained from all participants, who were informed of the study's aims, procedures, risks, and their right to withdraw at any time. All data remained confidential, with no financial incentives or coercion involved throughout the study.

RESULTS

Table 1, Figs. 1 and 2 below show the socio-demographic characteristics of the respondents. The age group 25–34 years had the highest representation with 234 (38.3%) respondents, while the least, 8 (1.3%) respondents, were within the age group 45–49 years. The mean age of the respondents was 28.08 ± 7.9 years. The marital status of respondents showed that a large number of respondents, 325 (53.5%), were married, and the widowed respondents were the lowest, 5 (0.8%). The majority of the respondents, 316 (52%), had the tertiary level of education, while only 14 (2.3%) had no formal education. Slightly above three-quarters of the respondents, 472 (77.6%), were Muslim, whereas only 4 (0.7%) respondents were practising other forms of religion besides Christianity. In terms of occupation of the respondents, artisans were the majority, 219 (36%) and farmers 21 (3.5%) were the least respondents. Among the income earners, more than two-thirds of respondents, 521 (85.7%), earned the minimum wage or above.

Table 1
Socio-demographic characteristics of the respondents, N = 608

Variables	Frequency(n)	Percentage (%)
Age Groups	**233**	**38.3**
15–24		
25–34	234	38.5
35–44	133	21.9
45–49	8	1.3
Total	**608**	**100**
Mean age ± SD (Range)	**28.08 ± 7.9**	
Marital Status	265	43.6
Single		
Married	325	53.5
Divorced/Separated	13	2.1
Widowed	5	0.8
Total	**608**	**100**
Education Level	14	2.3
None		
Primary	27	4.4
Secondary	251	41.3
Tertiary	316	52
Total	**608**	**100**
Religion	472	77.6
Muslim		
Christian	132	21.7
Others[a]	4	0.7
Total	**608**	**100**
Occupation	108	17.8
Unemployed		

Variables	Frequency(n)	Percentage (%)
Age Groups **15–24**	**233**	**38.3**
Farmer	21	3.5
Trader	92	15.1
Civil Servant	71	11.7
Artisan	219	36
Others	97	16
Total	**608**	**100**
Average Monthly Income[b]		
< ₦77,000	521	85.7
≥ ₦77,000	87	14.3
Total	**608**	**100**

N = total number of respondents, n number of respondents in various groups, %= proportion of respondents in each group, a = other religion found in Ilorin West LGA, b = cut of 77,000 naira based on the current Nigerian National minimum wage.

Table 2 and Fig. 3 below present the frequency and percentage distribution of respondents' perceptions of NCDs, using a Likert scale from strongly disagree to strongly agree. Item-level profiles were strongly favourable, as most respondents agreed or strongly agreed that NCDs are a serious health concern in their community and that NCDs are preventable through lifestyle changes, and the negatively worded statement that only older people suffer from NCDs was largely rejected.

Table 2
Respondents' Perceptions Toward NCDs (Item-wise Likert distribution for Perception Questions) N = 608

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
NCDs are a serious health concern in my community	19 (3.1%)	24 (3.9%)	22 (3.6%)	111 (18.3%)	432 (71.1%)
Only older people suffer from NCDs (reverse)	85 (14.0%)	359 (59.0%)	74 (12.2%)	47 (7.7%)	43 (7.1%)
Women of reproductive age are at risk of NCDs	12 (2.0%)	19 (3.1%)	27 (4.4%)	201 (33.1%)	349 (57.4%)
I feel confident in my ability to prevent NCDs	9 (1.5%)	12 (2.0%)	25 (4.1%)	218 (35.9%)	344 (56.6%)
NCDs are preventable through lifestyle changes	8 (1.3%)	12 (2.0%)	71 (11.7%)	226 (37.2%)	291 (47.9%)

Table 3 below shows the association between respondents' perception of NCDs and socio-demographic characteristics. Respondents' perceptions were grouped into positive, neutral, and negative overall categories. There was no significant association with age ($p = 0.622$), marital status ($p = 0 .726$) and income ($p = 0 .680$). In contrast, perception was found to be significantly associated with education ($p = 0.002$), religion ($p < 0.001$, and occupation ($p < 0.001$). Descriptively, the prevalence of positive perceptions was highest among women with secondary education (92.4%) and among artisans (94.1%), whereas some groups (e.g., civil servants) exhibited comparatively larger negative shares. Overall, the perception of NCDs in this sample is favourable, with meaningful variability across education, religion, and occupation, suggesting useful targets for tailored health promotion.

Table 3
Association between the Respondents' Perception Category (Positive/Neutral/Negative) and Socio-demographic Profiles. N = 608

Variable	Category	Positive n (%)	Neutral n (%)	Negative n (%)	Total n	Pearson χ^2 (df)	p-value
Age	15–24	193 (82.8%)	28 (12.0%)	12 (5.2%)	233	4.403 (6)	.622
	25–34	202 (86.3%)	23 (9.8%)	9 (3.8%)	234		
	35–44	117 (88.0%)	10 (7.5%)	6 (4.5%)	133		
	45–49	7 (87.5%)	0 (0.0%)	1 (12.5%)	8		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		
Marital status	Single	222 (83.8%)	31 (11.7%)	12 (4.5%)	265	3.638 (6)	.589[f]
	Married	282 (86.8%)	27 (8.3%)	16 (4.9%)	325		
	Divorced/Separated	11 (84.6%)	2 (15.4%)	0 (0.0%)	13		
	Widowed	4 (80.0%)	1 (20.0%)	0 (0.0%)	5		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		
Education	None	12 (85.7%)	1 (7.1%)	1 (7.1%)	14	21.290 (6)	< .001[f]
	Primary	24 (88.9%)	2 (7.4%)	1 (3.7%)	27		
	Secondary	232 (92.4%)	16 (6.4%)	3 (1.2%)	251		
	Tertiary	251 (79.4%)	42 (13.3%)	23 (7.3%)	316		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		
Religion	Muslim	415 (87.9%)	45 (9.5%)	12 (2.5%)	472	24.270 (4)	< .001[f]
	Christian	102 (77.3%)	15 (11.4%)	15 (11.4%)	132		

Variable	Category	Positive n (%)	Neutral n (%)	Negative n (%)	Total n	Pearson χ^2 (df)	p-value
	Others	2 (50.0%)	1 (25.0%)	1 (25.0%)	4		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		
Occupation	Unemployed	90 (83.3%)	14 (13.0%)	4 (3.7%)	108	31.700 (10)	< .001[f]
	Farmer	15 (71.4%)	4 (19.0%)	2 (9.5%)	21		
	Trader	79 (85.9%)	9 (9.8%)	4 (4.3%)	92		
	Civil Servant	56 (78.9%)	8 (11.3%)	7 (9.9%)	71		
	Artisan	206 (94.1%)	11 (5.0%)	2 (0.9%)	219		
	Others	73 (75.3%)	15 (15.5%)	9 (9.3%)	97		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		
Income	< ₦77,000	447 (85.8%)	50 (9.6%)	24 (4.6%)	521	0.770 (2)	.680
	≥ ₦77,000	72 (82.8%)	11 (12.6%)	4 (4.6%)	87		
	Total	**519 (85.4%)**	**61 (10.0%)**	**28 (4.6%)**	**608**		

f is Fisher's exact probability value for cross-tabulation categories where there are at least 20% of cells with less than 5 expected frequencies

