ORIGINAL RESEARCH ARTICLE

The effects of education intervention on the knowledge of some reproductive health issues amongst secondary school students in Douala IV Municipality, Cameroon

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Abstract

This study aimed to determine the effects of education intervention on the knowledge of some reproductive health issues amongst secondary school students. It was longitudinal and interventional study carried out in two phases. Participants were adolescents and young adults randomly selected from secondary establishments using a Probability Proportional to Size sampling method. In phase 1, data were obtained by the use of questionnaire and analyzed using Epi-Info 6.04 and SPSS version 17.0. Education intervention was utilized in 3 randomly selected schools (experiment), but not in 3 others (control). Phase 2 carried out 6 months after the end of the first intervention consisted of collecting baseline data. There was a significant association between knowledge on unintended pregnancy and STIs mainly with type of establishment, class, age group, sex, religion ($p<0.001$ respectively) and being sexually active ($p=0.016$). There was a significant increase of awareness in the experimental schools (34.1% vs 76.5%, $p<0.0001$), but not in the control schools (34.5% vs 35.5%, $p>0.10$). Health education had a significant impact on the knowledge of participants. We recommend reproductive health education through the framework of school to be used as a national policy in African developing countries. *(Afr J Reprod Health 2024; 28 [3]: 92-98).*

Keywords: Education intervention, reproductive health issues, Douala

Résumé

Cette étude visait à déterminer les effets de l'intervention éducative sur les connaissances en santé reproductive chez les élèves du secondaire. Il s'agissait d'une étude longitudinale et interventionnelle réalisée en deux phases. Les participants étaient des adolescents et jeunes adultes choisis au hasard dans des établissements secondaires de Douala, à l'aide d'une méthode d'échantillonnage probabiliste proportionnelle à la taille. Dans la phase 1, les données ont été obtenues à l'aide de questionnaires et analysées à l'aide des logiciels Epi-Info 6.04 et SPSS version 17.0. L'intervention éducative a été utilisée dans 3 écoles choisies au hasard (expérimentales), mais pas dans 3 autres (contrôle). La phase 2 réalisée 6 mois plus tard a consisté à collecter des données de base. Il y avait une association significative entre les connaissances et le type d'établissement, la classe, l'âge, le sexe, la religion ($p < 0,001$ respectivement) et être sexuellement actif ($p = 0,016$). Il y a eu une augmentation significative des connaissances dans les écoles expérimentales (34,1% contre 76,5%, $p<0,0001$), mais pas dans celles témoins (34,5% contre 35,5%, $p>0,10$). L'éducation à la santé a eu un impact significatif sur les connaissances des participants. Nous la recommandons comme une politique nationale dans les pays Africains en développement. *(Afr J Reprod Health 2024; 28 [3]: 92-98).*

Mots-clés: Intervention éducative, santé reproductive, Douala

Introduction

Different life stages are associated with specific sexual and reproductive health issues (high risks of unintended pregnancy, sexually transmissible infections (STIs), unsafe abortion and HIV/AIDS infection, difficulty accessing contraception)[1]. Adolescence is the period of growth and development, which takes place between childhood and adulthood, that is to say 10 and 19 years[2]. It is a period of critical transition in life, characterized by a significant rate of growth and transformation. Adolescent pregnancy is a pregnancy occurring in girls aged 10 – 19 years. It constitutes a serious health and social problem worldwide[3]. The proportion of unintended pregnancies worldwide is approximately 41%, and 22% of these unintended pregnancies are terminated through induced

abortions[4,5]. Worldwide, about 16 million adolescent girls aged 15 to 19 and one million adolescent girls under the age of 15 give birth each year; which represents nearly 11% of global births. Ninety five percent of these births take place in developing countries[6]. Many young people get sexually active, marry and give birth contract unintended pregnancy in just a few short years after teenage. Almost 12 million girls still marry each year before the age of 18 because of unintended pregnancies[7].

