



ORIGINAL ARTICLE

Knowledge, Attitude and Practice of Preconception Care among Female National Youth Service Corps Members in Lagos State

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Keywords

Preconception
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Maternal Death;

Knowledge;

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ABSTRACT

Background: Maternal and neonatal mortality statistics in Nigeria are poor, and the burden of deaths from preventable causes is on the increase. Preconception care has been documented to reduce maternal mortality. This study was undertaken to assess knowledge, attitude, and practice of preconception care among female National Youth Service Corps (NYSC) members in Lagos State.

Methodology: A descriptive cross-sectional study was conducted among 370 female corps members without a history of pregnancy. A multistage sampling technique was used to select the participants. A semi-structured, self-administered questionnaire was used for data collection, and data was analyzed with Epi-Info 7 software. The Chi-square and Fisher's exact tests were used to determine the association between socio-demographic characteristics and the outcome variables with level of significance set at $p < 0.05$.

Results: Out of 370 respondents with mean age 21 years \pm 8.5), 48.9% had fair knowledge of preconception care, 30.5% and 20.5% had poor and good knowledge respectively. The majority of aware respondents (92.5%) exhibited a positive attitude to preconception care. Good practice was reported among 47.3%, fair practice 35.1% and poor practice by 17.6% of the respondents. A statistically significant association was found between education level ($p = 0.047$), course of study ($p < 0.001$) and knowledge. Education level ($p = 0.037$) and course of study ($p = 0.026$) were significantly associated with practice.

Conclusion: Preconception care knowledge was fair among study population; attitude was positive while practice was good. Preconception care health education should be implemented to create awareness among female corps members.

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INTRODUCTION

Maternal and neonatal indices in developing countries are extremely poor in comparison with developed countries. Statistics show that the global estimate of maternal mortality is 830 deaths daily with developing countries accounting for 99% of the deaths and Sub-Saharan Africa accounting for 66% of world maternal deaths.^{1,2,3} Before the Millennium Development Goals (MDGs) were established, it was estimated that 500,000 women in developing countries would die yearly from complications resulting from pregnancies, childbirths and abortion attempts with 300-400 deaths per 100,000 live births, in contrast to 7-15 maternal deaths per 100,000 live births in developed countries.⁴ Most maternal and neonatal deaths are preventable.¹ It is therefore imperative that preventive interventions such as preconception care (PCC) be undertaken to reduce such deaths.

Maternal deaths are induced by a wide range of direct and indirect causative factors. Direct causes are mainly as a result of haemorrhage, infections or sepsis, eclampsia and thromboembolism among others.^{1,4,5} Indirect causes typically arise from pre-existing conditions that are intensified in pregnancy; others include asthma, heart disease, HIV and type 1 diabetes.^{1,4,6} Women with pre-existing medical conditions are predisposed to mortality by 158-fold compared to healthy women.⁵

Additional causes of death particularly in developing countries include obstructed labour and complications arising from illegal

abortions.⁵ Reported global statistics indicate that an average of 68,000 abortion-related deaths occur annually.⁶ In Nigeria, about 25% of women who have abortions have life-threatening complications arising from the procedure.⁷

Preventive health behaviours before pregnancy would greatly reduce the burden of preventable maternal deaths. In PCC, women are encouraged to screen for pre-existing conditions and ensure that adequate treatments to control the conditions are undertaken before pregnancy. PCC provides a platform for educating women about planning for pregnancy by focusing on preventive interventions such as family planning and the use of contraceptives to reduce maternal and neonatal deaths. PCC components include the treatment and management of sexually transmitted infections, treatment of vaccine-preventable infections, tobacco and alcohol use, nutritional deficiencies and disorders and environmental risks.⁸

It is reported that knowledge and practice related to PCC are very poor in sub-Saharan Africa.⁹ In Nigeria, the uptake of preconception care at all levels is equally poor.¹⁰ Insufficient PCC knowledge could mean inability to practice PCC which would result in worse maternal health outcomes, thus emphasizing the need for assessment of knowledge, attitude and practice of PCC among women, especially the younger generation to enable the promotion of better health indices. The study was conducted to assess the level of knowledge of PCC, to determine attitude towards PCC, and examine

PCC practice among female corps members in Lagos State.