Table 4 and Fig. 4 show the preventive practices among the respondents using a composite practice index derived from seven behaviour items, with higher scores reflecting more favourable practice. The item-level coverage was high for regular fruit and vegetable consumption (97.2% "Yes"), regular health check-ups (91.6%), engaging in exercise at least three times per week (87.3%), and regular blood pressure and/or blood sugar checks (85.9%). Attendance at health education or sensitization events was comparatively low (20.4%). Reports of smoking (2.0%) and regular alcohol use (2.6%) were uncommon; because these are undesirable behaviours, their low prevalence contributes positively to overall practice profiles. Willingness to engage in community-based NCD prevention (D8) was extremely high (98.7% "Yes"), suggesting strong receptivity to future interventions.

Table 4
Respondents' Preventive Practices against NCDs (Behaviour item coverage for D1–D7: f (n%). N = 608

Item	Yes f (n%)	No f (n%)
D1. Exercise ≥ 3/week	531 (87.3%)	77 (12.7%)
D2. Fruits/vegetables regularly	591 (97.2%)	17 (2.8%)
D3. Regular health check-ups	557 (91.6%)	51 (8.4%)
D4. Regular BP/BS checks	522 (85.9%)	86 (14.1%)
D5. Smoke/use tobacco	12 (2.0%)	596 (98.0%)
D6. Consume alcohol regularly	16 (2.6%)	592 (97.4%)
D7. Attended NCD health education	124 (20.4%)	484 (79.6%)

ENGAGE intent (D8) reported separately: Yes: **600 (98.7%)**, No: **8 (1.3%)**.

Table 5 shows the preventive practices index summary; the distribution was concentrated at the upper end (M = 5.78, SD = 1.00; median = 6; IQR = 6–6; range = 1–7; N = 608). Consistent with this pattern, 64.0% of respondents scored 6 and 13.3% attained the maximum score of 7.

Table 5
Practice index summary

Metric	Value
Mean (SD) Practice Index	**5.78 (1.00)**
Median (IQR)	**6 (6–6)**
Min–Max	**1–7**
N	**608**

Table 6 below shows the association between respondents' preventive practices categories (good, fair, poor) and their socio-demographic characteristics. Group comparisons of the three-level categories showed no statistically significant associations with age (p = 0.627), marital status (p = 0.872), religion (p = 0.754), and income (p = 0.741. In contrast, significant associations were observed with education (p = 0.005) and occupation (p < 0.001). Descriptively, women with secondary education exhibited the highest proportion of good practice (94.8%), and artisans demonstrated a very favourable practice profile (95.4% good). Overall, preventive practice levels were strong in this sample, accompanied by a very high willingness to participate in community-based prevention, yet the relatively low participation in health education activities highlights a concrete area for targeted outreach.

Table 6
Association between Respondents' Practices Against NCDs (Good/Fair/Poor) and Socio-demographic Profiles (χ^2) N = 608

Variable	Category	Good n (%)	Fair n (%)	Poor n (%)	Total n	Pearson χ^2 (df)	p-value
Age	15–24	207 (88.8%)	24 (10.3%)	2 (0.9%)	233	4.367 (6)	.434[f]
	25–34	211 (90.2%)	22 (9.4%)	1 (0.4%)	234		
	35–44	126 (94.7%)	7 (5.3%)	0 (0.0%)	133		
	45–49	7 (87.5%)	1 (12.5%)	0 (0.0%)	8		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		
Marital status	Single	237 (89.4%)	26 (9.8%)	2 (0.8%)	265	2.471 (6)	.647[f]
	Married	298 (91.7%)	26 (8.0%)	1 (0.3%)	325		
	Divorced/Separated	11 (84.6%)	2 (15.4%)	0 (0.0%)	13		
	Widowed	5 (100.0%)	0 (0.0%)	0 (0.0%)	5		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		
Education	None	12 (85.7%)	2 (14.3%)	0 (0.0%)	14	18.442 (6)	.002[f]
	Primary	23 (85.2%)	3 (11.1%)	1 (3.7%)	27		
	Secondary	238 (94.8%)	11 (4.4%)	2 (0.8%)	251		
	Tertiary	278 (88.0%)	38 (12.0%)	0 (0.0%)	316		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		
Religion	Muslim	431 (91.3%)	39 (8.3%)	2 (0.4%)	472	1.901 (4)	.543[f]
	Christian	116 (87.9%)	15 (11.4%)	1 (0.8%)	132		

Variable	Category	Good n (%)	Fair n (%)	Poor n (%)	Total n	Pearson χ^2 (df)	p-value
	Others	4 (100.0%)	0 (0.0%)	0 (0.0%)	4		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		
Occupation	Unemployed	88 (81.5%)	19 (17.6%)	1 (0.9%)	108	34.287 (10)	< .001[f]
	Farmer	15 (71.4%)	5 (23.8%)	1 (4.8%)	21		
	Trader	86 (93.5%)	6 (6.5%)	0 (0.0%)	92		
	Civil Servant	67 (94.4%)	4 (5.6%)	0 (0.0%)	71		
	Artisan	209 (95.4%)	9 (4.1%)	1 (0.5%)	219		
	Others	86 (88.7%)	11 (11.3%)	0 (0.0%)	97		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		
Income	< ₦77,000	471 (90.4%)	47 (9.0%)	3 (0.6%)	521	0.601 (2)	.100[f]
	≥ ₦77,000	80 (92.0%)	7 (8.0%)	0 (0.0%)	87		
	Total	**551 (90.6%)**	**54 (8.9%)**	**3 (0.5%)**	**608**		

f is Fisher's exact probability value for cross-tabulation categories where there are at least 20% of cells with less than 5 expected frequencies

Discussion

This study set out to assess the socio-demographic profiles, perceptions, and preventive practices against non-communicable diseases (NCDs) among women of reproductive age in Ilorin West Local Government Area, Kwara State, Nigeria. These results provide critical insights into how socio-economic and demographic variables intersect to influence health-seeking behaviours in a semi-urban Nigerian setting.

