Efficiency of Self-care Education on lifestyle Secondary School Students

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Abstract

Now a day a high prevalence of unhealthy dietary intake habits, poor hygienic care, sedentary life as well as physical inactivity among secondary school adolescents is a major health concern. Therefore**, the aim of the present study** was to evaluate the efficiency of self-care education on lifestyle of secondary school students. **Methods: Design:** A quasi-experimental research design was conducted during the years 2017-2018. **Sample:** The study sample included 200 students which selected randomly from two secondary schools at Port Said City**. Tools** for data collection: It included: A structured questionnaire was developed and designed by the researchers to collect data, it consisted of two parts: part (1): question related to age, dietary habits, hygienic care, sedentary life and bodily exercise, part (2): Assessment of anthropometric measurement. **Results:** Females were somewhat younger than Males, males were taller, obese and females had significantly lower mean of BMI than males. The studied sample had mean moderate -intensity physical activity and vigorous -intensity physical activity and poor hygienic care pre interventions which improved post implementation of education. Majority of secondary school students spent more than 4 hours on Mobile daily, which decreased significantly after the self-care education. The studied sample had poor dietary habits pre which corrected post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$).before training which increased after training ($p<0.05$). The majority of them did not have breakfast, fruit, vegetables which were significantly improved after implementation of self-care education, $p<0.01$. The studied sample had mean high sedentary time pre interventions which decreased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). Concerning sleep hours, there was highly statistically significant improvement ($P \leq 0.001$) which increased post implementation of self-care education. **Conclusions:** Findings from the present study confirms that self-care education had positive effects on enhancement of healthy lifestyles such as practicing bodily exercise, personal hygiene, Lessing of sedentary life, promoting sleeping and eating habits of secondary school students. **Recommendation:** There is a crucial necessity for developing self-care education regarding healthful eating, lessening sedentary and encourage bodily activity, improving personal hygiene, promoting sleeping, and eating habits amongst secondary school students.

Keywords: Self-care education, lifestyle, secondary school students

Introduction

Life style among adolescent increased risks for ill-health over the last 3 years threefold. These behaviors include lack of fruit and vegetable consumption, being overweight or obese, physical inactivity and tobacco use, excessive alcohol consumption, lack of physical activity, bad sleeping patterns, unfavorable food habits (e.g. a high fat intake), coffee drinking, and engaging in high-risk activities and sexual practices Since these behaviors are all risk factors for non-communicable diseases **(World Health Organization, 2017).**

Currently, there is legitimate concern about a rise in unhealthy eating habits, including missing breakfast and increasing the intake of sweetened soft drinks by teenagers in secondary schools, and the possibility of obesity. Research results and reviews show that breakfast skipping is very prevalent among adolescents in the United States and Europe, as well as in many Arab countries. Poor diet and physical inactivity among teenagers can lead to an increased risk of certain chronic health conditions, such as high blood pressure, type 2 diabetes, and obesity **(World Health Organization, 2016).**

Engaging adolescents in healthy eating and regular physical activity can reduce their risk of chronic diseases and obesity **(Alberga et al., 2012 and Lancaster & Lancaster, 2017).** The formative years of adolescence reflect a critical stage in the cycle of human life as it is the stage in which styles of life are shaped and created. Adolescents are becoming more independent during this time and have expanded access to food options, aside from those available at home. Adolescents are also increasing their social experiences with peers of similar age in this timeframe and establishing individual eating habits and patterns of physical activity. Dietary patterns seem to be stabled in the mid-teens and were shown to be closely associated with life style (National Academies of Sciences, Engineering, and Medicine **(National Academies of Sciences, Engineering, and Medicine 2019 and Foltz et al., 2012).**

Many facets of society, including families, neighborhoods, colleges, health care providers, faith-based institutions , government agencies, the media, and the food and beverage industries and entertainment industry, are shaping adolescent dietary and physical activity habits. Each of these sectors plays a significant, independent role in improving nutrition and physical activity habits. By creating a secure and inclusive atmosphere with policies and practices that promote healthy behaviors, schools play an especially critical role. Schools also give learners opportunities to learn about healthy food and physical activity habits and practice those **(National Academies of Sciences, Engineering, and Medicine 2019 and Foltz et al., 2012).**

