APPLYING HEALTH EDUCATION PACKAGE ABOUT SEXUAL AND REPRODUCTIVE HEALTH FOR UNIVERSITY MALE STUDENTS

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Abstract

Background: Human reproduction involves a man and a woman. Since men participate in sexual decisions and behavior associated with reproduction then reproductive health is a concern for all men of all ages. Therefore the earliest part of the life course adolescence and early adulthood is important because it is the most fascinating and complex transitions (physical, psychological and behavioral) in the life span. Promoting the sexual and reproductive health of young men is a keystone to enhance their health overall, to reduce some of the major health risks they face, and to establish habits that will protect them throughout their lives. Proper information about this subject can help them to handle these changes without any stress. For that the aim of this paper is to assess the application of health education package about sexual and reproductive health for University male students'. **Method:** A quasi-experimental (one group, pre post-test) research was used. The minimum sample size comprised 381 students. Proportion allocation technique was used to select the required students' number of first, second and third year at studied faculties. A total number of students sample was 386 students. Three tools were used for data collection: Structured self-administered questionnaire to assess male students' socio-demographic and economic characteristics, structured self-administered questionnaire to assess male students' knowledge and self-administered scale to assess male students' attitude. **Results:** There was highly statistical significant difference in knowledge level before and after application of educational package about sexual and reproductive health (t=151.995, P≤ 0.01). Concerning attitude of students toward sexual and reproductive health, there was significant differences before and after application of educational package (p< 0.001). **Conclusion:** The study concluded that almost all university male students had poor knowledge score level about sexual and reproductive health before application of education package and all of them had good knowledge score level after application **Recommendations:** Academic learning should be occupied with sexual and reproductive health. Provide proper information for adolescent boys about sexual and reproductive health and guidance about their sexual responsibilities and relationships. Develop global service education package about sexual and reproductive health for adolescent boys and men to support providers of this subject meet the specific and diverse needs of them. Conducting Public health campaigns about the impact of denial sexual and reproductive health on adolescents.

Key Words: Educational Package - Knowledge - Male Students - Sexual and Reproductive Health

Introduction:

Adolescent period is the second decade of life. It is a crucial and dynamic time in the lives of all young people, when puberty is experienced [1]. Adolescence is a life phase in which the opportunities for health are great and future patterns of adult health are established. Health in adolescence is the result of interactions between prenatal and early childhood development; biological and social role accompany puberty are changing, shaped by social determinants, risk factors and

protective factors that affect the uptake of health-related behaviours [2].

Like many developing countries Egypt has a relatively young population, approximately one fourth of the total population of 94,798,827 living in Egypt recorded in the 2017 Census consists of young people (10–24 year old) [3]. This means every year a large number of young people become sexually active for the first time. Egypt has accelerated its commitment to the International Conference on Population and Development (ICPD) Program of Action (1994) by hosting this conference which focuses on the sexual and reproductive health of adolescents.

Recently, the approach to youth health and development has taken a turn from the traditional view of youth as victims and passive recipients to one that contribute in the community as competent citizens [4].

A focus on adolescence is central to the success of many public health agendas, including the Millennium Development Goals aiming to reduce HIV/AIDS, and emphases on sexual health and sexual transmitted diseases. Greater attention of adolescence is needed within each of these public health domains if global health targets are to be met [5]. Strategies that place the adolescent years centre stage—rather than focusing only on specific health agendas—provide important opportunities to improve health, both in adolescence and later in life.

International Conference on Population and Development **[ICPD]** [6] recommended that special efforts should be made to promote the active involvement of men in the prevention of sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection. This recommendation can be applicable if the sex education became an integral part of the learning process beginning in childhood including those with physical learning or emotional difficulties and continuing into adult life. In addition, development of communication and decision-making skills, encourage exploration of values and moral values, considering sexual and reproductive health can foster self-esteem, self-awareness and raises a sense of moral responsibility to avoid and resist sexual experience [7].

Therefore community health male nurses have an important roles in promoting sexual and reproductive for adolescents through encouragement of male adolescents access to accurate, safe, effective, affordable, and acceptable sexual and reproductive health services. Also, they can directly provide youth-friendly care as well as advocate for youth-friendly practices within their health system [8].

Community health male nurses should encourage male adolescents to involve necessary in programs related to sexual and reproductive health to improve their partners' sexual and reproductive health, and is likely to be more effective than a program that only targets women [9].

Aim of the study:

To assess the application of health education package about sexual and reproductive health for University male students'.

Subjects and Method

Design:

A quasi experimental design was used in this study.

Setting:

The study was carried out in the different faculties affiliated to Mansoura University as the following:

Health sciences faculties were including:

Faculty of Medicine, Dentistry, Pharmacy, Veterinary and Nursing.

Non health sciences faculties were including:

Faculty of Science, Engineering, Agriculture, Computing and information technology, Arts, Commerce, Education, Law, Specific Education, Tourism and Hotels, and Physical education.

Sample:

The required sample size included in this study was 381 of male students, when α=5%, Population size= 43855 male students registered at Mansoura University at the first, second and third years, desired precision= 4%, expected prevalence of correct knowledge about sexual health among adolescent males = 50% and design effect= 1 [10].

