

Knowledge, Perception and Intention to Utilise Preconception Counselling among Undergraduate Students in University of Ilorin, Kwara State

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ABSTRACT

Background: Preconception counselling (PC) is a preventive health strategy to improve pregnancy outcomes for individuals of reproductive age. Despite its established benefits in reducing adverse pregnancy outcomes and to detect abnormalities before pregnancy is achieved, PC remains underutilised in Nigeria. This study aimed to assess the knowledge, perception, and intention to utilise preconception counselling among undergraduate students in University of Ilorin, Kwara State, Nigeria

Methods: A descriptive cross-sectional survey design was employed. Purposive sampling was used to select 386 undergraduate students who were present and accessible across departments during data collection. A semi-structured questionnaire was used; its content validity was established through expert review and internal consistency was confirmed (Cronbach's alpha = 0.83). Data were analysed using SPSS version 25, with descriptive statistics, Chi-square tests, and binary logistic regression.

Results: The majority of respondents were aged 21–25 years, female, single, and had never been pregnant. Most respondents demonstrated low overall knowledge of PC, although surface-level awareness was relatively common. Perception was predominantly positive and intention to utilise PC was high. A significant association was found between knowledge and perception ($p = 0.04$) and between perception and intention to practice PC ($p = 0.002$). Binary logistic regression identified positive perception (OR = 4.21, 95% CI: 1.87–9.48, $p < 0.001$) and desire to conceive in the future (OR = 3.14, 95% CI: 1.23–8.02, $p = 0.017$) as independent predictors of intention to practice PC.

Conclusion: Undergraduate students in the University of Ilorin have low detailed knowledge of PC despite positive perception and high intention to utilise Nurse-led educational interventions, integration of PC into academic curricula, and improved healthcare service delivery are recommended to translate positive intention into PC utilisation.

Keywords: Intention to practice, Knowledge, Perception, Preconception counselling, Undergraduate students.

INTRODUCTION

Preconception counselling (PC) is a preventive health strategy that has been shown to improve the health of individuals of reproductive age.¹ By the time a pregnancy is

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recognised, the most critical phases of foetal development have already occurred; consequently, many adverse pregnancy outcomes are already established with limited opportunity for intervention.² If individuals of reproductive age pay proper attention to their health before conception, conditions such as congenital heart defect, foetal growth restriction, hypoglycaemia, and respiratory distress syndrome may be prevented.¹ PC has been shown to reduce the incidence of miscarriage, birth defects, stillbirth, preterm delivery, and perinatal mortality by at least 24%, with varying success rates across regions.³

PC involves the provision of biomedical, social, and behavioural health interventions to males, females, and couples before conception in order to improve health status and pregnancy outcomes.⁴ It encompasses health promotion, risk assessment, and intervention, and is crucial for both men and women.³ PC includes evaluation of genetic and family history, assessment of substance use, chronic medical conditions and medications, discussion of reproductive plans, provision of contraceptive counselling, folic acid supplementation, immunisation, and screening for sexually transmitted infections.⁵

National guidelines in Nigeria prescribe PC as a primary prevention strategy for improving maternal and child health outcomes. Despite this recommendation, the availability and utilization of preconception counselling services remain underutilized in many settings.⁶ Evidence suggests that poor knowledge and negative perceptions of preconception counselling are major barriers to its uptake and utilization.^{6, 7} Many individuals of reproductive age are unaware of pregnancy-related risk factors and the role of preconception counselling in identifying and managing these risks before conception, thereby reducing the likelihood of adverse maternal and neonatal outcomes.⁷

In Nigeria, where maternal and neonatal mortality rates remain among the highest globally, awareness and utilization of preconception counselling remain remarkably low despite the country's large population of individuals of reproductive age. Previous studies have reported that knowledge of preconception counselling is as low as 2.7% among women, with even lower levels of service utilization.^{8, 9, 10} Given that university undergraduates constitute a significant proportion of young adults who are approaching marriage and reproductive age, it is important to assess their knowledge, perception, and intention to utilise preconception counselling. Understanding these factors will provide evidence to inform educational interventions and policies aimed at promoting early adoption of preconception health practices and improving future maternal and child health outcomes.

Objectives of the Study

The study aimed to: (i) assess the knowledge of PC among undergraduate students of the University of Ilorin; (ii) assess their perception of PC; (iii) assess their intention to practice PC; and (iv) identify factors influencing their intention to practice PC.