For effective prevention and management of lifestyle-related risk factors, a better understanding of the relationships between healthy behaviors among adolescents is considered important. Self-care curriculum is focused on an in-depth study of healthy eating and physical activity promotion research, philosophy, and best practices in school health. In order to prevent chronic diseases, including heart disease , cancer, and stroke, healthy eating and physical activity play a significant role of death later in life >18 years **(Lewis & Noyes, 2013 and Richard, 2013).**

Self-care is characterized as the performance of a person to protect their lives, health, well-being, healthy eating and physical activity. The sort of study in Port Said about secondary school self-care is bad. It is well known, therefore, that diet and physical activity play important roles in maintaining health and disease prevention. Pediatric nurses and community health nurses from secondary schools are particularly responsible for helping youth, preventing them from obesity, promoting physical activity and safe eating through interventions, strengthening self-practices, and helping cultures that encourage and facilitate lifelong development and intervention **(Skovholt, & Trotter, 2014).**

Significance of the study:

In Egypt adolescents' health risk behavior problems represent a heavy health burden. In a study conducted in Assiut, the prevalence of overweight and obesity was 11.24% and 12.28% respectively **(el-Aswad, & el-Aswad,. 2019).** Furthermore, the deleterious effects of risk behaviors in adolescents are ignored. Knowledge deficit about healthy and risky behaviors for adolescent population remove successful health promotion strategies. So, improving behaviors such as adequate exercise and sleep, eating breakfast, and maintaining a healthy weight are associated with positive health outcomes during adolescence and higher levels of healthy behaviors during adulthood. People with the ability to control their health lifestyle have the ability to improve their health; and the individual's awareness of this is important to ensure success in all aspects, which is defined as the ability to adjust to the changing environment and environmental compatibility **(Ottawa Charter for Health Promotion 2015).**

Accordingly, one of the vital roles of community health nurse is to increase awareness of population about the risky behavior and how to overcome it through conducting health education programs and counseling vulnerable group in various setting such as schools, universities and MCH centers.

Aim:

The aim of the present study was to evaluate the efficiency of self-care education on lifestyle of secondary school students.

Hypothesis:

Self-care education will have a positive effect on enhancement of eating habits, hygienic care, sedentary life, sleeping and bodily exercise of secondary school students

Methods

Research design:

A quasi-experimental research design with a pretest-posttest was utilized in this study.

Setting:

The study was conducted at two secondary school students at Port Said City. The selected schools represent all geographic areas of Port Said City. These included El-thanwia banat and El-thanwia banen secondary schools.

Subject:

Multi stages sample were used in this study, Port Said City contains 10 secondary schools 20% were selected from the total number of schools by stratified random sample which was about two schools. The total number of students in all secondary schools was approximately 10000 students, 10% of were taken students from the two schools by simple random sample (200 students) which was selected systematic randomly. The students were from grade one, two and three. The inclusion criteria were: Students at the secondary schools, aged from 15 to 18 years, from both gender, and agree to participate in the study.

Tool for data collection:

A structured questionnaire sheet was utilized to collect data of this study which designed by the researchers based on reviewing the relevant literatures. It consisted of two parts:

Part (1): Question related to age, dietary habits, personal hygiene, sedentary life and bodily exercise,

Part (2): Assessment of anthropometric measurement of students as body weight and height.

Validity and reliability of the tools:

Face and content validity of the tools were tested for clarity, comprehensiveness, appropriateness, and relevance by a board of five experts in community health nursing, the board ascertained the face and content validity of the tools, Content Validity Index (CVI) were 0.98 and 0.99 respectively.

Reliability was assessed through Cronbach's alpha reliability test α= 90% in the first tool and revealed that the second tool's reliability was 0.89.

Pilot study:

A pilot study was conducted on 10% of the sample size (20 secondary students) to test the applicability of the tool and if there is any modification. Because no modifications were done, the pilot study was included in the study.