This subject was chosen conveniently according to the following criteria:

1. Adolescent stage (from 18 to more than 22 years)
2. Were not married

Tools for data collection:

1. **Structured self-administered questionnaire to assess male students' socio-demographic and economic characteristics:** included two parts:

   Part I: The first part to assess male students' socio-demographic characteristics such as: age, residence, faculty, and academic year.

   Part II: The second part to assess male students' social level by using **El-Gelany et al., (2012)** [11] scale.

2. **Structured self-administered questionnaire to assess male students' knowledge**

   The questionnaire was developed to assess male students' knowledge about sexuality, sexual and reproductive health including: sexual developmental stages, wet dream, masturbation, homosexuality and sexual transmitted diseases.

The tool was classified into 6 categories; all of these categories were composed of 70 questions. One mark was awarded for each correct answer as the following:

1. Definition and anatomy of reproductive system and maturation changes *(It includes 52 items = 52 marks).*
2. Reproduction, definition of sex, and sexual needs *(It includes 15 items = 15 marks).*
3. Masturbation and sexual stimulants *(It includes 16 items = 16 marks).*
4. Abnormal sexual behavior and homosexuality *(It includes 13 items = 13 marks).*
5. STDs, AIDS, Gonorrhea, Syphilis, and Hepatitis B *(It includes 39 items = 39 marks).*
6. Reproductive health and family planning *(includes 8 items = 8 marks).*

The total scores of the knowledge ranged from 0 to 143. The knowledge level was consisting of three categories as:

- **Poor** = scores less than 50% of total scores (0 – less than 71.5).
- **Fair** = scores 50% to less than 75% of total scores (71.5 – less than 107.25).
- **Good** = scores 75% of total scores (107.25 – 143).

3. **Self-administered scale to assess male students' attitude**

   This scale was developed by the researcher to assess male students' attitudes and culture impact toward sexuality, sexual and reproductive health, and sexual health education, which composed of 48 statements requiring a response on 4 point Likert-rating scale with 4 continuum (agree, strongly agree, disagree, strongly disagree). A scoring system was used to quantify the male students' attitude four marks were given to strongly agree, three marks to agree, two to disagree and one mark to strongly disagree. If the statements were negative,

the scoring system was reversed in SPSS as one mark was given to strongly agree, two marks were given to agree, three marks to disagree, and four marks to strongly disagree which made up a total score of 192 marks as the following:-

1- Sex (included 11 items = 44 marks).
2- Abnormal sexual behavior and sexual diseases (included 15 items = 60 marks).
3- Reproductive health (included 6 items = 24 marks).
4- Sexual health education (included 16 items = 64 marks).

Method:
Preparation phase:
1. **Administrative process**
   - An approval was obtained from Research Ethical Committee, Faculty of Nursing, Mansoura University to accomplish this study.
   - An official letters from the Faculty of Nursing was submitted to the deans of Faculties of Mansoura University to obtain approval for conducting the study.
   - An official permission was obtained from the deans of Faculties of Mansoura University after clarifying the purpose of the study; set the starting point of the study and it is process to gain their cooperation and support during data collection.
2. **Literature review**
   Review of national and international literatures on the various aspects of the sexual and reproductive health using scientific published articles, internet search and textbooks. This review was a guide for developing the study tools.
3. **Developing of the study tools**
   - Tools of data collection (I, II, III) were developed by the researcher based on reviewing the relevant literature except part two of the first tool was adopted from **El-Gelany et al., (2012)** [11].

- A jury panel that involved six experts in the field of community health nursing and statistics tested the content validity of the developed tools, and the required modification were carried out.
- Face validity of the developed tools was tested by using pilot study on 10% (n=38) of the male students who were selected conveniently from the mentioned settings and were not included in this study. Pilot study was used to evaluate the clarity, applicability and reliability of the research tools, estimate the approximate time required for data collection, identify the possible obstacles or problems that may hinder data collection and overcome measures.
- The reliability was assured by means of Cronbach's coefficient alpha. It indicated that the study tools had a reliability of 0.85.
- On the basis of collected information; the necessary modification were done, some questions were added and others were clarified or omitted.

Operational phase:
This phase started from the beginning of February 2017 and ended at May 2018.
This phase was consisted of the following steps:
1. *The first step* **(Initial data collection):**
   - The researcher was provided simple explanation to the students about the aim of the study in the beginning. Initial assessment was done through two days/week. The number of visits was varied from faculty to another according to the required number of studied students in each faculty (8.5 am to 2.5 pm).
   - Self-administrated questionnaires distributed to male students (n=386) for initial data collection to obtain

data about male students' socio-demographic and economic characteristics, knowledge and attitude.

2. *The second step* (**Development of health education package**):
 ▪ Health education package was developed based on the initial assessment results which revealed that most of the students had poor knowledge about sexual and reproductive health. Accordingly, stated objectives, required contents were included, teaching strategy, media, and required time for conducting the health education package was estimated and the duration of each part was included.