It is now known that less than 20% of all parents discuss sexuality with their children[8]. This deficit in education on sexuality in families and schools leaves adolescents unprepared to handle physiological and psychological changes, hence comprehensive sexual education in families and schools is vital[9]. This condition of unintended pregnancy and its consequences often lead adolescents and families to precarious situations like abortion, school drop-outs, financial loss, family break-ups, other social effect and sometimes death[10,11]. In Cameroon, although knowledge on the factors associated to adolescent pregnancy, sexually transmissible infections (STIs) and its outcome is updated[7], reports on health education strategies to improve awareness on unintended pregnancy, prevent STIs have not been published. The potential barriers to health education that may influence unintended pregnancy and STIs amongst adolescents and young adults is yet to be widely documented. These issues are addressed in this study.

Methods

Study design

This was a longitudinal and interventional study carried out in 2 phases

Period of study

The study lasted 9 months, from November 2022 to the end of July 2023

Study population

The study population was adolescents (10 to 19 years whose parental consent was obtained) and young adults (20 to 24 years who gave their consent), randomly selected from secondary establishments using a Probability Proportional to Size sampling (PPS) method as described by Bennett *et al*[12].

Selection of schools

From the list of secondary schools in the Douala IV municipality obtained from the ministry of secondary education, two schools were randomly selected from government institutions and 1 school selected from the private institutions, making 3 schools for intervention. Equally, 2 schools were randomly selected from government institutions and 1 school selected from the private institutions, making 3 schools for the control. The principal, the discipline masters and the teachers of each of the selected schools were visited and presented with the project as their involvement was a key factor for its success.

The sample size

The sample size for this study was calculated using the Cochran's formula.

$n=z^2.p.\ q/e^2.\ EFF$

With p=0.26; the prevalence of 26% for unintended pregnancy was gotten from a study conducted amongst adolescents in Kumbo west health district of North-West Region in Cameroon by Sevidzem *et al*[13], and p=1-q.

Z=1.96 at 95% confidence interval (CI) and e=0.05 error margin.

EFF representing the cluster effect = 4

Giving a minimum sample size $n = [(1.96)^2 \times 0.26 \times (1-0.26)] / (0.05)^2 \times 4 = 1184$ participants.

Intervention packages

Four intervention packages were distributed into 4 weeks of intervention. The packages were made for

the following purpose: educate adolescents on maturity signs, educate adolescents on risks of indulging on early age sexual activities (unwanted pregnancy) and the consequences (STIs, unwanted pregnancies), educate adolescents on prevention of STIs and unwanted pregnancies, and on advantages of not indulging on early sexual activities (good education, avoid stigma of unwanted pregnancy and no abortion risk).

The posters were sequentially placed in schools after every health education session. There were 4 visits to the intervention schools during which each visit corresponded to a poster with different information. All the information was added up to form the intervention package. Therefore, the four packages were titled as follows:

Maturity signs; risks of indulging on early sexual activities and consequences; advantages of not indulging on early sexual activities; prevention of STIs and unintended pregnancies.

Prior to each intervention session, flyers summarizing the package were printed and distributed to every student who volunteered to attend health education session.

Table 1: Categorization of knowledge on unintended pregnancy and STIs

Variable	Total score	Cut off point	Grading
Knowledge on Unintended pregnancy	7	≤3.5	Poor
		>3.5	Good
Knowledge on STIs	9	≤4.5	Poor
		>4.5	Good

Implementation of the study

The study was carried out in 2 phases

Phase: one

The distribution of questionnaires in the selected schools (intervention and control) was done to obtain the baseline data and assess the level of awareness of students on unintended pregnancy and STIs. In these schools, questionnaires were distributed with the help of school teachers and research facilitators. They were returned through the same channels. Evaluation and categorization of knowledge was done as shown in Table 1.

Following the return of questionnaires, participants in the intervention schools received health education using the posters and flyers, on how to improve their sexual and reproductive health awareness. Participants in the control school received no health education.

Phase: two

This phase was conducted six months after the end of the first intervention and consisted of distribution of questionnaires to obtain the baseline data and assess the level of awareness of students on unintended pregnancy and STIs.

