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# Effect of Genetic Education on Knowledge of Would-Be Partners towards Premarital Genetic Screening Uptake in Selected Religious Institutions in Yenagoa, Bayesa State, Nigeria

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**ABSTRACT:** *Premarital screening presents an opportunity for individuals to become informed about their genetic predisposition to diseases. This study assesses the effect of genetic education on knowledge of would-be partners towards premarital genetic screening uptake in selected religious institutions in Yenagoa, Bayelsa State. A quasi experimental of pretest/post-test research design was adopted and 109 respondents were randomly selected. A self-administered questionnaire was used to elicit information from respondents at both pre- and post-seminar. Analysis was done using descriptive and inferential statistics on Statistical Package for Social Sciences (SPSS) version 23 at 0.05 level of significance. Findings revealed that majority have heard of premarital genetic screening and were aware of the diseases meant for screening. Only 26.6% have ever gone for any premarital genetic screening. Overall, 40.4% and 88.1% had good uptake of premarital genetic screening before and after the seminar. Significant relationship exists between knowledge of premarital genetic screening in pre and post-seminar and between premarital genetic screening and the uptake ($p < 0.05$). Therefore, genetic education should be intensified for wolud-be partners in religious institutions.*

**KEYWORDS:** genetic education, would-be partners, religious institutions, premarital genetic screening

## INTRODUCTION

The practice of advising people about inherited traits began around the turn of the 20th century, shortly after William Bateson suggested that the new medical and biological study of heredity be called "genetics". According to World Health Organization, heredity clinic was the first genetic counselling service centre established in 1940 at the University of Michigan, USA and since then many such centres have been opened around the world (WHO, 2018). According to nursing times (2019), genetic counseling provides an opportunity for an individual to understand the genetic basis of their condition and be advised of their options with regard to genetic testing, prognosis and management. They are also supported in thinking through the implications for themselves and their family.

Human blood falls under different types of genotype which are AA, AS, SS and SC. The combination of any two of these genotypes determine the products of the combination which results in the genotype of the offspring. From time to time provisions had been made to create awareness on sickle cell and other genetic diseases prevention, treatment and management. The good knowledge of the implications of sickle cell disease is important to every family that have one or more children in this category. The sickle cell is a severe, chronic haemolytic anaemia occurring in person's who are homozygous for the sickle gene. The clinical course is characterized by episodes of pains due to the occlusion of small blood vessels by sickled RBCs. Persons heterozygous for the sicking gene are said to possess sickle cell trail, which is associated with a benign clinical course (CDC, 2020).

Sickle cell disease and other blood related hereditary diseases are predominantly a disease of African – Caribbean population, but also affects individuals with Mediterranean, Middle Eastern and Asia Indian ancestry. Sickle cell trait seems to offer some protection from a common type of malaria, falciparum malaria so there is a higher incidence of Hbs in regions where malaria is prevalent. Diagnosis is often made within the first 2years of life, young babies are often protected from symptoms of the disease because of high levels of HbF (Fetal haemoglobin) produced in early life.These distorted Crescent-Shaped red cells become trapped in the microcirculation, causing blockages and producing the rate range of clinical manifestations of sickle-cell disease. Another consequence of this "sickling" process is that the red cell life span is shorten from a normal 120days to as little as 25-35days, resulting in haemolytic anaemia (Alagbe et al,2017).

There is varying degree of public awareness and understanding of issues concerning human genetics in general and genetic testing in particular. Two-thirds of couples in Nigeria are at the risk of having children with sickle cell disease or other heridatary disorders (Nnaji et al, 2018). If correctly applied, premarital genetic screening and counselling have the potential of reducing the number of infants affected by the diseases, reducing the prevalence in the long term (Aneke&Okocha, 2016). However, the current use of premarital genetic counselling and testing in the country is low.

There are various inter-governmental, national state and local effort, both public and private, who gave orientation and awareness on genetic education. People's reception and responses to the

awareness on genetic education is still low. The involvement of religious institutions as a change agent in the drive to prevent sickle cell disease in Nigeria is important because not only are they influential on decision making processes of most Nigeria (Orimoloye et al, 2016). Some religious body in Nigeria carry out pre-marital genetic counselling and testing for sickle cell disease as a part of marriage requirements.

Awareness of the sickle cell disease and other genetic disease which could be spread by genetic education has contributed immensely to the general level of knowledge in genetic education. Nevertheless, the awareness is yet to circulate as necessary. Many people are still living without the knowledge of their genetic status, while many other who are aware of their genetic status do not count it necessary to be considered while making the choice of marital partners. Some others who see the necessity in considering their genetic status in the process of making their marital decision are otherwise compelled by some influences such as parental, economic, spiritual figures. In some cases, where people have unwanted pregnancies as a result of not readiness for marriage, knowledge of genetic identity of each other is not usually put into consideration in such cases.