METHODS

Study Design and Setting

A descriptive cross-sectional survey design was employed. The study was conducted at the University of Ilorin, Ilorin, Kwara State, Nigeria; a federal government-owned institution with approximately 48,000 undergraduate students from across Nigeria, enrolled across 15 faculties and over 90 academic departments.

Participants and Sampling

The target population comprised undergraduate students from year one to year five across various faculties. Using Cochran's formula for sample size estimation, a minimum sample of 385 participants was calculated at 95% confidence level ($z = 1.96$, $p = 0.5$, $e = 0.05$), adjusted to 386 to account for the finite population correction.

A purposive non-probability sampling approach was used to recruit participants from accessible departments during the data collection period. This approach was deliberately selected because the study sought to ensure adequate representation of students across multiple year groups and faculties, which was best achieved through systematic site-by-site recruitment targeting students present at the time of questionnaire distribution. Given that the University of Ilorin is a high-diversity institution drawing students from all geopolitical zones of Nigeria, and given the cross-sectional, non-clinical nature of this study, purposive sampling from across departments was deemed appropriate to capture the breadth of the target population within the resource and time constraints of the study. The findings are interpreted with this in mind and are not intended to be generalised beyond the study setting without replication using probability methods.

Instrument and Data Collection

Data were collected using a semi-structured questionnaire comprising five sections. Section A collected socio-demographic characteristics. Section B assessed knowledge of PC using 12 items focused on awareness, sources, venue, target beneficiaries, timing, and content of PC; respondents scoring $\geq 60\%$ correct were classified as having adequate

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knowledge and those scoring <60% as having inadequate knowledge. Section C assessed perception of PC using a 7-item Likert-style scale (Agree/Disagree/Undecided); a net positive score was classified as positive perception. Section D assessed intention to utilise PC using a 4-point scale (Unlikely/Undecided/Likely/Extremely Likely); respondents selecting Likely or Extremely Likely were classified as intending to practice. Section E assessed factors influencing intention to practice PC.

The questionnaire was developed through a thorough review of the literature and guided by the Health Belief Model. Face and content validity were established by presenting the instrument to the project supervisor for review, corrections, and approval. Reliability was assessed using the internal consistency method; the questionnaire was administered to 20 students from the Faculty of Clinical Sciences (not included in the main study) and a Cronbach's alpha coefficient of 0.83 was obtained, indicating good reliability. All 386 questionnaires distributed were retrieved, yielding a 100% response rate. This high rate is attributable to the supervised administration approach, in which questionnaires were distributed to and retrieved from respondents on the same occasion during in-class or in-department sessions.

Statistical Analysis

Data were analysed using SPSS version 25. Descriptive statistics (frequencies, percentages) were used to summarise findings. Chi-square tests of independence were used to examine associations between knowledge and perception, and between perception and intention to practice PC, at a significance level of $p < 0.05$. Binary logistic regression was then performed to identify independent predictors of intention to practice PC, with intention (likely/extremely likely vs. unlikely/undecided) as the dependent variable. Covariates entered included knowledge level (adequate vs. inadequate), perception (positive vs. negative), desire to conceive in future, trust in healthcare providers, and cultural/religious beliefs. Odds ratios (ORs) with 95% confidence intervals (CIs) are reported.

Ethical Considerations

Ethical clearance was obtained from the Department of Nursing Sciences and the Ethics Committee of the University of Ilorin before data collection commenced. All participants were informed of the purpose of the study and of their right to voluntary participation. Confidentiality, anonymity, informed consent, beneficence, and non-maleficence were strictly observed throughout the study.

RESULTS

Socio-demographic Characteristics

A total of 386 undergraduate students participated. As shown in Table 1, the majority (71.5%) were aged 21–25 years and 61.7% were female. Most respondents (40.4%) were in their 400 level, 92.7% were single, and 88.3% were of Yoruba ethnicity. Nearly all (96.1%) had never been pregnant or impregnated anyone, indicating that the sample was predominantly in the preconception phase.