Ethical consideration

An ethical clearance was soughed from the institutional ethical committee of the University of Douala (Faculty of Medicine and Pharmaceutical Sciences of Douala) (N°3476 IEC-UD/10/2022/T). An authorization was gotten from the authority of Faculty of Medicine and Pharmaceutical Sciences university of Douala (N° 0120/09/2022/UD/FMSP/VRC/mac). An administrative authorization was gotten from the regional delegate of public health of the littoral region Douala (N° 0504/AAR/MINSANTE/DRSPL/BCASS). An authorization was gotten from the Regional Delegate of secondary Education of the littoral region Douala (N° 2124/2022/AR/C/MINESEC/DRES-LT/SDAG). Prior to the distribution of questionnaires, informed consent and informed parental-assent were soughed and obtained from parents through their children. Only those students who returned the forms duly signed participated in the study. At the end of the study pupils from the

control schools also received health education, to satisfy with ethical principles.

Data analysis

Data was entered using Epi-Info 6.04 (CDC) and analyzed using the Statistical Package for Social Sciences version 17.0 (SPSS Inc. 2008). The Chi-Square test was used to compare proportions before and after the health education intervention at significant level of 0.05.

Results

A total of 1316 participants were enrolled into the study. Of these, 642 (48.8%) were from private schools, 500 (38%) from public schools, while 174 (13.2%) were from confessional schools. Table 2 shows the sociodemographic characteristics of participants. Out of the 1316 respondents, 710 (54%) were within the age group 14-17 years while 59 (4.5%) had ages within 22-25 years. The mean age was 16.5 ± 2.641. Above half, 707 (54.4%) of the respondents were male while 593 (45.6%) were female. A vast majority (32.1%) of participants were students in the Upper Six.

Figure 1 depicts the overall knowledge of adolescents and young adults on unintended pregnancy and STIs before education intervention both in intervention and control schools. The percentage of good knowledge on unintended pregnancy was lower than of poor knowledge (35% vs 65%, $p<0.001$). There was a significant association between knowledge on unintended pregnancy with type of establishment ($\chi2 = 27.253$, $p<0.001$), class ($\chi2 = 51.809$, $p<0.001$), age group ($\chi2 = 23.619$, $p<0.001$), sex ($\chi2 = 299.87$, $p<0.001$) and religion ($\chi2 = 17.455$, $p<0.001$) being sexually active ($\chi2 = 5.822$, $p<0.016$).

Table 2: Demographic characteristics of adolescents and young adults

Variable	Categories	Frequency (n)	Percentage (%)
Age group	10-13	143	10.9
	14 – 17	710	54
	18 – 21	404	30.7
	22 – 25	59	4.5
	Total	1316	100
Sex	Female	593	45.6
	Male	707	54.4
	Total	1300	100
Class	Form 1	39	3
	Form 2	41	3.1
	Form 3	48	3.6
	Form 4	144	10.9
	Form 5	313	23.8
	Lower sixth	309	23.5
	Upper sixth	422	32.1
	Total	1316	100
Religion/faith	Christian	1126	87
	Muslim	142	11
	Others	26	2
	Total	1294	100

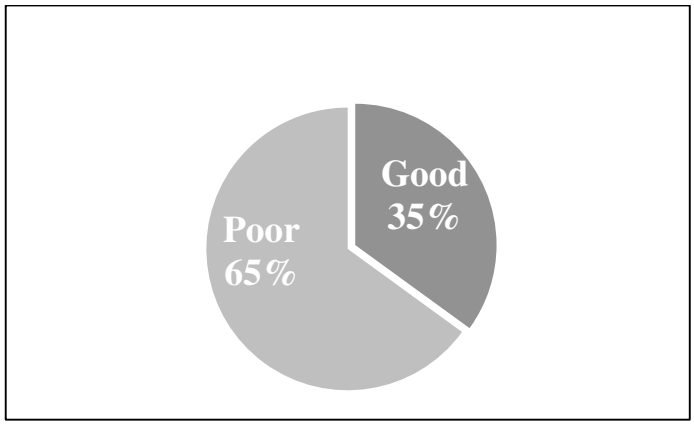

Figure 1: Knowledge of adolescence and young adults on unintended pregnancy and STIs

Table 3: Comparison of the knowledge of participants on unintended pregnancy and STIs before and after education intervention

Schools	Number (%) * with good knowledge		p value
	Before intervention	After intervention	
Experimental (in which intervention was conducted) (n=666)	237 (34.1)	510 (76.5)	p<0.0001
Control Schools(n=650)	224 (34.5)	231 (35.5)	p>0.10

n=number of participants
*Percentage based on number of respondents

Table 3 compares the knowledge of adolescents and young adults on unintended pregnancy and STIs before and after education intervention. There was a significant increase of awareness in the experimental schools (34.1% vs 76.5%, p<0.0001) but not in the control schools (34.5% vs 35.5%, p>0.10).