METHODOLOGY

This was a descriptive cross-sectional study designed to assess knowledge, attitude and practice of preconception care among female NYSC members in Lagos State. The study was conducted in 2018, the study population included single and married female NYSC members of all ages serving in the selected Local Government Areas (LGA) of Lagos State. To avoid information bias, corps members who were pregnant at the time or those with a history of pregnancy were excluded from the study.

The estimated sample size was calculated using the formula.¹¹

$$n = Z^2 pq / d^2$$

Where n = is the desired sample size, Z; is the standard normal deviate, usually set at 1.96 and p is the prevalence of an attribute of study.

P is the proportion of women who were aware of folic acid as a preconception care component derived from a previous study in Jos Nigeria 12 = 64.6% = 0.646

q; is the complementary probability = 1-p = 1-0.646 = 0.354,

d; degree of desired accuracy, usually set at 0.05

Substituting;

$$N = (1.96)^2 \times (0.646 \times 0.354) / (0.05)^2$$

N = 351 which was the minimum sample size.

The sample size was increased by 10% to account for any errors such as improperly filled questionnaires and recording errors.

N = 386. However, 400 participants were recruited.

Multistage sampling was used to select study participants.

Stage 1: Selection of LGAs: This was done by balloting; a simple random sampling technique, 2 LGAs (Ikeja and Somolu) were chosen out of the 20 in Lagos State. A total of 2,348 female corps members were serving in the selected LGAs; proportional allocation of sample to the selected LGAs was done to determine the number of participants. Female Corps members in Ikeja were 2,151 in total, therefore, $(2151/2348) \times 400 = 366$ participants recruited at Ikeja LGA. Female Corps members in Somolu = 197. Hence, $(197/2348) \times 400 = 34$ participants recruited at Somolu LGA.

Stage 2: Selection of participants: Simple random sampling by balloting was used to recruit study participants from Community Development Service (CDS) groups at each LGA. Clearance at Ikeja was 1-7 days of each month while at Somolu, clearance days were the last Wednesday, Thursday and Friday. Clearance days were scheduled according to CDS groups. In Ikeja, 4 CDS groups were randomly selected and members of the CDS group were recruited into the study. In Somolu, 2 CDS groups were also randomly selected and members of the CDS groups were recruited into the study.

Table 1: Sociodemographic characteristics and pregnancy plans of respondents

Characteristics	Frequency (n = 370)	Percent (%)
Age		
16 – 20	16	4.3
21 – 25	227	61.4
26 – 30	76	20.5
No response	51	13.8
Mean = 21 years ± 8.5		
Religion		
Christianity	327	88.4
Islam	38	10.3
No response	5	1.4
Ethnicity		
Hausa	6	1.6
Igbo	92	24.9
Yoruba	205	55.4
Others	52	14.1
No response	15	4.1
Educational level		
Higher National Diploma (HND)	55	14.9
Bachelors (BSc, BA, MBBS)	302	81.6
Masters	9	2.4
No response	4	1.08
Course		
Arts and Humanities	53	14.3
Social Sciences	128	34.6
Education	10	2.7
Engineering	23	6.2
Medical Sciences	53	14.3
Sciences	22	6.0
Others	77	20.8
Marital Status		
Single and not interested in dating	93	25.1
In a casual relationship	111	30.0
In a serious relationship	119	32.2
Married	39	10.5
No response	8	2.2
Pregnancy Plans		
No pregnancy plans at present time	244	66.0
Currently trying	26	7.0
Considering in the next 1 to 2 years	57	15.4
Considering in the next 3 to 5 years	25	6.8
Considering in 5 to 10 years	11	3.0
No response	7	1.9

Approval for the research was granted by the Health Research Ethics Committee (ADM/DCST/HREC/APP/223) of the College of Medicine, University of Lagos. Permission was also granted by the NYSC Lagos State Coordinator and all appropriate authorities at each Local Government Area. Data was collected using a pre-tested, semi-structured, self-administered questionnaire which was adapted from relevant literature after a thorough literature review.^{9, 13, 14, 15.}

Data was entered manually in Excel and analysis was done with Epi-info version 7. Frequency tables were derived for socio-demographic variables which included age, religion, level of education and course of study. Tables were also generated for knowledge of preconception care risk factors, attitude to preconception care and preconception health practice indicators such as smoking habits, use of contraceptive and alcohol intake. Descriptive analysis was done using mean and standard deviations derived from the study to summarize variables. Knowledge of preconception care was categorized into good, fair and poor; each correct question was scored 1 mark, out of 33 questions a score below 35% was classified as poor, 35% to 65% fair and 66% to 100% good knowledge.¹³ Attitude was categorized as either positive or negative depending on the answers to statements. Statements were negatively worded and graded on a Likert scale from strongly agree to strongly disagree; strongly agree was scored 1 mark and 5 marks for strongly disagree, lowest score possible was 7 and maximum score of 35. A score of less than

