

Effect of Skills-Based Education on reproductive health knowledge, Promoting, Sustaining Healthy Behaviors, and self-efficacy among Adolescent Female students

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Abstract

Background: Health maintenance & promotion are the fundamental prerequisites to adolescent development, increasing well-being and self-actualization. **Aim:** The study aimed to assess the effect of skills-based education on reproductive health knowledge, promoting, sustaining healthy behaviors and self-efficacy among adolescent female students **Materials & method:** A quazi experimental(pre & post) design. The study was carried out at secondary schools at Baltime city, kafer elshihk governorate, Egypt, 60 students. **Collection of data:** by using 3 tools Basic General Characteristic Data and health profile questionnaire, Health-Promoting Lifestyle(HPLP) & self-care practices and Self efficacy & barriers. **Results:** there was a highly statistical significant regarding total mean score of health-promoting lifestyle profile pre, post & follow-up,(P= 0.001).. Also, significant improvement in adolescent female student's knowledge, regarding reproductive health pre&post, pre &follow up knowledge. In addition, a highly statistical significant regarding total mean score of general self-efficacy and self-administered for self-care pre and post (P= 0.001).. **Recommendations:** Increase the awareness about reproductive health and healthy promoting lifestyle. Stress about solving barriers affects sustaining healthy behavior and self-efficacy.

Key words: Healthy Behaviors, Reproductive Health, Skills-Based Education &Self-Efficacy.

Introduction

World Health Organization (WHO) defines adolescence as the period of human growth and development that occurs after childhood and before adulthood, from 10 to 19 years of age (WHO 2017). The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. Certain consideration for adolescents' health, particularly adolescent females, is one of the goals of the Millennium Development and among

the missions of members of WHO (Khanal P, 2017).

Adolescence and youth are critical periods in the development and establishment of healthy or high-risk behaviors, According to the estimations by world health organization, chronic non-communicable diseases will become the leading cause of 75% of all deaths in developing countries. These diseases are closely correlated with individuals' lifestyle (WHO,2016)

According to WHO Reproductive health (RH), all aspects of adolescent health covered. It considered “a state of complete physical, mental and social well-being, and not just the absence of disease or debility, in all circumstance relating to the reproductive system and its functions and processes.” (Starrs et al., 2018)

According to globalization, adolescents are exposed to unlimited information from numerous resources. Social media, TV, movies, magazines, and internet play a vital role in providing information on every topic, particularly RH. However, in many instances, the information provided is not accurate or culturally competent. While parents and schools should play a significant role in providing sex education, studies show that parents rarely talk in a timely and comprehensive manner to their children, and schools are limited in what they can teach (Alquai et al., 2012). The hygiene-related practices in the adolescent period related to menstruation can have an effect on their health. The event of menarche may be associated with taboos and myths existing in our traditional society which has a negative implication for women's health, particularly their menstrual hygiene (Kamath et al., 2013).

Health maintenance and promotion are the fundamental prerequisites to adolescent development in which it; entail a positive approach to living and a means of increasing well-being and self-actualization. Health-promoting programs stress on corrective behaviors such as regular exercise, eating nutritious foods, overcoming stress, avoiding narcotics, alcohol and drugs, establishing satisfactory relationships with friends, living in areas with clean

weather, and having goals in life (Bagherzadeh, Shirazi, & Rasoul, 2016). The majority of health-promoting programs for adolescents have been regarded for application in schools, as complementary programs along with courses of study (Enjezab, et al., 2012)

Positive changes in school environment with its educational framework can improve health. Supporting the school personnel by healthcare providers, through offering education and health facilities, could be helpful in this respect (Lee et al, 2007). One of the most important ways to promote health is to improve self-care, which may be achieved through education of health. Self-care leads to a significant cost reduction both for the public and the government because people less frequently become sick and recovery from diseases is faster and needs less medical intervention (Tegegn, Yazachew, & Gelaw, 2016).

Self-efficacy (SE) refers to an individual's confidence in their ability to complete a task or achieve a goal (Bandura, & Albert, 2009). Self-efficacy has important effects on the amount of effort individuals apply to a given task. SE increase in academic self-efficacy indirectly accounts for improvement in academic performance through the meditational role of educational aspirations. The effects of self-efficacy on educational aspirations, and educational aspirations were stronger for boys than for girls (Ansong, Sarah. Eisensmith, & Okumu, 2019).

