The Roles of Peer Education in Creating Student's Knowledge of Candidiasis and Trichomoniasis in Senior Secondary Schools in Uyo Senatorial District of Akwa Ibom State

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ABSTRACTS

This study was to examine the roles of peer education in creating students' knowledge of candidiasis and trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State. This study was an intervention research using a quasi-experimental research design with a non-equivalent control group design. The area of study was conducted in Uyo Sentorial District of Akwa Ibom State. The target population for this study was all the senior secondary school students studying within Uyo senatorial districts of Akwa Ibom State. A sample size of 422 subjects was used for the study. This sample was adopted because extensive work involved in conducting and monitoring an intervention. The study developed an instrument titled "Peer Education on Students' Knowledge of Candidiasis and Trichomoniasis Questionnaire (PESKCTQ). The instrument was submitted to three experts in the Department of physical and Health Education, Educational foundation, Guidance and Counselling in the University of Uyo, Uyo for face and content validation. The reliability of the instrument was established by using a pilot group that was not part of the main study, but were found to be equivalent in all respect to the study. Five research assistants was trained and finally three research assistants were used by the researcher for the intervention and administration of the questionnaire. The study recommended that health professional's especially the peer group and dentists should not only be aware of the pathogenesis of the disease process but also the first clinical signs, its diagnosis and treatment.

KEYWORDS: Peer Education, Sexually Transmitted Infection, Candidiasis, Trichomoniasis, Students and Uyo Senatorial District

Introduction

Young people of the present era are extremely at risk of acquiring and transmitting sexually transmitted diseases because of their sexual behaviour. According to Achalu (2008) adolescents are among the most sexually active segment of the population. Researches from around the world show that most of the people affected by HIV and AIDS are young men and women. This is because young people are more likely to engage in high risk behaviours such as having unprotected sexual intercourse, having many sexual partners and abusing drugs, (Visser, 2007). Sexually transmitted infections are caused by germs or microorganism which cannot be seen by naked eyes. These include bacteria, viruses, fungi, protozoans and arthropods. There are different types of sexually transmitted diseases including HIV and AIDS, gonorrhea, syphilis

genital herpes, warts, scabies and a lot more. According to Samuel (2006) peer group is a unit of a social life during childhood, adolescents and to some extent, during adulthood, though it has the greatest influence during adolescence. Peer groups, peer and friends provide the adolescence with the arena for much of the learning and development that occurs in all the life tasks, although parents reign the primary influence in their lives. Also, the peer group serves as a strong support to adolescence, individually and collectivity providing them with a sense of belonging and feeling of strength and power (Anjum, Ahmed, Rizvi, Siddiqui & Usman, 2005).

Nworah (2004) pointed out that adolescent spend increasing amount of time with their peers and have fewer contact with their parents hence, the peer group becomes an important socializing agent. The group is a support for conformity and for questioning and changing adult's values and social institution, new frames of reference from which to reject the "old" (Samuel, 2006). The school has a tremendous effect on the adolescent because it provides an environment for promoting or completing of developmental task. The school according to Nworah (2004) encourages cognitive development as well as establishes a climate of social interaction. Adolescents, in contact with their peers and teachers in the school setting, validate thought, and test new ideas I the process of developing unique identities (Samuel, 2006). Begovac, Kolaric and Tesic, (2006) pointed out that the school climate allows the adolescent to explore avenues for future goal and direction while being guided by significant others outside the family circles. During the late secondary school years, many adolescents make preliminary decisions about vocation of careers and take definite steps toward achieving their goal. Nzeagwu (2004) asserted that school prolongs adolescents well beyond the period encompassed by puberty, customs and this lead boys and girls to a level of autonomy or independence not previously expressed. Following this, an adolescents spend and increasing period in school. This leads to delayed marriage. This behavior according to Anjum *et.al* (2005) more often than not ushers in the risk of unwanted pregnancies, abortion, and sexually transmitted diseases. By age 19, eighty percent (80%) boys and sixty-six percent (66%) girls have had intercourse, with 16 years as the average age of first sexual experience (Ene, 2006). Thus leading to increasing sexual activities, in addition Zabin and Keragu (1998) also stated that secondary school student is risk of early premarital exposure to sexual activity even in societies of early marriage as a result of declining age at puberty.