Field work

Data of the current study was collected on March 2017. The researchers visited the previously mentioned settings 6 days for each school, from 9.00 am to 2.00 pm. Anthropometric measurements included body weight, height were done by scales and height tape. Measurements were done with minimal clothing and without shoes. Body mass index (BMI) was calculated to identify overweight and obese adolescents. For overweight 25-29.9 kg/m² to, 30 kg/m² for obesity **(Iduoriyekemwen et al., 2019**). Physical activities were assigned metabolic equivalent (MET) values based on the compendium of physical activity thus, corresponding to two cutoff scores equivalent to 1 hour per day of moderate-intensity (4 METs) physical activity and 1 hour per day of moderate- to vigorous- intensity (6 METs) physical activity then it was converted into METs-min per week, 1680 METs-min/week (4 METs ×60 min per day ×7 days per week) and 2520 METs-min per week (6 METs ×60 min per day ×7 days per week) **(Al-Hazzaa & Al-Ahmadi, 2003 and Tremblay et al., 2011).**

To fulfill the aim of this research, the following phases were adopted, preparatory phase, interviewing and assessment phase, planning phase, implementation of the educational intervention phase and evaluation phase.

A- Preparatory phase: The researchers conducted this phase through reviewing international related literature concerning the various aspects of the research problem. This phase helped the researchers to be familiar

with the seriousness of the problem, and the researchers be directed by sample information help them to prepare adequately the required data collection tools.

B- Interviewing and assessment phase: In this phase the researchers interviewed the students to collect baseline data (pre-test). This phase had a period of 6 days for each school. At the beginning of the interview, the researchers welcomed the participating students, explained the purpose of the research and familiarized them with all information about the research (purpose, duration, and activities) and obtained their oral consent to participate in the research.

C- Planning phase: Based on the results obtained from pretest during assessment phase, the educational program was developed by the researchers in a form of printed Arabic booklet to improve the students self-care practices of the healthy lifestyle. Different methods of teaching, and instructional media like video & demonstration were utilized to explain program for students.

Objectives of educational program were constructed and included the following:

General Objectives

The aim of this self-care education was to improve the healthy lifestyle of secondary school students

Specific Objectives

Aimed to improve self-care regarding healthful eating, lessening sedentary and encourage bodily activity, improving personal hygiene, promoting sleeping, and eating habits amongst secondary school students.

D-Implementation of the educational program phase: The designed educational guideline was provided for the students in 5 sessions during 6 days for each school, every day taking one topic. Adolescents posttest was applied 15 days post the educations. Contents of the educational sessions were the ideas and concepts of self-care, importance, component, healthy diet, physical activity, sedentary manners and healthy life style related. The time of each session were 35 minutes, and the researchers meeting the studied students at their schools setting in a suitable class room. Questions about general and oral hygiene were added. Questions on sedentary time (the American Academy of Pediatrics guidelines of a maximum of 2 hours per day) to determine daily time spent on viewing TV, Internet use…. etc).In addition, a separate section included 10 specific questions designed to determine the frequency of certain dietary habits of adolescents included weekly consumption of breakfast, sugar-sweetened drinks including soft beverages, vegetables (cooked and uncooked), fruit, milk and dairy products, donuts and cakes, candy and chocolate, energy drinks and fast food**.** Each session started by a summary about what has been discussed in the previous session. Each student was able to use the Arabic handout as a reference if needed at home.

E- Evaluation phase: this phase was evaluated 15 days after implementation among the studied students using the same format of tools that used to evaluate the effect of self-care education of the healthy lifestyle of secondary school students

Ethical considerations

Written permission from Undersecretary of the Ministry of Education, Directors of the secondary schools, and verbal permissions from all students who participated in this study was obtained. The students were informed that their participation is voluntary and had the ethical right to participates or refuse participation in the study. It further emphasized that their responses were confidential, and had their right to withdraw from the study any time without giving further explanation. Privacy and confidentiality were resolutely kept in all data collection procedures.

Statistical design:

Data were analyzed using SPSS 20.0 package program. According to the results of normal distribution tests, parametric tests were applied to variables with a normal distribution and non-parametric tests were applied to variables with no normal distribution. For comparisons between groups for categorical variables were assessed using Chi-square test (Fisher or Monte Carlo). Paired Simple t test was used for comparison between different periods, $p<0.05$ considered significant.

Results

Table 1 presents anthropometric characteristics of the members' gender. Females were somewhat younger than Males, males were taller, obese and females had significantly lower mean of BMI than males.