18 was negative, while above 18 was positive for attitude.¹⁵ Practice was categorized as good, fair or poor. Each of the 9 questions was scored 1 mark and the same scoring system for knowledge of participants was used. Chi square and Fisher's exact tests were used to test for association between the socio-demographic variables and the outcome variables (knowledge, attitude and practice). The level of significance was set at $p < 0.05$.

RESULTS

From a total of 400 recruited study participants, improperly filled questionnaires were excluded from data analysis leaving 370. Table 1 shows that participants were between ages 18-30 years, the higher proportion 227 (61.4%) of participants were within ages 21 to 25 years. The predominant religion and ethnicity were Christianity 327 (88.4%) and Yoruba 205 (55.4%) respectively. The majority of the study participants had a bachelor's qualification 302 (81.6%), while Social Science was the most popular course of study among the respondents 128 (34.6%). Only a few participants 39 (10.5%) were married, while more than half 244 (66.0%) of the participants had no immediate pregnancy plans.

Out of 370 respondents, 200 (54.1%) were aware of PCC, while 152 (41.1%) were not. (Figure 1) social media (82%), along with school (73 %) and internet searches (64%), were the most commonly reported sources of PCC information respectively. At least 50% of respondents knew the behavioural changes necessary for preconception care to achieve a

healthy pregnancy. Participants were most knowledgeable about smoking cessation 281 (76.0%), no alcohol consumption 277 (74.9%), avoiding illicit drugs 274 (74.1%) and maintaining a healthy diet 274 (74.1%) in preparation for a healthy pregnancy. The respondents were least knowledgeable about reviewing the health histories of both families, with only 50% (185 people) indicating familiarity with the topic. **(Table II)**

About 64.6% of respondents knew that obesity is a risk in pregnancy. Less than half 142 (38.4%) of the participants were aware of the risk of high blood glucose before pregnancy and about 221 (59.7%) of respondents did not know that diabetic mothers are more likely to birth heavier babies. Only 57.6 % of the participants knew that folic acid supplementation before and during pregnancy reduces the risk of birth defects. The participants had more knowledge about the risk of alcohol intake before and during pregnancy (83.5%) and risk of smoking during pregnancy. Most of the participants had fair knowledge 181 (48.9%), good knowledge 76 (20.5%) and 113 (30.5%) had poor knowledge of preconception care with a mean knowledge score of 15.5 ± 6.7 **(Table III)**.

The responses to statements regarding attitude towards preconception care showed that majority of the aware group of respondents 81

(40.5%) strongly disagree with the statement preconception care is not an important health intervention for women of reproductive age. The same trend was observed for the statements that directly address preconception care; most of the respondents either strongly disagree or disagree with the negative statements regarding preconception care. The mean score for attitude was 13.8% (S.D 13.7) and mean attitude percentage was 39.5% (S.D 39.0). The results showed that most of the respondents (92.5%) had positive attitude towards preconception care **(Table IV)**.

For preconception care practice, 336 (93.1%) reported not smoking, 281 (78.5%) maintained a healthy diet, 244 (67.6%) avoided alcohol consumption, 230 (64.6%) ensured that vaccines and immunizations were up to date and (59.1%) exercised regularly. The least reported practices showed 190 (53.1%) screened for pre-existing health conditions, 157 (43.7%) had reviewed family health history and 137 (39.7%) consumed folic acid daily. Overall, 175 (47.3%) of respondents had good practice, fair practice recorded among 130 (35.1%) and 65 (17.6%) had poor practice. The mean percentage recorded was 47.0 (S.D 20.4) **(Table V)**.

