

Knowledge of Genetic Counselling in The Prevention of Sickle Cell Diseases Among Unmarried Undergraduates in Obafemi Awolowo University, Ile-Ife, Osun State

Author(s), OLADELE Helen Oladunni (RN, RM, RNE, RPHN, MSc. Nursing),
DAYO-OMOLE Adedolapo Adebukola (RN, RM, RPHN, PGDE, RNE, MN),
AJAYI, Temitope Abiodun (RN),
AWOSEEMO Aderonke Bosede (RN, RM, RNE, RPHN, PhD. Nursing),
AND
EZEH Kinsley Ikenna (RN, RPON, RNE, PGDE, BNSc.)

Abstract:

Despite the fact that genetic counseling is pivotal to the prevention of genetic disorder, sickle cell disorders, the commonest inherited disorder still continues to devastate the lives and finances of affected individuals and their family. In Nigeria about 100, 000 children die yearly from sickle cell disorders while a million others are living with it. This study explores the knowledge of genetic counseling among unmarried undergraduates in Obafemi Awolowo University as a preventive measure for genetic counseling. A descriptive survey design was employed to elicit information from a total of 100 randomly sampled undergraduates of the said institution using a self-designed questionnaire and data was analyzed using descriptive and inferential statistics. Findings from the study revealed that a good number of the study participants had

EASIJ

Accepted 25 December 2020
Published 31 December 2020
DOI: 10.5281/zenodo.4429265

very good knowledge (86%) and positive attitude (84%) towards genetic counseling. In addition, about a third of the participants affirmed non-availability of genetic counseling in their locality as factors that contributed to their acceptance of genetic counseling while almost half did not know if it was a factor. Findings from the study also depicts that gender ($p=0.30$; $df=3$; $\chi^2=2.40$) and religion ($p=0.94$; $df=4$; $\chi^2=0.987$) had no significant relationship with participants knowledge of genetic counseling. It was recommended among others that there is need to educate young men and women on sickle cell disease and effort should be made on the involvement of young men and women on genetic counseling.

Keywords: Knowledge, Undergraduates, Genetic Counselling, Sickle Cell Disease,

About Author

Author(s): OLADELE Helen Oladunni (RN, RM, RNE, RPHN, MSc. Nursing)

School of Nursing, Obafemi Awolowo University Teaching Hospitals' Complex, OAUTHC, Ile-Ife, Nigeria.

DAYO-OMOLE Adedolapo Adebukola (RN, RM, RPHN, PGDE, RNE, MN)

Department of Nursing,
Redeemer's University, Ede, Osun State. Nigeria.

AJAYI, Temitope Abiodun (RN)

Redeemers International Academy,
Ifewara, Osun State. Nigeria.

AWOSEEMO Aderonke Bosede (RN, RM, RNE, RPHN, PhD. Nursing)

School of Nursing, Obafemi Awolowo University Teaching Hospitals' Complex, OAUTHC, Ile-Ife, Nigeria.

and

EZEH Kinsley Ikenna (RN, RPN, RNE, PGDE, BNSc.)

School of Perioperative Nursing, Obafemi Awolowo University Teaching Hospitals' Complex, OAUTHC, Ile-Ife, Nigeria.

Introduction

Genetic counseling is the process by which the patients or relatives at risk of an inherited disorder are advised of the consequences and nature of the disorder, the probability of developing or transmitting it, and the options open to them in management and family planning. Genetic counseling is also defined as a communication process, which aims to help individuals, couples and families understand and adapt to the medical, psychological, familial and reproductive implications of the genetic contribution to specific health conditions. (Barbara, 2009)

According to the world Health Organization (WHO) in 2005, over 500,000 babies with several forms of sickle cell diseases are born worldwide, making it the commonest inherited disorder in the world, with majority of cases happening in developing countries, especially in African countries like Nigeria. The world health's study shows that 40 million Nigerians are carriers and an estimated one million persons living with sickle cell disorder. Nigeria is commonly denoted to as the country with the highest level of sickle cell disorder in Africa. Most importantly sickle cell disease is a global health concern which is preventable and avoidable.

Presently, there is no cure for sickle cell disease, however cost effective treatment are available for the pain and other aspect of the disease. Early intervention is available with analgesics, antibiotic, rest, good nutrition, folic acid supplement and high fluid intakes. Sickle cell disease can be prevented through sickle cell screening, general public knowledge/awareness and genetic counseling. Prevention is to be better, cheaper, and safer if only treatment is available. Genetic counseling and screening can play a significant role in the reduction of the incidences of genetic disorder including sickle cell disease. Genetic counseling is the process by which patients, couples or relative, at risk of an inherited disorder are advised of the consequences and nature of disorder (Oluwole, Agborubere, Omolase, 2009).