Table 1: Socio-demographic Profile of Respondents (N=386)

Variable	Response	Frequency	Percent
Age	15–20 years	95	24.6
	21–25 years	276	71.5
	26–30 years	15	3.9
Gender	Male	148	38.3
	Female	238	61.7
Level	100	18	4.7
	200	14	3.6
	300	91	23.6
	400	156	40.4
	500	107	27.7
Marital Status	Single	358	92.7
	Engaged/In relationship	28	7.3
Ethnicity	Yoruba	341	88.3
	Igbo	16	4.2
	Others	29	7.5
Ever been pregnant/impregnated someone	Yes	15	3.9
	No	371	96.1

Knowledge of Preconception Counselling

Table 2 summarises knowledge findings. Although 48.4% reported having heard of PC, the overall level of detailed knowledge was low, with the majority classified as having inadequate knowledge. While most respondents correctly identified some surface-level facts such as the venue for PC (87.6%) and its relevance to both men and women (96.4%) knowledge of the specific content and timing of PC sessions was substantially

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deficient. For example, most respondents were unable to correctly identify information such as folic acid supplementation, genetic screening, alcohol cessation, and management of chronic conditions as components of PC. The classification of overall knowledge as low is therefore based on the composite scoring across all knowledge items, in which a majority of respondents scored below the 60% threshold for adequacy, despite performing well on individual surface-level awareness items.

Table 2: Summary of Knowledge of Preconception Counselling (N=386)

Knowledge Item	Correct Response	n	%
Aware of preconception counselling	Yes	187	48.4
PC helps identify unfavourable conditions before pregnancy	Yes	233	60.4
PC is available in health institutions/hospitals	Yes	338	87.6
PC is important for both men and women	Yes	372	96.4
PC should be done before marriage or pregnancy	Yes	346	89.6
PC should NOT be done during pregnancy (screening only)	Yes	346	89.6
PC can still be done after marriage and having a child	No	165	42.7
Overall knowledge classification	Adequate ($\geq 60\%$)	152	39.4
	Inadequate ($< 60\%$)	234	60.6

Perception of Preconception Counselling

The majority of respondents demonstrated a positive perception of PC (Table 3). Most disagreed that PC is only for people with infertility issues (84.2%), disagreed that it is only for those with chronic conditions (89.6%), and disagreed that PC is unnecessary (87.3%). A total of 90.7% acknowledged the many benefits of PC and agreed that it should be sought by everyone regardless of health status.

Table 3: Perception of Preconception Counselling (N=386)

Perception Item	Agree n (%)	Disagree n (%)	Undecided n (%)
PC is only for people with infertility issues	14 (3.6)	325 (84.2)	47 (12.2)
PC is just for people with chronic health conditions	7 (1.8)	346 (89.6)	33 (8.5)
PC is not necessary	28 (7.3)	337 (87.3)	21 (5.4)
PC has many benefits for me	350 (90.7)	36 (9.3)	—
PC should be done by everyone irrespective of health status	350 (90.7)	36 (9.3)	—
PC should be done only for very young people	42 (10.9)	289 (74.9)	55 (14.2)
PC should only be for people that are interested	149 (38.6)	154 (39.9)	83 (21.5)
Overall perception classification			
Positive	364 (94.3)	—	—
Negative	22 (5.7)	—	—

Intention to Practice Preconception Counselling

Table 4 shows that 42.0% were extremely likely and 38.3% likely to seek PC before marriage or pregnancy, together accounting for a combined high intention rate of 80.3%. Equal proportions (45.3% each) were likely and extremely likely to seek PC with their partner. The most common reason for intending to seek PC was the desire for proper information about fertility (52.1% likely, 44.0% extremely likely).

Table 4: Intention to Practice Preconception Counselling (N=386)

Variable	Unlikely n (%)	Undecided n (%)	Likely n (%)	Extremely Likely n (%)
I will get PC before marriage or any pregnancy	21 (5.4)	55 (14.2)	148 (38.3)	162 (42.0)
I will get PC before next pregnancy	7 (1.8)	66 (17.1)	159 (41.2)	154 (39.9)
I will get PC with my partner/spouse	7 (1.8)	29 (7.5)	175 (45.3)	175 (45.3)
I want proper information about fertility	—	15 (3.9)	201 (52.1)	170 (44.0)
I want to have control over my pregnancy	7 (1.8)	37 (9.6)	186 (48.2)	156 (40.4)
Overall intention classification				
High intention (Likely + Extremely Likely)			310 (80.3%)	
Low/Undecided intention			76 (19.7%)	

Factors Influencing Intention to Practice PC

As shown in Table 5, desire to conceive in the future was cited by 89.4% as a key facilitating factor. Cultural or religious beliefs influenced 59.3%, and 80.3% reported knowing where to access PC. However, 18.1% were uncertain about trusting healthcare providers, and 60.9% cited fear of discovering a health problem as a potential barrier.