Overall, 608 respondents were recruited for this study, and the largest number, 38.5%, were aged 25–34 years. The respondents' mean age was 28.08 ± 7.9 years. This mirrors Nigeria's young demographic

profile and aligns with recent studies on women of reproductive age. This age group is particularly important for health outcomes and indices of any nation. Research has consistently shown that younger women in their prime reproductive years exhibit different health-seeking patterns and knowledge acquisition abilities compared to older groups.[14–16] The concentration of respondents aged 25–34 years (38.5%) is in tandem with findings from a recent maternal health literacy study conducted in southwestern Nigeria, where women in the 25–34 age group demonstrated the highest levels of health literacy. This was attributed to their enhanced cognitive abilities, greater access to information sources, and optimal physical capacity for processing health information. The married respondents, 53.5% and the single ones, 43.6%, in this study reflect the contemporary Nigerian urban marriage patterns, where women increasingly delay marriage for educational and economic opportunities. Research has reported that marital status significantly influences health decision-making through spousal support systems, with married individuals often demonstrating better health outcomes due to enhanced social support and shared decision-making responsibilities.[14,17] The low representation of divorced/separated (2.1%) and widowed (0.8%) respondents in this study further emphasizes both the cultural factors or influences that discourage marital dissolution within African settings, and the potential underreporting due to social desirability bias or stigma. However, these proportions are consistent with recent demographic surveys from similar Nigerian contexts.[18,19]

In this study, a significant proportion, 93.3% of the respondents, have an exceptional educational background, with all of them having completed post-primary education and 52% holding tertiary education. This educational attainment significantly exceeds national averages and represents an important demographic characteristic that has profound implications for the health outcomes. Maternal education has consistently been reported as one of the strongest predictors of health knowledge, health-seeking behaviour, and positive health practices and outcomes.[20,21] The finding in the index study is also in tandem with the survey done in the year 2022 by Bello et. al in a comprehensive health centre in Ado-Ekiti, Nigeria, where the majority of respondents had a tertiary level of education.[15] Higher maternal education influences health outcomes in many positive ways, such as enhanced health information processing, improved communication with healthcare providers, greater self-efficacy in health management, and increased economic resources for healthcare access.[20]

A larger percentage of the respondents, 77.6% in this study, were Muslim; this reflects the fact that Kwara State in the North-Central part of the country, where the majority practice Islam as a faith. However, the finding was in contrast with the study by Chinedu-Elonu et al. conducted among similar respondents in southeastern Nigeria, where the majority, 74.2%, were Christian.[21] The difference in the geopolitical zones where the studies were done could account for the differences in the faith of the respondents. This has important implications for health beliefs and behaviours. Recent studies have documented significant religious influences on health-seeking behaviour in Nigeria, with both positive and negative effects depending on the specific health domain and religious interpretation.[21–23] Strong correlation has been documented between religious practices and health-seeking behaviours, also with concurrent challenges when religious beliefs conflict with medical recommendations.[21]

Notably, 36% of respondents were artisans, which represents a significant concentration in skilled manual labour that reflects Nigeria's substantial informal sector economy, where women constitute a disproportionate share of workers. Studies have shown that Nigerian women represent approximately 61% of informal sector workers, often concentrated in the lowest levels of informal employment with limited social protection and economic security.[24] Artisan women are generally exposed to certain vulnerabilities, including job insecurity, inadequate wages, and limited access to healthcare services.[24] Sometimes, it gives them chances to have good NCDs knowledge and preventive practices; that is, occupational networks may facilitate health information sharing. Research on artisan trade associations in Nigeria has documented that these informal networks can contribute to health and safety knowledge transmission, with associations serving as platforms for collective learning and mutual support.[24]

The finding that 85.7% of respondents earned below ₦77,000 (the national minimum wage threshold) reflects broader patterns of income inequality and economic challenges facing Nigerian women, especially the working class within reproductive age. Recent research on income inequality and health financing in Nigeria reveals that poor people spend approximately nine times more on healthcare costs than wealthy people, creating significant barriers to healthcare access for low-income populations.[25,26] Research on maternal health service utilization in Nigeria has consistently found that higher income enables better healthcare access, while financial constraints represent major barriers to preventive care and health information-seeking behaviour.[15,27]

The respondents' perceptions of NCDs in this study were predominantly positive, with a mean score of 21.28 out of 25. Approximately 85.4% of the respondents were categorized as having a positive perception. Women overwhelmingly agreed that NCDs are serious and preventable health concerns, and they largely rejected misconceptions such as NCDs only affecting older people. Perceptions were more positive among those with higher educational attainment, artisans, and Muslims. These trends have also been observed in other Nigerian cities and in multi-country studies, where positive attitudes are linked to formal health education and consistent community engagement.[28,29] While local research often focuses on knowledge and prevalence, a growing body of international literature highlights the importance of women-centred community health models and gender-responsive policies in NCD prevention. Improved perceptions have been associated with successful campaigns involving women's groups and grassroots advocacy.[30,31] This finding contrasts with studies from other Nigerian regions where misconceptions about NCDs remain prevalent.[32,33]

The high confidence in preventive ability (92.5% agreed or strongly agreed with "I feel confident in my ability to prevent NCDs") represents a crucial psychological asset for behaviour change interventions. This aligns with recent research on health empowerment in Nigerian women, which emphasizes the importance of self-efficacy in health-related decision-making.[34,35] The significant associations between perceptions and education, religion, and occupation echo patterns observed in knowledge, reinforcing the interconnected nature of health literacy components. The finding that secondary education was associated with the highest proportion of positive perceptions (92.4%), even higher than tertiary

education (79.4%), suggests a possible threshold effect where basic health education messages are most effectively absorbed at the secondary level. The religious differences in perceptions, with Muslims showing more positive attitudes (87.9%) compared to Christians (77.3%), may reflect community-level health promotion activities or religious leader engagement in health messaging. This finding is supported by recent research on faith-based health interventions in Nigeria, which documents varying levels of engagement across religious communities.[36] Overall, the perception results suggest that most women of reproductive age in this study possess adequate knowledge and awareness of NCDs, their risks, and the potential benefits of prevention. Such a positive perception provides a good foundation for implementing community-based preventive interventions.