Table 2: In all, 86% of males and over 90% of females watched TV and used the mobile for more than 2 hours per day. That percentage decreased significantly post education to meet the recommended screen time guidelines of 2 hours or less per day. Regarding daily physical-activity guidelines, about half of the males and one fifth of the females met the recommended 1 hour of moderate-intensity physical activity. When a level of daily moderate- to vigorous-intensity physical activity was considered as a cutoff value, even lower proportions of males (23.0%) and females (5.0%) were able to meet the physical-activity guidelines while post education proportions of males and females increased with statistical significant $p < 0.05$ with male.

Table (3): reveals that, the studied sample had poor dietary habits pre and had corrected post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$).

Table (4): reveals that, the studied sample had mean sedentary time pre interventions which decreased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). Concerning sleep hours, there was highly statistically significant improvement ($P \leq 0.001$) which increased post implementation of self-care education.

Table (5): shows that, the studied sample had mean moderate -intensity physical activity and vigorous -intensity physical activity Pre interventions which increased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$).

Table (6): displays that, the studied sample had mean of personal hygiene pre interventions which increased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$).

Table (7): reveals that, the studied sample had mean poor dietary habits Pre and had corrected post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$).

Table (1) Mean differences between age and anthropometric descriptions of the studied sample (n = 200)

Gender	N	Age (yr.)	Weight (kg)	Height (cm)	BMI (kg/m^2)
Male	100	16.8 ± 1.0	71.4 ± 20.7	169.4 ± 7.2	25.1 ± 6.3
Female	100	16.5 ± 1.1	59.2 ± 16.1	154.7 ± 5.9	24.1 ± 6.6

BMI= body mass index.

Table (2): Differences between pre /post self-care education of the studied sample according to exceeding certain cut-off values for physical activity and screen time (n = 200)

Variable		Pre self-care education		Post self-care education		χ^2	p
		No.	%	No.	%		
> 2 hours of screen time	M	86	86	48	48	32.655*	<0.001*
	F	90	90	78	78	5.357*	0.021*
> 1680 METs-min/week1	M	50	50	67	67	5.952*	0.015*
	F	20	20	19	19	0.032	0.858
> 2520 METs-min/week2	M	23	23	29	29	0.936	0.333
	F	5	5	8	8	0.740	0.390

*significant differences at $p < 0.05$

Table (3): Differences between pre /post self-care education of the studied sample according to exceeding certain cut-off values for dietary habits (n = 200)

Variable		Pre self-care education		Post self-care education		χ^2	p
		No.	%	No.	%		
Daily breakfast intake	M	18	18	64	64	43.737*	<0.001*
	F	15	15	72	72	66.097*	<0.001*
Daily vegetables intake	M	23	23	53	53	19.100*	<0.001*
	F	16	20	72	72	63.636*	<0.001*
Daily fruits intake	M	18	18	39	39	10.821*	0.001*
	F	20	20	66	66	44.451*	<0.001*
Daily milk Intake	M	22	22	48	48	18.480*	<0.001*
	F	25	25	68	68	37.162*	<0.001*
Sugar-sweetened drinks intake (> 3 day/week)	M	66	66	32	32	23.129*	<0.001*
	F	55	55	22	22	22.997*	<0.001*
Fast food intake (> 3 day/week)	M	27	27	17	17	2.914	0.088
	F	24	24	12	12	4.878*	0.027*
French fries/potato chips intake (> 3 day/week)	M	70	70	23	23	44.398*	<0.001*
	F	78	78	27	27	52.150*	<0.001*
Cake/donut/biscuit intake (> 3 day/week)	M	32	32	11	11	13.065*	<0.001*
	F	42	42	8	8	3.827*	<0.001*
Sweets/chocolates intake (> 3 day/wee k)	M	52	52	27	27	13.077*	<0.001*
	F	67	67	19	19	47.001*	<0.001*
Energy drinks intake (> 3 day/week)	M	16	16	8	8	3.30	0.082
	F	5	5	3	3	0.521	0.470

*significant differences at $p < 0.05$

Table (4): Means differences for Sedentary behaviors and sleeping pattern of the studied sample pre and post self-care education (n = 200)