Statement of the Problem

Sexually transmitted infections are not just health problems; they also constitute a social and economic problem with grave consequences for the individual and society at large. Hence, concerned authorities, government and Non-government organizations are crying out on how to curb the menace of sexually transmitted diseases among adolescents in the society. Newspaper and Magazines are constantly running headlines expressing fear over the incidence and the prevalence of sexually transmitted infections among the youths' peer education programme is being implemented in some schools within Akwa Ibom State. However, there are few studies and few literatures on the effectiveness of peer education on students' knowledge of sexually transmitted infections in Uyo Senatorial District of Akwa Ibom State. The major question raised are how can peer education programme improve knowledge about sexually transmitted infections such as HIV and AIDs, syphilis, candidiasis, trichomoniasis and genital scabies among senior secondary school students? What are the factors that can enhance and promote effective peer education programs for the youths?

Objective of the study

1. Find out the effect of peer education on students' knowledge of candidiasis in senior secondary schools in Uyo senatorial district of AkwaIbom State;

2. Ascertain the effect of peer education on student's knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of AkwaIbom State.

Research Question

1. What is the mean response of this students exposed to peer education and the control group on knowledge of candidiasis in senior secondary schools in Uyo senatorial district of AkwaIbom State?

2. What is the mean response of the students to peer education and the control group on knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State?

Research Hypotheses

HO_1 There is no statistically significant effect of peer education on students' knowledge of candidiasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State.

HO_2 There is no statistically significant effect of peer education on student's knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State.

Concept of Peer Education

In a broad sense, peer group will be built more in similarity of characteristics rather than in differences, (Sharma, 2002). In addition, UNPF and FHI (2005) explained that the nature of peer group among girls would appear to be expressed in much the same way that the nature of girls' roles in peer groups was expressive. On the other hand, boys tend to stress, relatively more, the results of their friendship, as having a companion with whom one gets along while participating in activities of common interest. Similarly, Nzeagwu (2004) opined that best friends or peers may try a role together, each providing support for each other and each cares about what the other thinks and feels. Since a sense of intimacy grows within a permanent relationship, the stability of like-sex friendship is an important link in the progress towards and intimate heterosexual relationship in the young adulthood, (Ene, 2006). Again, Nworah (2004) stated that friendships are crucial facilitator and that friendship perform a special function for adolescents. Peers are friends or people who will like each other regardless of each other's successes or failures, victories or losses and social finesse or social faux pas, (Achalu, 2007).

Accordingly, Samuel (2006) agreed that peer group or friendship engages, discharges, cultivates and transforms the most acute passions of the adolescents and so allows the youngster to confront and master them. Because it carries so much of the burden of adolescent growth, peer group acquire at this time a pertinence and intensity it has never had before nor will ever have again. Nweagwu (2004) observed that adolescent wants and needs peers of friends as dies everyone else. He chooses friends how will most likely share common interest and personal social characteristics. Some of these peers may be complementary rather than similarly. Gallant

(2005) submitted that for peer program to be most effective it requires intensive planning, coordination, supervision and resources hence, it require mobilization of key stakeholders such as parent, teachers, health workers, religious leaders, government, health agencies and other non-governmental organizations. Additionally, International Planned Parenthood Federation Western Hemisphere Region (2004) indicated that peer educators are usually volunteers, so peer programs can be economically easily accessible. It has been observing from studies on adolescent health behaviours and other group within the community that people are often willing to listen to, and follow advice from their peers and those similar to themselves in age, background and interest, with basic training and support. Young men and women carry out a range of educational activities with their peers. The activities range from informal conversation to organized group sessions and take place in the communities, youth clubs, school, workplace (UNICEF, 2002).

