Research Article

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Primary Prevention of Health Consequences for Early Marriage among Female Adolescent Student in a Rural Area

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ABSTRACT

Introduction: *Child marriage mainly affects girls living in poorer rural areas and is on the rise in some locations, including Upper Egypt. The aim was to evaluate the effect of the primary prevention program of health consequences for early marriage among female adolescent students and conducted at two schools representing in a rural area in El-khosos district, El Qalubia Governorate. A quasi experimental design and a purposive sampling of 137 female students were at three grades of the selected schools. One tool was used for data collection were a self-administered questionnaire including socio demographic characteristics of students, students' knowledge related to early marriage health consequences, Perception of students toward adverse bio-psycho-social health consequences of early marriage and its' preventive procedures, assess female students' practices related to personal hygiene, nutrition and physical exercises during menstruation.*

Results: *The study was concluded that the majority of students had unsatisfactory knowledge regarding early marriage health consequences preprogram while in post program more than two thirds of them had satisfactory knowledge with a highly statistically significant difference between their knowledge, healthy practices pattern and perception between pre and post primary prevention program implementation.*

Conclusion: *Primary prevention program reported a remarkable improvement in female students' knowledge, perception and health practices toward early marriage health consequences. Recommendations the study recommended that applying for health education programs among students in different educational settings focusing on early marriage health consequences with an implementation of practical training courses.*

Keywords

Early marriage, Adolescence students, Primary prevention program, Rural area.

Introduction

Adolescence is a period of life with specific health and developmental needs and rights. It is also a time to develop knowledge and skills, learn to manage emotions and relationships, and acquire attributes and abilities that will be important for enjoying the adolescent years and assuming adult roles Wodon, Male, Nayihouba, Onagoruwa, Savadogo, Edmeades, Kes,John, Murithi, Steinhaus and Petroni [1].

Child marriage often compromises a girl's development by resulting in early pregnancy and social isolation, interrupting her schooling, limiting her opportunities for career and vocational advancement and placing her at increased risk of domestic violence. Child marriage also affects boys, but to a lesser degree than girls Vandana, Simarjeet & Manisha [2].

Early marriage is a worldwide associated problem with a range of health and social consequences for girls. It is a fundamental violation of human rights. Many factors interact to place a girl at risk of early marriage, including poverty, the perception that marriage will provide 'protection', family honour, social norms,

customary or religious laws that condone the practice, an inadequate legislative framework and the state of a country's civil registration system UNICEF [3].

According to a UNICEF report based on data collected between 1995 and 2013, early marriage is most prevalent in South Asia and Africa. The proportion of all women (ages of 15 to 24) who were married before the age of 18 was 48% in South Asia, 42% in Africa and 29% in Latin America and the Caribbean. Countries with rates above 60% include Niger, Chad, Mali, Bangladesh, Guinea, and Burkina Faso. Ethiopia had the 12th highest rate of early marriage; 49% of all young women (ages 20 to 24) were married before the age of 18 UNICEF [4].

The consequences of early marriage can include: dropping out of school; health risks that result from early sexual activity and pregnancy, including sexually transmitted diseases and maternal mortality; being prevented from taking advantage of economic opportunities; and if they have children, child malnutrition and mortality Hotchkiss et al. BMC [5]. There is also concern that child marriage deprives girls of their basic human rights and puts them at risk for harmful practices and disadvantage, including exploitation, intimate partner violence, and abuse. Given these concerns, there is increased interest in efforts to empower children and adolescent girls in low- and middle-income countries in order to protect their human rights and the overall wellbeing of women and children Bosnjak & Acton [6].

Early marriage has a strong physical impact on health of girls. Girls below the age of 18 years have small pelvises and they are not ready for childbearing. So, morbidity and mortality rate are seen higher due to the young mothers' poor nutrition, physical and emotional immaturity, and lack of access to social and reproductive services, and higher risk for infectious diseases. High death rates found due to eclampsia, postpartum hemorrhage, sepsis, HIV infection, malaria, and obstructed labor Nnadi [7].

Prevention of early marriage health consequences can improve the health of a mother and her child. For one, the risk of malnutrition in children born to mothers over the age of 18 is smaller. Improved nutrition in infants leads to increased schooling and cognitive ability, which contributes to an increase in lifetime savings Kalamar, Amanda, Susan Lee-Rife, and Michelle [8].

