



## **EFFECT OF NURSING INTERVENTION PROGRAMME ON KNOWLEDGE OF PRECONCEPTION CARE AMONG FEMALE STUDENTS IN A SELECTED TERTIARY INSTITUTION IN AKURE, ONDO STATE, NIGERIA**

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**ABSTRACT:** *Background: The health of a woman prior pregnancy is of utmost importance. A healthy woman has better chance of a healthy gestation, but some diseases, drugs and lifestyle could have negative effect on the woman and her fetus. This study aimed at evaluating the effect of nursing intervention program on knowledge of preconception care among female students of the Federal University of Technology Akure, Nigeria. Methods: A one-group pre- and post-test quasi-experimental design was adopted. Multi-stage sampling was used to select 335 participants from the school. A structured questionnaire with a reliability of 0.708 was used for data collection. Analysis was done using descriptive and inferential statistics at significant level of 0.05. Results: The pre-and post-intervention knowledge mean scores on preconception care were 18.19 and 25.02, respectively, with a mean gain of 6.83. There was significant difference between the pre- and post-intervention knowledge mean score on preconception care ( $p=0.000$ ). Conclusion: The study shows an increase in knowledge on preconception care among the participants; hence it is pertinent to organize regular training of women on preconception care.*

**KEYWORDS:** Knowledge, Female Students, Nursing Intervention, Preconception Care

### **INTRODUCTION**

The well-being of women and children is one of the major determinants of the health of any nation and can help predict future public health challenges for families, communities, and the health care system (Olowokere, Komolafe, & Owofadeju, 2015). The health of a woman prior pregnancy is of utmost importance, because a healthy woman has a better chance of a healthy gestation and beyond, but some diseases, drugs and lifestyle behaviour could have negative effect on the woman, and her fetus. This could be adjusted prior to conception (Nypaver, Arbour, & Niederegger, 2016). One of the ways to achieve this is the embracement of preconception care to increase the chances of health outcomes of pregnancy for both mother and child (Olowokere, et al., 2015).

Preconception care is a component of comprehensive obstetric care, which can be described as a specialized form of care for women of reproductive age before the onset of pregnancy to detect, treat, or counsel them about the pre-existing medical and social conditions that may militate against safe motherhood and delivery of a healthy offspring (Tokunbo, Kolawole,



Abimbola<sup>1</sup>, Polite, & Gbemiga, 2016). This form of care is still evolving in Nigeria and is virtually nonexistent in North-west Nigeria where maternal and perinatal morbidity and mortality is very high due to unplanned and frequent pregnancies, high parity, suboptimal health care seeking behaviour and low level of maternal health care (Tokunbo, et al., 2016).

Preconception care has an important place in health care due to its capacity to improve maternal and infant health outcome. It has a positive impact on reduction in mortality and decrease the risk of adverse health effects for the woman, fetus, and neonate by optimizing the woman's health and knowledge before planning and conceiving a pregnancy (WHO 2018). With a maternal mortality rate of 630 per 100,000 live births, and an infant mortality rate of 74.09 deaths per 1000 live births, in Nigeria (Gina, 2019), there is therefore a need to shift care to the time before a child is conceived, in order to prevent adverse pregnancy outcomes and to allow greater potential to prevent unplanned pregnancy because pregnant women in Nigeria continue to die from preventable diseases such as severe postpartum haemorrhage, obstetric infections, hypertensive disorders, unsafe abortion and obstructed labor (Dlamini, Mndeni, Nhlengetfwa, & Zwane, 2019).

The study of Ekem, Lawal, Onoh, Iyoke, Ajah, & Onwe, (2018), established that preconception care knowledge in Nigeria is low when compared with other regions of the world. This is influenced by socio-demographic factors such as educational level, and place of residence. The beneficiaries of preconception care have been identified as women, singles and intending couples. During the researcher's clinical practice, babies with sickle cell disease, and HIV were brought to the ward by their parents, as well as newly wedded ladies with eclampsia in labour. Arising from the foregoing, the researcher therefore intends to evaluate the effect of nursing intervention program on knowledge of female students in the Federal University of Technology Akure, on preconception care.

