EFFICACY OF NURSE-LED EDUCATIONAL INTERVENTION ON KNOWLEDGE OF CHILD'S SEX DETERMINATION AMONG MARRIED INDIVIDUALS IN ADO-EKITI

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Abstract

This study ascertained the efficacy of a Nurse-led educational intervention on the knowledge of child sex determination of married individuals in Ado-Ekiti. The contents of the educational intervention, which was delivered after pre-test focused aimed to disabuse the participants' mind against unscientific notions about sex determination. This one group pre-test and post-test quasi-experiment employed a multistage sampling technique to select 256 married individuals within the age of 15-55 years who had at least a child for the study. A 55-item structured questionnaire was used for data collection. The paired sample t-test statistic was used to test the set hypotheses. The pre-intervention mean knowledge score was 79.3 but increased to 89.2 after the intervention. Furthermore, gender and age did not significantly impact on knowledge of child sex determination of married individuals in Ado-Ekiti, whereas the participants significantly differed in their acquired knowledge of child sex determination based on their levels of education. Based on the findings of the study, it was recommended that education of prospective parents on child's sex determination should be considered during antenatal clinic visits by the midwives.

Keywords: Child's Sex preference, Child's Sex determination.

Introduction

Child's sex preference by parents has a significant impact on the welfare, education and social aspects of the children both presently and in future, as female children are often seen as subordinates to their male counterparts. This has generated a lot of controversies resulting in gender inequality. In most countries in Africa, Nigeria inclusive, Asia, Middle East and India, sons exclusively perpetuate family lines and thus inherit the properties of the family (Fayehun, Omololu & Isiugo-Abanihe, 2011; Ushie, Enang, & Ushie, 2013) In contrast, daughters are viewed as inferior to their male siblings because they would after all be married out to another family (Nnadi, 2013; Ohagwu, Eze, Eze, Odo, Abu & Ohagwu, 2014). The high premium placed on sons by the family is due to their economic utility as they (males) run the family businesses, earn wages to support

the family, and when they marry, bring daughters in-law into the family (Ushie, Enang, & Ushie, 2013). In some cultures, certain religious and cultural rites can only be performed by the males, while the advantages of daughters to the family are considered modest; they have been found to be more likely to perform house chores and to provide better emotional support to their parents (Chhetri, Ansian, Bandary, & Adhikari, 2011). Couples without a son within these cultural contexts experience social stigma with women experiencing a disproportionate burden of the sanctions (Unnithan-Kumar, 2010). The couple in such situations often respond to the birth of a daughter by increasing its fertility rates in an effort to give birth to a son (Marco, 2013).

Son preference is not limited to developing countries; it has been a global phenomenon. However, its prevalence varies from one society to another. For instance, Nigerian mothers being in a patriarchal society are under intense pressure to give birth to sons in order to satisfy their husbands' desires and thus consolidate their marriages (Nnadi, 2013; Ohagwu *et al,* 2014). Mothers who give birth to only girls are therefore unhappy because of the fear of rejection by and satisfy their husbands (Nnadi, 2013). The apprehension resulting from failure to have the preferred child-sex has compelled many women to exceed their anticipated number of children. This is likely the major reason why pregnant women go through significant reduction in birth interval whenever the foetal sex is not the type desired by such mothers (Fayehun *et al.*, 2011; Ohagwu*et al*, 2014; Rai, Pandel, Ghimire, Pokharel, Rijal, & Niraula, 2014).

Moreover, many are compelled to raise large family sizes in efforts to have the desired child-sex in the family Fayehun *et al.*, 2011; Rai, Pandel, Ghimire, Pokharel, Rijal, & Niraula, 2014). In China, some women practiced sex-selection abortion to have preferred children and eliminate the sex not desired. Meanwhile, Nigerian women prefer an increase in their family size in an effort to attain gender balance in the family (Zhou, Wang, Zhou, & Hesketh, 2012). This phenomenon is evident in the Nigerian national statistics, where large family sizes of 7.1 children for currently married women and 6.5 for all women become the norm for Nigerian women (National Population Commission (NPC) Nigeria 2015). Also, asides personal satisfaction, there is often a general discrimination faced by women in the society when it comes to leadership. People tend to believe that women cannot be selected or elected to some leadership positions, thereby considering women to be second class citizens. Approximately, 50 percent of Nigeria's population are women, yet less than 10 percent of political positions are occupied by them (Makama, 2013).