Variable		Pre self-care education	Post self-care education	T	p
TV Viewing time (hours/day)	M	3.00 ± 0.5	2.66 ± 1.08	2.857*	<0.001*
	F	3.05 ± 0.6	2.19 ± 1.3	6.007*	<0.001*
Computer use (hours/day)	M	1.51 ± 0.6	1.00 ± 0.3	5.406*	<0.001*
	F	1.59 ± 1.1	1.20 ± 0.4	3.332*	0.001*
Phone use (hours/day)	M	3.00 ± 1.6	2.51 ± 1.3	2.377*	0.018*
	F	4.59 ± 1.1	3.30 ± 1.4	7.245*	<0.001*
Sleeping hours	M	3.00 ± 2.7	6.52 ± 2.94	4.107*	<0.001*
	F	4.57 ± 1.51	6.36 ± 1.79	2.245*	<0.001*

*significant differences at $p < 0.05$

Table (5): Means differences of physical activity of the studied sample (hours/week) pre and post self-care education (n = 200)

Variable (hours)		Pre self-care education	Post self-care education	T	p
METs-hr/week of Moderate - intensity physical activity	M	13.59 ± 9.23	18.41 ± 18.93	2.289*	0.023*
	F	12.97 ± 18.15	13.20±14.95	0.097	0.922
METs-hr/week of Vigorous - intensity physical activity	M	29.89 ± 20.37	38.48±37.75	2.003*	0.047*
	F	6.0 ± 6.0	10.61±16.88	2.573*	0.011*
Total METs-hr/week	M	43.47 ± 19.36	54.93±47.51	2.234*	0.027*
	F	18.25 ± 10.65	21.22±7.30	2.300*	0.022*

*significant differences at $p < 0.05$

Table (6): Means differences of hygiene of the studied sample Pre and post self-care education (n = 200)

Variable		Pre self-care	Post self-care	t	p
Complete bath (frequency/ week)	M	3.00 ± 2.5	4.66 ± 2.0	5.185*	<0.001*
	F	2.05 ± 1.6	4.19 ± 2.1	8.106*	<0.001*
The practice of oral hygiene (frequency/ week)	M	3.00 ± 1.6	5.00 ± 2.3	7.138	<0.001*
	F	8.59 ± 3.1	10.20 ± 2.4	4.107*	<0.001*
Awareness toward oral hygiene	M	51.96	72.96	4.612*	<0.001*
	F	58.70	67.70	5.637*	<0.001*

*significant differences at $p < 0.05$

Table (7): Means differences of dietary habits for the studied sample Pre and post self-care education (n = 200)

Variable		Pre self-care	Post self-care	t	P
Breakfast consumption (frequency/week)	M	3.3 ± 2.6	4.5 ± 2.8	3.141*	0.001*
	F	3.2 ± 1.1	3.6 ± 1.6	2.060*	0.041*
Vegetables Consumption (frequency/week)	M	3.8 ± 1.4	4.2 ± 1.4	2.020	0.045*
	F	3.4 ± 1.4	3.9 ± 1.3	2.617*	0.010*
Fruits Consumption (frequency/week)	M	3.2 ± 2.2	4.1 ± 2.3	2.828*	0.005*
	F	2.4 ± 0.9	2.6 ± 0.4	2.031*	0.044*
Milk/dairy products intake (frequency/week)	M	4.2 ± 2.4	4.8 ± 2.4	1.768	0.078
	F	3.6 ± 1.5	4.1 ± 1.4	2.437*	0.015*
Sugar-sweetened drinks (frequency/week)	M	4.9 ± 2.4	3.7 ± 2.3	3.610*	0.001*
	F	4.6 ± 2.3	4.1 ± 2.3	1.537	0.125
Fast foods (frequency/week)	M	2.9 ± 1.9	2.2 ± 2.0	2.537*	0.011*
	F	3.6 ± 1.9	2.7 ± 1.9	3.349*	0.001*
French fries/potato chips (frequency/week)	M	2.7 ± 2.1	2.3 ± 2.1	1.347	0.176
	F	2.9 ± 2.0	2.3 ± 2.0	2.121*	0.035*
Cake/donuts (frequency/week)	M	2.6 ± 2.0	2.1 ± 2.1	1.724	0.086
	F	2.6 ± 2.1	2.1 ± 2.1	1.684	0.093
Sweets (frequency/week)	M	3.2 ± 2.3	2.1 ± 2.3	3.382*	0.001*
	F	4.1 ± 2.3	3.0 ± 2.3	3.380*	0.001*
Energy drinks (frequency/week)	M	1.7 ± 2.0	1.3 ± 2.3	1.312	0.190
	F	0.48 ± 0.6	0.79 ± 0.9	2.866*	0.005*