## LITERATURE

Childbearing women face many challenges during pregnancy and delivery. Preconception care has recently been introduced to reduce the challenges and complications faced during pregnancy. Preconception care is a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management. Studies shows that women who receive an intervention for preconception care have more knowledge of preconception care and that even brief counseling can improve their knowledge of general and personal preconception health risks (Dlamini, et al., 2019). The study of Charafeddine, Rafei, El, Azizi, Sinno, Alamiddine, et.al., (2014), also showed an increase awareness on preconception care among adolescents in Lebanon after an intervention, as the mean score increased from 4.36 to 6.42 representing a 4.2 % improvement. Another study on improvement in knowledge of information about preconception care behaviour to prevent adverse pregnancy outcome by Agricola, Pandolfi, Gonfiantini, Gesualdo, Romano, Carloni, et al., (2014), revealed an improvement from 20.9% to 95%.

Other studies have also been carried out on the knowledge of preconception among women of childbearing age. In a study conducted by Gautam & Rojana, (2016), to access the knowledge of preconception care among reproductive age women, only 65(28.63%) had information



regarding preconception care. Majority of respondents 192(84.58%) had average level of knowledge on preconception care. Dlamini, et al., (2019), also conducted a study to assess the knowledge and attitude towards preconception care among child bearing women. In total, 52.5% of the respondents had fair knowledge on preconception care, and 75.4% of the respondents had good attitude, while 59% of respondents had fair practices towards preconception care. Olowokere, et al., (2015), also conducted a study on awareness, knowledge and uptake of preconception care among women in Ife Central Local Government Area. The result showed that majority of the respondents has not sought the care before pregnancy while only 34.1% have asked about it in the hospital. A significant association was found between respondent's educational level and knowledge of preconception care.

Gayatri & Shubha, (2017), in their study on knowledge and practice of preconception care among antenatal mothers, found out that more than half (51%) of the respondents had inadequate level of knowledge, followed by 42% with moderate level of knowledge and 7% with adequate knowledge on preconception care. Also, Ayalew, Amlaku, & Simegn, (2017), conducted a study on women's knowledge and associated factors on preconception care in Adet, West Gojjam, Northwest Ethiopia, and their findings revealed that the overall knowledge of preconception care was low (27.5%).

## METHODS

**Design:** this study adopted a one group pre- and post-test quasi-experimental design. Multi-stage sampling was used to select 335 participants. A structured questionnaire with a reliability of 0.71 was the instrument for data collection. Data were analysed using descriptive and inferential statistics at 0.05 as level of significance.

### Study Area and sample Size

This study was carried out in the Federal University of Technology Akure (FUTA), situated in the capital city of Ondo state. The University was founded in 1981 and is the only federal institution in the state. It is located in Akure South Local Government Area and consist of nine Schools which are; School of Science, School of earth and mineral sciences, School of Engineering and Engineering Technology, School of Agricultural and Agricultural Technology, School of Management Technology, School of postgraduate Studies, School of Health and Health Technology, and School of Computing.

The sample size was determined using Cochran's formula for sample size determination.

$$n = \frac{\text{no}}{\frac{1 + (\text{no}-1)}{N}}$$

To calculate no, the formula to use is  $\text{no} = \frac{Z^2 pq}{e^2}$



$$= \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2}$$

$$no = 385$$

Where no is 385 and N is the population size which is 1484

To calculate n, which is the sample size,

$$N = \frac{385}{\frac{1 + (385 - 1)}{1484}}$$

$$n = \frac{385}{\frac{1 + 384}{1484}}$$

$$n = \frac{385}{1.2587}$$

$$n = 305$$

10% of the sample size (305) were added which is 30 making the total of 335, thus 335 respondents were used so as to give room for inappropriate filled and unreturned questionnaire.