Given the social, political and culturally biased nature of child's sex, some pertinent questions to ask would be; do the married individuals who form the target participants in this study know anything about sex determination? To what extent are they aware of the actual biological processes that determine the sex a child? Specifically, are they informed that men are carriers of XY chromosome, while women are carriers of XX chromosomes? That the human Y-chromosome is considered as one of the smallest in the

genome; half of a man's sperm carries it, and thus dictates sex of the unborn child; either male or female (Mercuro, Deidda, Piras, Dessalvi, Maffei, & Rosano, 2010). So if a man releases Y chromosomes during sexual intercourse, the resulting child will be male, but if a man releases X chromosomes definitely the child will be female (Pillitteri, 2014). Erroneously, however, most members of various societies believe that if a couple did not have a particular sex of interest, the woman is at fault. Therefore, women continue to try until they are able to have a desired child sex. Sometimes some are finally unable to have the desired sex. During the trying periods, women often subject themselves to various kinds of health hazards engendered by pregnancy complications. Marriage security and stability are usually the concern of the women; while succession issues (that is, intense concern for successor who will bear the family name) constitute a source of worries to the men.

The concept of child sex preference as seen in the foregoing discourse is therefore creating a lot of crises in many societies across the globe and the negative impacts cuts across the societies at large. One major example is one that begins with a practice of deliberate lack of interest in the sex of unborn child. This is because the moment the sex of an unborn child is known through scanning not to be the preferred sex; hostility against the pregnant mother may begin. This may lead to inadequate care during pregnancy and the maltreatment of the child after birth. Ignorance of couples on who determines sex of a child out of the two parents aggravates the pains and problems arising from child-sex preference. Many husbands blame their wives for their inability to have the preferred child-sex, and because of this some women are being maltreated and subjected to undue stress and depression for fear of losing their marriages. It is a common experience of healthcare worker to see men who abandon their wives in the hospital after delivery of a child, whose sex was not preferred by the husband. Therefore, if married individuals are not enlightened on the issue of child sex determination and preference there is possibility of having more than desired number of children, among other marital crisis. There is therefore a need to conduct more studies to assess the perception, knowledge, preference and attitude of individuals across a wide range of backgrounds towards child sex, as well as investigate the effect of relevant demographic and other variables on child sex determination variables. Such research efforts will direct policy and training programme content and scope for the enlightenment of married individuals in various social and cultural climates. .

Studies that bothered on the effect of family size, national population, use of contraceptive, and other variables on child sex determination have been conducted, and several researches have been conducted to evaluate whether gender, age, education, and other socio-demographic variable impact on learning ability and retention, such as is required for the acquisition of knowledge of child sex determination. For instance, Reuben, Sapienza, & Zingales, (2014) in their study on impairments of stereotypes on women's careers in science, found that on average, both genders perform equally well though in Mathematics –

usually viewed as a tough course like any other sciences. Also, Melkonian, and Ierokipiotis, (1997) studied the effect of age-position and sex on academic performance of secondary schools in Cyprus. The study found that younger participants constituted the highest percentage of repeating (i.e. non-promoted students). This implies that older individuals tended to acquire more knowledge when taught, than younger individuals, hence the better performance. Moreover, a study by Kremen, Beck, Elman, Gustavson, Reynolds, Tu, & Fennema-Notestine, (2019) demonstrated that education has been proven to improve cognitive ability in adults. Hence, more educated individuals would be more likely to get understanding of concepts taught than less educated individuals.

Despite the availability of studies (Burger, 2010; Reuben, Sapienza, & Zingales, 2014) in the areas child sex determination, in Ekiti state, there seems to be dearth of empirical information on knowledge of married individuals on child sex determination and their preferences for child's sex. Also, evidence of training given to married individuals on this respect is lacking. The present study sought to investigate the efficacy of a Nurse-led educational intervention on knowledge of married individuals on child sex determination and preference for child sex in Ado-Ekiti. In addition, the study was designed to establish weather knowledge of child sex determination differs by participants' gender, age, and level of education levels.

Research Hypotheses

The following null hypotheses below were tested at 0.05 level of significance:

H_o 1: There is no significant difference in the knowledge of sex determination among married individuals in Ado Ekiti before and after the intervention.

H_o 2: The knowledge of sex determination among married individuals in Ado-Ekiti after intervention does not differ significantly by:

i.   gender,

ii. age, and

iii. level of education.

Methods

Study Design

The study adopted a one group pre-test and post-test quasi-experimental design to assess the efficacy of Nurse-led intervention on knowledge of child sex determination among married individuals in Ado-Ekiti. The study adopted a one group pre-test and post-test quasi-experimental design. The dependent variable was measured once before the intervention (treatment) was implemented and once after it was implemented. This design was adopted because it would be impossible to execute a multiple group design

with a control group because of the social setting of the study. There would be interaction among the participants as they relate across religious and social lines (Knapp, 2016).