Community health nurses in health education practice can participate in the advancement of health prevention and promotion. Nurse educators must be teaching adolescents how to remain healthy. Nurses must have an evidence-based understanding of the significant effect that can be made through health prevention, promotion interventions and communicate this understanding to the public at large Machel, Pires & Carlsson [9].

Significance of the study

Child marriage affects girls and hinders progress toward development and public health goals. The magnitude of the threat child marriage poses to global development is highlighted by the fact that its elimination is one of the specific targets for achieving goal number five of the Unsustainable Development Goals: gender equality and the empowerment of all women and girls Parsons, Jennifer et al., [10]. Adolescence is considered as a crucial stage in human life that needs parental care, guidance, and empathy. Only with effective care giving, we can guarantee to raise our adolescents to be healthy adults who can share in improving our societies and being their leaders for a promising and a better future. Hence, the targets of conducting an efficient adolescents' health care entail carrying out systematic measures for preventing, detecting, and treating any physical and or mental disorders among youth Chung, Fong & Chung [11].

In Egypt, early marriage is found mainly in poor and small villages, and it leads to the birth of thousands of children that will increase the overpopulation and its harmful effects on our country in all aspects; in addition to that, it increases the rates of ignorance and lack of education. It was stated that about seventeen percent of the girls in Egypt are married before the 18th of their age, and that was the reason of changing the age of marriage to eighteen for women and men in order to decrease the number of early marriage cases Abd Al Azeem, El Sherbin and Ahmed [12].

Aim of the study

The aim of the present study was to evaluate the effect of the primary prevention program for early marriage health consequences among female adolescent student in a rural area through:

- Assessing female students' knowledge regarding early marriage & female reproductive system.
- Assessing female students' perception of adverse bio-psycho-social health consequences of early marriage and its' preventive procedures
- Assessing female students' practices regarding nutrition and hygiene during menstruation.
- Designing and implementing of primary prevention program for early marriage health consequences based on female adolescent student's needs.
- Evaluating the effectiveness of the program on improvement students' knowledge and perception regarding prevention of early marriage health consequences.

Research Hypothesis

Improvement of knowledge and perception of female adolescent about early marriage health consequences after implementation of primary prevention program construction.

Methodology

Study design

A quasi experimental design was employed for this study. This design enabled the researchers to collect data about the knowledge and perception of school students in a rural area regarding health consequences of early marriage.

Setting

The study was conducted at two preparatory schools representing in rural area in Egypt (El-khosos district, El Qalubia Governorate).

This setting was chosen for its high density with a total number of 370 female students.

Sample size

A purposive sample of 137 female students were used in the study. The sample included all female students' in all classes (from the three grades) of the selected school. The sample size included the total number of female students in the third level in all classes was 154 with the following inclusive criteria; unmarried female students and accepts to participate in the study.

Instrument and data collection: a Self-Administered Questionnaire was used to assess the following parts:

Part 1: A-socio-demographic characteristics of female students as, age, family size, educational level of father and mother, occupation of father and mother, having siblings ,number of sisters, number of brothers ,birth order, monthly income according to achieving their needs and crowding index.

Part 2: Assess female adolescence student's knowledge regarding:
A- Female reproductive system such as anatomy of female internal and external reproductive system, concept, importance and purposes.
B- Menstruation regarding the normal age for menstruation, changes pre and post menstruation, normal flow, normal cycle, vaginal discharge and its color pre menstruation.
C- Early marriage such as meaning, suitable age for marriage and first pregnancy, suitable period between pregnancy, reasons, advantage and disadvantage and presence of a law prohibiting early marriage.
D- Nutrition as importance of food, food groups for the body ,number of meals ,sources of protein and iron in food, foods and drinks that avoided during menstruation.
E- Personal hygiene during menstruation such as concept of menstrual hygiene ,bathing during menstruation, number of bathing time ,type of underwear and towels used during menstruation.
F- Exercise during menstruation includes the important of exercise for the body, exercise during the menstrual cycle, type of exercise used and risks of exercising during the menstrual cycle and type of risks during the menstrual cycle. A correct answer scored one and each incorrect answer scored zero, the whole knowledge questions scored 38 points, a total of 50% and above were considered satisfactory and less than 50% were considered unsatisfactory.