3. *The third step* (**Applying of health education package session**):
 ▪ Male students were divided to 19 groups, each group ranged from 15 to 20 students. Each group received two health education sessions per week. The duration of session ranged from 45-60 minutes.
 ▪ According to permitted facilitations of the faculties, some sessions were conducted at computer skill labs and other sessions were conducted in class room by using researcher laptop.
 ▪ Introductory sessions were conducted in the preliminary meeting with male students to explain the aim of health education package. Also orient the male students about the phase of package application schedule, duration, place and their rules and emphasizing the importance of continuous attendance, active participation, respect others point of view and avoid sarcasm or interruptions.
 ▪ Each sessions started by a summary of previous session and objectives of the new session ,using a very simple slang language without

ignoring motivation and reinforcement techniques.
 ▪ Different teaching methods were used during the sessions namely; interactive lecture, brainstorming, and interactive discussion. Also different media was utilized as audiovisual material, black board, power point presentation and printed hand out to be used as memorial reference.

4. *The fourth step* (**Evaluation**):
 Evaluation was done immediately after applying the health education package sessions by using second and third tool.

Ethical considerations
 ▪ An approval was obtained from the Faculty of Nursing Research Ethics Committee.
 ▪ Students' oral approval was obtained before the beginning of the study. Each student had the right to withdraw from the study at any time.
 ▪ They assured that collected data would be treated confidentially and would be used only for research purpose.

Statistical analysis:
 ▪ Data was sorted, coded, organized, categorized and then transferred into especially designed formats.
 ▪ Data was analyzed using SPSS (stand for statistical product and service solutions) version 24.
 ▪ Paired sample t test was used to estimate difference between pre and post application.
 ▪ P-value to determine significance of results when P-value <0.05 it is a statistically significant difference.
 ▪ (ANOVA test) was used for comparison a mean within the study sample.
 ▪ Pearson correlation coefficients were used to estimate correlation between the study variable to clarify positive or negative correlation.

Results:

Table (1) shows distribution of studied male students according to their socio-demographic and economic characteristics. The mean age of male students was 20.07 (1.47) years. About half of them (54.7%) live in rural areas, and all of them (100%) were single. In relation to socio-economic level nearly half of them (53.9%) belonged to middle socio-economic class.

Table (2) illustrates distribution of male students according to their scores level of knowledge regarding reproductive system pre and post health education package application. It was observed that (81.6%) of male students had poor knowledge score level with a mean of 4.179 (2.541) marks related to male reproductive system pre education package application. However, 94.3 % of them had good knowledge score level post health education package application with a mean 11.477±1.154 marks. There was highly statistical significant difference between pre and posttest regarding the previous item **(t=51.897, P≤ 0.01)**. In relation to female reproductive system, 87% of students had poor knowledge score level with a mean 0.974 (1.246) of marks pre health education package application. While their knowledge had good score level 91.5% post education package application with a mean 4.5 (.665) of marks. There was highly statistical significant difference between pre and posttest regarding female reproductive system **(t=47.344, P≤ 0.01)**.

Table (3) clarifies distribution of male students according to their scores level of knowledge regarding female maturation pre and post health education package application. It was observed that 94.3% of male students had poor knowledge score level with a mean 4.298 (2.593) of marks related to female

maturation pre education package application. While almost all of them 99.7 % had good knowledge score level with a mean 17.544 (1.099) marks post application of health education package. There was highly statistical significant difference between pre and posttest regarding the previous item **(t=93.235, P≤ 0.01)**.

Table (4) explains distribution of male students according to their scores level of knowledge regarding male maturation pre and post health education package application. It was detected that 93.8% of male students had poor knowledge score level with a mean 5.292 (2.131) of marks related to male maturation pre education package application. While 98.7 % of them had good knowledge score level with a mean 14.611 (1.258) of marks post education package application. There was highly statistical significant difference between pre and posttest concerning the previous item **(t=74.909, P≤ 0.01)**.

Table (5) explains distribution of male students according to their scores level of knowledge about reproduction and sex pre and post education package application. It was detected that 90.2% of male students had poor knowledge score level with a mean 1.124 (1.022) of marks related to reproduction pre education package application. Although 90.2 % of them had good knowledge score level with a mean 4.438 (.744) of marks post education package application. There was highly statistical significant difference between pre and posttest concerning reproduction **(t=48.173, P≤ 0.01)**. **In relation to sex,** 97.2 % of male students had poor knowledge score level with a mean 2.725 (1.451) of marks related to sex pre education package application. While their knowledge had good score level 86 % post education package application with

a mean 8.725 (1.077) of marks. There was highly statistical significant difference between pre and posttest toward sex **(t=66.882, P≤ 0.01)**.

Table (6) portrays distribution of students according to their scores level of knowledge about masturbation and sexual stimulants pre and post health education package application. It was noticed that 93.5% of male students had poor knowledge score level with a mean 1.124 (.886) of marks related to masturbation pre education package application. Whereas 79% of them had good knowledge score level with a mean 3.767 (.475) of marks post education package application. There was highly statistical significant difference between pre and posttest concerning masturbation **(t=45.885, P≤ 0.01)**. **In relation to sexual stimulants,** 96.6% of male students had poor knowledge score level with a mean 1.547 (1.958) of marks related to sex pre education package application. While their knowledge had good score level 91.5% post education package application with a mean 10.940 (1.003) of marks. There was highly statistical significant difference between pre and posttest toward sexual stimulants **(t=81.503, P≤ 0.01)**.

Table (7) explains distribution of male students according to their scores level of knowledge about abnormal sexual behavior "Homosexuality" pre and post health education package application. It was observed that 93.5% of male students had poor knowledge score level with a mean 3.590 (1.676) of marks related to homosexuality pre education package application. Although 98.2% of them had good knowledge score level with a mean 11.720 (1.037) of marks post education package application. There was highly statistical significant difference between pre and posttest regarding homosexuality **(t=81.039, P≤ 0.01)**.