A total of 256 married individuals ages of 15-55 years with at least a child were recruited from ward 9 purposively out of the existing 13 wards in Ado-Ekiti local government area. Ward 9 comprised of Ori-Apata, Adebayo, Housing road, Opopogboro, and Adehun area as at the time of data collection. The sample size for the study was determined using Leslie Kish formula: $N = Z^2 Pq/e^2$; Where: N = Sample size expected, Z = Standard normal deviation at 95% confidence interval corresponding to 1.96, P = Assumed proportion of married individual, q = level of prevalence, which is 1-p, e=Level of precision at 0.05. Multistage sampling procedure was employed for sample selection. Thus, zone 1 out of the existing two zones in ward 9 was selected by simple random technique. Then, three Churches that can accommodate over 200 married individuals were purposively selected within the zone. Similarly, two Mosques that can accommodate over 50 married individual were selected purposively (50 was considered because Christianity is predominant in Ado-Ekiti). The sample was proportionately distributed between the selected churches and mosques.

A self-report structured questionnaire; Child Sex Determination and Preference Questionnaire (CSDPQ) designed by the researchers was used to collect both pre-intervention and post-intervention data for the study. The instrument had two sections: section A elicited participants' socio-demographic characteristics of the participants, and sections B assessed their knowledge on child sex determination. Prior to the commencement of the data collection, five research assistants were trained to assist in administration and collection of the data pre and post intervention. Then the pre-intervention measure was taken, followed by the intervention and subsequently, post-intervention measure. Since the questionnaire items were structured, the CSDPQs were check for completeness as soon as they were retrieved from the participants. The Babcock University Health Research Ethics Committee granted ethical clearance for the study, while official permission for data collection was obtained from the respective religious leader in charge of the selected churches and mosques. The data collected were analyzed t-test statistic, to test the hypotheses at 0.05 level of significance.

The Nurse-led Educational Intervention

The nurse-led educational intervention was delivered to participants immediately after the administration of pre-intervention test. The educational module contained child sex determination and preference contents. The contents focused mainly on knowledge of sex determination in order to disabuse the participants' mind against unscientific notions about sex determination. The biological process of child sex determination was taught to the participants. Instructional materials such as flipcharts, fliers, and posters were used for the education.

Results

Research Hypothesis 1: The nurse-led intervention does not significant influence participants' Knowledge child sex determination and preference.

Table 1: Test of Significant Difference in Knowledge Scores between Post and Pre Intervention

Paired Samples Statistics								
Tests	N	Mean	Mean Diff.	Std. Dev.	t test	df	P	Remark
Post Knowledge	256	89.2	9.9	8.2	11.09	255	0.001	S
Pre Knowledge	256	79.3		12.7				

In Table 1, Pre knowledge mean score was 79.3 while post knowledge mean score was 89.2. This implies that the participants' knowledge on child sex determination improved significantly ($t = 11.0$; $p < 0.05$) as a result of the educational intervention administered to the population after the pre-test.

Research Hypothesis 2: The knowledge of sex determination among married individuals in Ado-Ekiti after intervention does not differ by: (A) gender, (B) age, and © education.

Table 2: Test of Significant Difference in Knowledge Scores by Gender, Age, and Levels of Education

Group Statistics (A)								
Gender	N	Mean	Mean Diff.	F-test	t-value	df	p-value	Remark
Men	103	90.15	1.67	8.278	1.683	254	0.094	NS
Women	153	88.48						
Group Statistics (B)								
Age Categories	N	Mean	Mean Diff.	F-test	t-value	df	p-value	Remark
21 - 40 years	136	88.54	1.30	0.938	1.261	254	0.209	NS
41 - 69 years	120	89.84						
Group Statistics (C)								
Level of Education	N	Mean	Mean Diff.	F-test	t-value	df	p-value	Remark
Below Tertiary	61	87.08	2.72	3.689	2.27	254	0.024	S
Tertiary	195	89.80						

Table 2 presents the results of independent t-test used to test the above stated hypothesis. The knowledge difference of sex determination by gender among married individuals in Ado-Ekiti after intervention is presented in Table 2 (A). In Table 2 (A), the men's knowledge mean score was 90.15, while women's knowledge mean score was 88.48, thus, the mean difference was 1.67, with $t = 1.683$; $p > 0.05$. This implies that the knowledge of sex determination among married individuals in Ado-Ekiti after intervention did not differ significantly by gender.

Similarly, the knowledge difference of sex determination by age among married individuals after intervention is presented in Table 2 (B). In table 2 (B) the knowledge mean score participants who were 40 years and below was 88.54, while knowledge mean score participants who were above 40 years was 89.84, thus, the mean difference between the two age categories was 1.30, with t = 1.261; p>0.05. This implies that the knowledge of sex determination among married individuals in Ado-Ekiti after intervention did not differ significantly by age.

Conversely, the knowledge difference of sex determination by levels of education among married individuals in Ado-Ekiti after intervention is shown in Table 2 (C). In table 2 ©, the knowledge mean score of participants whose educational attainment was below tertiary was 87.08, while the knowledge mean score of participants who had tertiary education was 89.80, thus, the mean difference was 2.72, with t = 2.27; p<0.05. This implies that the knowledge of sex determination among married individuals in Ado-Ekiti after intervention differed significantly by participants' level of education.