In order to avoid an unhealthy lifestyle, health-promoting programs are run at schools. Education is a crucial factor in promoting health, quality and standards of a healthy life, and increasing

public participation in welfare, physical, psychological, and social activities. The Planned Behavior Model (PBM) is an appropriate psychosocial model for planning educational programs (Savanthe, & Nanjundappa, 2016). Some researchers believe that adding the self-efficacy construct to PBM could increase the predictability of the model. As more than 90% of adolescents spend a significant amount of time at school and it is not possible to have such regular and constant contact with adolescents anywhere else, schools could play a critical role in provision of health programs (Keshavarz et al., 2015)

Significance of the study

Currently, almost 1 in 5 persons in the world is an adolescent, which is 1.2 billion people between the ages of 10 and 19 years, accounting for 17% of the global population. Currently, there is a low level of access to high-quality RH information and services, especially for adolescents (UNICEF, 2013). Overpopulation in Egypt represents a major challenge if not being utilized as a source of strength. The census noted that Egyptian society is a young people society accounting for the age group up to 14 years, which constitutes almost one-third of the population equivalent to 31%, and the total average age dependency reached 55.1 % (CAPMAS, Egypt 2017). Physical, emotional, social and sexual change makes adolescents overloaded with stress and serious mental illness. Therefore, focusing on adolescents' health is both a challenge and an opportunity for healthcare providers. While adolescence generally is a healthy period of life, many adolescents are less informed, less experienced, and less comfortable accessing health services for reproductive health than adults

(Raiyat, et al., 2012). Studies have shown that lack of knowledge about menstruation and lack of hygiene are likely to lead to STDs in adolescents. [Mudey, et al., 2010, and Mohite & Mohite, 2016]. Therefore, accurate and adequate RH knowledge at this age is crucial for proper practices and behavior regarding RH for the future. [Aktar et al., 2014]. Consequently, helping adolescents to adopt healthy lifestyles, good RH and to avoid developing risky health risks is crucial & must be started before these behaviors are firmly established.

Aim of the study:

Study aimed to assess the effect of skills-based education on reproductive health knowledge, promoting, sustaining healthy behaviors and self-efficacy among adolescent female students

Research hypothesis:

Skills-based education for reproductive health will be more knowledgeable, promote positive personal healthy behaviors and self-efficacy among adolescent female students post intervention.

Operational definition:

Skills-Based Health Education:

Any activity form of education that focuses on using certain skills that can maintain healthy lifestyle (healthy diet, exercise, avoid smoking,.....)

Self-efficacy:

The confidence to perform certain activities such as ability think and solve

problems, find several solutions, and improvement psychological status.

→ Exclusion criteria: absence in one of educational classe

Subject and methods

Sample size:

Study design

This study used a quasi – experimental(pre and post test) design

Based on data from literature (Fahimi Rad et al., 2017), considering level of significance of 5%, and power of study of 80%, the sample size can be calculated using the following formula) (17):

Study setting

There were 3 secondary schools at Baltime city, kafer elshihk governorate, Egypt. One of them was randomly selected. The governmental school was contained both boys and girls. It was about four floors, the ground floor was for the school administration and the other floors were contained classes, library, music room, computer lab and science lab. It consisted of three grades. Each grad contained about 200 students. They were distributed in 12 classes. Each class contained 45 student from boys & girls before the period of COVID 19 , after that the student of grade 1 came at Saturday , Sunday. The student of grade II came at Monday, Tuesday. The student of grade III came at Wednesday, Thursday.

$$n = [(Z_{\alpha/2} + Z_{\beta})^2 \times \{2(SD)^2\}] / (\text{mean difference})^2$$

where, SD = standard deviation , $Z_{\alpha/2}$: This depends on level of significance, for 5% this is 1.96, Z_{β} : This depends on power, for 80% this is 0.84. Therefore, $n = [(1.96 + 0.84)^2 \times \{2(6.25)^2\}] / (3.2)^2 = 59.8$. Based on the above formula, the sample size required is 60.

Tools of data collection:

Data was collected by using the following four tools:

Sample type: Purposive sampling was used.