Table (8) describes distribution of male students according to their scores level of knowledge about sexual transmitted diseases pre and post health education package application. It was noticed that 15.5%, 4.9% of male students didn't know the sexual transmitted diseases and the availability of vaccination to these diseases, respectively. However, post education package application 94.8%, 92% of male students knew sexual transmitted diseases and the availability of vaccination, respectively. Regarding to acquired human immunodeficiency virus (AIDS), It was observed that 91.5% of male students had poor knowledge score level with a mean 1.609 (1.790) of marks pre education package application. Even though 99.5% of them had good knowledge score level with a mean 8.520 (.629) of marks post health education package application. There was highly statistical significant difference between pre and posttest regarding AIDS **(t=72.654, P≤ 0.01)**. Concerning to Syphilis, It was detected that 94% of male students had poor knowledge score level with a mean .632 (1.752) of marks pre education package application. While 95.9% of them had good knowledge score level with a mean 8.187 (.907) of marks post education package application. There was highly statistical significant difference between pre and posttest regarding Syphilis (**t=76.181, P≤ 0.01**). In relation to Gonorrhea, It was recognized that 96.1% of male students had poor knowledge score level with a mean .394 (1.388) of marks related to Gonorrhea pre education package application. While 96.9% of them had good knowledge score level with a mean 8.218 (.825) of marks post education package application. There was highly statistical significant difference between pre and posttest regarding Gonorrhea (**t=93.977, P≤ 0.01**). About

Hepatitis B, It was recognized that 95.6% of male students had poor knowledge score level with a mean 1.358 (1.585) of marks pre education package application. Although 96.1% of them had good knowledge score level with a mean 8.316 (.821) of marks post education package application. There was highly statistical significant difference between pre and posttest regarding Hepatitis B (**t=76.821, P≤ 0.01**).

     Table (9) refers to distribution of students according to their scores level of knowledge about reproductive health pre and post education package application. It was observed that 97.4% of male students had poor knowledge score level with a mean 1.440 (1.371) of marks related to reproductive health pre education package application. However, 78.8% of them had good knowledge score level with a mean 7.168 (.874) of marks post education package application. There was highly statistical significant difference between pre and posttest regarding reproductive health (**t=65.850, P≤ 0.01**).

     Table (10) discuss distribution of male students according to their total scores level of knowledge about sexual and reproductive health pre and post health education package application. It was observed that almost all male students (99.7%) had poor knowledge score level with a mean 30.510 (12.434) of marks related to sexual and reproductive health pre health education package application. However, 100% of them had good knowledge score level with a mean 130.347 (3.591) of marks post health education package application. There was highly statistical significant difference between pre and posttest on the topic of sexual and reproductive health (**t=151.995, P≤ 0.01**).

     Table (11) presents mean difference between attitude categories &

total attitude pre and post health education package application. Regarding to attitude of male students toward sex, abnormal sexual behavior and sexual diseases, reproductive health and sexual education, there was highly statistical significant difference among pre and posttest (**t=44.303, P≤ 0.01), (t=35.397, P≤ 0.01), (t=25.225, P≤ 0.01)** and (**t=34.190, P≤** , respectively. Concerning to total attitude of male students toward sexual and reproductive health, there was highly statistical significant difference between pre and posttest (**t=49.150, P≤ 0.01**).

Discussion:

     The major human resources for the development of any nation are the energy and creativity of a healthy young adult population. Health in general, sexual and reproductive health (SRH) in particular, refer not only to an absence of disease but also to physical, mental, and social wellbeing. When young adults have limited access to sexual and reproductive health information, they have insufficient access for preventive and curative services [12].

     Sexual and reproductive health (SRH) are important aspect of normal adolescent growth and development that include biological sex, gender roles identity, sexual orientation, sexual behavior, and reproduction [13]. Young people require access to a wide range of SRH education and clinical services to promote positive sexual development [14] and to reduce social and economic adverse on health consequences of sexual behaviors [15].

     Also **Ab Rahman et al., (2011)** [17] reported that it's important to strength sexual and reproductive health education to adolescents; thus, preparation of this subject can reduce the prevalence of sexual transmitted diseases and improve sexual life for young adult [18].

Collectively,these issues have forced us as a community health nurse to develop an health education package about sexual and reproductive health for university male students. To accomplish the development of this package and its implementation throughout the present study, it was mandatory to explore university male students' knowledge in relation to sexual and reproductive health.

Regarding to students socio demographic and economic characteristics of the current study, the mean age of male students was 20.07 (1.47) years, more than half of them living in rural area and belonged to middle social class. These findings are matched with several studies.

Firstly, study of **Basaran and Naim, (2017)** [19], conducted on university students registered in undergraduate programs in Rize, which stated that average age of students was **20.64 (3.432)** and 52.8% lived in the counties and villages. Secondly, study of **Meena, Verma, Kishore and Ingle, (2015)** [20], conducted on young unmarried men (18–25 years) in Delhi, which stated that the median age of participants was 23 years and half of them were residing in rural areas of Delhi. Finally, study of **Iqbal, Zakar, Zakar and Fischer, (2017)** [18],conducted on adolescents (15–19 years) in Pakistan, which cleared that mean age of adolescents was 17 years and nearly two third of the respondents had middle wealth status.