This study found a high level of engagement in healthy behaviours and preventive practices, with a mean preventive practice index of 5.78 out of 7, and 90.6% in the good practice category. This high level of good health practices indicates healthier behaviours and generally favourable preventive practices among the respondents compared to historical averages in Nigeria. Most women reported regular fruit and vegetable intake (97.2%), regular health check-ups (91.6%), and frequent physical exercise (87.3%). These results indicate that dietary and physical activity practices are well integrated among the women of reproductive age. Similarly, health-seeking behaviour was high, as seen in regular health check-ups (91.6%) and routine blood pressure/blood sugar monitoring (85.9%). These practices suggest a strong alignment between positive perception and actual preventive actions. The findings in this study are congruent with recent findings in Nigerian and West African studies, where preventive health behaviours are increasingly common, especially dietary modification and physical activity, but structured educational participation lags. The literature identifies similar barriers, such as competing work and family responsibilities, low perceived risk among young women, and health system constraints.[37–39]

The reported high level of physical activity (87.3%) contrasts with broader literature on physical activity patterns among Nigerian women. Awotidebe et al. found a 32.5% prevalence of physical inactivity among Nigerian women, with multiparous women, post-menopausal status, and high perceived barriers significantly associated with inactivity.[40] Suberu et al. identified various barriers to physical activity among pregnant women in Ibadan, Nigeria, including intrapersonal barriers, environmental barriers, and interpersonal barriers.[40,41] The discrepancy between the index findings and previous studies may reflect several factors: the urban setting of the study, the high educational status of participants, or potential social desirability bias in self-reporting. Cultural and structural barriers to physical activity among African women, including traditional gender roles, safety concerns, and time constraints related to domestic responsibilities, remain significant challenges.[42–44]

Furthermore, attendance at health education sessions was low (20.4%), and engagement in smoking (2%) and alcohol use (2.6%) was very low, reflecting strong community norms against these risks. This suggests limited coverage of health promotion efforts at the community level, despite high personal awareness and practices. This low level of attendance at health education sessions may also imply reliance on other information sources, such as peer networks, social media, or health facility

interactions, rather than formal sensitization programs. This finding is consistent with implementation research on community health programs in Nigeria, which identifies low participation in structured health education as a persistent challenge. The contrast between high individual preventive behaviours and low participation in formal health education suggests that women access health information through informal networks rather than structured programs.[45]

The exceptionally high levels of preventive practices observed (90.6% with good practice, mean score 5.78/7) represent one of the most encouraging findings of this study. The near-universal adoption of fruit and vegetable consumption (97.2%) and high rates of regular health check-ups (91.6%) and exercise (87.3%) significantly exceed levels reported in previous Nigerian studies.[37,39] These findings contrast markedly with a 2023 study of NCD risk factors in Nigeria, which found much lower rates of protective behaviours and a higher prevalence of risk factors such as physical inactivity and unhealthy diet. The exceptional performance in this study may reflect the specific demographic characteristics of the sample, particularly the high educational attainment and urban location.[37]

The very low rates of smoking (2.0%) and alcohol consumption (2.6%) likely reflect both cultural norms and social desirability bias in reporting. These rates are considerably lower than national averages reported in recent Nigerian health surveys, which may indicate either genuine low prevalence in this population or underreporting of socially undesirable behaviours.[46,47] The rejection of the misconception that "only older people suffer from NCDs" by 73% of participants suggests growing awareness of NCD risks among younger populations. This finding is crucial given the increasing incidence of NCDs among younger age groups globally, including in Nigeria. The positive perceptions create a favourable environment for health promotion interventions, indicating readiness for behaviour change.[46,48]

Most participants in this study reported adopting appropriate preventive measures such as engaging in regular physical exercise, consuming fruits and vegetables, abstaining from alcohol and tobacco use, attending NCDs health talks, and participating in regular health checks. These behaviours differ markedly from those reported in studies by Akinlade and Legesse et al., where a significant proportion of participants engaged in unhealthy behaviours such as smoking, alcohol consumption, and frequent intake of high-salt and processed foods.[6,29]

Considering all these results, they suggest that women of reproductive age in the study area generally engage in effective preventive practices concerning non-communicable diseases. However, there is a dire need to enhance community-based health education and awareness campaigns to reinforce behavioural changes and address rising risks. Strengthening structured health promotion programs could further sustain and improve preventive practices, especially in vulnerable subgroups. The findings reveal a population with high positive attitudes and generally good preventive practices, but with significant gaps in specific areas such as health education participation. The evidence from this study suggests that investments in health education, healthcare system strengthening, and multi-sectoral approaches to prevention could yield significant returns in terms of reduced NCD burden and improved population health outcomes.

This study found that occupation is one of the most significant factors influencing preventive practices against NCDs among women of reproductive age in Ilorin West LGA. It has been found that unemployed women are less likely to engage in preventive behaviours. To improve NCDs prevention and control in this population, public health interventions should focus on addressing socioeconomic barriers such as unemployment and limited access to healthcare services. Strengthening health literacy and reducing structural inequalities will be essential to improving preventive health behaviours and reducing the burden of NCDs among women in this demographic group. Special attention should be given to unemployed and economically disadvantaged women, who face greater challenges in adopting preventive practices due to financial and social constraints. Incorporating NCDs prevention education into existing maternal and child health programmes, as well as offering community-based awareness campaigns and subsidized preventive screenings, could enhance the reach and effectiveness of interventions among women of reproductive age.

Conclusion

Women of reproductive age in Ilorin West LGA generally hold positive attitudes towards NCD prevention, which translates into favourable preventive behaviours. Key determinants of good practice include higher educational attainment, occupation (particularly artisanal work), and income above the minimum wage. Nevertheless, the effectiveness of preventive practices is hindered by low participation in formal health education activities. These findings underscore the need to sustain and expand health promotion initiatives tailored to local cultural and socio-economic realities. Occupation and education were the only variables significantly associated with the quality of preventive practices. Unemployed women exhibited higher rates of fair to poor preventive practices than their employed counterparts. This emphasises that health behaviours are inextricably linked to economic stability; women without independent income may struggle to afford nutritious diets or prioritise preventive screenings over immediate survival needs.[25]

Implications For Public Health

The findings of this study offer a dual narrative: while individual awareness and practices regarding NCDs are impressively high among educated women in Ilorin West, structured public health interventions lag. The data strongly suggest that public health policymakers must pivot from basic awareness campaigns to structural facilitation. Interventions should leverage the high willingness of these women to participate in community health initiatives by integrating NCD education into maternal, antenatal, and child health clinics, where women of reproductive age already converge. Furthermore, specific safety nets and subsidized screening programs must be developed to support unemployed and economically disadvantaged women, ensuring that the ability to prevent chronic diseases is not dictated solely by socioeconomic status.

Limitations of the Study

Considering the findings of this study, these limitations should be taken into account during interpretation. First, the cross-sectional design limits the analysis to identifying associations instead of

establishing causality. Geographically, the research is confined to Ilorin West LGA, which limits the generalizability of the results to broader populations in Kwara State or across Nigeria. Additionally, despite utilizing a systematic, multistage sampling approach, certain marginalized groups may still be underrepresented due to language barriers or cultural restrictions. The reliance on self-reported data also introduces the potential for recall and social desirability biases, which could artificially inflate the reported levels of knowledge and preventive practices. Finally, variations in respondents' health literacy may have affected the quality and accuracy of their responses, potentially limiting the depth of the overall analysis.