According to World Health Organization (WHO, 2009) and Resta et al. (2006), genetic counseling is a process through which knowledge about the genetic aspect of illness is shared by trained professionals with those who are at risk of either having a heritable disorder or of passing it on to their offspring. Genetic counseling are preventive measures to sickle cell disease and they are process which parent or at risk individual are given information to understand the nature of genetic disease, its transmission an options in management. It is also aimed at increasing family or individuals understanding about a genetic disease, discuss options regarding disease management, risk or benefits of testing and to reduce family anxiety.

Despite public awareness, sickle cell disease still exists and continues to overwhelm the lives of so many individuals and their families. In spite of all the challenges and severe lack of financial resources, a handful of physicians, researchers, nurses, and community organizations have dedicated their professional careers to the fight against sickle cell disease. The dedication and commitment of these few individuals have brought new hopes for a cure and quality of life to those affected by this disease (Olubiyi & Umar 2013). However, there is dearth of studies to corroborate these among Nigerian youth to give an assurance of a future free of this preventable plague, hence this study.

The finding in this study would be useful in the correct dissemination of information as steps towards the eradication of genetic disorder in the population. This study advocates the implementation of genetic counselling with the primary goal of counselling, which is to inform and educate counselees about risk of sickle cell disease and risk management of the diseases in infant and reduce infant mortality rate. This study covers both male and female unmarried undergraduates of Obafemi Awolowo University, Ife central local government area, Ile Ife, Osun state. The study specifically examined:

- i. level of knowledge of unmarried undergraduates in Obafemi Awolowo University about genetic counselling;
- ii. the attitude of the unmarried undergraduates of Obafemi Awolowo University towards management towards genetic counselling before marriage in the prevention of sickle cell disease;
- iii. the factors contributing to the knowledge of Obafemi Awolowo University undergraduates towards genetic counselling in prevention of sickle cell disease;
- iv. the relationship between gender and the knowledge of genetic counselling; and
- v. relationship between religion and the knowledge of genetic counselling.

Research Questions

1. What is the level of knowledge of unmarried undergraduates in Obafemi Awolowo University about genetic counselling?
2. What is the attitude of the unmarried undergraduates of Obafemi Awolowo University towards management towards genetic counselling before marriage in the prevention of sickle cell disease?
3. What are the factors contributing to the knowledge of Obafemi Awolowo University undergraduates towards genetic counselling in prevention of sickle cell disease?

Research Hypotheses

1. There is no significant relationship between gender and the knowledge of genetic counselling.
2. There is no significant relationship between religion and the knowledge of genetic counselling

Methodology

The setting of the study is Obafemi Awolowo University is a federal government owned and operated Nigerian University. The university is in the ancient city of Ile-Ife, Osun State, Nigeria. The target population for this study comprises unmarried undergraduates in 300 level and 400 level of department of political science of Obafemi Awolowo University Ile-Ife, Osun State. Proportionate and simple random sampling techniques were used for the study, which will entail the selection of unmarried students in department of political science. Sample size was calculated using Taro Yamane's formula. After the calculation, the sample size was rounded down to 100 students in department of Political Science.

The instrument used for this study was a self-designed questionnaire which comprised of four sections. Section A sought for socio-demographic data of respondents while Section B consisted of items on knowledge of genetic counseling and Section C consisted of items on the attitude of genetic counseling. Section D consisted of items on the factors contributing to the acceptance of genetic counseling towards the prevention of sickle cell diseases. The

questionnaire was designed based on the objective of the study. The questionnaire was developed through extensive literature review and scrutinized by experts in the field who reviewed the instrument and determined that the questions satisfied the content of genetic counseling. The reliability of the questionnaire was 0.804 after determining the internal consistency.

Consents of the respondents were obtained after they have been briefed about the objective of the study. All copies of questionnaire given out were collected and considered for data analysis. The data collected from the correspondents were quantitatively analyzed using descriptive and inferential statistics.

Results

Research Question 1: What is the level of knowledge of unmarried undergraduates in Obafemi Awolowo University about genetic counselling?