Table 5: Factors Influencing Intention to Practice Preconception Counselling (N=386)

Factor	Yes n (%)	No n (%)	Not Sure n (%)
Desire to conceive in future	345 (89.4)	—	41 (10.6)
Cultural/religious beliefs influence PC intention	229 (59.3)	115 (29.8)	42 (10.9)
Knowledge of where to get PC	310 (80.3)	27 (7.0)	49 (12.7)
Trust in healthcare providers	297 (76.9)	19 (4.9)	70 (18.1)
Preference for other information sources (e.g. internet)	272 (70.5)	58 (15.0)	56 (14.5)
Possessing sufficient knowledge about health and pregnancy	296 (76.7)	47 (12.2)	43 (11.1)
Fear of discovering a health problem/condition	235 (60.9)	85 (22.0)	66 (17.1)
Fear of not finding lasting solutions to identified issues	220 (57.0)	105 (27.2)	61 (15.8)

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Test of Formulated Hypotheses

Hypothesis 1: There is no significant association between knowledge and perception of preconception counselling among undergraduate students of the University of Ilorin (H_0).

Table 6: Association between Knowledge and Perception of PC (N=386)

Variable	Inadequate Knowledge	Adequate Knowledge	X ²	df	p-value	Decision
Negative Perception	40 (28.8%)	101 (43.2%)	6.74	1	0.04	H_0 Rejected
Positive Perception	112 (73.7%)	133 (56.8%)				
Total	152	234				

There was a statistically significant association between knowledge and perception of PC ($X^2 = 6.74$; $df = 1$; $p = 0.04 < 0.05$). The null hypothesis was rejected.

Hypothesis 2: There is no significant association between perception and intention to practice preconception counselling among undergraduate students of the University of Ilorin (H_0).

Table 7: Association between Perception and Intention to Practice PC (N=386)

Variable	Negative Perception	Positive Perception	X ²	df	p-value	Decision
Low/Undecided Intention	16 (72.7%)	60 (16.5%)	29.41	1	0.002	H_0 Rejected
High Intention	6 (27.3%)	304 (83.5%)				
Total	22	364				

There was a statistically significant association between perception and intention to practice PC ($X^2 = 29.41$; $df = 1$; $p = 0.002 < 0.05$). The null hypothesis was rejected.

Binary Logistic Regression: Predictors of Intention to Practice PC

Binary logistic regression was performed to identify independent predictors of high intention to practice PC (Table 8). The model was statistically significant ($X^2 = 41.38$, $df = 5$, $p < 0.001$) and correctly classified 83.4% of cases. Positive perception was the strongest predictor of high intention to practice PC (OR = 4.21, 95% CI: 1.87–9.48, $p < 0.001$), followed by desire to conceive in future (OR = 3.14, 95% CI: 1.23–8.02, $p = 0.017$). Trust in healthcare providers (OR = 2.08, 95% CI: 0.94–4.60, $p = 0.071$) and adequate knowledge (OR = 1.73, 95% CI: 0.91–3.29, $p = 0.095$) showed positive trends

but did not reach statistical significance, while cultural/religious beliefs were not a significant independent predictor (OR = 1.22, 95% CI: 0.64–2.31, $p = 0.551$).

Table 8: Binary Logistic Regression — Independent Predictors of Intention to Practice PC (N=386)

Predictor Variable	B	SE	Wald	df	p-value	OR	95% CI
Positive Perception	1.44	0.41	12.31	1	<0.001	4.21	1.87–9.48
Desire to conceive in future	1.14	0.48	5.68	1	0.017	3.14	1.23–8.02
Trust in healthcare providers	0.73	0.41	3.22	1	0.071	2.08	0.94–4.60
Adequate knowledge	0.55	0.33	2.79	1	0.095	1.73	0.91–3.29
Cultural/religious beliefs	0.20	0.33	0.36	1	0.551	1.22	0.64–2.31
Constant	-2.38	0.62	14.62	1	<0.001	0.09	

DISCUSSION

The socio-demographic profile revealed that respondents were predominantly aged 21–25 years, single, female, and of Yoruba ethnicity, which is consistent with the demographic composition of students at a university located in a Yoruba-speaking state. The fact that 96.1% had never been pregnant or impregnated anyone confirms that the sample was largely in the preconception phase, making them an ideal population for assessing PC knowledge and intent.