Part 3: Student's perceptions regarding early marriage, adverse bio-psycho-social health consequences of early marriage as physical, psychological and social, also assess the student perception regarding preventive measures of early marriage. The rating scale was consisted of three points scale, it has a score ranging from zero to two distributed as the following; Agree = 2, Sometimes = 1, Disagree = 0, the scale included 39statements as the highest score is two then the total scale scored 78 points. The final score of students responses was either 60% and above representing positive perception or less than 60% denoting negative perception.

Part 4: Assessing female adolescent's practices pre and post primary prevention program. This part was developed to assess the following:

A- Nutrition regarding eat three balanced diet, choose meals that contain the integrated nutrients, eat foods with protein, calcium, vitamin B6 and with iron.
B- Personal hygiene during menstruation, as used sanitary napkins, put these sanitary napkins in a litter box ,used towels made of cotton, wash the towel with soap and water, wash the clothes with soap and water, wear cotton clothes during menstruation, change underwear regularly, wash the perineum area continuously by used an antiseptic, Put the pad from front to back during menstruation, wash hands before and after entering the bathroom ,take a good period of sleep, detect pubic hair constantly, heat body especially belly during menstruation.
C- Exercise during menstruation such as practicing light games as walking, move home and do routine, study and do school homework, arranging to go to school, exercise heavy games as running. The rating scale was consisted of two points scale, it has a score ranging from zero to one distributed as the following; Done = 1, Not done = 0 the scale included 28 statements as the highest score is two then the total scale scored 28 points. The final score of students responses was either 60% and above representing done or less than 60% denoting not done.

Content validity of the tools was established by submitted to 5 experts from community health nursing department, Faculty of Nursing, Ain Shams University. The reliability coefficient for the likert's scale was established using split half method was found to be 0.93.

Pilot Study

It was conducted on 17 students and was excluded from the study sample to evaluate clarity, visibility, applicability and content validity, as well as the time required to fulfill the developed tools. According to the obtained results, modifications such as omission, addition and rewording were done.

Ethical considerations

Permission for conducting the study was obtained from administrative authority of the school. The researchers took into consideration students' rights based on their needs, giving complete necessary information, assuring them that confidentiality will be maintained and students have the right to refuse participation or withdraw at any time without giving any reason. A verbal agreement constituted acceptable consent.

Field Work

The study was started from October 2016 to May 2017; two days/ week Monday and Tuesday from 9.00 am to 12.00 pm. The actual duration was six months, "as periods of examination and holidays were excluded". The assessment phase (pretest) was done for 137 female students and took four weeks to be fulfilled; nearly 35 female students were assessed per visit.

Primary prevention Program construction:

Phase 1: Program Development

The program was designed by the researcher and based on the result obtained from the study tools; also, review of recent, current, national and international related literature in various aspects of the female health promotion represented in premarital care. This program content was revised and validated by experts in Faculty of Nursing, community health nursing department, Ain Shams University.

Phase 2: Assessment

Assessment was done to determine the students' needs by using pretest based on the collecting data on the student's knowledge, perception and their practices which was carried out through four weeks. The average time consumed to fill tools was 25-30 minutes.

Phase 3: Program Implementation

Implementation of the program took about 24 weeks based on conducting sessions plan using different educational methods and media through data show through using laptop in addition to the use of guiding booklet specifically designed and developed based on students' assessment needs. As for the evaluation phase (posttest) it was done through four weeks to evaluate the level of improvement among study subjects.

Overall goal of the program

Upgrading female students' knowledge related to reproductive health, realize preventive measures toward early marriage health consequences program, encourage menstrual cycle and characteristics of normal vaginal discharge, acquire knowledge about components of balanced diet and its importance during adolescent period, demonstrate basic skills for performing personal hygiene and essential physical exercises needed to maintain health and also modify their perception related to early marriage.

Teaching methods and media used are; lectures, group discussion, demonstration and re-demonstration. Suitable teaching aids prepared especially for the program were used such as guiding booklet specifically designed based on student assessment needs and video clips.

Phase 4: Program evaluation

This phase aimed to evaluate the level of improvement in knowledge, perception and health practices of female adolescents, through implementation of primary preventive program. As well as to identify differences, similarities, areas of improvement and defects. Evaluation was done post implementation with one week and took four weeks to be done.

Statistical Design

Data were revised, coded, analyzed and tabulated using the number and percentage distribution and carried out in the computer. Using appropriate statistical methods. The following statistical techniques were used:

Percentage, Mean Value, Standard Deviation, Chi-square (X2), T paired test and proportion probability (P-value). A statistically significant difference was considered at p-value p≤0.05, and a HS was considered at p-value p ≤ 0.001.