Yenagoa, being a state capital, has a good population of youth many of who get married or get into child bearing without proper preparation or readiness, thereby having little or no knowledge of their genetic identities. The resultant effect of these, have much to bear on the health of their offspring. The chain effects of the poor knowledge of parents on the genetic identities have much to bear on the socio-economic and educational development of the society. Therefore, a need to study the effect of genetic education on knowledge of would-be partners towards premarital genetic screening uptake in selected religious institutions in Yenagoa, Bayelsa state.

**Objectives of the study**

1. To assess the knowledge of would-be partners on premarital genetic screening
2. To assess the level of uptake of premarital genetic screening among would-be partners
3. To ascertain the effect of genetic education on the knowledge of premarital genetic screening among respondents after administering a pre- and post-test.
4. To ascertain the influence of knowledge of premarital genetic screening on the uptake among respondents

**Research Hypothesis**

1. There is no significant difference between knowledge of premarital genetic screening among respondents in pre and post-seminar.
2. There is no significant relationship between knowledge of would-be partners on premarital genetic screening and the uptake of premarital genetic screening
3. There is no significant relationship between effect of genetic education on the knowledge of premarital genetic screening and the uptake of premarital genetic screening among respondent

## METHODOLOGY

### Research Design

A quasi experimental Pretest/posttest descriptive design research was used in studying the effect of genetic education on knowledge of would-be partners towards premarital genetic screening uptake in selected religious institutions in Yenagoa.

### Setting for the Study

The study was conducted in selected religious institutions in Yenagoa.Yenagoa is geographically located between latitude 4° 47‟ 15‟ and 5°11‟ 55” N and Long. 6°07‟35” and 6°24‟00” East. The city has an area of 706 km² and a population of 353,344 comprising of 187,791 males and 165,553 females with an annual exponential growth rate of 2.9 as at the 2006 National Census. Yenagoa is bounded by Mbiama communities of Rivers State on the north and East, Kolokuma/Opokuma LGA on the north west, Ogbia LGA on the south and Southern Ijaw on the west, Ogbia LGA on the South East and Southern Ijaw on the South west. Yenagoa is the traditional home of the Ijaw people. English is the official language, but Epie/Atissa language, one of the Ijaw languages, is the major local language spoken in Yenagoa. There are other pockets of ethnic groups such as Urhobo and Isoko. There are local dialects in some places. Christianity and traditional religion are the two main religions in the State with many religious institutions situated in the city. The major crafts include canoe building, fish net and fish traps making, pottery, basket and mat making.

The selected religious institutions are Christ Church Interdenominational Church and Nigerian Christian Corpers Fellowship.

### Target Population for the Study

The study population for this research comprises of would-be partners attending selected religious centres in Yenagoa, Bayelsa state, Nigeria.

### Inclusion criteria

Respondents must be an individual planning to marry very soon
There must be a consensual stable relationship hoping to lead to marriage between both partner
Participants must be attending a religious institution within Yenagoa.

### Exclusion criteria

Individuals not consenting to participate
Single individual with no consensual partner

### Sampling, Procedure and Sample Size.

The sample size was determined by using Taro Yamane’s formula as follows;

$$n = \frac{N}{1+N(e)2}$$

Where; n= desired sample size
N = total population size (150 individual)
e = level of precision put at 0.05

thus; $n = \frac{150}{1+150(0.05)2}$

$n = \frac{150}{1+150(0.0025)}$

$n = \frac{150}{1.375}$

n = 109respondents

A simple random sampling technique was used in selecting respondents

**Instrument for Data Collection**

The instrument that was used for this study was a self-designed, semi-structured, validated questionnaire consisting of 23 questions segmented into five sections.

Section A: Socio-demographic data of respondents consisting of six (6) questions,

Section B: Knowledge of premarital genetic screening among respondents consisting of ten (10) questions

Section C: Uptake of premarital genetic screening and counselling among respondents consisting of seven (7) questions.

**Data Validation and Reliability**

Validity is concerned with the instrument measuring what it is supposed to measure while reliability is concerned with the consistency obtained from results of the application of the instrument. The questionnaire was given to the researcher's supervisor to look through for face validity and content validity. The instrument was scrutinized, corrected and approved by the supervisor for adequacy and appropriateness before administration. In order to check for the reliability of the instrument, a pilot study was carried out at Agape Church, Yenagoa among 11 would-be partners (equivalent to 10% of the population). It was analyzed using Cronbach Alpha in SPSS windows which generate the reliability coefficient of 0.62.

**Pilot Study**

In order to check for the reliability of the instrument, a pilot study was carried out at Agape Church, Yenagoa among 11 would-be partners (equivalent to 10% of the population).