Table 1: Frequency Count for Knowledge of Genetic Counseling

VARIABLES	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
Genetic counselling is the process by which information is given to people about genetic disorder and its prevention.	44	44.0	51	51.0	03	3.0	01	1.0	01	1.0
Genetic counselling is important in prevention of genetic disease especially sickle.	46	46.0	42	42.0	07	7.0	05	5.0	-	-
Sickle cell disorder is an example of genetic condition?	43	43.0	47	47.0	09	9.0	01	1.0	-	-
Person with genotype AS is a carrier of sickle cell disorder?	29	29.0	26	26.0	18	18.0	19	19.0	08	8.0
Sickle cell disorder can be prevented?	40	40.0	35	35.0	20	20.0	03	3.0	02	2.0
Sickle cell disorder can be gotten when both parents are carriers of sickle cell gene?	51	51.0	36	36.0	07	7.0	03	3.0	03	3.0
Genetic counselling should be done only when there is a child with genetic disease.	12	12.0	16	16.0	12	12.0	31	31.0	29	29.0
Genetic counselling and genetic screening should be done together respectively.	33	33.0	52	52.0	12	12.0	02	2.0	01	1.0
Can sickle cell disorder be cured	15	15.0	15	15.0	50	50.0	13	13.0	07	7.0
Early genetic counselling and										

screening helps to identify individuals at risk of genetic disorder.	49	49.0	42	42.0	05	5.0	02	2.0	02	2.0
--	----	------	----	------	----	-----	----	-----	----	-----

From the above table, 44% strongly agreed that genetic counselling is the process by which information is given to people about genetic disorder and its prevention while 51% agreed with the statement. Also, 46% strongly agreed that genetic counselling is important in prevention of genetic disease especially sickle and 43% strongly agreed that sickle cell disorder is an example of genetic condition while 47% agreed with the statement. This implies that most respondents know that sickle cell disease is a genetic disorder.

Moreover, 40% strongly agreed that sickle cell disease can be prevented while 51% agreed strongly that sickle cell disorder can be gotten when both parents are carriers of sickle cell gene. In addition to this, 52% agreed that genetic counselling and genetic screening should be done together respectively, 50% were undecided whether sickle cell disease can be cured while 49% agreed strongly that early genetic counselling and screening helps to identify individuals at risk of genetic disorder.

Table 2: Descriptive Statistics showing Level of Knowledge of Genetic Counseling

Level of knowledge	Frequency	Percentage
Poor	2	2.0
Good	86	86.0
Moderate	12	12.0
Total	100	100.0

The result shows that virtually all of the students, 86% have good knowledge of what is meant by genetic counseling, 12% have moderate knowledge and just 2% have poor knowledge of genetic counseling.

Research Question 2: What is the attitude of the unmarried undergraduates of Obafemi Awolowo University towards management towards genetic counselling before marriage in the prevention of sickle cell disease?

Table 3: Frequency Count for Attitude towards Genetic Counseling

VARIABLES	YES		NO		I DON'T KNOW	
	F	%	F	%	F	%
<i>Can you go for genetic counselling</i>	90	90.0	02	2.0	08	8.0
Can you encourage a friend with sickle cell trait (AS) to go for genetic counselling	92	92.0	04	4.0	04	4.0
Genetic counsellors only give bad news during genetic counselling	06	6.0	62	62.0	32	32.0
I personally do not believe it can offer solution to genetic disorder of sickle cell disease.	20	20.0	57	57.0	23	23.0
Genetic counselling is only for those	08	8.0	87	87.0	05	5.0

about to get married.						
Genetic counselling should be eradicated?	06	6.0	85	85.0	09	9.0
If you and your partner are not compatible, will you still marry him/her.	Yes		No			
	<i>F</i>	%	<i>F</i>	%		
	13	13.0	87	87.0		

Table 3 shows attitude towards genetic counseling. From the table, 90% agreed that they can go for genetic counseling while 92% can encourage their friends to go for genetic counseling. Also, 62% were not in agreement with the statement that genetic counselors only gives bad news during genetic counselling while 32% do not even know anything about genetic counselors. In addition to this, 87% do not support the statement that genetic counselling is only for those about to get married while 85% are against the eradication of genetic counseling. Lastly, 87% cannot marry if they are not compatible with their partners and the most reason given is the fear of what may happen in the future while the remaining 13% that would still go ahead marrying their partners said they love their partners

Table 4: Descriptive Statistics showing Attitude towards of Genetic Counseling

ATTITUDE	Frequency	Percentage
Poor	16	16.0
Good	84	84.0
Total	100	100.0

Table 4 shows that most of the students, 84% have good attitudes toward genetic counseling while 16% have poor attitudes toward genetic counseling.