Results

Items		NO	%
Age	14-years	50	36.5
	15- years	80	58.4
	16 years	7	5.1
	Mean ± SD = 14.7 ±.566		
Having Siblings	Yes	131	95.6
	No	6	4.4
Number of sisters	0	8	6.1
	1	20	15.3
	2	47	35.9
	≥3	56	42.7
Number of brothers	0	20	15.2
	1	32	24.5
	2	30	22.9
	3≤	49	37.4
Ranking among Siblings (Birth Order)	1st	44	32.1
	2nd	37	27.0
	3rd	41	29.9
	4th	15	11.0

Table 1: Distribution of Female Adolescents students according to Socio Demographic Characteristics (N=137).

As shown in Table 1 the students in the age of 15 years representing 58.4% with a mean ± SD 14.7±. 566 years, 95.6% of them having siblings,42.7% of studied sample have more than three sisters while 37.4% of them have more than three brothers. Regarding to birth order the same table reported that 32.1% were the first.

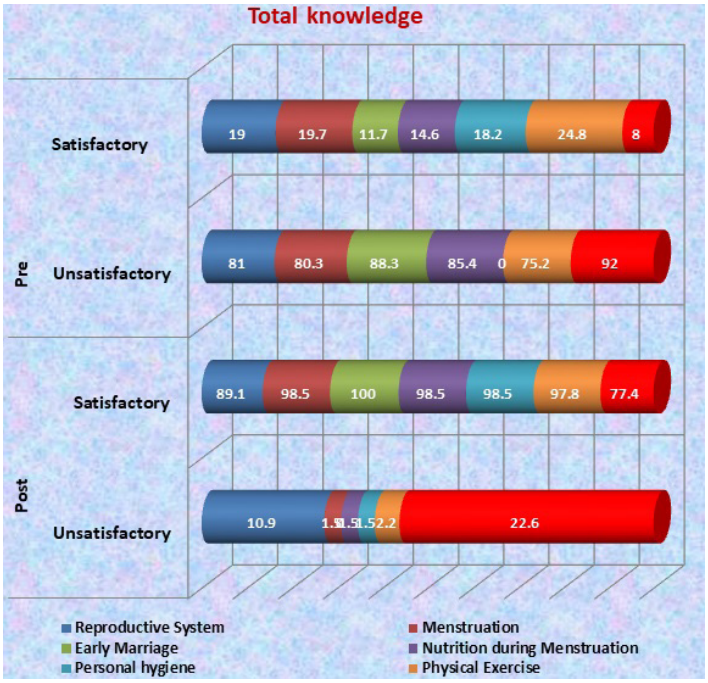


Figure 1: Distribution of Female adolescents related to their Total knowledge score level (N=137).

As regards to total satisfactory knowledge of Female adolescents the study shows in preprogram 92% of them had unsatisfactory knowledge regarding reproductive system, menstruation, early marriage, nutrition, personal hygiene and exercise while in post program 77.40% of them had satisfactory knowledge with a highly statistically significant difference between pre & post program at P<0.001.