**Method of Data Collection**

In order to ascertain the effect of genetic education on knowledge of would-be partners towards premarital genetic screening uptake. A pre-seminar questionnaire was administered to respondents, after which a seminar on genetic education was given to respondents. Then, the same questionnaire was administered to ascertain the post-seminar knowledge of respondents on premarital genetic screening. Each questionnaire administration begins with an introduction and overview of the research including the objectives of the study. Two research assistants were recruited to help in the administration. The questionnaires were distributed by the researcher and the assistants to the respondents thereafter they were retrieved from each respondent immediately after completion to

ensure completeness. Each questionnaire takes an average time of 3-5 minutes to complete for pre and post-seminar.

**Method of Data Analysis**

The data collected was analyzed quantitatively by using percentages and frequencies distribution to examine the general distribution of respondents as contained in each variable and results presented through frequency tables, charts and graphs. Inferential statistics of chi-square was also used to test for the hypotheses and relationship between variables by computing it using Statistical Package for Social Sciences (SPSS) version 23 at 0.05 level of significance.

**Ethical Consideration**

The study followed the ethical principles guiding the use of human participants in research. Approval for the study was obtained from the ethical and research committee of Yenagoa local government area of Bayelsa state as well as the head of each selected religious institutions. In addition, verbal informed consent was obtained from each respondent.

All the respondents were informed that the study is voluntary, and that they did not have to participate if they choose not to or could withdraw at any time. Respondent were assured that confidentiality of responses would be maintained during and after data collection.

## RESULTS/FINDINGS

### Socio-demographic Data

**Table 1: Presentation of Sociodemographic Characteristics of Respondents**

| Variables | | Frequency (N=109) | Percent (%) |
|---|---|---|---|
| **Age in (years)** | < 20 years | 6 | 5.5 |
| | 20-29 | 56 | 51.4 |
| | 30-39 | 44 | 40.4 |
| | 40-49 | 3 | 2.8 |
| **Sex** | Male | 50 | 45.9 |
| | Female | 59 | 54.1 |
| **Ethnicity** | Ijaw | 67 | 61.5 |
| | Urhobo | 15 | 13.8 |
| | Isoko | 23 | 21.1 |
| | Yoruba | 2 | 1.8 |
| | Others | 2 | 1.8 |
| **Occupation** | Trading | 12 | 11.0 |
| | Farming | 18 | 16.5 |
| | civil servant | 37 | 33.9 |
| | Artisan | 36 | 33.0 |

| | | | |
|---|---|---|---|
| | Unemployed | 3 | 2.8 |
| | Student | 3 | 2.8 |
| **Level of income per month** | less than #20,000 | 15 | 13.8 |
| | #20,000 - #50,000 | 61 | 56.0 |
| | #51,000 - #100,000 | 28 | 25.7 |
| | above #100,000 | 5 | 4.6 |

From table 4.1 above, 6(5.5%) were less than 20 years, 56(51.4%) were between 20 and 29 years, 44(40.4%) were between 30 and 39 years while 3(2.8%) were between 40 and 49 years. 50(45.9%) were males while 59(54.1%) were females. 67(61.5%) were from Ijaw, 15(13.8%) were from Urhobo, 23(21.1%) from Isoko, 2(1.8%) from Yoruba and 2(1.8%) from other tribe. Base on occupation, 12(11%) were traders, 18(16.5%) were farmers, 37(33.9%) were civil servants, 36(33%) were artisans while 3(2.8%) were unemployed while only 3(2.8%) were students. 15(13.8%) earned less than #20,000, 61(56%) between #20,000 and #50,000; 28(25.7%) between #51,000 and #100,000 while only 5(4.6%) earned above #100,000.