The rate of growth and development is the most distinctive feature of early puberty [21]. In terms of physical and sexual development, puberty is the developmental period where differences between the sexes become most obvious [22]. The present study revealed that the majority of studied male students had poor knowledge score level related to male and female reproductive system before applying

health education package. This finding was consistent with **Kotwal, Gupta and Gupta, (2008)**[23] study findings that conducted in rural schools in Jammu City on the opposite sex, but their knowledge related to male and female reproduction was poor.

In the current study most of male students had poor knowledge score level related to male and female maturation and puberty changes before applying health education package. This finding was agreed with **Harshana and Kapoor, (2018)**[24], who found poor knowledge score among adolescent boys aged from 15-19 years about development of secondary sexual character and its sequence. Also **Dorle et al., (2010)** [25], revealed that the majority of secondary school children in Karnataka had poor knowledge score regarding secondary sex characters of both sex.

The current study showed that, the majority of students had poor knowledge related to reproduction process and related to sex and sex practicing before applying health education package. This finding go in the same way with **DAS and RAY, (2007)** [26], results who illustrated that majority of adolescent boys attended high school and residing in peri-urban and rural areas in India had poor knowledge score related to reproduction.

Moreover, study of **Ab Rahman et al., (2011)** [17], conducted on secondary school students in Malaysia and study of **Tamang, Raynes-Greenow, McGeechan and Black, (2017)**[27], conducted amongst young Nepalese men living in Kathmandu valley, they stated that adolescent men had poor knowledge about sex and sexual practice.

At preliminary assessment, the majority of university male students in the present study were not heard about STDs. Only few numbers of them knew

definition of AIDS, syphilis, gonorrhea and hepatitis B. The same findings were found in the following studies, the first study conducted on German adolescents by **Samkange-Zeeb, Mikolajczyk and Zeeb, (2013)[28],** revealed that adolescents had low levels of knowledge and awareness of STDs with the exception of HIV/AIDS. The second study conducted by **Folasayo et al., (2017) [29],** who stated that the health and non-health sciences Malaysians university students had poor score knowledge level related to syphilis, gonorrhea and hepatitis B. Finally, study conducted by **Harshana and Kapoor, (2018) [24]** on Indian adolescents aged 15–19 years, reported that majority of them had partial knowledge regarding names, modes of transmission and prevention of STDs. Although there is difference in the culture context among studied students in the current study and others studies, but there are matching in student's knowledge; most of them had poor knowledge.

While the following studies conducted on young adult aged 15-24 years in Malaysia by **Wong, Chin, Low and Jaafar, (2008) [30]** by **Awang, Wong, Jani and Low, (2013) [31]** and by **Folasayo et al., (2017) [29]** revealed that the majority of young adult were aware of HIV/AIDS. Because Ministry of Health in Malaysia [32] continuously conducted programs to raise young adult awareness about HIV/AIDS.

Family planning is considered an essential component of reproductive health, it play a major role in reducing transmission of HIV [31]. The present study showed that most of male student had poor knowledge score regarding family planning. This findings were in the same line with **Abdul-Zahra, Habib and Al-Mulla, (2016) [33]**, who stated that most of Basrah University students in Iraq were unfamiliar with family planning and their knowledge level was generally low.

The current study showed that the total knowledge score of male students about sexual and reproductive health before applying health education package was poor, but after applying health education package were improved. There was highly statistical significant difference. This findings were similar to **Madeni, Horiuchi and Iida, (2011) [34]**, findings who found that knowledge score of students aged (11-16) in Tanzania, about reproductive health was poor at preliminary assessment, which improved after applying a reproductive health awareness program. Also, there was highly statistical significant difference.

There was highly statistical significant difference between knowledge level before and after application of health education package about sexual and reproductive health. This result may reflect the effect of health education package on improving students' knowledge. This findings are compatible with studies conducted in Indonesia, by **Nugraheni et al., (2018)[35]** and in India, by **Manjula, Kashinakunti, Geethalakshmi and Sangam, (2012) [36]**. They revealed that there was a significant difference between respondent knowledge before and after intervention. There was significant increase in knowledge score after intervention.

Regarding total attitude of students toward sexual and reproductive health, the current study revealed that there is statistically significantly difference before and after application of educational package. In other words, sexual and reproductive health education promotes the attitude of students. These findings are agreed with **Mehrabi, Etemadi, Borjali & Sadipoor, (2016)(37),** findings who conducted their study on girls registered

in the first year of high school in Iran. They stated that attitude scores about sexual and reproductive health was found to be significantly difference before and after providing educational course in both experimental and control groups.

Conclusion:

Based on the findings of the present study, it can be concluded that almost all university male students had poor knowledge score level about sexual and reproductive health before application of health education package converted to good knowledge score level after application of health education package, reflecting statistical significant difference. Also there was significant differences in attitude of male students before after application of health education package.

Recommendation:

1- Academic learning should be occupied with sexual and reproductive health.

2- Provide proper information for adolescent boys about sexual and reproductive health and guidance about their sexual responsibilities and relationships.

3- Develop global service education package about sexual and reproductive health for adolescent boys and men to support providers of this subject meet the specific and diverse needs of them.