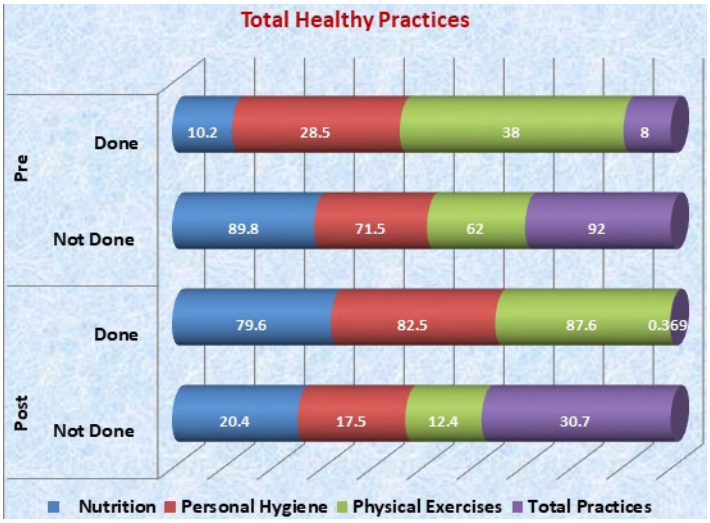
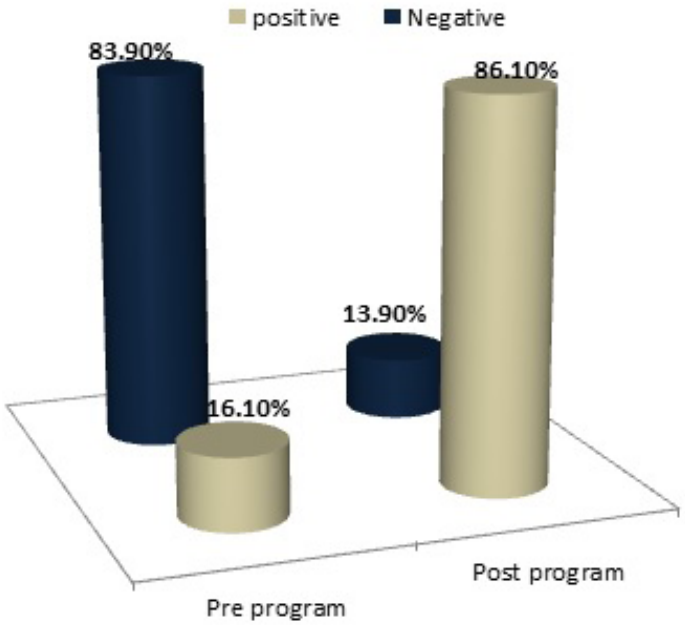


Figure 2: Distribution of Female Students according to their total Healthy Practices score level (N=137).

Reveals that 92% of student not done healthy practices regarding nutrition, personal hygiene and physical exercise in preprogram meanwhile improved in post program to 69.30% done it correctly with a highly statistically significant difference pre/post primary prevention program at P<0.001.

Figure 3: Distribution of Female Adolescents related to their total perception regarding adverse health consequences of early marriage (N=137).



Illustrated that the total student's perception regarding adverse health consequences of early marriage were 16.1% of students had positive perception preprogram meanwhile changed to 86.1% in post program, There were highly statistically significant difference between pre & post program at P<0.001.

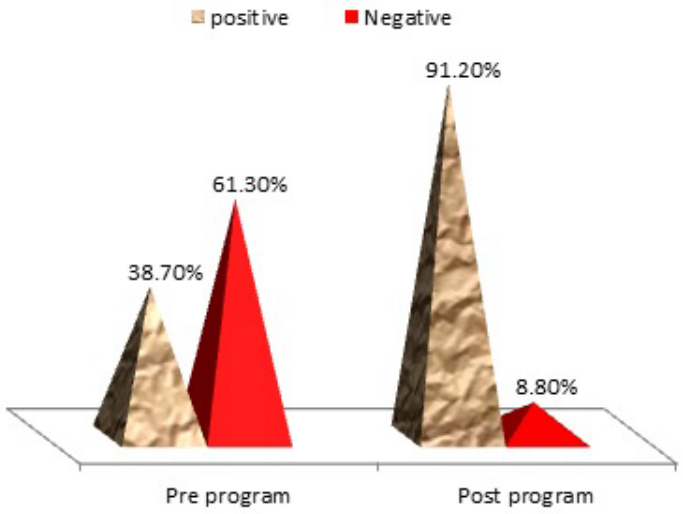


Figure 4: Distribution of Female adolescents related to their total perception about preventive measures of early marriage (N=137).

Reveals that 92% of student not done healthy practices regarding nutrition, personal hygiene and physical exercise in preprogram meanwhile improved in post program to 69.30% done it correctly with a highly statistically significant difference pre/post primary prevention program at P<0.001.

Total Items	pre	post	Student T Test	
	Mean ± SD	Mean ± SD	T	P
Knowledge score	12.7 ± 3.3	28.6 ± 8.2	21.126	<0.001**
Perception score	28.3 ± 7.7	54.2 ± 7.9	27.286	<0.001**
Practice score	5.9 ± 2.6	20.8 ± 6.4	23.806	<0.001**

Table 3: Comparison of Female adolescent total knowledge, perception & Health Practices pre and post primary prevention program (N=137).

It clarified the correlation between total score level regarding knowledge, Perception & health practices of female students. There was a highly statistically significant difference pre and post implementation of primary prevention program at p<0.001.

Discussion

Early marriage is a critical social, health, and development issue in the Arab region. The practice violates girls' human rights and takes a toll on families and societies and perpetuates a generational cycle of poverty, low education, and early childbearing and poor health. The prevalence of early marriage practices was higher among the rural community than in the urban. In Egypt, despite the legislative amendments, 23% of girls were married before the age of 18 United Nations Children's [13].