First tool : Basic General Characteristic Data and health profile questionnaire:

Study subjects

The study participants included 60 students were selected by a simple random sample according to the following:

This tool was developed by the researchers based on relevant literature to assess the basic data questionnaire of the studied subjects. It included 3 parts as follows:

→ Inclusion criteria (Egyptian females students aged 15 to 19 years old and living in Baltime city, attend all sessions, fill all questionnaires completely

Part I: General characteristics data such as age, residence, income , mother's & father's level of education, mother's & father's type of work and crowding index.

Part II: Health profile such as history of medical disease, operative surgery.

Part III: knowledge of reproductive health (definition, aim, who involved, factors affect RH, component of RH,). It part scored though given correct answer 2 mark, and incorrect answer take 1 mark, total score ranged (1-10), high score means good knowledge and low score means poor knowledge.

Second tool: Health-Promoting Lifestyle and self-care practices, consisted of 3 parts

Part 1: Health-Promoting Lifestyle Profile HPLP adopted from Walker et al (1990) . The HPLP, tool consists of 52 health-promoting behavior items that are categorized into six subscales: health responsibility [9 items], spiritual growth [9 items], physical activity [8 items], interpersonal relationships [9 items], nutrition [9 items], and stress management [8 items]. Scoring system, the scale was used to measure each behavior, with ranges of never (1), sometimes (2), frequently (3), and regularly (4). The total maximum score 208 and minimum score 52, higher score means high HPL.

Part 2: Self-administered questionnaire for self-care (SAQSC) developed by the researchers which contained 16 items related to menstrual self-care practices and how to detect early sexually transmitted infection. Scoring system, the response was assessed as always take (3), sometimes take (2), Not done take (1), the maximum 48, and minimum 16, the higher score means high self-care.

Part 3: Reasons hinder studied female students sample to seek medical & obstetric advice for their complain

Third tool: General Self-Efficacy

General Self-Efficacy Scale (GSE) adopted from Schwarzer, R., & Jerusalem, M. 1995. It contained 10 items about self-report measure of self-efficacy. Each item was assessed as if not at all true take (1), if hardly true take (2), moderately true take(3), if exactly true take (4). The total score is calculated by finding the sum of the all items. For the GSE. The higher score means the greater self-efficacy or confidence in the ability to successfully manage an illness or follow through with behavior change. The total score ranges between 10 and 40.

Forth tool : Barriers affecting the sustaining healthy behavior and self-efficacy.

Validity and Reliability:

The tools content validity was established by 5 of experts in specialty field of researcher & the needed modification was done. While tool reliability was tested for ten students participate in the pilot study by using Cronbach's α (alpha). HPLP = [0.92], SAQSC= [0.91], GSE = [0.89].

Ethical Considerations:

- Approval was taken from Women's Health and Midwifery Nursing department & Nursing Research Ethics Committee of Faculty of Nursing Mansoura University , and approval from director of secondary school.
- Informed consent was obtained from participated female.

Pilot study;

It was carried out on 10% (6) female students to examine clarity and applicability of the study tools. To estimate proper time for needed task, session and complete the sheet. The pilot sample was excluded from the study.

Field work phases:

The study began from September 2019 till December 2019. Through 3 phases:

Preparatory phase:

- The researchers first duty review the relevant literature related to prepare tools for the study. Then official permission was taken from the head of woman's health and midwifery nursing department, and director of secondary school.
- The researcher interviewed each female student individually and clarified the aim of the study also obtain the informed consent.

- **After that:** The researcher initiate rapport begins an interactive session by giving overview about health-promoting Lifestyle behavior

Implementation phase:

- The researchers go to school 3 days/week. The students of who participate in the study were educated in 6 sessions, divide students into 6 groups each group include female 10 students, each session about 45-60 minutes, using learning aids (power point, whiteboard,) and group discussions.
- The intervention lasted about one month, which the researcher attended the school 3 days/week to answer any

question or resolve any ambiguity also, give the telephone to the female students they would possibly face regarding the educational content related to self-care and health-promoting behaviors.

First session

- After the researcher initiate rapport with students begins to data collection.
- General characteristics data were obtained from the study sample such as age, residence, income, mother's & father's level of education, mother's & father's type of work and crowding index.
- Health profile data were obtained from the female students such as history of medical disease, operative surgery.
- Knowledge of reproductive health were obtained from the female students such as (definition, aim, who involved, factors affect RH, component of RH,).
- **After that** take about [Health Responsibility], the training objectives are explained and clarified. Outline in 2nd session was including the concept of health & health promotion, circumstance affecting health & risk factors, and healthy lifestyle behaviors.