4- Conducting Public health campaigns about the impact of denial sexual and reproductive health on adolescents.

5- Future nursing research should focus on sexual and reproductive health. A similar study can be conducted on the same topic with a broader perspective by evaluating a several people in adolescent stage in various setting.

Acknowledgements:

Table (1) Distribution of the studied students according to their socio-demographic and economic characteristics

Items	No (386)	%
Age (years)		
18-<20	123	31.9
20-<22	191	49.5
22- more	72	18.7
□ (SD)	**20.07 (1.47)**	
Residence		
Rural	211	54.7
Urban	130	33.7
Slums	45	11.7
Marital status		
Single	386	100
Socioeconomic levels		
• Low socio-economic level	105	27.2
• Middle socio-economic level	208	53.9
• High socio-economic level	73	18.9

□ (SD): Mean (standard deviation)

Table (44): Distribution of the studied students according to their correct knowledge about reproductive system pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Definition of reproductive system	111	28.8	352	91.2
Male reproductive system organs	156	40.4	350	90.7
Function of prostate gland	61	15.8	349	90.4
Function of vas deferens	168	43.5	336	87
Function of testis	164	42.5	349	90.4
Name of male hormone	124	32.1	359	93
Functions of male hormone	156	40.4	349	90.4
Daily sperm count produced	5	1.3	332	86
Seminal fluid characteristics	134	34.7	326	84.5
Reason of located testis outside body	119	30.8	324	83.9
Type of penis tissue	100	25.9	334	86.5
Definition of erection process	174	45.1	330	85.5
Time of erection occurrence	141	36.5	340	88.1
Total male reproductive system (Scores=13) **Poor** **Fair** **Good**	315 63 8	81.6 16.3 2.1	0 22 364	0 5.7 94.3
□ (SD)	**4.179 (2.541)**		**11.477 (1.154)**	
t	51.897			
P	.000**			
Female reproductive system organs	91	23.6	350	90.7
Function of ovary	72	18.7	355	92
Function of Fallopian tube	77	19.9	351	90.9
Name of female hormones	67	17.4	339	87.8
Function of female hormones	69	17.9	342	88.6
Total female reproductive system (Scores=5) **Poor** **Fair** **Good**	336 28 22	87 7.3 5.7	2 31 353	0.5 8 91.5
□ (SD)	**0.974 (1.246)**		**4.5 (.665)**	
t	47.344			
P	.000**			

□ (**SD):** Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (45): Distribution of the studied students according to their correct knowledge about female maturation pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Female maturation				
Signs of female maturation				
Start of menstruation	111	28.8	364	94.3
Concupiscence feeling	113	29.3	358	92.7
Sexual organs development	156	40.4	362	93.8
Hair growing on different body parts	124	32.1	359	93
Hormonal changes	112	29	364	94.3
Change tone of voice	109	28.2	352	91.2
Wet dreams	81	21	350	90.7
Age of starting female maturation	94	24.4	346	89.6
Factors affect starting of female maturation	50	13	352	91.2
Female identify sexual identity at childhood period	34	8.8	352	91.2
Female identify sexual identity at adolescent period	50	13	365	94.6
Female identify sexual identity at adulthood period	40	10.4	350	90.7
Definition of menstruation	101	26.2	356	92.2
Female maturation is related with menstruation	107	27.7	354	91.7
Marriage depends on starting of menstruation	120	31.1	362	93.8
Female genital circumcision definition	132	34.2	360	93.3
Importance of female genital circumcision	58	15	360	93.3
Complications of female genital circumcision	33	8.5	354	91.7
Total female maturation (Scores=18)				
Poor	364	94.3	0	0
Fair	22	5.7	1	0.3
Good	0	0	385	99.7
□ (SD)	**4.298 (2.593)**		**17.544 (1.099)**	
t	**93.235**			
P	**.000****			

□ (**SD):** Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (46): Distribution of the studied students according to their correct knowledge about male maturation pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Male maturation				
Signs of male maturation				
Concupiscence feeling	172	44.6	349	90.4
Wet dreams	174	45.1	335	86.8
Sexual organs development	197	51	355	92
Hair growing on different body parts	124	32.1	336	87
Hormonal changes	152	39.4	363	94
Change tone of voice	202	52.3	348	90.2
Age of starting male maturation	158	40.9	364	94.3
Factors affect starting of male maturation	65	16.8	352	91.2
Male identify sexual identity at childhood period	66	17.1	339	87.8
Male identify sexual identity at adolescent period	90	23.3	354	91.7
Male identify sexual identity at adulthood period	63	16.3	360	93.3
Definition of ejaculation process	142	36.8	363	94
Male maturation is related with ejaculation process	156	40.4	365	94.6
Marriage depends on the occurrence of ejaculation	131	33.9	350	90.7
Definition of men's purity	109	28.2	360	93.3
Importance of men's purity	42	10.9	347	89.9
Total male maturation (Scores=16)				
Poor	362	93.8	0	0
Fair	24	6.2	5	1.3
Good	0	0	381	98.7
□ (SD)	**5.292 (2.131)**		**14.611 (1.258)**	
t	**74.909**			
P	**.000****			