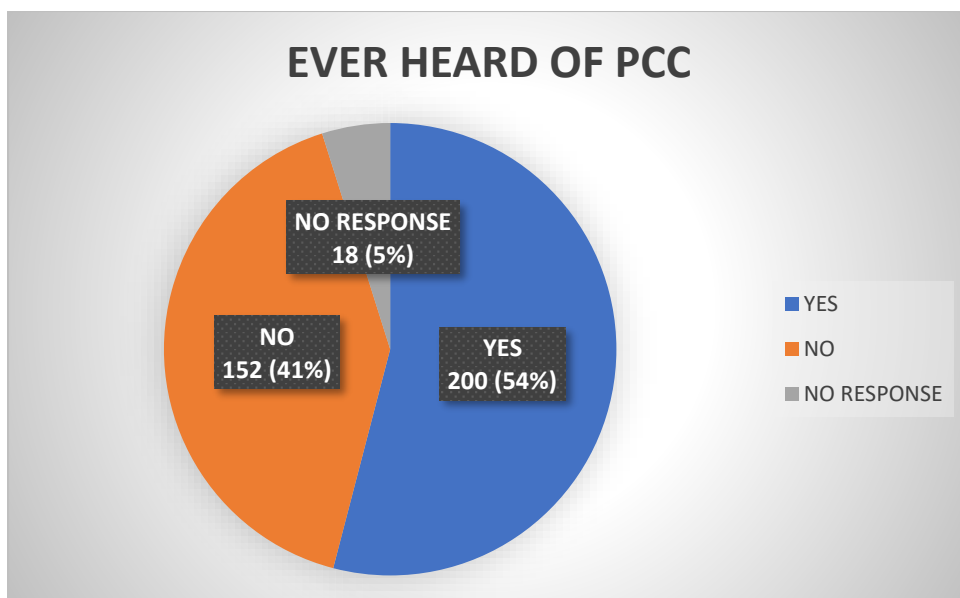


Figure 1: Awareness of preconception care

Most of the socio-demographic variables were not significantly associated with knowledge; only course of study ($p < 0.001$) and level of education ($p = 0.047$) were found to be significantly associated with knowledge. Respondents in the medical science field of study had better knowledge of PCC than the other fields. For level of education, respondents with post graduate degree had better knowledge, as educational level increased, knowledge of PCC increased. Socio-demographic variables were not significantly associated with attitude (Table VI). For each variable, the majority of respondents had positive attitude. Results from chi-square analysis indicated that course of study ($p = 0.026$) and level of education ($p = 0.037$) was statistically associated with preconception care practice. Respondents in the medical science field had better preconception care practice 33 (62.3%) than the other participants, whereas with level of education, higher level of

education was associated with better PCC practice (Table VI).

DISCUSSION

The findings from this study revealed that slightly over half of respondents were aware of preconception care (54.1%) hereafter referred to as the 'aware group'. Lack of awareness by almost half of the population suggests that there would be inadequate knowledge and practice of PCC, which could only result in worse maternal and child health outcomes. These findings were lower than reported in a study conducted in Osun State Nigeria (63.5%),¹⁰ but higher than studies conducted in Ethiopia and Nepal where only 31.8%⁹ and 29%¹⁶ respectively were aware of preconception care. The lower awareness level compared to the study in Osun State Nigeria could be attributed to the fact that most of the respondents in Osun were married which is in contrast to this study where the larger percentage of respondents were single.

Table 2: Respondents' source of PCC awareness and knowledge of action to be taken in PCC

Source of awareness of PCC	FREQUENCY (n = 200)	Percent (%)
Television	40	20.0
Radio	17	8.5
Internet search	58	29.0
Newspaper	10	5.0
Social Media	82	41.0
School	73	36.5
Partner	10	5.0
Family	30	15.0
Others	7	3.5
No response	4	2.0
Actions to be taken in PCC	FREQUENCY (n = 370)	Percent (%)
Take folic acid	219	59.2
Stop smoking	281	76.0
Stop alcohol consumption	277	74.9
Avoid illicit drugs	274	74.1
Exercise regularly	219	59.2
Reduce or avoid stress	244	66.0
Modify diet/Eat healthy	274	74.1
Maintain a healthy weight	259	70.0
Review family health history	185	50.0
Ensure vaccines and immunizations are up to date	206	55.7
Review all medications with doctor	219	59.2
Screen for STIs and pre-existing conditions	237	64.1
Don't know	5	1.4

In comparison with awareness level in Ethiopia (31.8%) and Sudan (29%), it could probably be attributed to the level of education. All the participants in this study had up to tertiary education, whereas only a few respondents had up to tertiary education in Ethiopia and Sudan. This finding implies that there might be increased access to PCC information in tertiary institution. It has been reported that adequate awareness of PCC can be obtained either through education or experience.¹⁴ PCC

awareness can be from internet search, print and electronic media and consultations. In this study, the major sources of preconception health information were social media, school, internet search and others. With the advent of social media, there has been an increase in access to information on such platforms, and more young people utilize these platforms. This is likely the case in this study, which could have increased the likelihood of awareness among respondents.