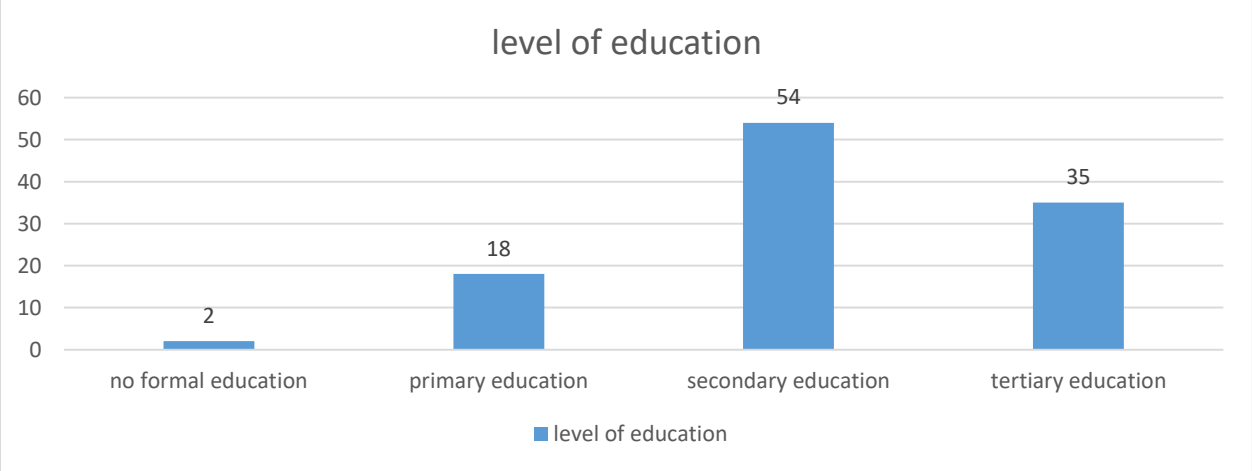


**Fig 4.1 showing the level of education of respondents**

From the bar chart above, it can be shown that 18(16.5%) had primary education, majority 54(49.5%) secondary education, 35(32.1%) had tertiary education while 2(1.8%) had no formal education**.**

**Research question 1:** What is the level of knowledge of would-be partners on premarital genetic screening?

**Table 2: Presentation of knowledge of would-be partners on premarital genetic screening both at pre- and post-seminar**

| Variables | | Pre-test | | Post-test | |
|---|---|---|---|---|---|
| | | Yes | No | Yes | No |
| Have you heard of premarital genetic screening before? | | 59(54.1%) | 50(45.9%) | 109(100%) | 0(0.0%) |
| Premarital genetic screening helps intending couples to be aware of the possible genetic characteristics of each partner | | 52(47.7%) | 57(52.3%) | 100(91.7%) | 9(8.3%) |
| Premarital genetic screening can help to screen for the following | Sickle cell trait | 65(59.6%) | 44(40.4%) | 109(100%) | 0(0.0%) |
| | Rhesus incompatibility | 41(37.6%) | 68(62.4%) | 76(69.7%) | 33(30.3%) |
| | inborn error of metabolism | 22(20.2%) | 87(79.8%) | 67(61.5%) | 42(38.5%) |
| | blood group incompatibility | 56(51.4%) | 53(48.6%) | 95(87.2%) | 14(12.8%) |
| | infectious disease | 48(44%) | 61(56%) | 86(78.9%) | 23(21.1%) |
| | hereditary diseases | 100(91.7%) | 9(8.3%) | 102(93.6%) | 7(6.4%) |
| | Cancers | 52(47.7%) | 57(52.3%) | 68(62.4%) | 41(37%) |
| Premarital genetic screening and counselling can help to reduce the incidence of genetic disease | | 72(66.1%) | 37(33.9%) | 98(89.9%) | 11(10.1%) |
| Religious institution can also embark on genetic education | | 91(83.5%) | 18(16.5%) | 103(94.5%) | 6(5.5%) |
| Are you aware that hereditary diseases bring about psychological burden on families? | | 42(38.5%) | 67(61.5%) | 77(70.6%) | 32(29.4%) |
| Genetic education is the process of impacting the knowledge of genetics, hereditary and its transmission pattern | | 79(72.5%) | 30(27.5%) | 103(94.5%) | 6(5.5%) |
| Incorporating genetic education into school curriculum will increase the knowledge of people on genetic screening | | 94(86.2%) | 15(13.8%) | 105(96.3%) | 4(3.7%) |
| Have you ever been taught or lectured on genetic disease before? | | 14(12.8%) | 95(87.2%) | 109(100%) | 0(0.0%) |
| Will you recommend genetic education to be included in school curriculum | | 102(93.6%) | 7(6.4%) | 109(100%) | 0(0.0%) |

From the table 2 above; only 54.1% of the respondents have heard of premarital genetic screening before the seminar while all of them (100%) were aware after the seminar. Prior to the seminar, 47.7% indicated that premarital genetic screening helps intending couples to be aware of the

possible genetic characteristics of each partner while 91.7% affirmed to the same statement after the seminar. Base on the types of disease or ailment that premarital genetic screening can help to screen for, respondents indicated that sickle cell trait (59.6% vs 100 at pre-and post-seminar respectively), rhesus incompatibility (37.6% vs 69.7%), inborn error of metabolism (20.2% vs 61.5%), blood group incompatibility (51.4% vs 87.2%), infectious disease (44% vs 78.9%), hereditary diseases (91.7% vs 93.6%) and cancers (47.7% vs 62.4%). Prior to the seminar, 66.1% affirmed that premarital genetic screening and counselling can help to reduce the incidence of genetic disease while 89.9% affirmed so after the seminar. 83.5% indicated that religious institution can also embark on genetic education while 94.5% indicated so after the seminar. 38.5% were aware that hereditary diseases bring about psychological burden on families before the seminar while 70.6% affirmed so after the seminar. Pre-seminar, 72.5% defined genetic education

as the process of impacting the knowledge of genetics, hereditary and its transmission pattern while 94.5% agreed after the seminar. Furthermore, 86.2% indicated that incorporating genetic education into school curriculum will increase the knowledge of people on genetic screening. Before the seminar, only 12.8% have ever been taught and lectured on genetic disease. 93.6% recommended that genetic education should be included in school curriculum.