## RESULTS

Three hundred and thirty-five (335) questionnaires were administered to all participants at the pre-intervention stage of the study, and the response rate was 100%. However, at post-intervention stage, three hundred and twenty-three (323) questionnaires were administered, due to the absence of twelve (12) participants, and the response rate was also 100%. The analysis was based on the number of participants that completed the study.

Table 1 reveals socio-demographic characteristics of participants. The predominant age of the participants was between the ages of 21-23 years which represent 217 (67.2%). The majority 300 (92.9%) of the respondents were Christians, while 318 (98.5%) of the respondent were single. The findings on ethnicity showed that 307 (95.0%) were Yoruba, and educational



level shows that 136 (42.1%) were in 300 level and 130 (40.2%) are from the school of engineering and engineering technology.

**Table 1: Distribution of Socio-Demographic Characteristics of participants**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age (year)</b>		
21-23	217	67.2
24-26	82.0	25.4
27-29	24.0	7.4
<b>Total</b>	<b>323</b>	<b>100</b>
<b>Religion</b>		
Christianity	300	92.9
Islam	23	7.1
<b>Total</b>	<b>323</b>	<b>100</b>
<b>Marital status</b>		
Single	318	98.5
Married	5	1.5
<b>Total</b>	<b>323</b>	<b>100</b>
<b>Ethnicity</b>		
Yoruba	307	95.0
Igbo	8	2.5
Others	8	2.5
<b>Total</b>	<b>323</b>	<b>100</b>
<b>Level</b>		
100	42	13.0
200	60	18.6
300	136	42.1
400	55	17.0
500	30	9.3
<b>Total</b>	<b>323</b>	<b>100</b>
<b>School</b>		
EARTH	56	17.3
SEET	130	40.2
SHHT	44	13.6
SMAT	42	13.0
SOC	51	15.8
<b>Total</b>	<b>323</b>	<b>100</b>

Table 2 shows the department of participants. The table reveals that majority of the participants 37(11.5%) were in the department of agricultural and environmental engineering.

**Table 2: Department of the Respondents**

<b>Department</b>	<b>Frequency</b>	<b>Percentage</b>
Accounting	12	3.7
Agricultural & Environmental Engineering	37	11.5
Anatomy	25	7.7
Applied geophysics	23	7.1
Biomedical Technology	10	3.1
Business Administration	12	3.7
Civil Engineering	16	5.0
Computer Science	9	2.8
Cyber security studies	11	3.4
Economics	3	0.9
Electrical & Electronics Engineering	8	2.5
Entrepreneurship Management Technology	8	2.5
Fisheries and Aquaculture Technology	9	2.8
Applied Geology	5	1.5
Industrial Mathematics	18	5.6
Information and Communication	23	7.1
Marine Science and Technology	13	4.0
Mechanical engineering	3	0.9
Metallurgical and Material Engineering	20	6.2
Meteorology	4	1.2
Mining Engineering	13	4.0
Physics	9	2.8
Project Management Technology	3	0.9
Remote Sensing & G-I-S	11	3.4
Software Engineering	14	4.3
Transport Management Technology	4	1.2
<b>Total</b>	<b>323</b>	<b>100.0</b>

Table 3 shows that majority 263 (81.4%) of the participants had low knowledge on preconception care pre-intervention, 60 (18.6%) had an average knowledge and none of the respondents had high knowledge. It also shows a pre-intervention mean score of 18.19.

**Table: 3 Pre-Intervention Knowledge of Participants on Preconception Care**

Knowledge of Female Students on Preconception Care	Grading Scale	Pre-Intervention	
		Frequency	Percent (%)
Low	1-17	263	81.4
Average	18-20	60	18.6
High	21-26	0	0
Total		323	100
Mean	18.19		
Maximum	18		
Minimum	8		
Range	10		

Table 4 reveals post-intervention knowledge of participants on preconception care. More than half 186 (57.6%) of the participants had high knowledge, 119 (36.8%) had average knowledge, while 18 (5.6%) had low knowledge on preconception care. It also shows a post intervention mean score was 25.02.