□ (**SD):** Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (47): Distribution of the studied students according to their correct knowledge about reproduction and sex pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Reproduction				
Reproduction linked with maturation	106	27.5	354	91.7
Appropriate time for marriage to male	99	25.6	346	89.6
Appropriate time for marriage to female	84	21.8	334	86.5
Definition of fertilization process	110	28.5	338	87.6
Appropriate time for fertilization process	35	9.1	341	88.3
Total Reproduction (Scores=5)				
Poor	348	90.2	9	2.3
Fair	29	7.5	29	7.5
Good	9	2.3	348	90.2
□ (SD)	**1.124 (1.022)**		**4.438 (.744)**	
t	48.173			
P	.000**			
Sex				
Concept of sex	77	19.9	365	94.6
Suitable age for male to practice sex	104	26.9	366	94.8
Suitable age for female to practice sex	103	26.7	362	93.8
Youth facing intense of sexual desire by:				
Wet dreams	115	29.8	354	91.7
Practicing sports	130	33.7	360	93.3
Masturbation	104	26.9	250	64.8
Fasting and worship	93	24.1	356	92.2
Watching exciting films	105	27.2	251	65
Definition of wet dreams	125	32.4	352	91.2
Wet dreams occur for both gender	96	24.9	352	91.2
Total Sex (Scores=10)				
Poor	375	97.2	1	0.3
Fair	10	2.6	53	13.7
Good	1	0.3	332	86
X̄ (SD)	**2.725 (1.451)**		**8.725 (1.077)**	
t	66.882			
P	.000**			

□ **(SD):** Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant ($p < 0.05$).
** Highly significant ($P < 0.01$).

Table (6): Distribution of the studied students according to their correct knowledge about masturbation and sexual stimulants pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Masturbation				
Definition of masturbation	169	43.8	359	93
Effect of extensively practicing of masturbation				
Sexual impotence	116	30.1	363	94
Infertility	134	34.7	367	95.1
Psychological disorders "depression"	15	3.9	365	94.6
Total masturbation (Scores= 4)				
Poor	361	93.5	9	2.3
Fair	0	0	72	18.7
Good	25	6.5	305	79.0
X (SD)	**1.124 (.886)**		**3.767 (.475)**	
t	45.885			
P	.000**			
Sexual stimulants				
Definition of sexual stimulants	101	26.2	355	92
Types of male sexual stimulants				
Pills	76	19.7	363	94
Injection	12	3.1	353	91.5
Local	41	10.6	365	94.6
Natural	56	14.5	357	92.5
Types of female sexual stimulants				
Pills	61	15.8	352	91.2
Injection	4	1.0	342	88.6
Local	23	6	347	89.9
Natural	40	10.4	332	86
Sexual stimulants uses	77	19.9	357	92.5
Complications of sexual stimulants used by male	71	18.4	348	90.2
Complications of sexual stimulants used by female	35	9.1	352	91.2
Total sexual stimulants (Scores=12)				
Poor	373	96.6	0	0
Fair	11	2.8	33	8.5
Good	2	0.5	353	91.5
X (SD)	**1.547 (1.958)**		**10.940 (1.003)**	
t	81.503			
P	.000**			

X (SD): Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (49): Distribution of the studied students according to their correct knowledge about abnormal sexual behavior "Homosexuality" pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Abnormal sexual behavior "Homosexuality"				
Definition of homosexuality	57	14.8	298	77.2
Causes of homosexuality:				
Personality defect and bad upbringing	38	9.8	341	88.3
Social pressures	98	25.4	334	86.5
Organic causes lead to chemical substances changes	58	15	343	88.9
Genetic factors	70	18.1	351	90.9
Acquired behavior resulted from childhood abuse	66	17.1	349	90.4
Non-compliance with religious precepts	120	31.1	353	91.5
Types of homosexuality				
Gay	203	52.6	349	90.4
Lesbian	182	47.2	358	92.7
Anal or oral sex with female	112	29	356	92.2
Zoophilia	172	44.6	366	94.8
Pedophilia	141	36.5	363	94
Hazards of homosexuality	69	17.9	363	94
Total homosexuality:(Scores =13)				
Poor	361	93.5	0	0
Fair	25	6.5	7	1.8
Good	0	0	379	98.2
X̄ (SD)	3.590 (1.676)		11.720 (1.037)	
t	81.039			
P	.000**			
Sources of information about homosexuality before application of educational package	N=386		%	
Radio	23		6.0	
TV	45		11.7	
Journals	55		14.2	
Family and neighbors	56		14.5	
Friends	53		13.7	
Schools and universities	43		11.1	
Web	42		10.9	

X̄ (SD): Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (8): Distribution of the studied students according to their correct knowledge about general information regarding sexual transmitted diseases pre and post health education package application

Items	Pre test (N=386) %	Post test (N=386) %
Sexual transmitted diseases		
Definition of sexual transmitted diseases	60 / 15.5	94.8
Lab investigation for sexual transmitted diseases	20 / 5.2	92.5
Sexual transmitted diseases vaccination	16 / 4.9	92