Second session: [Adequate and Balanced Nutrition], at the beginning 2nd session give conclusion about previous 1st session. It beginning with [Are you wondering if you are eating healthy?] from the responses healthy eating was clear. Then other questions such as (number of meals per day & are you having breakfast? According the responses, the session continued on the next topics: (staple food groups, food

safety and hygiene & nutrition during times of illness.

Third session: take about [Stress Management], the previous session was briefly feedback before beginning 2nd session. Then, breathing & relaxation exercises were practiced in the current session. The students learned the correct breathing techniques. After that, the session continued with breathing and relaxation exercises while students closed their eyes and dreamed. Students were asked whether they did exercise. Those who exercised reported what type of activity they engaged in and said that exercise was a turning point in their life. In view of the responses, the presentation of the session was launched. The topics of this session were the definition of physical activity and exercise, differences between physical activity and exercise, the importance of exercise, and the effects of exercise on health.

In addition take about [Spiritual Development], it focused on concept of spirituality. It beginning with, sources of motivation in the life. The responses of the students were respectively: love of mother and father, love for loved one, love of God, success, respect, prestige, economic freedom, status and desired occupation and a good career. Based on the responses of the students, the concept of spirituality was explained by the fact that every human being has a spiritual dimension. They all said they had never heard the word spirituality before. After that, it was emphasized that the spiritual dimension emerges more in times of stress, anxiety and depression and in the processes where illnesses and accompanying fear of death are experienced.

Forth session: [Interpersonal relations and effective communication].it include concept, forms, principles of healthy communication, effective communication skills, language & empathy and barriers to communication were discussed. Plus, the researchers described definition of self-efficacy, how to Promote Self-Efficacy in female adolescents. Also, learners were encouraged in their ability to perform health-promoting behaviors related to managing self-efficacy.

The researchers helped learners to increase their sense of self-efficacy, people were allowed to express their thoughts and feelings when following a healthy diet and performing physical activity, stress management methods, health responsibility, good interpersonal relationships, etc. and thus feedback from their status was provided and people who had a problem in this field were consulted free of charge by a senior clinical psychologist to control emotional and physiological moods

Fifth session: the researchers taught adolescent girls about RH (definition, aim, who involved, factors affect RH, component of RH,) premarital care, anatomy of reproductive female system, menstrual cycle, appropriate age for marriage pregnancy (conception, changes...) childbirth and family planning.....)

Six session : the researchers taught adolescent girls menstruation and its self-care practice (personal & menstrual hygiene, correct false believes about menstruation and healthful diet). On the other hand, emphasizing on the prevention of STD&HIV and early seeking of health care providers and its

suitable places to prevent consequences of STD

Evaluation phase: after the intervention, evaluate students about HPLP II, self-care, GSE and RH knowledge post intervention. In addition follow-up evaluation after one month through the same format of pre and post evaluation.

Statistical Analysis

Data were collected, coded, computed and statistically analyzed using SPSS software program version 20. The qualitative categorical variables were presented in tables as frequency and compared using chi square test (χ^2). The qualitative variables were presented as mean \pm sd and comparison by Paired t test. The significance difference is considered at $p \leq 0.05$, $P < 0.01$ is considered highly significant difference.

Results:

Table (1): shows that more than half of studied sample their age was ranged from 11-14 yrs and come from urban, more than half(55%) of Father's had high level of education, more than two fifth of mother had basic and high level of education (46.7%, 43.3%) respectively, in addition only one fifth had crowding index (20%).

Figure (1): illustrate that 33,3% had chronic disease compared to who hadn't 66.7% , in addition 67.7% had no operative surgery compared to 23.3% who hadn't.

Table (2): shows that there's a majority of studied female students had incorrect knowledge pre sessions compared to about three quarters after implementing sessions had correct knowledge. While around two thirds had correct knowledge follow up knowledge.

Table (3): illustrate that there's a highly significant improvement regarding total mean score of pre & post knowledge also, pre & follow up knowledge 5.583 ± 0.869 , 8.866 ± 1.080 & 8.683 ± 1.214 respectively. While no significant differences between post and follow up knowledge.