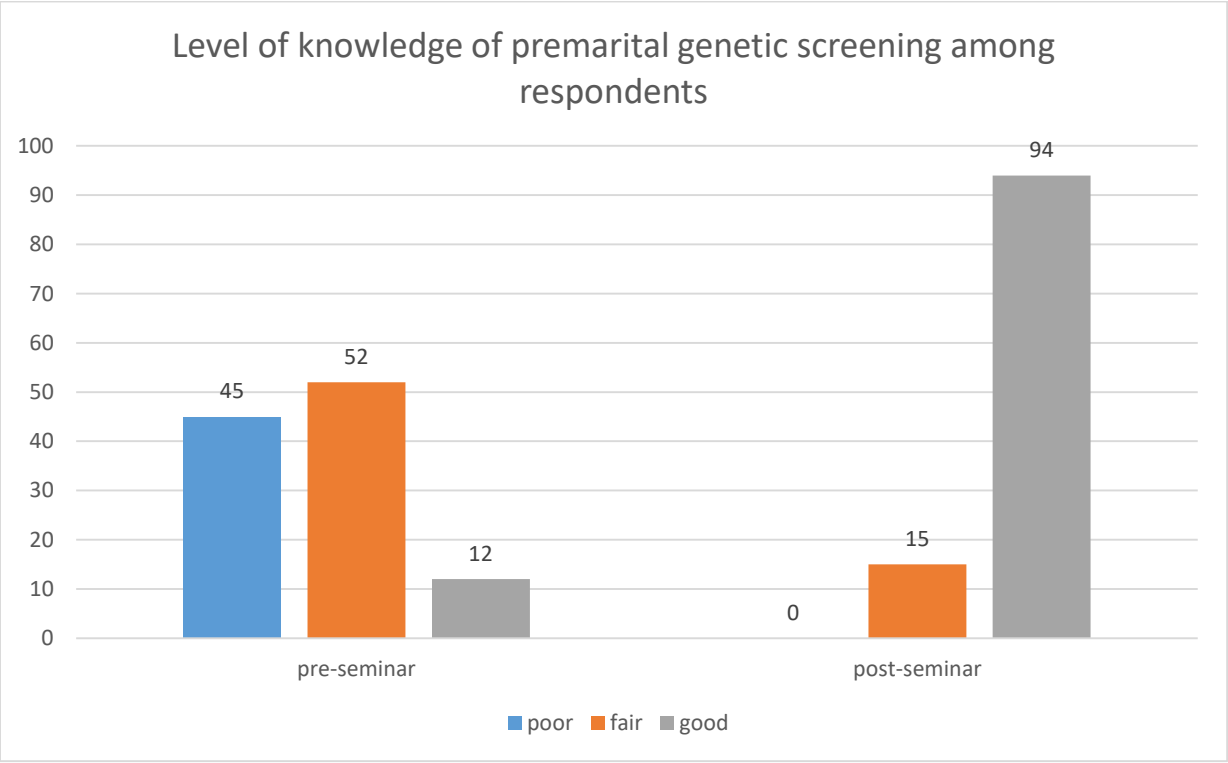


**Figure 4.2: Level of knowledge of Premarital Genetic Screening among Respondents**

From the figure above, before the seminar, 45(41.3%) had poor knowledge of premarital genetic screening, 52(47.7%) fair knowledge while 12(11%) had good knowledge. However, after the

seminar on premarital genetic screening, 15(13.8%) had fair knowledge while 94(86.2%) had good knowledge.

**Research question 2:** What is the level of uptake of premarital genetic screening among would-be partners?

**Table 4.3 Presentation of uptake of premarital genetic screening among would-be partners**

| **Variables** | | **Pre-test** | | **Post-test** | |
|---|---|---|---|---|---|
| | | Yes | No | Yes | No |
| Have you gone for any premarital genetic screening with your partner? | | 29(26.6%) | 80(73.4%) | 29(26.6%) | 80(73.4%) |
| Who encouraged the screening? N = 29 | Church | 8(27.6%) | 21(72.4%) | 8(27.6%) | 21(72.4%) |
| | Parents | 9(31%) | 20(69%) | 9(31%) | 20(69%) |
| | Health workers | 26(89.7%) | 3(10.3%) | 26(89.7%) | 3(10.3%) |
| When should premarital genetic screening be conducted? | shortly after marriage | 5(4.6%) | 104(95.4%) | 0(0.0%) | 109(100%) |
| | few months to marriage | 88(80.7%) | 21(19.3%) | 109(100%) | 0(0.0%) |
| | as soon as both partner consent to get married | 91(83.5%) | 18(16.5%) | 109(100%) | 0(0.0%) |
| Do you know the blood group and genotype of your partner? | | 31(28.4%) | 78(71.6%) | 55(50.5%) | 54(49.5%) |
| Are you willing to change decision about marriage based on premarital genetic screening results ? | | 74(67.9%) | 35(32.1%) | 107(98.2%) | 2(1.8%) |
| If future spouse is a carrier of a hereditary disease, will you still go for marriage? | | 33(30.3%) | 76(69.7%) | 22(20.2%) | 87(79.8%) |
| Premarital genetic screening should be made compulsory for all intending couples | | 89(81.7%) | 20(18.3%) | 109(100%) | 0(0.0%) |