Variables		Preprogram			Post program			Chi-square	P value
		Agree %	Sometimes %	Disagree %	Agree %	Sometimes %	Disagree %		
		%	%	%	%	%	%		
Adverse physical health consequences of early marriage	Infant Mortality	15.3	22.6	62.1	83.2	13.2	3.6	139	<0.001**
	Maternal mortality	12.4	28.5	59.1	73	21.2	5.8	120	<0.001**
	Physical problems	24.1	21.2	54.7	70.1	18.2	11.7	69.3	<0.001**
	Disturbed mensturation	14.6	18.2	67.2	83.9	12.4	3.6	146	<0.001**
	Obstetric problems	5.1	19	75.9	67.2	26.2	6.6	154	<0.001**
	Children problems	13.9	29.9	56.2	80.3	14.6	5.1	130	<0.001**
Adverse Psychological health consequences of early marriage	Psychological Pressure	13.9	16.8	69.3	75.9	21.9	2.2	146	<0.001**
	Tension	11.7	26.3	62	80.3	12.4	7.3	136	<0.001**
	Anxiety	13.1	36.5	50.4	66.4	31.4	2.2	110	<0.001**
Adverse social health consequences of early marriage	Family Violence	5.1	13.9	81	76.6	16.8	6.6	173	<0.001**
	School Termination	12.4	19.7	67.9	81.7	16.1	2.2	155	<0.001**
	Social Isolation	5.8	25.5	68.6	73	19.7	7.3	147	<0.001**
	Marital problems	7.3	19	73.7	86.2	5.8	8	173	<0.001**
	Inability to rear children	4.4	36.5	59.1	82.5	14.6	2.9	179	<0.001**
	Increase poverty	2.2	35	62.8	81	13.9	5.1	182	<0.001**
	Polygamy	1.5	22.6	75.9	75.2	19	5.8	180	<0.001**
	Increase divorce	6.6	24.8	68.6	67.2	30.6	2.2	154	<0.001**
	Difficulty in managing Issues	4.4	16.8	78.8	79.6	17.5	2.9	189	<0.001**
	No consequences	6.6	27	66.4	0	2.2	97.8	46.1	<0.001**

Table 2: Percentage distribution of female Adolescents perception regarding adverse bio- psycho-social health consequences of early marriage (N=137).

Illustrated that In relation to adverse physical health consequences as perceived by females, in preprogram assessment 24.1% of students agreed that it is vulnerability to health problems while post primary prevention program changed to 70.1%, also, 13.9 % of them agreed that early marriage had adverse psychological health consequences include psychological pressure in preprogram while in post program improved to 75.9 %. Regarding to social health consequences shows 12.4% of students agreed that early marriage had adverse social health consequences include school termination in preprogram meanwhile, in post prevention program improved to 81.7.There were highly significant difference between pre & post program at P<0.001.

In Egypt fewer studies were designed to assess the impact of health education intervention among youth Tawfik et al., [14]. Related to the present study it was designed to evaluate the effect of the primary prevention program of early marriage health consequences among female adolescent in a rural area. The mean age of the sample was 14.7 ± 566 years. These results are similar to study done in Khartoum in Elttondoub area about assessment knowledge, attitude and practice of early marriage in Elttondoub area by Babiker [15] who found that the mean age of child marriage is 14 years. This study demonstrated that less than one quarter of the study sample had satisfactory knowledge about reproductive system. This in accordance to the study about Primary Prevention of Genetic Disorders among Secondary School Students in a Rural Area in Egypt By Ibrahim et al., [16].whose results revealed that, more than two fifths of males and females had poor knowledge preprogram implementation in relation to the anatomy and physiology of male and female reproductive system also, The present study revealed that preprogram less than one fourth of the students had satisfactory knowledge about menstruation this is similar to study about Menstrual Hygiene among Adolescent school girls in a slum area of Kolkata done by Bhattacharyya, Sen, Hazra, Sinha & Sahoo [17].