**Table 4: Post-Intervention Knowledge of Participants on Preconception Care**

Knowledge of Female Student on Preconception Care	Grading Scale	Pre-Intervention	
		Frequency	Percent (%)
Low	1-17	18	5.6
Average	18-20	119	36.8
High	21-26	186	57.6
Total		323	100
Mean	25.02		
Maximum	26		
Minimum	8		
Range	18		

Table 5 shows the pre- and post-intervention knowledge of participants on preconception care. The mean gain was found to be 6.83 and the range for pre-intervention and post-intervention was 10 and 18 respectively.

**Table: 5 Pre- and Post-Intervention Knowledge of Participants on Preconception Care**

Knowledge of Respondent on PCC	Grading Scale	Pre-Intervention		Post-Intervention	
		Frequency	Percent (%)	Frequency	Percent (%)
Low	1-17	263	81.4	18	5.6
Average	18-20	60	18.6	119	36.8
High	21-26	0	0	186	57.6
Total		323	100	323	100
Mean	18.19			25.02	
Mean gain	6.83				
Maximum	18			26	
Minimum	8			8	
Range	10			18	

## Testing of Hypotheses

### Hypothesis one

H<sub>01</sub>: There is no significant difference between pre- and post-intervention knowledge mean score of preconception care among participants.

Table 6 shows that there is a significant difference between pre- and post-intervention mean score of knowledge of participants on preconception care because  $p=0.00$ , and it is less than the chosen level of significance ( $\alpha = 0.05$ ). Hence, the null hypothesis was rejected. Since the post-intervention knowledge mean score is higher than the pre-intervention, it implies that the intervention was effective.

**Table: 6 Paired t-test to Compare Pre- and Post-Intervention Mean Scores of Knowledge of Participants on Preconception Care**

Knowledge on PCC of female student	Mean	N	Standard Deviation	Std. error mean	Df	T	P value
Pre-intervention scores	18.1920	323	5.00624	0.27855	322	-22.963	0.000
Post-intervention score	25.0248	323	1.67907	0.09343			

## DISCUSSION

The findings of the study reveal that majority of the participants had low pre-intervention knowledge on preconception care, validating the study of Gayatri, et al., (2017), which revealed a low knowledge on preconception care among participants. However, the study of Gautam, et al., (2016), contradict the above result as their findings revealed that majority of respondents had average level of knowledge on preconception care, as well as the findings





Dlamini, et al., (2019) which showed that more than half of the participants in their study had an average knowledge of preconception care.

The findings of this study further reveals an increase in the post-intervention knowledge on preconception care among participants, with more than half them displaying high knowledge, correlating the submission of Charafeddine et al., (2014) that showed an increase in mean scores knowledge of participants, and the study of Agricola et al., (2014), whose findings showed an increase in knowledge among the participants. However, the result of the hypothesis showed a significant difference between pre- and post-intervention mean score knowledge of participants on preconception care, with a mean score gain of  $6.83 \pm 0.91$  which goes to show that the effectiveness of the intervention study. A similar findings was observed in the study of Charafeddine et al., (2014) that showed an increase in mean scores of participants post-intervention, and it is also in line with the assertion of (Dlamini, et al., 2019).

## **IMPLICATION TO RESEARCH AND PRACTICE**

The outcome of this study revealed that participants had poor knowledge prior the intervention, and there was knowledge gain after intervention. Therefore, establishing preconception care strategies which can address all the components of the care and advocating women's education and family planning use are important.

## **CONCLUSION**

This study provided some understanding on the effect of nursing intervention programme on knowledge of preconception care among female students in a tertiary institution. Their knowledge on preconception care was found to be poor prior intervention, but a significant increase was noted post-intervention. This denotes that training the female students can help to improve knowledge on preconception care and what to do before getting married. It is therefore very important to incorporate or organize regular training of women on preconception care.

## **FUTURE RESEARCH**

Further research should focus on uptake, determinants and barrier to preconception care among women of reproductive age. Finally, this research should be carried out in a broader setting to produce new data that could support the findings of this study or otherwise.



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