From table 4.3 above, only 29(26.6%) have ever gone for premarital genetic screening with their partner of which 27.6% of them were encouraged by the church, 31% by their parents and 89.7%

of them by health workers. Furthermore, only 4.6% indicated that premarital genetic screening should be conducted shortly before marriage; 80.7% indicated few months to marriage before the seminar while the percentage increased to 100% after the seminar. Also, 83.5% indicated that as soon as both partner consent to get married, premarital genetic screening should be carried out while 100% indicated so after the seminar. Before the seminar, only 28.4% knew the blood group and genotype of their partner while 50.5% knew such after the seminar. Initially, 67.9% indicated that they are willing to change their decision about marriage based on their screening results while 98.2% indicated so after the seminar. However, 30.3% indicated that if their future spouse is a carrier of a hereditary disease, they will still go for marriage while only 20.2% said so after the seminar. Before the seminar, 81.7% opined that premarital genetic screening should be made compulsory for all intending couples while all the respondents opined so after the seminar.

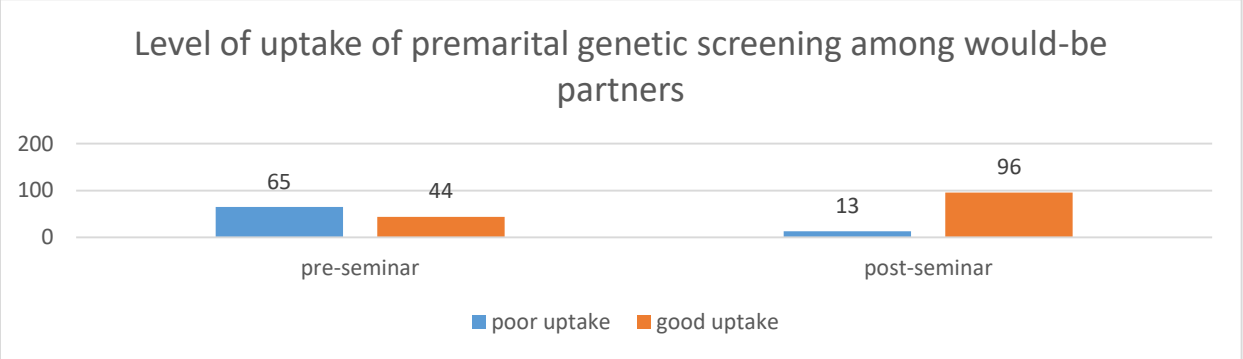


**Figure 4.3: Level of uptake of pre-marital genetic screening among would-be partners**

From the figure above, 65(59.6%) had poor uptake of premarital genetic screening before the seminar while 44(40.4%) have good uptake. However, after the seminar, 13(11.9%) had poor uptake while a large majority 96(88.1%) had good uptake.

Effect of genetic education on the knowledge of premarital genetic screening among respondents after administering a pre- and post-test

**Research question 3:** What is the effect of genetic education on the knowledge of premarital genetic screening among respondents after administering a pre- and post-test?

**Table 4: Effect of genetic education on knowledge of premarital genetic screening**

| Variables | | level of knowledge of premarital genetic screening (post-test) | | Total |
|---|---|---|---|---|
| | | Fair | Good | |
| level of knowledge of premarital genetic screening (pre-test) | Poor | 10(22.2%) | 35(77.8%) | 45(100%) |
| | Fair | 5(9.6%) | 47(90.4%) | 52(100%) |
| | Good | 0(0.0%) | 12(100%) | 12(100%) |
| Total | | 15 | 94 | 109 |

From the table above; 77.8% of those who had poor knowledge prior to the seminar now had good knowledge of premarital genetic screening after the seminar. In the same vein, 90.4% of those who had fair knowledge of premarital genetic screening before the seminar now had a good knowledge after the seminar.

**Research question 4:** What is the influence of knowledge of premarital genetic screening on the uptake among respondents?