Students' Knowledge of Candidiasis

Candidiasis is a fungal infection caused by a yeast (a type of fungus) called *Candida*. Some species of *Candida* can cause infection in people; the most common is *Candida albicans*. *Candida* normally lives on the skin and inside the body, in places such as the mouth, throat, gut, and vagina, without causing any problems. *Candida* can cause infections if it grows out of control or if it enters deep into the body (for example, the bloodstream or internal organs like the kidney, heart, or brain). (CDC 2020). Roghithkannan, (2019) stated that the knowledge on candidiasis outcomes in delay in its diagnosis and treatment planning which affects the quality of life and cause further complications. To avoid this, it is important that health professional's especially the peer group and dentists should not only be aware of the pathogenesis of the disease process but also the first clinical signs, its diagnosis and treatment. Hence, this study was undertaken to assess the level of students' knowledge, awareness and practices regarding candidiasis among senior secondary school.

More than 20 types of Candida can cause infection with Candida albicans being the most common. Infections of the mouth are most common among children less than one month old, the elderly, and those with weak immune systems. Conditions that result in a weak immune system include HIV/AIDS, the medications used after organ transplantation, diabetes, and the use of corticosteroids. Other risks include dentures, following antibiotic therapy, and breastfeeding (Walker 2008). Vaginal infections occur more commonly during pregnancy, in those with weak immune systems, and following antibiotic use. Individuals at risk for invasive candidiasis include low birth weight babies, people recovering from surgery, people admitted to intensive care units, and those with an otherwise compromised immune system. Candidiasis infections of the mouth occur in about 6% of babies less than a month old. About 20% of those receiving chemotherapy for cancer and 20% of those with AIDS also develop the disease. About three-quarters of women have at least one yeast infection at some time during their lives. Widespread disease is rare except in those who have risk factors.

According to the guidelines of infectious diseases society of America, intensity of the infection is considered in the treatment of oropharyngeal candidiasis. Topical agents such as nystatin suspension or clotrimazole troches are typically used in the treatment of mild infections. For moderate severe infections, oral fluconazole, Iitraconazole solution, and posaconazole suspension are recommended. Intravenous echinocandin is limited to those patients with

refractory diseases. Combinations of systemic and topical treatments are effective in reduction of dose and duration of treatment. (Pappas et al. 2016). Dentists often do not have the essential pharmacological knowledge and make errors in the prescription of antifungal drugs which leads to drug resistance. The current study aimed to assess the knowledge of antifungal prescription for the treatment of oral candidiasis among the senior dental students.

Student's Knowledge of Trichomoniasis

According to Ugwu (2012) the level of awareness of some sexually transmitted diseases like trichmoniasis among student population is low. Besides, to the best of our knowledge, no data on the prevalence of Trichomonas vaginalis infection among female students. Trichomoniasis is the most prevalent non-viral sexually transmitted infection in the world (Herbst et al 2016). *Trichomonas vaginalis*, the causative agent is a protozoan parasite infecting the urogenital tract of both females and males. It is reported to be 250 million new cases worldwide every year and Trichomoniasis accounts to almost half of curable sexually transmitted infections according to the world health organization. (WHO, 2008; Harp and Chowdhury, 2011). In general, the infection is asymptomatic in men although it can be associated with urethral discharge and dysuria, while infected women can have different symptoms consisting in yellowish-green frothy discharge, purities, dysuria, and the strawberry cervix which is recognized by punctuates haemorrhagic lesions (Arbabi et al 2018). Infection by Trichomonas vaginalis among women can lead to serious complications such as adverse pregnancy outcomes that appear by preterm rupture of membranes, preterm delivery, low birth-weight infants, infertility, and cervical cancer (Fichorova 2009). Moreover, studies have shown an increased risk of HIV transmission among individuals infected by trichomoniasis vaginalis (Van Der Pol, et al 2008)

Trichomonas vaginalis transmission is very heterogeneous and depends on several factors; it is established that socioeconomic status, age, hygiene habits, sexual behaviour, phase of the menstrual cycle, and other concomitant sexually transmitted infection can play a key role on the disease burden (Cotch et al 1991 and Grama et al 2013). The prevalence and the average duration of Trichomonas infection mainly depend on the health care seeking behaviour of population and their access to health care (Riley et al 2016). Primary prevention of Trichomonas vaginalis infection often relies on health promotion interventions to improve diseases awareness and behaviour change (Bouchemal et al 2017); but male circumcision represents an important means for the prevention of *T. vaginalis* transmission and several studies have shown that partners of circumcised men are less at risk of acquiring sexually transmitted infections including Trichomoniasis. Oral metronidazole remains the recommended drug regimen for the treatment of trichomoniasis and concurrent treatment of sexual partners is recommended to prevent reinfections. (Bachmann et al 2011).