Abbreviations

IBM SPSS (2023)
International Business Machine Statistical Package for Social Sciences
INEC
Independent National Electoral Committee
LGA
Local Government Area
NCD
Non–Communicable Diseases
WHO
World Health Organization

Declarations

Ethics Approval and Consent to Participate: Ethical approval for the study was obtained from the Kwara State Ministry of Health in Ilorin, Kwara State, under reference number ECR/MOH/2025/08/495, in accordance with the Declaration of Helsinki and Nigerian National Code of Health Research Ethics. Written informed consent was secured from all participants, ensuring that all collected data remained confidential. There were no financial incentives or coercion involved throughout the study.

Consent for Publication: Not Applicable

Availability of Data and Materials: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests: The authors have no competing interests to declare

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Authors' Contributions: IAS: Conceptualization, literature search and literature review, manuscript review, manuscript writing, Manuscript revision, final approval, and a major contributor to the final draft of the manuscript. **BSI:** Conceptualization, literature search and literature review, **IKF:** Conceptualization,

Literature search, Literature review, data collection, and manuscript revision, **IA:** Conceptualization, literature search, data collection, data analysis and manuscript review. **ICB:** Conceptualization, Literature review, data analysis and manuscript review. All authors have critically read and approved the final manuscript.

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References

1. World Health Organization (WHO). Non-Communicable Diseases. 2024. Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed on May 26 2025.
2. World Health Organization (WHO). Noncommunicable Diseases Factsheet Report. 2023. Available at https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed 24th May, 2024.
3. Abegunde DO, Mathers CD, Adam T, Ortegon M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. *Lancet*. 2007;*370*(9603):1929–1938. https://doi.org/10.1016/S0140-6736(07)61696-1
4. Pinchoff J, Mills CW, Balk D. Urbanization and health: the effects of the built environment on chronic disease risk factors among women in Tanzania. *PLoS One*. 2020;*15*(11): e0241810.
5. Reiter C, Goujon A, Samir KC. The Demography of Human Capital Formation in Sub-Saharan Africa, 1950-2100. In *The Routledge handbook of African demography.* 2022; pp. 591-615.
6. Akinlade, AF. Knowledge and Perception about Hypertension and its Risk Factors Among Staff of Ibadan North Local Government, Ibadan, Nigeria. 2016. (Doctoral dissertation) http://adhlui.com.ui.edu.ng/jspui/handle/123456789/451
7. Adewoyin Y. Urban Health Dimensions of Demographic Research in Africa–A Systematic Review. *The Routledge Handbook of African Demography*. 2022; 380-403.
8. Osiberu AA, Oluwasanu MM, Omobowale M, John-Akinola Y, Oladepo O. A cross-sectional study of the knowledge and screening practices of diabetes among adults in a south-western Nigerian city. *Journal of Preventive Medicine and Hygiene*. 2021; *62*(2): E529.
9. Makama SI. Report of Nigeria's National Population Commission on the 2006 census. Population and Development Review. 2007 Mar 1;33(1):206-11.
10. Idowu A, Olowookere SA, Fagbemi AT, Ogunlaja OA. Determinants of Cervical Cancer Screening Uptake among Women in Ilorin, North Central Nigeria: A Community-Based Study. J Cancer Epidemiol. 2016; 2016:6469240.
11. Kwara State Government. (KSG). *Welcome to Kwara State.* Kwara State Government. 2020. Available at: https://kwarastate.gov.ng/. Accessed on July 15, 2025.

12. Independent National Electoral Commission (INEC). 2025. *[IREV]*. Available at: https://www.inecnigeria.org. Accessed on July 15, 2025.
13. Upadhyay HP, Pradhan BL. Sample Size Estimation in Medical Research Based Upon Study Design. *Journal of College of Medical Sciences-Nepal*. 2023; *19*(2): 237–45.
14. Shehu A, Alasan BB, Sa'adu M, Ayuba AS, Mustaph U, Magaji S. Socio-demographic characteristics and women's attitudes as determinants to practice modern contraceptives uptake as correlated among women of childbearing age in Jigawa State, Nigeria. GSC Biological and Pharmaceutical Sciences. 2023; 24(03): 326–336.
15. Bello CB, Esan DT, Akerele SA, Fadare RI. Maternal health literacy, utilisation of maternal healthcare services and pregnancy outcomes among newly delivered mothers: A cross-sectional study in Nigeria. Public Health Pract (Oxf). 2022; 3:100266.
16. Ezema RN, Igbokwe CC, Iwuagwu TE, Agbaje OS, Ofuebe JI, Abugu LI, et al. Association of sociodemographic factors, breast cancer fear, and perceived self-efficacy with breast cancer screening behaviours among middle-aged Nigerian women. Breast Cancer: Basic and Clinical Research. 2021; 15:11782234211043651.
17. Akinniyi RJ, Kazeem KL, Ishola AA. From Expectation to Action: The Interplay of Health Expectations, Care Quality, and Socio-demographic Moderators in Health-Seeking Behaviour of Health workers. Journal of Management and Social Sciences. 2025; 14(1).
18. Nzebuba CD, Eze O, Nduka FU. Health-Seeking Behaviour Among Rural Dwellers In Enugu, A South-Eastern Nigerian State. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2025; 4(3): 01-08.
19. Eze SN, Ani PN, Anoshirike CO. Anaemia in pregnancy: prevalence and associated socio-demographic and obstetric factors in urban and rural communities in Nsukka area of Enugu State, Nigeria. Afr Health Sci. 2024; 24(2):194-202.
20. Edidiongobong UU, Ehikwe GI, Elo-Oghene EM, Enioya GE, Osita CM, Ebuwa IV, et al. The Impact of Maternal Education and Socioeconomic Status on Child Health Outcomes in Edo State, Nigeria. Asian Journal of Pediatric Research. 2025; 15(2):1-2.
21. Chinedu-Elonu PO, Ekeopara WH, Eberendu IF, Igwe CN, Adamu KS, Ozoh FC. Cultural And Religious Practices: A Major Challenge of Public Health in Nigeria. Biomedical Studies and Clinical Evaluations (BSCE). 2024; 1(2).
22. Peñas S, Rivera B, Cantarero D, Casal B, Pascual M, Blázquez-Fernández C, et.al. The impact of socioeconomic position on non-communicable diseases: what do we know about it? Perspectives in Public Health. 2020; 141(3), 158-176. https://doi.org/10.1177/1757913920914952
23. Oyibo P, Umuerri E, Okumagba M, Oyibo I. Sociodemographic predictors of non-communicable diseases risk-related knowledge and behaviours: a cross-sectional study of in-school adolescents in a southern Nigerian state. Pan African Medical Journal. 2023;45. https://doi.org/10.11604/pamj.2023.45.184.37654