Research Question 3: What are the factors contributing to the knowledge of Obafemi Awolowo University undergraduates towards genetic counselling in prevention of sickle cell disease?

Table 5: Frequency Counts of Factors Contributing to Genetic Counseling Acceptance

VARIABLES	YES		NO		I DON'T KNOW	
	F	%	F	%	F	%
Genetic counselling centres are not available in our locality	33	33.0	24	24.0	43	43.0
Genetic counselling is a western idea and does not pertain to our culture.	20	20.0	55	55.0	25	25.0
It involves some protocol and it is time						

wasting effort.	08	8.0	72	72.0	20	20.0
-----------------	----	-----	----	------	----	------

Here, 33% agreed with the fact that genetic counseling centers are not available in their locality, 43% were indifferent to this statement. Also, 55% were not in support of the statement that genetic counseling is a western idea and does not pertain to our culture while 72% said genetic counseling does not involves some protocol and that it is not time wasting.

Hypotheses Testing

Hypothesis 1: There is no significant relationship between gender and the knowledge of genetic counseling.

Table 6: Chi square analysis of relationship between gender and the knowledge of genetic counseling

GENDER	Knowledge				Chi square statistics		
	Poor N (%)	Good N (%)	Moderate N (%)	Total	Df	X ²	P- value
Male	2(2.0)	46(46.0)	5(5.0)	53(53.0)	2	2.401	0.30
Female	--	40(40.0)	7(7.0)	47(47.0)			
Total	2(2.0)	86(86.0)	12(12.0)	100			

The result from Table 6 shows a p-value of 0.30 ($p > 0.05$), and X² value of 2.401. Since the p value is greater than the conventional level of significance, it therefore implies that there is no significant relationship between gender and knowledge of genetic counseling. The null hypothesis was not rejected. This implies that sex has nothing to do with genetic counseling knowledge as both male and female respondents of this study were both knowledgeable about genetic counseling.

Hypothesis 2: There is no significant relationship between religion and knowledge of genetic counseling

Table 6: Chi square analysis of relationship between religion and the knowledge of genetic counseling

RELIGION	Knowledge				Chi square statistics		
	Poor N (%)	Good N (%)	Moderate N (%)	Total	Df	X ²	P- value
Christians	2(2.0)	73(73.0)	11(11.0)	86(86.0)	4	0.787	0.94
Muslims	---	12(12.0)	1(1.0)	13(13.0)			
Traditional	-----	1(1.0)	----	1(1.0)			
Total	2(2.0)	86(86.0)	12(12.0)	100			

The chi square result shows a p value of 0.94 ($p > 0.05$) and X^2 value of 0.787. Since the p value is greater than the conventional level of significance, it therefore implies that there is no significant relationship between religion and knowledge of genetic counseling. The null hypothesis was not rejected. This implies that religion has no significant impact on respondents' knowledge about genetic counseling

Discussion

The findings of the study revealed that the general assessment of students' knowledge shows that 86% have good knowledge of what is meant by genetic counseling, 12% have moderate knowledge and just 2% of the total percentage have poor knowledge of genetic counseling. This implies that OAU undergraduate students have a very good knowledge of genetic counseling. This high knowledge of OAU undergraduates on genetic counseling was similar to the study carried out by Olubiyi and Umar (2013) as they revealed that 86% of their participants have good knowledge of genetic counseling.

The findings of the study also revealed that most of OAU students have good attitudes toward genetic counseling. From the analysis, 90% agreed that they can go for genetic counseling while 92% can encourage their friends to go for genetic counseling. The general attitude of students revealed a positive one as 84% of students have good attitudes toward genetic counseling while 16% have poor attitudes toward genetic counseling.

It was further revealed that 33% agreed with the fact that genetic counselling centers are not available in their locality, 43% were indifferent to this statement. Also, 55% were not in support of the statement that genetic counseling is a western idea and does not pertain to our culture while 72% said genetic counseling does not involve some protocol and that it is not time wasting. All these factors were in accordance with the work of Oluwole, Agborubere and Omolase (2009) whose study listed culture and religious belief, accessibility and availability of genetic counseling among others.