Empirical Framework

In a study conducted by Fawole, Asuzu, Oduntan and Brieger (1999) on knowledge of transmission and prevention of HIV and AIDS among senior secondary school student in four schools in Ibadan South East Local Government Area of Ibadan. The aim of the study was to assess the related knowledge on transmission and prevention of AIDS among senior secondary

school students. 450 students participated in the study, multistage sampling technique was used to draw the sample. Experimental design was adopted for the study. Instrument for data collection was a 50 item self-administered questionnaire. Data collected were analyzed using frequency distribution, chi-square and analysis of variance. Finding revealed that there was no significant difference (P>05) in knowledge of the different methods of transmission and prevention between the two group as 192 (84.4%) and 18 (84.3%) of students in the experimental and control groups respectively knew AIDS was transmitted through indiscriminate sexual intercourse. It was therefore concluded that student can benefit from specific education programmes that transmit important information to prevent risky behavior and improve knowledge and attitude on HIV and AIDS. USORO Ekong Harrison

Clark and Jackson (2008) conducted a study to investigate knowledge, attitude and behaviour of secondary school students regarding sexually transmitted diseases (STDs) in Masaka District, Uganda. A randomized controlled trial of 350 secondary school students was done using peer health educators, respondents completed the questionnaire before and after the intervention which was a four-hour group session. A prevention programme was developed by local experts, health educators and peer facilitator. The peer led programme was designed to provide a conceptual model of HIV risk reduction through information, motivational and behaviour skills, a harm reduction module and health promotion theme, the main outcomes measured was the level of knowledge, attitude and behaviour scores. The result suggests that relative to the control group participant in the intervention group had higher levels of knowledge (30.37 v 25.40; P value is .001) and a better attitude 12.27 v 10.84; P value is .001). Peer education was successful in increasing knowledge and improving attitude towards HIV and AIDS. It was therefore recommended that peer educational programmes for youth using various interactional activities such as small group discussion, poster activity and empathy exercises can be successful in changing the prevailing youth perception of HIV and AIDS. Additionally, Shen, Hong, Cal, Jin and Shi (2008) examined the effectiveness of peer education on knowledge of HIV and AIDS and prevention methods in different types of senior high school in Shanghai, China. A peer education intervention was conducted in different senior high school including the key schools, four ordinary senior schools and three vocational schools in Shanghai for three months. A cohort of 1910 students was surveyed (n = 976). Intervention group, n = 934 control group) through anonymous questionnaire both at pre and post intervention. Result revealed that there were significant differences in the results among different types of senior schools' peer education is an efficient method of increasing the knowledge of AIDS and Sexually transmitted infection in senior school students. However, it was recommended that content and schedule should be different between different types of schools and students in vocational schools require more health education.

Methods

This study was an intervention research using a quasi-experimental research design with a non-equivalent control group design. The area of study was conducted in Uyo Sentorial District of Akwa Ibom State. The target population for this study was all the senior secondary school students studying within Uyo senatorial districts of Akwa Ibom State. A sample size of 422 subjects was used for the study. This sample was adopted because extensive work involved in conducting and monitoring an intervention. The study developed an instrument titled "Peer Education on Students' Knowledge of Candidiasis and Trichomoniasis Questionnaire

(PESKCTQ). The instrument was submitted to three experts in the Department of physical and Health Education, Educational foundation, Guidance and Counselling in the University of Uyo, Uyo for face and content validation. The reliability of the instrument was established by using a pilot group that was not part of the main study, but were found to be equivalent in all respect to the study. Five research assistants was trained and finally three research assistants were used by the researcher for the intervention and administration of the questionnaire.

Results

Research Question 1: What is the mean response of the students exposed to peer education and the control group on knowledge of Candidiasis in senior secondary school district of Akwa Ibom State?