Discussion

This study evaluated the knowledge of adolescents and young adults on unintended pregnancy and STIs. Subjects who were within the age group 22-25 years were as likely to have good knowledge on unintended pregnancy as to those that were within the age group 10-13 years. This is probably because the main sources of information, as reported by the participants themselves was the internet; and all age groups have access to this tool indiscriminately. This is in line with a study carried out by Subbarao *et al*[14] according to which the main source of information reported by participants were teachers, internet and media. Also, female adolescents and young adults were more likely to have good knowledge compared to males. This is probably due to the fact that adolescent females usually develop physiological and morphological changes on their bodies earlier than males, thus they are curious to understand these changes. Besides, because only females get pregnant, they develop more curiosity about unintended pregnancy than males.

Regarding the overall knowledge of adolescents and young adults on STIs, above average of the respondents had a poor knowledge on STIs while a less proportion had a good knowledge on STIs. Our findings are in line with a study carried out in Cameroon which showed that 41.2% of youth's had knowledge on sexually transmitted infections[15]. This is also in line with a study conducted by Nigussie *et al*[16] in Ethiopia. Our results are in contrast with Sobze *et al*[17] in the study they conducted in Dschang, Cameroon, which showed that over 3/4 of students (1515/2029) had an

acceptable level of knowledge regarding STIs. This finding is also in contrast with a study conducted by Koray *et al*[18] in Ghana.

With regards to the knowledge of adolescents and young adults on STIs, most of them said they had heard of STIs, even though they did not have good knowledge about the pathologies. This finding is in line with a study carried out by Subbarao *et al*[14]. Most of the adolescents and young adults gave a correct definition of STIs while a few of them gave an incorrect definition. The main sources of information reported by the adolescents and young adults were school, parents and internet. This is also in line with Subbarao *et al*[14] and Koray *et al*[18] who reported that the main source of student's information were teachers, internet and media. Our findings are in contrast with a study conducted in by Monebenimp *et al.*[19] in which parents played a little role as source of information on STIs.

There was a significant association between adolescents and young adults' knowledge on STIs with age group, sex and being sexually active. This is similar to Nigussie *et al.*[19] study in Ethopia where sex and academic year, were found to be significantly associated with good knowledge on STIs. With regards to the change in the overall knowledge on STIs and unintended pregnancy before and after the intervention, there was a significant increase of awareness after the intervention, in the schools where heath education intervention was utilized. This proves that adolescents who have received knowledge on reproductive health issues in school may become more aware of the consequences of many attitudes and practices than those who have not been exposed to such opportunity. It follows that through sexual education, an adolescent is exposed to ideals which enhance his/her health throughout the rest of his/her life. This reasoning is backed by a study conducted in 17 high schools in Bucharest, in which lack of information on reproductive health was one of the main reasons for unintended pregnancies and abortion among Rumanian youth[20]. After intervention, participants became more aware of the means of preventing STIs and unintended pregnancy. It follows that school health education can help prevent the risk of unintended pregnancy and STIs by providing information to young people about reproductive health issues[20].

Conclusion

Knowledge on unintended pregnancy and STIs was poor. Health education intervention showed an increase in the awareness of reproductive health issues amongst adolescent and young adults in schools. Reproductive health education through the framework of school can be used as a national policy to prevent pupils being misled by the inadequate information gotten from inappropriate sources.

Authors contribution

MCM, collected data, analyzed data and drafted the manuscript; ELG, ANJC, PhD supervisors (followed student work and reviewed the manuscript).

Conflict of interest

we declare no conflict of interest.

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Availability of data and materials

Data and materials are available from the corresponding author upon request.

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