Table (4): represents pre Self-reported complains from infectious symptoms that about half had burning pain during urination compared to around one quarter (46.7%, 23.3%) pre/post respectively & two fifth had redness / inflammation in genital area compared to near to one tenth (40%, 8.3%) pre/post respectively. In addition one fifth had abdominal pain (20%, 10%) pre/post respectively. In addition there's a highly significant change regarding green or curd-like vaginal discharge & genital itching, also revealed there's a highly significant regarding Green or curd-like vaginal discharge, Genital ulcers / sores & Genital itching at $p=0.0001$.

Table (5): shows that there was highly statistical significant about total mean score about (Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, and Stress Management). in addition, total mean score about Health-Promoting

Lifestyle Profile Pre & Post, Pre & follow-up and Post & follow-up.

Table (6): shows that there was highly statistical significant about total mean score about Pre GSE & Post GSE, & follow up, Self-administered for self-care pre & post, Pre GSE & follow up, also, GSE & Self-administered for self-care pre, post & follow up (p 0.0001).

Figure (2): shows the majority barriers affecting the sustaining healthy behavior and self-efficacy are lack of awareness (90%), socioeconomic status (90%), companionship & friends (85%), physical environment (84%).

Table (7): shows that Reasons hinder studied female students sample to seek medical health advice for their complain are embarrassed or ashamed, distance too far & lack of transportation and no health care provider available (46.6%, 26.7%, 15% respectively).

Table (1): General characteristics of studied female students sample (N= 60).

Item	No.	%
Age (years)		
11—14	32	53.3%
15-18	28	46.7%
Residence		
• Urban	33	55%
• Rural	27	45%
Mother's level of education		
• Illiterate	6	10%
• Basic	28	46.7%
• High education	26	43.3%
Father's level of education		
• Illiterate	8	13.3%
• Basic	19	31.7%
• High education	33	55%
Income		
• enough & more	26	43.3%
• just enough	25	41.7%
• not enough	9	15%
Crowding index		
• not crowded	48	80%
• crowded	12	20%

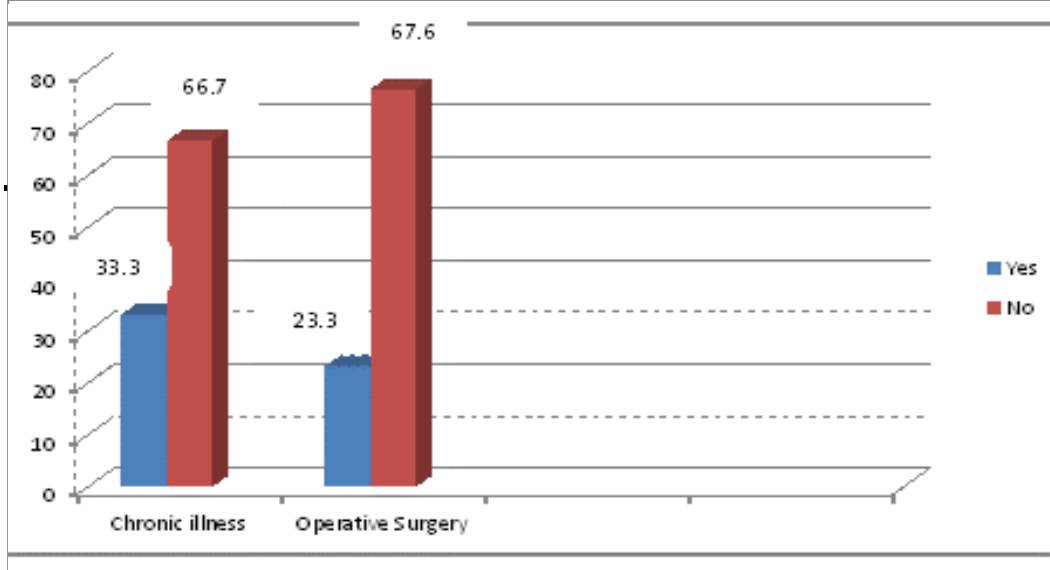


Figure (1): Health profile of studied female students' sample (N =60).

Table (2): Reproductive health knowledge among studied female students sample (N =60).