Table 1: Means Analysis of Response of Students Exposed to Peer Education and the control group on Knowledge of Candidiasis.

Variable	N	Pre-test $(\bar{X})$	Post-test $(\bar{X})$	Mean gain score	post-test difference
Experimental	**210**	**5.10**	**7.80**	**2.7**	**2.06**
Control group	**207**	**5.07**	**5.74**	**0.67**	
Total	**417**	**10.17**	**13.54**	**3.37**	

Table 1 shows that the mean gain score of experimental group (2.7) was greater than that of control group (0.67). in addition, the post-test mean score of experimental group (7.80) was greater than the post-test mean score of control group (5.74) with a difference of 2.06.

Research Question 2: What is the mean response of the students exposed to peer education and the control group on knowledge of Trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State?

Table 2: Mean Analysis of Response of Students Exposed to Peer Education and the control

Variable	N	Pre-test $(\bar{X})$	Post-test $(\bar{X})$	Mean gain score	post-test difference
Experimental Group	**210**	**5.13**	**7.90**	**2.77**	**2.17**
Control Group	**207**	**5.08**	**5.73**	**0.65**	
Total	**417**	**10.21**	**13.63**	**3.42**	

Table 2 indicates that the mean gain score of experimental group (2.77) was greater than the mean gain score of control group (0.65). Also, the post-test mean score of experimental group (7.90) was greater than the post-test mean score of control (5.73); making a differences of 2.17

Hypothesis 1: There is no statistically significant effect of peer education of students' knowledge of candidiasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State.

Table 3: One-Way Analysis of Covariance (Ancova) of Effect of Peer Education on Students knowledge of Candidiasis.

Sources of Variation	SS	df	Ms	f-cal.	f-cri.
Pre-test (covariates)	1.779	1	1.779	2.996	3.84
Main effects (post-test treatment)	434.861	1	434.861	732.297	
Between groups	440.413	2	40.026	67.403	
Within groups (error)	245.846	414	.594		
Total	**686.259**	**416**			

***=Significant at p< .05 alpha level**

Table 3 reveals that the f-calculated (732.297) was greater that the f-critical (3.84) at df of 1, 414 and .05 level of significance. Therefore, the null hypotheses that there is no statistically significant effect of peer education on students' knowledge of candidiasis in senior secondary schools in Uyo senatorial districts of Akwa Ibom State is rejected. Hence, there is a statistically significant effect of peer education on students' knowledge of candidiasis in senior secondary schools in Akwa Ibom State.

Hypotheses 2: There is no statistically significant effect of peer education on students' knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State.

Table 4: One-Way Analysis of Covariance (Ancova) of Effect of Peer Education on Students Knowledge of Treichomoniasis.

Sources of Variation	SS	df	Ms	f-cal.	f-cri.
Pre-test (covariates)	5.046	1	5.046	10.555	3.84
Main effects (post-test treatment)	481.424	1	48.424	1007.123	
Between groups	498.321	2	249.160	521.236	
Within groups (error)	197.900	414	.478		
Total	**696.221**	**416**			

***=Significant at p< .05 alpha level**

Table 4 indicates that the f-calculated (1007.123) was greater that the f-critical (3.84) at df of 1, 414 and .05 level of significance. Therefore, the null hypotheses that there is no statistically significant effect of peer education on students' knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State is rejected. Hence, there is a statistically significant effect of peer education on students' knowledge of trichomoniasis in secondary schools in Akwa Ibom State.

Discussion of the Findings

Mean Response of Students Exposed to Peer Education and the Control Group on Knowledge of Candidiasis in Secondary Schools in Uyo Senatorial Districts of Akwa Ibom State

The findings from the study showed a positive effect of peer education on students' knowledge of candidiasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State in terms of knowledge through friends and peers that candidiasis is a sexually transmitted diseases caused by fungus called candidia albicans. It could cause itching and pains to the infected person, a pregnant woman can pass the infection to an unborn child, that young people like students are extremely at risk of spreading the infection to others and that a person cannot be infected with candidiasis by mosquito bite.