24. Arum I, Eze NS. Women and the informal sector of Nigerian economy. Redeemer's University Journal of Management and Social Sciences. 2022 Aug 24;5(1).
25. Olanrewaju O. Minimum wage, poverty and social welfare in Nigeria: Revisiting distributive justice. *Ife Social Sciences Review*. 2022; *30*(2): 53-63.
26. Tella AR, Adeleke NO, Amodu AA. Effect of Minimum Wage Legislation on Poverty Levels: Evidence from Nigeria. *Account and Financial Management Journal*. 2024; *9*(10): 3390–3402. https://doi.org/10.47191/afmj/v9i10.01
27. Maitanmi BT, Adelaja AA, Okunola DR, Maitanmi JO, Tola YO, Akingbade O. Association between Socioeconomic Status and the Utilization of Maternal Health Services in Nigeria. Iran J Nurs Midwifery Res. 2023; 28(5):514-519.
28. World Health Organization (WHO). Knowledge Action Portal on NCDs. 2024. Available at: Women and Girls | Knowledge Action Portal on NCDs. Accessed on 9th October, 2025.
29. Legesse E, Nigussie T, Girma D, Geleta LA, Dejene H, Deriba BS, et.al. Level of adequate knowledge of non-communicable diseases and associated factors among adult residents of North Shewa Zone, Oromia Region, Ethiopia: a Mixed-Method Approach. *Frontiers in public health*. 2022; 10: 892108.
30. Rasanathan K, Dako-Gyeke P, Isaranuwatchai W, Mahendradhata Y, Roberts M, Loffreda G, et al. Non-communicable Diseases: can implementation research change the game for policy and practice? *The Lancet*. 2024; *404*(10466): 1908-1910.
31. Marzaro J. (DOCTORS WITH AFRICA CUAMM). Non-communicable Diseases and Gender. 2025. Available at: Noncommunicable diseases and gender - Doctors with Africa CUAMM. Accessed on 9th October, 2025.
32. Obada AA, Airaoje OK, Okuneye AP, Collins-Dike J, Msughter AE. Media Role on the Burden of Non-communicable Diseases in Nigeria. Clin Case Rep Int. 2024; 8: 1652.
33. Moghalu C. Communicating About Non-Communicable Diseases. 2025. Available at: Communicating about non-communicable diseases. Accessed on 9th October, 2025.
34. Enhancing Financial Innovation & Access (EFInA). Women's Economic Empowerment in Nigeria: A Critical Look at the Access to Financial Services in Nigeria (A2F) 2023 Survey – Report highlights. 2023. Available at: Women's Economic Empowerment in Nigeria: A Critical Look at the Access to Financial Services in Nigeria 2023 Survey – Report highlights. Accessed on 9th October, 2025.
35. Policy Innovation Centre (PIC). A Scoping Assessment of Women's Health Advocacy in Nigeria. 2024. Available at: Women-Health-Advocacy-Report-Final_1727966697.pdf. Accessed on 9th October, 2025.
36. Abhadionmhen AO, Imarenezor EPK, Ogodo AC, Ahuchaogu AA. Socioeconomic and cultural factors influencing traditional medicine (TM) use in Nigeria: A systematic mixed-method review. *European Journal of Integrative Medicine*. 2025; *74*:102436.

37. Ogboye A, Akpakli JK, Iwuala A, Etuk I, Njoku K, Jackson S, et.al. Prevalence of non-communicable diseases and risk factors of pre-eclampsia/eclampsia in four local government areas in Nigeria: a cross-sectional study. BMJ Open. 2023; 13(10):e071652.
38. Zar VD, Ordinioha B, Clement EE, Wamanyi Y, Jibrin MD, Umar, I, et. al. Determinants of Preventive Practices for Non-Communicable Diseases Among Primary Healthcare Workers in Benue State. *American Journal of Public Health and Epidemiology (AJPHE)*. 2025; 11(3): 33–47. https://doi.org/10.5281/zenodo.15792393
39. Rajashekhar M, Joshi M, Mundra A, Kolhe R, Kirubakaran R, Raut AV, et. al. Community-based health promotion interventions to reduce risk factors of non-communicable diseases among adolescent and young adults in low-and middle-income countries: A systematic review and meta-analysis. *Public Health.* 2025;105714.
40. Awotıdebe TO, Bısırıyu LA, Atıvıe RN, Oke KI, Adedoyın RA, Nabakwe EC, et.al. Prevalence of physical inactivity among Nigerian women: do socio-demographic characteristics, women's personal attributes and psychosocial factors play any role? *Journal of Exercise Therapy and Rehabilitation*. 2017; *4*(1): 33-45.
41. Suberu F, Adeoye IA. Barriers, attitudes and perceptions to physical activity among pregnant women in Ibadan, Nigeria and the associated factors: a mixed-method study. Reprod Health. 2024; 21(1):166.
42. Akhter S, Kamruzzaman M, Anwar I, Banu MS, Reidpath DD, Cameron AJ. Knowledge of gendered needs among the planners and policy makers for prevention of NCDs in Bangladesh: a qualitative exploration. *International journal for equity in health*. 2024; *23*(1): 110.
43. Mbada CE, Ojo DA, Akinwande OA, Orji OE, Adeyemi AB, Mbada KA, et. al Patterns, facilitators and barriers to physical activity among Nigerian pregnant women. Pan Afr Med J. 2022; 42:321.
44. Olufemi BS, Martha AT, Tolulope SA, Olutowo KIO. Level of Physical Activity and Potential Barriers among Women in a Tertiary Health Institution in Southwestern Nigeria. *J Adv Sport Phys Edu*. 2025; *8*(7): 131-136.
45. Okorie K. Nigeria's Primary Health Centers Are Essential for NCD Control – But Lack Drugs and Support. 2024. Available at: Nigeria's Primary Health Centers Are Essential For NCD Control – But Lack Drugs And Support - Health Policy Watch. Accessed on 9th October, 2025.
46. Barry A, Impouma B, Wolfe CM, Campos A, Richards NC, Kalu A, et.al. Non-communicable diseases in the WHO African region: analysis of risk factors, mortality, and responses based on WHO data. Sci Rep. 2025; 15(1):12288.
47. World Health Organization (WHO). Non-communicable Diseases. 2025. Available at: Noncommunicable Diseases | WHO | Regional Office for Africa. Accessed on 9th October, 2025.
48. Federal Ministry of Health (FMOH). National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019 – 2025). 2019. Available at: NCDsNG Book.cdr. Accessed on 10th October, 2025.