Who mentioned half of adolescent girls were lacking knowledge of menstruation pre menarche. As regard female adolescents knowledge about early marriage preprogram implementation, A few of the study sample had satisfactory knowledge about early marriage while changed to all of them had satisfactory knowledge post program implementation. This result can be explained with what reported by Babiker [15] who stated that more than half of students were unaware of appropriate age for marriage and the Majority were unaware of disadvantages of child marriage. This may be due to poor counseling of teachers in the schools & awareness of parents about early marriage &health consequences. According to female adolescents regarding hygiene during menstruation in preprogram implementation, this study reports that less than one fourth of the study sample had satisfactory answers associated with knowledge about menstrual hygiene. This was developed to the most of the study sample post program implementation this finding agree with a result in Northwest Ethiopia to assess Menstrual Hygiene Practice and Associated Factors among Secondary School Girls by Meseret, Yigzaw, & Hedija [18] who founded that one third of the subjects had good knowledge about menstrual hygiene. This difference might be due to the reason that many mothers in the study area

were cannot read and write and not interested to express their views and to educate their daughters about menstrual hygiene. Related to female adolescents knowledge about physical exercises during menstruation in preprogram implementation, the current study showed that one fourth of female students had satisfactory knowledge about physical exercise during menstruation while in post program. This result disagree with a study conducted in Egypt about Assessment of Dysmenorrhea and Menstrual Hygiene Practices among Adolescent Girls in Some Nursing Schools at EL-Minia Governorate by Abdelhameed [19] who found that around two third of the study sample Perform physical activities during menstrual period and about one-fourth of students just took rest and staying at home, who believed that physical activities will increase the menstrual pain and increase feeling of exhaustion. As regard to student's perception toward regarding adverse health consequences of early marriage the present study revealed that the minority of students had positive perception in preprogram implementation, while changed to majority of them post program with highly statistically significant differences pre/post program implementation. The previous results complies with the study in Pakistan about Knowledge and attitude towards child marriage practice among women married as children-a qualitative study in urban of slums of Lahore Nasiroglu & Semerci [20] who founded that the majority of the participants were unaware of the negative health outcomes of child marriages. There should be health awareness programs conducted for the girls as well as their parent to overcome the problems caused due to early marriages and to improve their quality of lives. From my point of view as a current study researcher, early marriages violate many human rights; including education, freedom from violence, reproductive rights, and access to reproductive and sexual health care, employment, freedom of movement, and the right to consensual marriage. The health practices assessment included evaluating practices related to nutrition; hygiene and exercise during menstruation, the majority of study sample unaware of appropriate health practices preprogram implementation. On the other hand post program more than two thirds of them reported healthy practices pattern with a highly statistically significant difference. This is congruence with a study done to explore factors that often exert profound influence on menstrual practices among adolescent students in India by Chothe, Khubchandani, Seabert, Asalkar, Rakshe, Firke, Midha & Simmons [21] who indicated that health education programs for young women in developing countries do not often address menstrual hygiene and practices, also students had substantial doubts about menstruation and were influenced by societal myths and taboos in relation to menstrual practices and hygiene.

Conclusion

On the light of the results the study was concluded that the majority of students had unsatisfactory knowledge preprogram regarding female reproductive system, menstruation, early marriage, nutrition, personal hygiene and physical exercise while in post program more than two thirds of them had satisfactory knowledge with a highly statistically significant difference between pre & post program implementation at $P<0.001$. The minority of students had positive perception toward total perception toward early marriage health consequences and its preventive measures in preprogram implementation while in post program more than two thirds of them had positive perception. The total score level for practices related to nutrition, personal hygiene and physical exercises during menstruation revealed that the majority of study sample unaware of appropriate health practices preprogram. On the other hand post program implementation the majority reported healthy practices pattern with a highly statistically significant difference between pre and post primary prevention program implementation regarding female students' knowledge, perception and health practices related to early marriage health consequences. In conclusion, the primary prevention program reported remarkable improvement in female students' knowledge, perception and health practices toward early marriage health consequences.

Recommendations

The findings of this study the following recommendations:

- Increase awareness of adolescents toward early marriage health consequences through:
- Applying health education programs among students in different educational settings focusing on early marriage health consequences with implementation of practical training courses to improve their health practices especially for females related to personal hygiene, nutrition and physical exercises during menstruation.
- School nurse can increase awareness of female students regarding early marriage, early pregnancy and to enhance their knowledge and perception to prevent adolescent girls against early marriage and early pregnancy.
- Social media must be effectively employed to disseminate awareness regarding early marriage and early pregnancy so that they can prevent themselves to get into that threat.
- Inclusion of reproductive health topics in the school curriculum focusing on early marriage health consequences and its preventive measures.

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