**Table 5: Influence of Knowledge of Premarital Genetic Screening on the Uptake Of Premarital Genetic Screening**

| Variables | | level of uptake of premarital genetic screening (post-test) | | Total |
|---|---|---|---|---|
| | | Poor | Good | |
| level of knowledge of premarital genetic screening (post-test) | Fair | 4(26.7%) | 11(73.3%) | 15 |
| | Good | 9(9.6%) | 85(90.4%) | 94 |
| | | 13 | 96 | 109 |

From table 4.5 above; 73.3% of those with fair knowledge of premarital genetic screening had good level of uptake of premarital genetic screening as compared to 90.4% of those with good knowledge of premarital genetic screening. This showed that there is increase in level of uptake with increased knowledge of premarital genetic screening.

**Research Hypothesis**

**Hypothesis one**

There is no significant relationship between knowledge of premarital genetic screening among respondents in pre and post-seminar.

**Table 6: Relationship between knowledge of premarital genetic screening between pre and post seminar**

| Variables | | level of knowledge of premarital genetic screening (post-test) | | Total | X2 | Df | p-value |
|---|---|---|---|---|---|---|---|
| | | Fair | Good | | | | |
| Level of knowledge of premarital genetic screening (pre-test) | Poor | 10 | 35 | 45 | | | |
| | Fair | 5 | 47 | 52 | 5.382 | 2 | 0.008 |
| | Good | 0 | 12 | 12 | | | |
| **Total** | | **15** | **94** | **109** | | | |

From table 4.6 above, the p-value (0.008) is lesser than 0.05, the null hypothesis (Ho) will therefore be rejected and the alternative accepted. Therefore, there is a significant relationship between knowledge of premarital genetic screening among respondents in pre and post-seminar.

**Hypothesis two**

There is no significant relationship between knowledge of would-be partners on premarital genetic screening and the uptake of premarital genetic screening.

**Table 7: Relationship between knowledge of would-be partners on premarital genetic screening and the uptake of premarital genetic screening**

| Variables | | Level of Uptake of Premarital Genetic Screening (Pre-test) | | Total | X2 | Df | p-value |
|---|---|---|---|---|---|---|---|
| | | Poor | Good | | | | |
| Level of knowledge of premarital genetic screening (pre-test) | Poor | 37 | 8 | 45 | | | |
| | Fair | 22 | 30 | 52 | 16.486 | 2 | 0.000 |
| | Good | 6 | 6 | 12 | | | |
| **Total** | | **65** | **44** | **109** | | | |

From table 4.7 above, the p-value (0.000) is lesser than 0.05, the null hypothesis (Ho) will therefore be rejected and the alternative accepted. Therefore, there is a significant relationship between knowledge of would-be partners on premarital genetic screening and the uptake of premarital genetic screening

**Hypothesis Three**

There is no significant relationship between effect of genetic education on the knowledge of premarital genetic screening and the uptake of premarital genetic screening among respondent.

**Table 8: Relationship between effect of genetic education on the knowledge of premarital genetic screening and the uptake of premarital genetic screening among respondent**

| Variables | | level of uptake of premarital genetic screening (post-test) | | Total | X2 | Df | p-value |
|---|---|---|---|---|---|---|---|
| | | Poor | Good | | | | |
| level of knowledge of premarital genetic screening (post-testr) | Fair | 4 | 11 | 15 | 3.598 | 1 | 0.058 |
| | Good | 9 | 85 | 94 | | | |
| **Total** | | 13 | 96 | 109 | | | |

From table 4.8 above, the p-value (0.058) is greater than 0.05, the null hypothesis (Ho) will therefore be accepted. Therefore, there is no significant relationship between effect of genetic education on the knowledge of premarital genetic screening and the uptake of premarital genetic screening among respondent.

## DISCUSSION

### Discussion on Socio-demographic Characteristics

Sociodemographic findings from this study revealed that most of the respondents were between 20 and 29 years while few were above 40 years. Close to half were females while males form the majority of the respondents and have secondary education. This shows that most of the respondents were of marriageable age and are literate. This is in line with the study of Iweriebor (2015) conducted in Delta state where it was revealed that majority of the respondents are aged 26-35 years, male, have formal education and are Christians. Furthermore, majority were civil servants and earned between #20,000 and #50,000. This may be due to the location and age distribution of respondents.

**Discussion on Knowledge of would-be partners on premarital genetic screening**

Findings from this study showed that half of the respondents were aware of premarital genetic screening, however, the awareness increased immediately after health education (seminar) was given to respondents. Most respondents also mentioned the diseases that can be screened for such as sickle cell trait, rhesus incompatibility, inborn error of metabolism, blood group incompatibility, infectious disease, hereditary disease and cancers. Furthermore, respondents were aware that hereditary diseases bring about psychological burden on families. Before the training, just 11% had good knowledge. However, after the seminar on premarital genetic screening, 86.2% of the participants had good knowledge. This is related to the study of Ezenwosu et al (2021) where more than half of the respondents, 66.1% had medium knowledge. However, after the seminar was given on sickle cell disorders more than halt of the participants 54% had high level of knowledge.