Figures

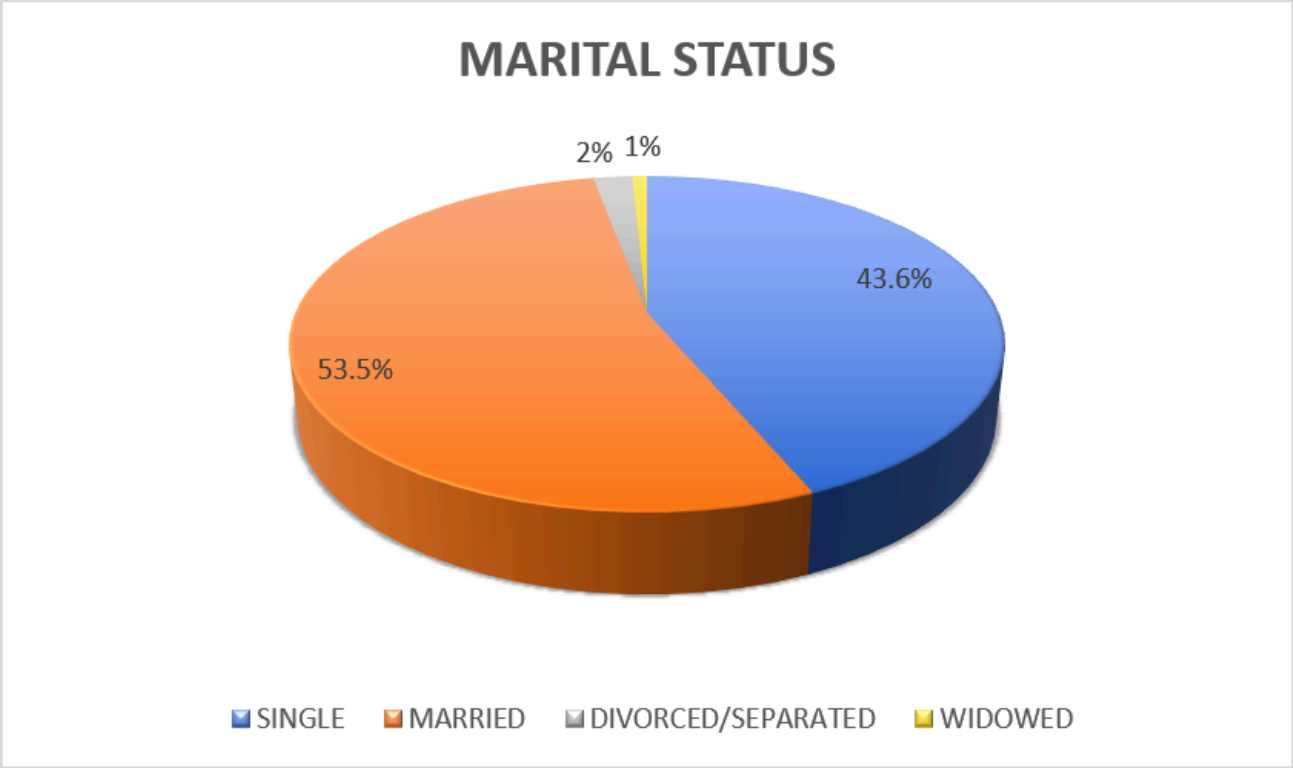


Figure 1

The marital status of the respondents.