Items	AIDS pretest N / %	AIDS posttest N / %	Syphilis pretest N / %	Syphilis posttest N / %	Gonorrhea pretest N / %	Gonorrhea posttest N / %	Hepatitis B pretest N / %	Hepatitis B posttest N / %
Definition	63 / 16.3	365 / 94.6	44 / 11.4	335 / 86.8	25 / 6.5	355 / 92	45 / 11.7	361 / 93.5
Moods of transmission								
Blood transfusion	68 / 17.6	371 / 96.1	49 / 12.7	344 / 89.1	19 / 4.9	357 / 92.5	61 / 15.8	364 / 94.3
Sexual intercourse	75 / 19.4	369 / 95.6	38 / 9.8	344 / 89.1	32 / 8.3	364 / 94.3	48 / 12.4	366 / 94.8
With other sexual transmitted diseases	57 / 14.8	364 / 94.3	23 / 6	351 / 90.9	20 / 5.2	362 / 93.8	35 / 9.1	362 / 93.8
Organs transplant	76 / 19.7	361 / 93.5	17 / 4.4	355 / 92	10 / 2.6	362 / 93.8	50 / 13	358 / 92.7
Percutaneous exposure	76 / 19.7	356 / 92.2	22 / 5.7	352 / 91.2	12 / 3.1	344 / 89.1	55 / 14.2	355 / 92
From mother to fetus perinatal	75 / 19.4	369 / 95.6	12 / 3.1	361 / 93.5	7 / 1.8	334 / 86.5	59 / 15.3	352 / 91.2
Treatment	49 / 12.7	369 / 95.6	18 / 4.7	353 / 91.5	6 / 1.6	353 / 91.5	64 / 16.6	351 / 90.9
Prevention	82 / 21.2	365 / 94.6	21 / 5.4	365 / 94.6	21 / 5.4	341 / 88.3	107 / 27.7	341 / 88.3
Total score : (Scores=9)								
Poor	353 / 91.5	0 / 0	363 / 94	1 / 0.3	371 / 96.1	0 / 0	369 / 95.6	0 / 0
Fair	31 / 8	2 / 0.5	6 / 1.6	15 / 3.9	10 / 2.6	12 / 3.1	17 / 4.4	15 / 3.9
Good	2 / 0.5	384 / 99.5	17 / 4.4	370 / 95.9	5 / 1.3	374 / 96.9	0 / 0	371 / 96.1
$\bar{X}$ (SD)	1.609 (1.790)	8.520 (.629)	.632 (1.752)	8.187 (.907)	.394 (1.388)	8.218 (.825)	1.358 (1.585)	8.316 (.821)
t	72.654		76.181		93.977		76.821	
P	.000**		.000**		.000**		.000**	

Sources of information about diseases before application of educational package	N=386	%
Radio	44	11.4
TV	86	22.3
Journals	81	21
Family and neighbors	55	14.2
Friends	101	26.2
Schools	92	23.8
Universities	137	35.5

Table (9): Distribution of the studied students according to their correct knowledge about reproductive health and family planning pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Reproductive health				
Definition of reproductive health	51	13.2	336	87
Definition of family planning	70	18.1	349	90.4
Importance of family planning	83	21.5	339	87.8
Role of men in family planning	46	11.9	333	86.3
Family planning methods for men	87	22.5	336	87
Suitable number of children	84	21.8	371	96.1
There is an importance for legislate laws to promote sexual and reproductive health	114	29.5	350	90.7
Sex related laws in our community	21	5.4	353	91.5
Total reproductive health and family planning (Scores=8) **Poor** **Fair** **Good**	376 10 0	97.4 2.6 0	2 80 304	.5 20.7 78.8
X̄(SD)	**1.440 (1.371)**		**7.168 (.874)**	
t	**65.850**			
P	**.000****			
Sources of information about sexual and reproductive health before application of educational package	**N=386**		**%**	
Radio	65		16.8	
TV	69		17.9	
Web	59		15.3	
Books and Journals	64		16.6	
Family and neighbors	32		8.3	
Friends	57		14.8	
Schools and Universities	59		15.3	

X̄ (SD): Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (10): Distribution of the studied students according to their total correct knowledge about sexual and reproductive health pre and post health education package application

Items	Pre test		Post test	
	N=386	%	N=386	%
Sexual and reproductive health				
Total sexual and reproductive health (Scores=143) Poor Fair Good	385 1 0	99.7 0.3 0	0 0 386	0 0 100
□ (SD)	30.510 (12.434)		130.347 (3.591)	
t	151.995			
P	.000**			

□ (SD): Mean (standard deviation)
t-value (Student's t-test)
P:Significance
* Significant (p< 0.05).
** Highly significant (P< 0.01).

Table (11): Distribution of the studied students according to their total attitude toward sexual and reproductive health pre and post health education package application

Items	Pre	Post	t	P
	□ (SD)	□ (SD)		
Students attitude toward sex (44 marks)	32.705 (3.781)	41.979 (1.704)	44.303	.000**
Students attitude toward abnormal sexual behavior and sexual diseases (60 marks)	47.031 (5.332)	57.187 (2.104)	35.397	.000**
Students attitude toward reproductive health(24 marks)	18.008 (2.732)	22.279 (1.908)	25.225	.000**
Students attitude toward sexual education(64 marks)	49.257 (6.296)	60.785 (2.544)	34.190	.000**
Total attitude (192 marks)	**147.00 (13.754)**	**182.231 (4.642)**	**49.150**	.000**

X (SD): Mean (standard deviation)
t-value (Student's t-test)
P: Significance.
* Significant (p< 0.05).
** Highly significant (P< 0.01).

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