Discussion of Findings

The participants' pre-intervention mean knowledge was relatively high. This might be due to their level of education because about three-quarters of the participants were university graduates. In Nigeria where this study was conducted, Ekiti people were known to have intense quest for education. However, efficacy of the nurse-led intervention reflected in the post-intervention mean knowledge performance; the mean difference between pre and post intervention knowledge on sex determination being 9.9%. The steady increase in post intervention performance of the participants guarantees the potential of the nurse-led education on sex determination. It is therefore believed that provision of health education on sex determination would go a long way to influence child sex preference among the married individuals. This finding agrees with that of Rai, et al., (2014). In their study only 47% of the respondents believed that the sex of the offspring is determined by husband.

The findings of the study shows that there was no significant difference in the knowledge of child sex determination between male and female married individual in Ado-Ekiti after intervention. This finding agrees with the study of Reuben, Sapienza, & Zingales, (2014), which proved that on average, both genders perform equally well though in Mathematics – usually viewed as a tough course like any other sciences. Also, the study findings shows that the knowledge of sex determination among married individuals in Ado-Ekiti after intervention did not differ significantly by age. Although, the knowledge mean score participants aged 40 years and below was slightly lower than that of those who were above 40 years, the mean difference was not significant. This finding was similar to the study of Melkonian, and Ierokipiotis, (1997) which indicated that the

younger participants constituted the highest percentage of repeating (i.e. non-promoted students). Conversely, the current study has shown that the knowledge of sex determination among married individuals in Ado-Ekiti after intervention differed significantly by participants' level of education; thus, mean knowledge score on knowledge of child sex determination of married individuals who had tertiary education was higher than those of participants who did not have tertiary education. This result corroborates a study although, done among younger participants, by Burger, (2010), which indicates that the vast majority of recent early education had substantial positive short-term effects and somewhat lesser long-term effects on cognitive development. However, the author explained that children from socio-economically disadvantaged families relatively made as much or slightly more progress than their peers, who were more advantaged (Burger, 2010). Moreover, Education has been proven to improve cognitive ability in adults (Kremen, Beck, Elman, Gustavson, Reynolds, Tu, & Fennema-Notestine, 2019).

Conclusion

The results of this study confirmed that the nurse-led educational intervention significantly enhanced knowledge of child sex determination among the married individuals. However, participants' age and gender did not significantly impact on knowledge of child sex of the participants, but the participants differed in their acquisition of knowledge of child sex determination from the intervention based on their levels of education.

Recommendations

Educational intervention such as the one used in this study should be employed to improve knowledge of married individuals and the prospective parents on sex determination. Such interventions as shown in the study are capable of disabusing the minds of individuals against cultural issues that oppose empirical facts as in child sex preference.

Implication to nursing practice

Education on determinants of child sex and correction of wrong perception on child sex determination should be included in antenatal training by the midwives and husband should be encouraged to come with wife during antenatal visit

Family planning providers should educate to disabuse in the minds of parents that the notion that family planning can prevent a woman from having preferred sex during reproductive counselling.

Health Implications of social issues like child sex preference and discrimination against unwanted child should be included in midwifery curriculum for proper counselling of the family at grass root to reduce maternal and foetal mortality which may arise as a result of child sex preference.
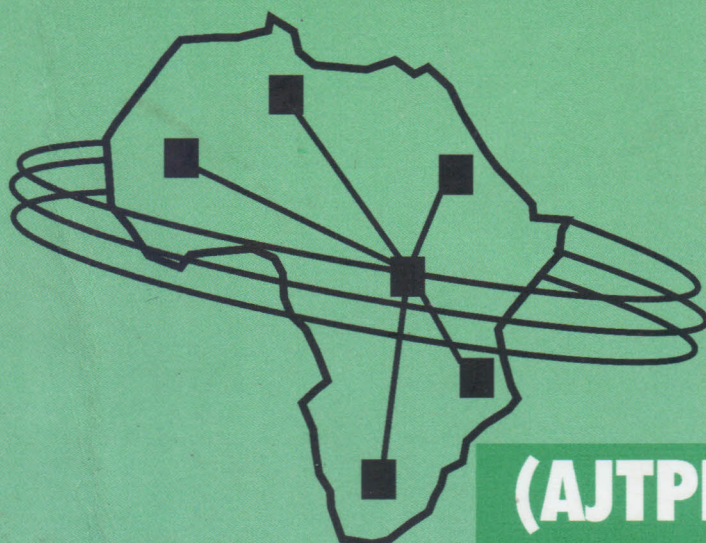
Nurse researchers should carry out further studies on child sex preference to implement more evidenced based results in nursing practice.

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