This shows that seminar on genetics information had strong effect on the knowledge of premarital genetic screening, also, most of the respondents were aware of the disease that can screened for. This is in conjunction with the study of Oludare and Ogili (2018) where 80% of youths had knowledge about premarital genetic screening. Also in the study of Al-Farsi et al (2016), 89.3% of the respondents were aware of premarital genital screening and one-third of the respondents reported awareness of all types of premarital medical tests. Gbeneol, Brisbe and Ordinioha (2016) also indicated that 79% had good knowledge of premarital screening. This is an indication that generally, there is an average to good knowledge of premarital genetic screening among people.

**Discussion on uptake of premarital genetic screening among respondents**

In this present study, only few (26.6%) have ever gone for premarital genetic screening with their partner. Health workers and church were the strongest source of motivation for the screening. Moreover, most knew the time for premarital genetic screening. More than half are also willing to change decision about marriage based on premarital genetic screening results and only few said they would go for marriage if their partner is a carrier of any disease. This study also showed that majority said premarital genetic screening should be made compulsory for all intending couples. Overall, this study showed that after genetic education, most of the respondents had good uptake of premarital genetic screening.

This is in contrast with the study of Iweriebor (2015) where level of practice is low as 80% of the respondent does not practice premarital/prenatal genetic testing, only 20% practiced it. The results are also supported by the findings of Al-Farsi et al (2016) where 84.5% believed that premarital counselling and screening is necessary and about half of them supported the view of making it compulsory before marriage. Furthermore, the results were in close relation with that of Gbeneol, Brisbe and Ordinioha (2016) where 88.97% recommended that the screening be made compulsory for all intending couples. Most of the respondents, 72.8% carried out the premarital screening while most of the screenings, 87.2% were done as a result of church directives.

**Discussion on Effect of genetic education on knowledge of premarital genetic screening and influence of knowledge of premarital genetic screening on the uptake among respondents**

Results from this study showed that 77.8% of those who had poor knowledge prior to the seminar now had good knowledge of premarital genetic screening after the seminar. In the same vein, 90.4% of those who had fair knowledge of premarital genetic screening before the seminar now had a good knowledge after the seminar. This showed that there is increasing level of knowledge with health education/seminar among the would-be partners. Omolashe et al (2016) indicated that the process of premarital genetic counseling is primarily educational, and is non-directive in nature.the purpose of this is to help individuals at risk to make informed decisions according to individual values. This on its own tries to raise awareness among people as well as get them informed about premarital genetic screening.

Furthermore, this study showed that that there is increase in level of uptake with increased knowledge of premarital genetic screening. This is evidenced by 73.3% of those with fair knowledge of premarital genetic screening had good level of uptake of premarital genetic screening as compared to 90.4% of those with good knowledge of premarital genetic screening.

**Discussion on Hypotheses**

From this study, there is a significant relationship between knowledge of premarital genetic screening among respondents in pre and post-seminar. Also, there is a significant relationship between knowledge of would-be partners on premarital genetic screening and the uptake of premarital genetic screening. However, there is no significant relationship between effect of genetic education on the knowledge of premarital genetic screening and the uptake of premarital genetic screening among respondent. This is in relation with the study of Ezenwosu et al (2021) where there was a significant relation between the effect of genetic education and knowledge of premarital genetic screening.

**Implication to Research and Practice**

Genetic knowledge and uptake of premarital genetic screening by would-be partners is an important health education service that nurses must render at all levels of encounter with would-be partners. The havoc caused by lack of needed information leading to marrying incompatible partners cannot and should not be overlooked hence more nurses/midwife-led intervention researches is advocated to protect the coming generation from facing challenges caused by parental incompatibility.

## CONCLUSION

Conclusively, this study has shown that genetic education has a good effect on the knowledge and uptake of premarital genetic screening among would-be partners at selected religious institutions in Yenagoa as knowledge and uptake of premarital genetic screening increased significantly from pre-seminar to post-seminar knowledge and uptake level.

**Recommendations**

In view of the above findings the following recommendations are made:

Regular premarital seminars should be conducted to provide basis for decision making before engagement among intending couples.

Development of standardized protocols that address knowledge and awareness about premarital genetic screening among individual should be institutionalized in every religious setting.

Increasing the number of educational programs in media like TV, Radio and Newspapers might be an option which can be considered for mass education among people.

Furthermore, the government should seek for means in inserting the teaching of genetic education in the curriculum of schools from the elementary stage (primary schools) and provide a national programme in which every individual knows his or her genotype and other genetic composition.

Religious organizations can serve as useful channel to disseminate health information beyond premarital genetic screening since people always have reference for places of worship and for religious leaders.

**Future Research**

Impact of Genetic Counselling on prevention of genetic diseases.

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