Item	Pre		After		Follow-up	
	correct	Incorrect	correct	Incorrect	correct	Incorrect
Definition of RH	12 (20%)	48 (80%)	47 (78.3%)	13 (21.7%)	37 (61.7%)	23 (38.3%)
Aim of RH	11 (18.3%)	49 (81.7%)	44 (73.3%)	16 (26.7%)	40 (66.7%)	20 (33.3%)
Involved person in RH	7 (11.7%)	53 (88.3%)	55 (91.7%)	5 (8.3%)	48 (60%)	12 (40%)
Factors affecting RH	7 (11.7%)	53 (88.3%)	43 (71.7%)	17 (28.3%)	39 (65%)	21 (35%)
Component of RH	3 (40%)	57 (60%)	44 (73.3%)	16 (26.7%)	38 (63.3%)	22 (36.7%)

Table (3): Total mean score of reproductive health knowledge among studied female students sample (N= 60).

Item	Pre	After	Follow-up	t-value
Total mean score	5.583± 0.869	8.866±1.080	8.683±1.214	t= 21.549
-Pre &post knowledge.				p=0,0001**
-Pre &follow up knowledge.	5.583± 0.869	8.683±1.214		t= 17.320
-post & follow up knowledge.	8.866±1.080	8.683±1.214		p=0,0001**
				t= 1.899
				p=0,062

** highly significant

Table (4): Self-reported complains from infectious symptoms among studied female students sample(N= 60).

Item	Pre Yes	No	After Yes	No	P value
Abdominal pain	12(20%)	48(80%)	6(10%)	54(90%)	X ² = 1.00 p=0.656
Green or curd-like vaginal discharge	17(28.3%)	43(71.7%)	11(18.3%)	49(81.7%)	X ² = 22.4 p=0.0001**
Foul-smelling discharge	18(30%)	42(70%)	8(13.3%)	52(86.7%)	X ² =0.11 p=0.74
Burning pain during urination	28(46.7%)	32(53.3%)	14(23.3%)	46(76.7%)	X ² =0.90 p=0.34
Redness / inflammation in genital area	24(40%)	36(60%)	5(8.3%)	55(91.7%)	X ² =0.90 p=0.34
Genital ulcers / sores	11(18.3%)	49(81.7%)	4(7.7%)	56(93.3%)	X ² =9.19 p=0.002**
Genital itching	15(25%)	45(75%)	7(11.7%)	53(88.3%)	X ² =23.7 p=0.0001**

** highly significant

Table (5): Total Mean Score about Health-Promoting Lifestyle Profile pre, post and follow up(N= 60).

Domain	M±SD	Paried t test Significant
Pre & post Health Responsibility	14.40±3.46	t=11.05
	22.23±4.30	p=0.0001**
Pre & post Physical Activity	14.75±4.54	t=11.79
	24.23±5.07	p=0.0001**
Pre & post Nutrition	15.02±4.45	t=12.66
	25.73±4.483	p=0.0001**
Pre & post Spiritual Growth	15. ±40±4.06	t=12.42
	25.32±477	p=0.0001**
Pre & post Interpersonal Relations	14.45±3.96	t=11.70
	25.98±5.86	p=0.0001**
Pre & post Stress Management	14.10±4.71	t=14.44
	25.55±4.38	p=0.0001**
Total Mean Score Health-Promoting Lifestyle Profile (HPLP)		
Total Pre & total Post HPLP	88.11 ±14.65	t=26.8
	148.9± 13.69	p=0.0001**
Total Pre & total follow-up HPLP	88.11 ±14.65	t=20.84
	138.78 ±14.65	p=0.0001**
Total Post HPLP & total follow-up HPLP	148.9± 13.69	t=14.99
	138.78 ±14.65	p=0.0001**

** highly significant

Table (6): Association between Total Mean Score of General Self-Efficacy and Self-Administered for Self-Care Pre and Post.