As shown in research question 3 Table 8, the mean gain score of the experimental group 2.7 was greater than the mean score of the control group 0.76. in addition, the post-test mean score of experimental group 7.80 is greater than the post-test mean score of the control group 5.74 with a difference of 2.06. In one-way analysis of covariance (ANCOVA) showed that the f-calculated 732.29 was greater than the f-critical 3.84 at degree of freedom 1.414 and 0.5 alpha level of significance. This finding empowers the researcher to reject the null hypotheses and upheld the alternative hypotheses.

Peer education provide secondary school students with knowledge that candidiasis is caused by candida albicans, that candidiasis can cause itching and genital pains to a person suffering from this infection, pregnant women can pass to her unborn child, students are extremely at risk of spreading the infection to others and that mosquito bite cannot spread the infection to people.

This decision informs the researcher to reject the null hypotheses. It is believed that with accurate information and prevention skills that are taught by peer education Secondary school students and other youths will have the ammunition to educate their peers on matters relating to sexually transmitted diseases and other reproductive health issues, this will improve their knowledge about candidiasis and many other sexually transmitted infections. Peer health educators should be employed, encouraged and supported by government to show leadership to secondary school students and other youth. This is aim at improving public awareness, improving students' knowledge and understanding on dangers of sexually transmitted infections such as candidiasis among secondary school students' and other adolescents in the communities.

Mean Response of Students Exposed to Peer education and the Control Group on Knowledge of Trichomoniasis in Senior Secondary Schools in Uyo Senatorial Districts of Akwa Ibom State

The result reported under research question 4 Table 9 revealed the mean gain score of the experimental group 2.77 was greater than the control group 0.65 and post-test mean score of experimental group 7.90 was greater than post-test mean score of the control group 5.73 with a difference of 2.17. On the one-way analysis of covariance (ANCOVA) it could be observed that the calculated f 1007.123 was greater than the critical f 3.84 at degree of freedom 1.414 and .05 alpha level of significance. This decision enabled the researcher to reject the null hypotheses and concludes that peer education has statistically significant effect on students' knowledge of trichomoniasis in senior secondary schools in Uyo senatorial district of Akwa Ibom State.

Through peer educators senior secondary school students have increased knowledge that one could be infected from sharing of toilet seat, that trichomoniasis is sexually transmitted diseases. And that causal contact such as handshake could not spread the infection, that one cannot get infection through donating of blood to others and that young people are extremely at risk of getting infected with trichomoniasis.

This finding is in line with Ene (2006) who submitted that peer groups are highly influential and young people are more likely to accept information from peers rather than adults hence peer education can be an effective way to improve youth sexual knowledge and reproductive health outcomes. Also peer education as noted by Akpan (2007) is a specific teaching Practice used with good results in sexual education of adolescent to improve their knowledge of sexually transmitted infection. According to precede model the behaviour and attitude of significant other people like friends and family members are reinforcing factors on one's own behaviour. Hence, Dehne and Reidner (2005) explained that peer pressure is a strong influence in youth making healthy choices or unhealthy decision. School authorities should develop health instructions and counseling programmes in order to provide adequate sexuality education for secondary school students and the adolescent youths. This will improve their knowledge of sexuality and also reduce their vulnerability to sexually transmitted infections such as trichomoniasis.

Conclusion

The study concluded that topical agents such as nystatin suspension or clotrimazole troches are typically used in the treatment of mild infections. While primary prevention of Trichomonas vaginalis infection often relies on health promotion interventions to improve diseases awareness and behaviour change. It was also discovered that often, dentists do not have the essential pharmacological knowledge and sometimes make errors in the prescription of antifungal drugs which leads to drug resistance. Moreover, studies have shown an increased risk of HIV transmission among individuals infected by trichomoniasis vaginalis in Akwa Ibom State.

Recommendations

1. Students should adopt knowledge gained from peer education effectively by ensuring that they exert adequate control over the challenge of candidiasis and trichomoniasis within and outside Uyo senatorial district of Akwa Ibom State.

2. Much awareness should be created to students on the usefulness of oral metronidazole as regards treatment of trichomoniasis and concurrent treatment of sexual partners to prevent reinfections.

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