*significant differences at $p < 0.05$

Discussion

Few studies have been carried out on the target population during physical exercise during the tremendous lifestyle changes faced by Egyptian adolescents in recent decades. Proof of studies on the high prevalence of unhealthy lifestyles as sedentary as well as poor physical activity, unhealthy dietary habits that tend to aggregate between study samples, higher levels of positive impact and energy sensations are correlated with higher Physical activity (PA) and lower sedentary time (ST) that health benefits can occur through an average of 30 minutes of physical activity per day **(Hallgren et al., 2019 and Mavilidi et al., 2020).** Despite the advantages of PA, less than 19% of adolescents meet the global averages of 60 minutes per day of moderate to vigorous physical activity for children and adolescents (**Hardy et al., 2016)**

The present study findings reported that studied majority of males and females watched TV and used the mobile for more than 2 hours per day. That percentage decreased significantly post education to meet the recommended screen time guidelines of 2 hours or less per day. Regarding daily physical-activity guidelines, about half of the males and one fifth of the females met the recommended 1 hour of moderate-intensity physical activity while post education proportions of males and females increased with statistical significant p < 0.05 with male. This is reflected the importance of introducing self-care education

to secondary school students regarding healthy lifestyle and its positive effect.

The present study findings revealed that, the studied sample had poor dietary habits pre and had corrected post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). These findings are agreed with **Iglesia et al (2019),** who conducted a study about "Habits and Quality of Diet. In Adolescent Health and Wellbeing" and stated that it was important to notice social vulnerabilities. In addition, puberty is a time that is often important in relation to social characteristics. It is not strange to answer current criticism about the importance of dietary data self-reporting. In the current research, most adolescents did not eat breakfast, fruit, vegetables and milk on a daily basis, while a large proportion also demonstrated poor eating patterns. Also, similar with the study conducted by **Westerterp, (2020)** who reported in their study about "Challenging Energy Balance-During Sensitivity to Food Reward and Modulatory Factors Implying A Risk for Overweight-During Body Weight Management Including Dietary Restraint and Medium-High Protein Diets" that WHO Recommended the Global Diet and Physical Activity Policy for maintaining an energy balance, restricting fat energy intake, reducing free sugar intake and increasing consumption of fruit and vegetables. **Caldwell et al., (2019) also,** observed in their study about "Nutrition, Energy Expenditure, Physical Activity, and Body Composition" the same.

Laestadius and Wolfson, (2019) was in the same line of the study results in their study about "Unsustainable Societal Demands on the Food System. In Environmental Nutrition" and stated that, it is worth disclosing that the trend of food intake in western countries has drastically changed. High-energy food snacks for teens have become readily accessible in recent years. The consumption of animal products and refined sugar has increased, while the consumption of fruit and vegetables and complex carbohydrates has decreased. This may be due to lack of awareness toward healthful eating, lessening sedentary and encourage bodily activity, improving hygienic care, promoting sleeping, and eating habits amongst secondary school students which has been improved after self-care education implementation.

The prevalence of daily consumption of fruit and vegetables by both gender was noticeably low and higher than in the post-intervention period. Missing breakfast and the average weekly level of fast-food consumption in the current report were significantly higher in males than in females, which is another unhealthy dietary habit. In the current pre-intervention research , the average intake of soft drinks and candy more than three times a week among teenagers was found to be very normal pre intervention, and it was improved in post intervention. However, the sample prevalence identified by Saudi adolescents from Saudi Arabia and Emirates in the current study is much lower. In addition, teenage males and females in the United Arab Emirates eat fruit and vegetables more than three times a week, in a study about patterns of physical activity and eating habits of teenagers who were living in major Arab cities about the lifestyle study of Arab Teens **(Al-Hazzaa and Musaiger, 2010).**

The results of the present study indicated that, the studied sample mean sedentary time pre interventions was decreased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). These findings are agreed with **Throuvala et al., (2020),** who conducted a study about "The Role of Recreational Online Activities in School-Based Screen Time Sedentary Behavior Interventions for Adolescents" that extreme computer usage, TV viewing and smartphone use in adolescence tend to be correlated with an unfavorable cardiovascular risk factor profile.