The study revealed that there was no significant relationship between gender and knowledge of genetic counseling. This implies that sex has nothing to do with genetic counseling knowledge as both males and females respondents of this study were both knowledgeable about genetic counseling. From the second hypothesis, it was revealed that there was no significant relationship between religion and knowledge of genetic counseling. This implies that religion has no significant impact on respondents' knowledge about genetic counseling.

Summarily, the study has been able to show that most Obafemi Awolowo University Undergraduates have good knowledge of genetic counseling. Also, the general attitude of students revealed a positive one as 84% of students have good attitudes toward genetic counseling while 16% have poor attitudes toward genetic counseling. This their good attitude and knowledge have enabled students to identify various factors that can contribute to the acceptance of genetic counseling in order to curb the menace of sickle cell disease.

Implications to Nursing Practice

The findings from this study revealed that the respondents, Obafemi Awolowo University undergraduates have a very good knowledge of genetic counseling. However, some of the respondents were indifferent to genetic counseling. The fact that genetic counseling is

important for the prevention of sickle cell disease and for the health of a family makes it important for the control of genetic diseases prevalence. Since nurses are found at all levels of care, it is important that they advocate for the provision of premarital genetic counseling clinics at all levels and consistent promotion of the benefits of genetic counseling by nurses, laying emphasis on the benefit of genetic counseling, side effect of compromised genes among young men and women that planned getting married. Nurses play a major role in population control through health education given at health care levels. And can also function in policy making within the health sector to favour women and bring about readily available and accessible genetic counseling centers.

Conclusion

Based on the findings of this study, it was imminent that there is good knowledge of genetic counseling and attitude towards genetic counseling among undergraduates of Obafemi Awolowo University. In addition, sex and religion has nothing to do with genetic counseling knowledge as both male and female respondents of this study from any of the religion were knowledgeable about genetic counseling.

RECOMMENDATIONS

This study hereby recommends the following:

1. There is need to educate young men and women on sickle cell disease and effort should be made on the involvement of young men and women on genetic counseling.
2. Government should educate parents of sickle cell disease parents on prevention and management of sickle cell disease.
3. There is need for government and healthcare practitioners to create awareness programs on the importance of genetic counseling among unmarried undergraduates.
4. Efforts should be intensified by the healthcare practitioners and also the government on reinforcing the importance of premarital genetic counseling so as to reduce and curb the immense of giving birth to sickle cell disease babies.

References

- Adele P. (2007). *Maternal and Child Health Nursing Care of the Childbearing Family (6th Edition)*. Philadelphia: Lippincott, Williams and Wilkins Limited.
- Barbara F.W. (2009). *Baillieres' Nurses' Dictionary (24th Edition)*. Edinburgh; Elsevier science Limited.
- Olubiyi, S. & Umar J. N (2013) Knowledge and attitude of undergraduates of Ekiti state university towards sickle cell disease and genetic counselling before marriage, sky journals medicine and medical sciences vol.1(7). Pg 29-35 November 2013.
- Oluwole O.C, Agborubere D.E, Omolase B.O (2009). Attitude of premarital genetic counselling among Youth corpers in South West, Nigeria. Journal; TAF org accessed on 15/4/12.
- Resta R, Bresecker B, Benneth R, Blum S, Hahn S, Strecker M & Williams J (2006). A new definition of genetic counselling, National society of genetic counsellors Task Force Report. From <http://www.ncbi/pubmed/16761103>.
- World Health Organization, (2006). Fifty-nine World Health Assembly: Sickle Cell Anemia report of the secretariat. www.nsgc.org

Cite this article:

Author(s), OLADELE Helen Oladunni (RN, RM, RNE, RPHN, MSc. Nursing), DAYO-OMOLE Adedolapo Adebukola (RN, RM, RPHN, PGDE, RNE, MN), AJAYI, Temitope Abiodun (RN), AWOSEEMO Aderonke Bosede (RN, RM, RNE, RPHN, PhD. Nursing), EZEH Kinsley Ikenna (RN, RPON, RNE, PGDE, BNSc.), (2020). “ Knowledge of Genetic Counselling in The Prevention of Sickle Cell Diseases Among Unmarried Undergraduates in Obafemi Awolowo University, Ile-Ife, Osun State”, **Name of the Journal:** Euro Afro Studies International Journal, (EASIJ.COM), P, 10 –21. DOI: www.doi.org/10.5281/zenodo.4429265 , Issue: 5, Vol.: 2, Article: 2, Month: December, Year: 2020. Retrieved from <https://www.easij.com/all-issues/>

Published By



AND

ThoughtWares Consulting & Multi Services International (TWCMSI)