Table 3: Knowledge of PCC risk factors and overall knowledge grade

Risk Factors	Frequency	Percent (%)
Obesity increases health risk in pregnancy (n = 353)		
Yes	228	64.6
No	32	9.1
Don't know	93	26.3
Is there a risk with short birth interval (n = 370)		
Yes	151	40.8
No	103	27.8
Glucose control before pregnancy reduces risk of disorders in babies		
Yes	142	38.4
No	14	3.8
Don't know	214	57.8
Diabetic mothers are more likely to have heavier babies at birth		
Yes	103	27.8
No	46	12.4
Don't know	221	59.7
Smoking while pregnant causes harm to baby		
Yes	334	90.3
No	6	1.6
Don't know	30	8.1
Folic acid supplementation before and during pregnancy reduces risk of birth defects		
Yes	213	57.6
No	25	6.8
Don't know	132	35.7
Alcohol intake before and during pregnancy causes serious foetal anomalies		
Yes	309	83.5
No	11	3.0
Knowledge grade		
Poor	113 (30.5)	13.5
Fair	181 (48.9)	
Good	76 (20.5)	
Total	370	
Mean score = 15.5 ± 6.7		

Overall, the knowledge of preconception care among respondents was fair 181 (48.9%), this is in contrast to a study in Nepal¹⁶ where a higher percentage 192 (84.6%) displayed fair knowledge. Respondents who studied medical sciences courses such as Pharmacy, Biochemistry, and Physiology etc. were

significantly more knowledgeable than the rest of the respondents. It could be that studying health related courses in tertiary institution increases the likelihood of PCC exposure through lectures on pregnancy and general health education. Results obtained are in line with the study conducted among undergraduate

students in University of Miami, where it was discovered that there was statistically significant increase in awareness among students who had previously taken a course containing information on pregnancy and child development.¹⁷

The study examined a group of participants (54.1%) to determine their attitude towards preconception care. The findings showed that their attitude was largely positive (92.5%), which is consistent with similar studies conducted in Malaysia (98.5%) and Arizona (98.6%). This positive attitude towards preconception care may be attributed to the awareness of its benefits. Adequate information on the subject generally produces a positive attitude. Of the respondents, 144 (72%) understood the importance of preconception care on pregnancy, in contrast to the findings of a similar study in Phoenix, Arizona, where only 7% of respondents believed it had any effect on pregnancy. These results could be attributed to the age of the participants, as younger people without pregnancy experience are less likely to understand the impact of preconception care on pregnancy outcomes. None of the socio-demographic variables were statistically associated with attitude, but a previous study in Ethiopia⁹ had found age to be predictor for attitude.

Preconception care practice among 175 (47.3%) of respondents was good. This is similar to a study in Sudan where good practice was reported among participants, particularly

those who had received counseling.¹¹It highlights the need for PCC counselling services for women of reproductive age. The most common healthy behaviour reported by 93.1% of the respondents was not smoking, which is similar to a study conducted in Minnesota where 92.2% of the participants reported the same. This high percentage of non-smokers might be due to the awareness of the negative effects of smoking on health, especially since the respondents are educated. The study revealed a statistically significant association between the level of education, course of study, and the practice of preconception care (PCC). Another study showed that knowledge of PCC was significantly associated with PCC practice. This finding suggests that respondents in the medical field who are well-equipped with PCC information could be more likely to engage in healthy behaviours. Therefore, education can play a significant role in determining healthy behaviours during the preconception period.

Limitations of the Study

The data collection tool was a self-administered semi-structured questionnaire which could have been subject to response bias. The cross-sectional nature of the study was a limitation because inferences with regard to effect of knowledge on practice, and determinants of knowledge and practice could not be made.