Similary, Guerrero et al., (2019) found that sedentary time is associated with adverse health outcomes that are distinct from those due to lack of physical activity The American Academy of Pediatrics (AAP) has guidelines that recommend screen time not to exceed 2 hours per day.

The prevalence of sedentary time observed in the current study among students was strikingly high, where screen time was majority among the studied group involved in

that activity. They lowered the time spent after intervention to less than half. This result was in the same line with **Alzamil et al., (2019)** who studied the "A Profile of Physical Activity, Sedentary Behaviors, Sleep, and Dietary Habits of Saudi College Female Students" and found that the prevalence of screen time among 13- to 16-year-old adolescents was exceeded among adolescents in several countries in the United Arab Emirates, Greek Cypriot, Chinese, Canadian youth. Also**, Alghmdi et al., (2019**) who conducted a study about Association of Exergaming and other Activities with the WHO Physical Activity Recommendations among Female Adolescents in Saudi Arabia and found that the mean regular time spent on TV watching by Italian young people, on the other hand, was recorded as 2.8 hours, which is very close to what has been found in the current study post intervention. This is clarified the positive effects of self-care education which improve students' lifestyle regarding screen time.

Concerning sleep hours, the results of the present study indicated that, there was highly statistically significant improvement ($P \leq 0.001$) which increased post implementation of self-care education. This is reflected the need of the studied students to self-care education which has been improved their sleep.

The results of the present study indicated that, the studied sample had mean of personal hygiene pre interventions which increased post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). This result agreed with the study by **(Khamaiseh, and ALBashtawy, (2013)** who conducted a study about "Oral Health Knowledge, Attitudes, and Practices among Secondary School Students" who reported that oral hygiene is considered one of the world's most serious health problems. Oral care, like teeth brushing, is now recognized as a simple and inexpensive treatment for pediatrics groups and various age groups was effective. In addition, oral health habits and attitudes are used as measurements of the oral health knowledge of a population. Similar findings found in other studies carried out **by Lian et al, (2010)** who examined oral health knowledge, attitudes, and practices among high school students.

The results of the current study revealed that, the studied sample had mean poor dietary habits pre and had corrected post implementation of education and there was highly statistically significant improvement ($P \leq 0.001$). These findings are supported by different research studies **Siegrist et al., (2011) and Young et al., (2006)** that added, a balanced lifestyle pattern was found to be adapted by students involved in education programs that mean education has a positive influence on progress. The lack and inadequate education, as stated by **Amiri et al., (2011) and Rahimi et al., (2012)** are obstacles to healthy lifestyles among Iranian adolescents. Via educational initiatives, such challenges could well be encountered. Such efforts have been shown to be successful also in reducing obesity in obese adolescents. This support the research hypothesis that the self-care education to secondary school students will improve studied students' healthy lifestyle

Finally, in order to alter unhealthy lifestyles and substitute them with healthier behaviors, the training intervention was found to be effective. Although our research could have had an initial educational impact, a key concern should be the need for continuing education services by pediatrics and community nurses.

Conclusions

Based on the findings of the present study and research hypothesis it concluded that self-care education has a positive effect on enhancement of the healthy lifestyles such as bodily exercise, hygiene, sedentary time, eating habits, and improves sleeping of secondary school students after the education.

Recommendations

Upon the findings, this study recommended the following:

- There is a crucial necessity for developing self-care education regarding healthful eating, , screen time reducing, lessening sedentary and encourage bodily activity, improving hygienic care, promoting sleeping, and eating habits amongst secondary school students.

- Educating the secondary school students about federal physical activity guidelines for aerobic physical activity and muscle-strengthening activity.
- In addition, there is an urgent need for national policy promoting active living, personal hygiene and healthy eating while reducing sedentary behaviors among adolescents.
- Future research includes replication of the present study on a large sample for generalizing the results.

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