Item	M±SD	Paried t test Significant
Pre GSE & Post GSE	20.07 ±5.01	t=10.42
	30.68± 5.92	p=0.0001**
Self-administered for self-care pre & post	26.38±5.17	t=18.69
	36.71±4.95	p=0.0001**
Pre GSE& Pre Self-administered for self-care	20.07 ±5.01	t=7.46
	26.38±5.17	p=0.0001**
Post GSE& Post Self-administered for self-care	30.6± 5.92	t=6.52
	36.80±5.02	p=0.0001**
follow up GSE& follow up Self-administered for self-care	30.28 ±5.69	t=6.75
	36.80±5.02	p=0.0001**
Pre GSE & follow up GSE	20.07 ±5.01	t=10.17
	30.28 ±5.69	p=0.0001**
Post GSE& follow up GSE	30.68± 5.92	t=2.42
	30.28 ±5.69	p=0.018*
Self-administered for self-care pre & follow up	26.38±5.17	t=2.75
	36.46±4.85	p=0.008**
Self-administered for self-care post & follow up	36.71±4.95	t=17.79
	36.46±4.85	p=0.0001**

** highly significant

-General Self-Efficacy(GSE)

Table (7): Reasons hinder studied female students sample to seek medical & obstetric health advice for their complain.

	No	%
No health care provider available	9	15%
Distance too far & Lack of transportation	16	26.7%
Afraid of doctor, nurse, or other provider	7	11.6%
Embarrassed or ashamed	28	46.6%

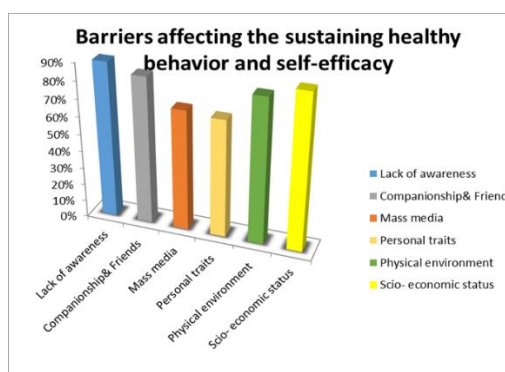


Figure : (2) Barriers affecting the sustaining healthy behavior and self-efficacy

Discussion

Health-promoting lifestyle among adolescents has become a research focus worldwide. Life of the students in college is a transitional period, offering good opportunities for establishing health-promoting lifestyles.

This study aims to assess the effect of skills-based education on reproductive health knowledge, promoting ,sustaining healthy behaviors and self-efficacy among adolescent female students.

The aim was achieved as the research hypothesis had been achieved through study findings and results.

Concerning to study adolescent student's knowledge about RH. The present study showed that there's a significant improvement in their Mean \pm SD knowledge pre & post , also pre & follow up knowledge, pre score 5.583 ± 0.869 , post score 8.866 ± 1.080 & follow up 8.683 ± 1.214 ,. This is in the same line with (Gyu & Da, 2018), whom study about effects of a life skills-based sexuality education programme on the life-skills, sexuality knowledge, self-management skills for sexual health, and programme satisfaction of adolescents. They found that the experimental group scored significantly higher than the control group on sexual and reproductive health related knowledge ($p < .001$) and skills-based sexuality education programme increased knowledge about sexuality and sexual and reproductive health.

Results of the current study demonstrated that after the model- based intervention was introduced, there were significant differences in health promotion behaviors in dimensions of health responsibility, Physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. This is in agreement with Fahimi Rad, et al., (2017), whom studies about the impact of a school-based intervention using the PBSEIM model on health promoting behaviors and self-care in adolescent females. This result may relate to the effectiveness of educational sessions , in addition parent education may play a role as more than two fifth of the study sample mother's level of education had basic and high level of education, also more than half of the study sample

father's level of education had high education. These results supported by Musavian et al., (2014) whom found that average less than half of the study sample had diploma degree. This finding reflects that educated parents play a role in promoting health life styles.

In addition there were a significant association in both Pre, post & follow-up phases in Health-Promoting Lifestyle Profile (HPLP). These findings similar to Simbar et al., (2020) and Jahani Eftekhari et al. (2018) whom study about skills-based education for promoting healthy diet among female adolescents: they concluded that about knowledge and behaviors were significantly higher in the intervention group comparing to the control group ($p < .05$). This indicates the study sample compliance toward health-promoting lifestyle behaviors

The present study revealed that a highly statistically significant difference was found in pre and post nutritional health promoting life style behaviors. These findings are in congruent with systematic reviews and meta-analysis conducted by Dudley et al. (2015), whom reflected upon adolescent need to pay special attention to their eating habits as a higher frequency of them had unhealthy dietary habits like frequent intake of fried foods and sweets in comparison with lesser intake of fruits and green leafy vegetables and fear from health hazards from un healthy behaviors.