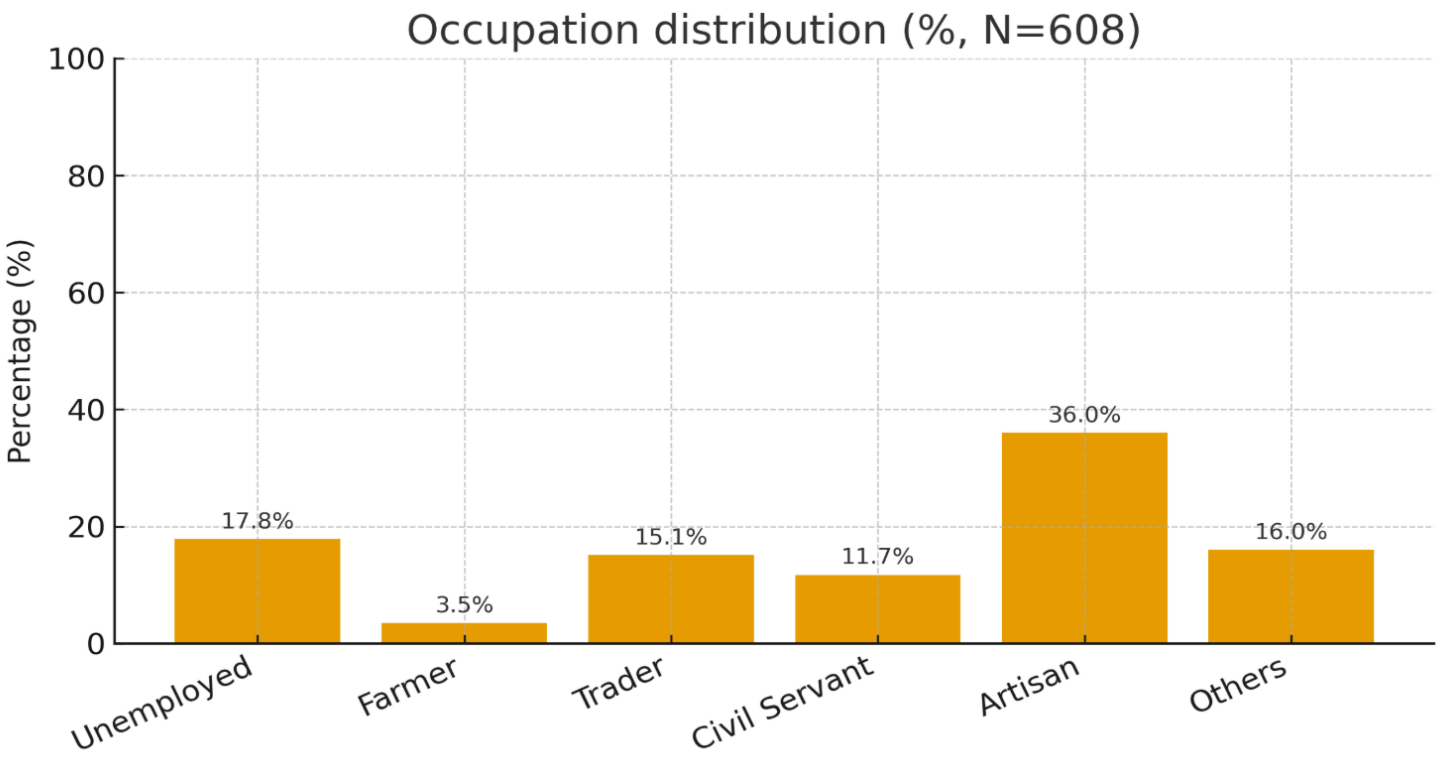


Figure 2

Occupational distribution among the respondents

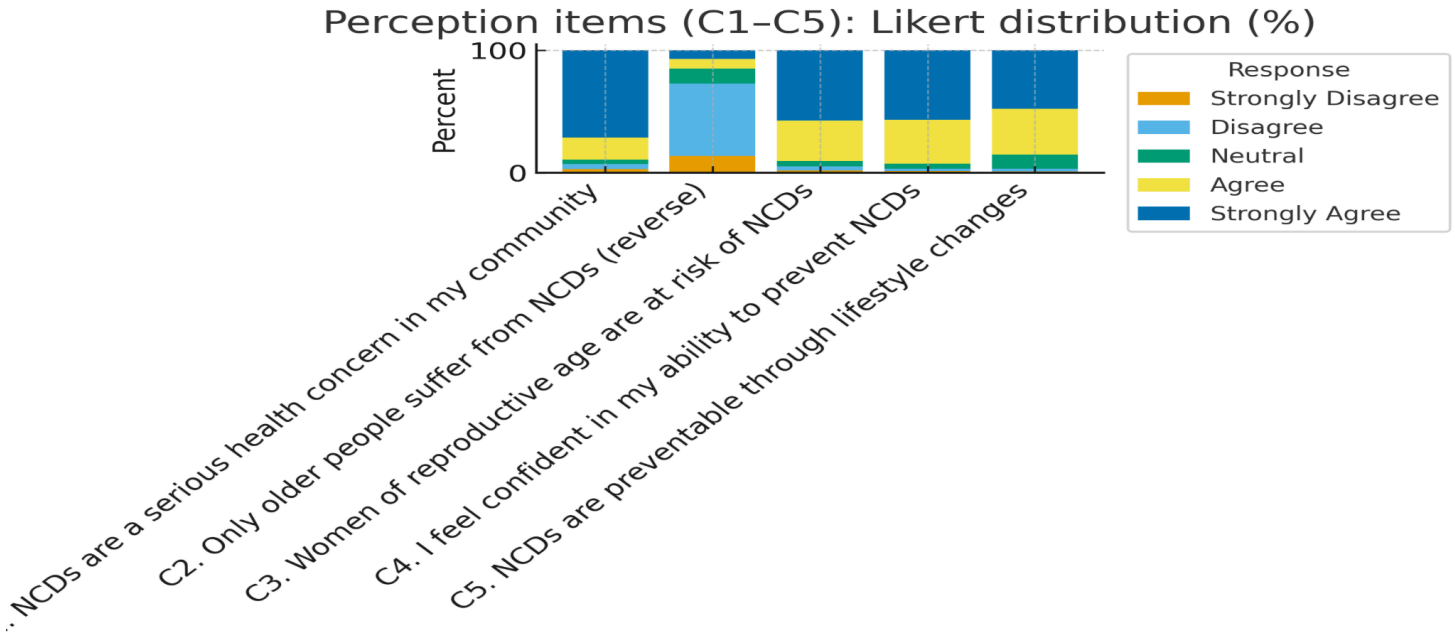


Figure 3

Showing Respondents' Perception items (1–5) — Likert stacked bars

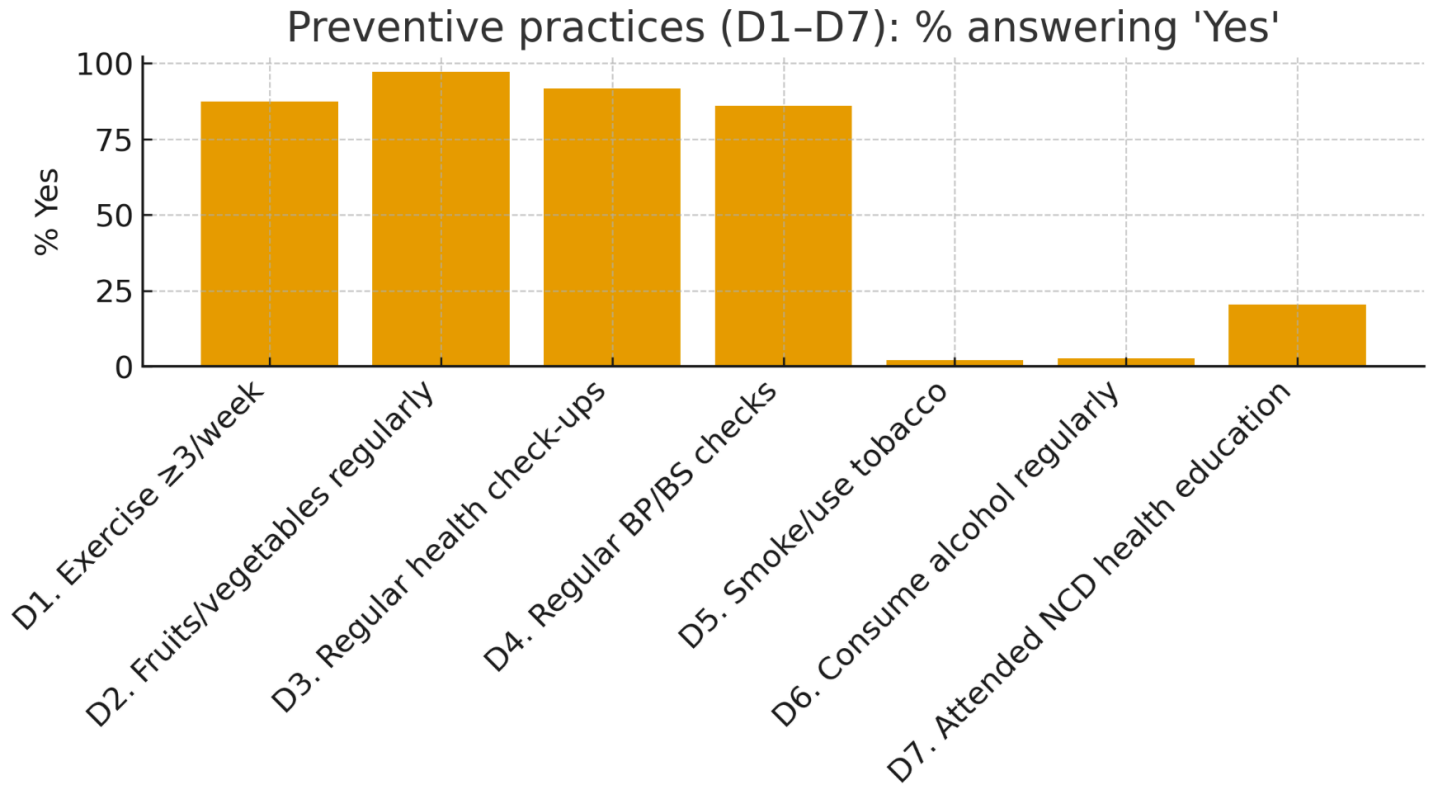


Figure 4

Respondents Preventive practices (D1–D7) represented in Bar Chart (% answering “Yes”)

Supplementary Files

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