Table 4: Respondents' attitude to PCC

VARIABLES (n = 200)	FREQUENCY (%)					
	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No response
PCC is not an important health intervention in the reproductive age	13 (6.5)	11 (5.5)	8 (4.0)	79 (39.5)	81 (40.5)	8 (4.0)
PCC has no effect on pregnancy outcomes	5 (2.5)	19 (9.5)	22 (11.0)	85 (42.5)	59 (29.5)	10 (5.0)
Only people with fertility problems need PCC	3 (1.5)	9 (4.5)	17 (8.5)	89 (44.5)	73 (36.5)	9 (4.5)
Screening for diseases unimportant before pregnancy	6 (3.0)	6 (3.0)	6 (3.0)	55 (27.5)	119 (59.5)	8 (4.0)
Government health facilities best place to seek PCC	21 (10.5)	40 (20.0)	64 (32.0)	41 (20.5)	27 (13.5)	7 (3.5)
Private health facilities best place to seek PCC	22 (11.0)	52 (26.0)	84 (42.0)	27 (13.5)	6 (3.0)	9 (4.5)
PCC education not necessary	2 (1.0)	8 (4.0)	10 (5.0)	63 (31.5)	109 (54.5)	8 (4.0)
ATTITUDE GRADE						
POSITIVE	185 (92.5)					
NEGATIVE	15 (7.5)					

Table 5: Respondents' preconception care practice

HEALTH BEHAVIOURS	FREQUENCY (%)		N
	YES	NO	
Take folic acid daily	137 (39.7)	136 (39.4)	345
Know family health history	157 (43.7)	202 (56.2)	359
Exercise regularly	212 (59.1)	147 (40.9)	359
Screened for health conditions in the past year	190 (53.1)	158 (44.1)	358
Maintain a healthy diet	281 (78.5)	77 (21.5)	358
Smoke	25 (6.9)	336 (93.1)	361
Take Alcohol	117 (32.4)	244 (67.6)	361
Take medications not prescribed by doctor	178 (49.0)	185 (51.0)	363
Immunizations and vaccines up to date	230 (64.6)	126 (35.4)	356
PRACTICE GRADE			
POOR	65 (17.6)		
FAIR	130 (35.1)		
GOOD	175 (47.3)		
	370 (100)		

CONCLUSION

Preconception care has been documented to improve maternal and neonatal outcomes, although uptake in sub-Saharan Africa including Nigeria is poor. In this study, the knowledge of preconception care was fair among the majority of respondents, attitude to preconception care was positive among respondents who were aware of preconception care, while PCC practice among participants was mostly good. Level of education and

course of study were significantly associated with knowledge and practice of PCC. It is recommended that health education talks during NYSC should include the importance and benefits of preconception care for better health outcomes.

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Table 6: Association between sociodemographic variables, knowledge and practice of PCC

Variable	KNOWLEDGE OF PCC FREQUENCY (%)			Total	χ^2	P. value
Course						
Arts and Humanities	10 (18.9)	19 (35.9)	24 (45.3)	53 (100)	43.72	<0.001*
Social Sciences	18 (14.1)	68 (53.1)	42 (32.8)	128 (100)		
Education	2 (20.0)	6 (60.0)	2 (20.0)	10 (100)		
Engineering	4 (17.4)	14 (60.9)	5 (21.7)	23 (100)		
Others	14 (18.2)	37 (48.1)	26 (33.8)	77 (100)		
Level of Education						
Higher National Diploma	6 (10.9)	25 (45.5)	24 (43.6)	55 (100)	9.653	0.047*
Bachelors	64 (21.2)	150 (49.7)	88 (29.1)	302 (100)		
Masters	4 (44.4)	4 (44.4)	1 (11.1)	9 (100)		
PRACTICE OF PRECONCEPTION FREQUENCY (%)						
Course						
Arts and Humanities	24 (42.3)	19 (35.9)	10 (18.9)	53 (100)	23.28	0.026*
Social Sciences	50 (39.1)	45 (35.2)	33 (25.8)	128 (100)		
Education	5 (50.0)	2 (20.0)	3 (30.0)	10 (100)		
Engineering	11 (47.8)	12 (52.2)	0 (0.0)	23 (100)		
Medical Sciences	33 (62.3)	17 (32.1)	3 (5.7)	53 (100)		
Sciences	10 (45.5)	7 (31.8)	5 (22.7)	22 (100)		
Others	41 (53.3)	26 (33.8)	10 (13.0)	77 (100)		
Level of Education						
Higher National Diploma	29 (52.7)	21 (38.2)	5 (9.1)	55 (100)	10.23	0.037*
Bachelors	136 (45.0)	108 (35.8)	58 (19.2)	302 (100)		
Masters	8 (88.9)	0 (0.0)	1 (11.1)	9 (100)		

*Statistically significant

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