Furthermore there were a highly statistically significant difference was found in pre and post stress management health promoting life style behaviors. This is in consistent with the results of a study conducted by Packham et al. (2019) to investigate the effects of

physical education on student fitness, achievement, and behavior. This stress on when reducing or solving by control of stress it reflects on female student life style so it go with right way on promoting life style behaviors.

The results of the present study showed that there were highly statistically significant differences in spiritually health promoting life style behaviors. This finding was in the same line with the results of study conducted by **Jahani Eftekhari et al., (2018)** whom finding could be probably due to the fact that they were not provided with enough opportunities and the youth of today are busy in achieving their goals.

Regarding pre and post interpersonal relationships there were highly statistically significant difference was found, these result is similar to **Hassani et al. (2015)** whom conduct a study on the effect of educational intervention on health-promoting behaviors of high school students in Karaj city. This could be due to they were not provided with support by family and college authorities and they do not receive any value inculcation on these aspects in the family.

There were a highly statistical significant difference between pre and post physical activity of Health-Promoting Lifestyle behaviors, This finding was consistent with the results of studies conducted by **Morgan et al. (2016)**, whom study about targeted Health Behavior Interventions Promoting Physical Activity. This may be due to the fact that adolescents of today are more conscious about their physique and appearance.

Concerning to self-reported complains from infectious symptoms (abdominal pain, redness / inflammation in genital area, burning pain during urination etc.) the study revealed that there's a significant improvement about these complain after intervention. This reflect that skills-based education sessions play a role on promoting positive (+ve) personal health behaviors in dealing with their complain.

The current study revealed that there were a highly statistical significant difference between pre & post General Self-Efficacy (GSE), post & follow up(GSE) . In the same line these results supported by **Rakhshani et al., 2020** whom concluded that a significant difference was observed in self-efficacy ($P < 0.05$) before and after the intervention in the experimental group. This finding reflects Self-efficacy is an important part of the system refers to a person's perceived ability to perform a task or cope with specific situations, and it plays a key role in the proper performance, optimal mental health activities. Because self-efficacy increases self-control, learning, and effort, it is better to increase related beliefs in high school students

According to **Adika et al., (2011)**. On asking about menstrual self-care: optimal care of menstrual hygiene are synonymous to good hygienic practices and evitable to a healthy living in an adolescent girl`s life. This statement in line with the result of this study in which there were a highly statistical significant difference between pre& post, also, post & follow up self-administered for self-care. This may be related to a serious need of adolescents for basic, accurate and adequate information about self-care practices and correct false believes about

menstruation that may affect her health & future reproductive health life.

In the present study about one quarter of the study sample didn't go anywhere when having a reproductive health problem and also, 41.7% went to Pharmacist. This finding may be due to about two third had no health care provider available and also related to embarrassed or ashamed. This is in constant with **Ojong I et.,al (2014)** whom concluded that currently, there is a low level of access to high-quality RH information and services, especially for adolescents and there is limited discussion of issues concerning RH in general, and specifically health services .

Regarding to barriers affects sustaining healthy behavior and self-efficacy the current study revealed that the majority lack of awareness, socioeconomic status , companionship and friends, this finding may be related to deficiency, this is agree with **Gera etal.,(2017)** who state many barriers for health behavior change, such as financial barriers, incorrect knowledge, and high levels of stress . This reflects the importance increase awareness which help in improving and correct student behavior, also students listen to their friends.

Conclusion:

In the light of study finding skills-based health education of reproductive health had a positive effect on promoting and sustaining positive personal health behaviors and self-efficacy among adolescent female students, also the majority of barriers affects sustaining healthy behavior and self- efficacy, are

lack of awareness & companionship and friends.

Recommendations

Based on the findings of the study, it is recommended that:

- Topics related to health-promoting behaviors and self-efficacy should be incorporated within the curriculum of students for their all-round personality development.
- Increase the awareness about RH & healthy promoting lifestyle.
- Stress about solving barriers affects sustaining healthy behavior and self-efficacy.
- Training and counseling services about reproductive health& healthy lifestyle for adolescents.

Further study

- The related information, educational materials should be disseminated widely into the community.

Limitation:

Waiting for free class. Absence of some students from sessions, so they excluded and replacd.

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Conflict of Interest Disclosure

Researchers declared that there is no conflict of interest in the research.

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