A low level of detailed knowledge of PC was found, despite 48.4% reporting prior awareness of the concept. Surface-level knowledge was relatively high for certain items specifically, knowing that PC is important for both men and women (96.4%) and that hospitals are the appropriate venue (87.6%), but composite assessment across all knowledge items revealed that a majority (60.6%) fell below the 60% adequacy threshold, particularly regarding the specific content of PC sessions. This pattern of partial awareness without comprehensive knowledge is consistent with findings by Balogun & Oke, who reported adequate knowledge in only 41.4% of respondents in Ibadan.¹¹ It also mirrors low knowledge rates documented across other Nigerian states.^{8, 9} The apparent contradiction between high item-level responses on simple factual questions and the overall low knowledge classification should be understood in the context of the scoring method: respondents may correctly identify that PC exists and is important, while lacking knowledge of what it actually entails, where precisely to access it, and what to expect during a session. This is an important clinical distinction; awareness without actionable knowledge does not translate into utilisation.

In contrast to the low knowledge findings, the majority of respondents demonstrated a positive perception of PC — with 94.3% classified as having positive perception. Most

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disagreed that PC is exclusively for those with infertility or chronic health conditions and acknowledged the broad benefits of PC. This contrasts with findings of a study done in Ibadan, where majority held negative perceptions, suggesting that even partial awareness at the University of Ilorin may be generating more favourable attitudes.¹² The positive perception is encouraging, as the regression findings confirm that perception is the strongest independent predictor of intention to practice PC.

A high overall intention to practice PC was recorded, with 80.3% of respondents expressing high intention (likely or extremely likely) to seek PC before marriage or pregnancy. This is consistent with a previous study, which reported high intention in more than half of respondents in Enugu.¹³ The chi-square analysis confirmed a significant association between perception and intention ($p = 0.002$), and binary logistic regression identified positive perception as the most powerful independent predictor (OR = 4.21, 95% CI: 1.87–9.48, $p < 0.001$). This finding carries an important practical implication: interventions aimed at improving perception through targeted health education that are likely to have the greatest effect on promoting PC uptake. The desire to conceive in the future was also a significant predictor (OR = 3.14, $p = 0.017$), aligning with the findings of another study, which reported that pregnancy preparedness was the most common motivation for PC participation.¹⁵

Factors influencing intention included cultural and religious beliefs (59.3%), fear of discovering a health problem (60.9%), cost of seeking PC (53.6%), and partial lack of trust in healthcare providers (18.1% uncertain). These findings mirror tone of the previous studies and highlight the multi-dimensional nature of barriers to PC uptake, including structural, psychological, and sociocultural dimensions.¹⁴ Although cultural/religious beliefs did not emerge as an independent predictor in the regression model, their high endorsement as an influential factor warrants targeted cultural sensitisation in health education campaigns.

LIMITATIONS

This study has several limitations that should be considered when interpreting the findings. First, the use of purposive non-probability sampling restricts the generalisability of findings to all University of Ilorin undergraduates and to other student populations, and the potential for selection bias cannot be excluded. Future studies should employ probability-based methods such as stratified random or multistage sampling to enhance representativeness. Second, the cross-sectional design precludes causal inferences; while significant associations were found, the directionality of relationships cannot be established. Third, data were self-reported, which introduces the possibility of recall bias, social desirability bias, and response error particularly, for questions about awareness and knowledge of a health topic that respondents may

perceive as important. Fourth, the study was conducted in a single university, limiting applicability to other settings. Finally, the binary logistic regression model was constructed on the basis of the available study data; the regression estimates should be interpreted with caution and validated in future studies with larger samples and probability sampling designs.

CONCLUSION

This study demonstrated that undergraduate students of the University of Ilorin have low detailed knowledge of preconception counselling, despite positive perception and high intention to practice. The significant associations between knowledge and perception, and between perception and intention, underscore the critical role of knowledge improvement in driving positive attitudes and practice intent. Binary logistic regression identified positive perception and desire to conceive as the strongest independent predictors of intention to practice PC. Government agencies, nurses, and healthcare facilities should intensify nurse-led awareness programmes, integrate PC education into academic curricula, improve access to and quality of PC services, and leverage social and mass media to reach young adults with a view to bridging the existing knowledge gap and converting high intention into active PC utilisation.

IMPLICATIONS FOR NURSING PRACTICE

Nurses, who have the most frequent contact with clients across all levels of the healthcare system, are uniquely positioned to champion PC education among young adults. The findings of this study indicate a clear need for nurses to proactively design and implement educational interventions targeting undergraduates and other reproductive-age populations. Nurses must remain current with evidence-based PC knowledge and practices to serve as trusted, credible sources of information and to help address the partial lack of trust in healthcare providers identified in this study. Incorporating PC discussions into routine clinic encounters, community outreach, and school health programmes is strongly recommended.

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