



## **Adolescent compliance with evidence based guidelines for healthy lifestyle at rural community**

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### **Abstract**

Adolescence period is one of the most rapid phases of human development. A healthy lifestyle must be established in this especially period. A cross sectional design was utilized in this study. Setting: This study was conducted at rural secondary school, Tala, Menoufia Governorate, Egypt. A multistage sample of 400 adolescent students from the above mentioned settings. A structured interview questionnaire which contains two parts: Part I: characteristics of studies adolescent and Part II: Life style assessment scale. Results: The results show that the mean age of the adolescent was 16.90. Also, 11.0% of them were obese. Furthermore, 4.0% of them were underweight. Approximately half of the adolescents never take their breakfast. None of the studied adolescents have lunch. Also, 41.0 % of the studied adolescent doesn't perform physical exercise daily. The adolescents didn't comply with healthy lifestyle as well perform risky health behavior. Educational and awareness programs should be applied in schools about healthy lifestyle.

**Keywords:** adolescent, healthy lifestyle, risky health behaviors

### **1. Introduction**

Adolescence period is one of the most rapid phases of human development. It characterized by 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 (WHO, 2018) [23]. Also, it is the time for rapid physical and psychological changes in the individual, together with increasing demands from and influence of peers, school and wider society (Sarkar, *et al.*, 2015) [17]. In Egypt, it was estimated that 8,500 (9.7%) from the total population were adolescent (15:18) years. As well as 4,368 (5.0%) of them were male. Meanwhile, 4,132(4.7%) are female (Unicef, 2015) [20].

Lifestyle is a way used by people, groups and nations and is formed in specific geographical, economic, political, cultural and religious text. Lifestyle is referred to the characteristics of inhabitants of a region in special time and place. It includes day to day behaviors and functions of individuals in job, activities, fun and diet (Farhud, 2017) [10]. A healthy lifestyle is a way of living that lowers the risk of being seriously ill or dying early. Not all illness and disease is preventable; however a large proportion of deaths, particularly those from coronary heart disease and lung cancer, can be avoided. Certain types of behavior that contribute to serious illness and early death during this period of life (Balasubramanian, 2017) [4].

Risky health behaviors can be developed at this period and

might influence their health in adulthood. Several health compromising behaviors (e.g. smoking, alcohol) as well as health enhancing behaviors (e.g. physical exercise) is adopted in adolescence and they often persist into adulthood. The World Health Organization estimates that 70% of premature deaths among adults are due to behavior (smoking, illicit drug use, reckless driving) initiated during adolescence. Therefore, helping adolescents establish healthy lifestyles and avoid developing health risk behaviors is crucial and should be started before these behaviors are firmly established (CDC, 2017).

Adolescence is characterized by a strong liability to experiment with risk behavior. The urgent need for novelty and the courage for experiment are much greater in adolescence than in later life (American Academy of Pediatrics, 2015) [1]. Most commonly reported behaviors in this population include such as watching social media, playing games, hitting others, cigarette smoking and alcohol consumption, as sleep deprivation, swearing, and throwing things (Kipping, *et al.*, 2015) [12].

Young's health is vital portion of the productive life, and the way of life adjustment is considered as an essential feature of promoting health and preventing disease in adolescents. Unhealthy behaviors that begin in adolescence can cause morbidity and mortality in adulthood. Therefore, it is very vital to identify the health hazard behaviors of adolescents and mediate early in order to prevent future negative effects on health and protect adolescents as competent members of society (WHO, 2018) [23].

Furthermore, considerable gender differences can be found with relation to health-related behavior, both in adults and in adolescents. Generally, males exhibit more health-risk and less health-protective behavior than females. With growing evidence that chronic inadequate sleep results in negative daytime consequences (e.g., daytime sleepiness, depressed mood) interventions designed to reverse adolescent delayed sleep timing may help alleviate these problems (Walters, 2017) [22].

Adolescence often turns away from parents and health care providers towards peers for support and guidance. Nonetheless, a brief look at the available information is therefore important in our pursuit of identifying and highlighting the health, lifestyle and behavioral issues and recommends possible ways to deal with them, so as to promote a healthier lifestyle in this population (Kilani, *et al.*, 2014) [11].

Schools play a dangerous role in the healthy growth of adolescence and are considered one of the most vital influences in an adolescent's life. Schools are the best location for this research; school nurses are in an important position to cooperate with students, families, teachers to recognize changeable factors. Moreover, school nurses have an important role in helping adolescents adopt healthy lifestyles and improving the health (Picchioni, *et al.*; 2014) [14].

### 1.1 Significance of the study

Strong evidence indicates that lifestyle plays a vital role in healthy development of children and adolescents (Picchioni, *et al.*; 2014) [14]. Unhealthy lifestyle in adolescents is recognized as an important public health issue that significantly affects the health and safety, as well as the academic success of school students. Modern lifestyle factors that contribute significantly to the recent epidemic of Unhealthy lifestyle in adolescents are potentially modifiable such as technology media use, and caffeine intake (American Academy of Pediatrics, 2014) [2]. In the last decade, we have witnessed a sharp increase in the availability and use of various electronic devices such as mobile phones, television, video games, audio devices, computers and tablets (Brunborg, *et al.*; 2011) [5]. Lifestyle habits, which consist of repeated daily behavior, may affect positively or negatively on child's ability to obtain healthy lifestyle (Reut and Lan, 2013) [16]. Therefore, it is becoming important to examine adolescent compliance with evidence based guidelines for healthy lifestyle at rural community.

### 1.2 Aim of the study

This study was done to examine adolescent compliance with evidence based guidelines for healthy lifestyle at rural community.

### 1.3 Research question

1. Are adolescents complying with healthy diet?
2. Are adolescents complying with healthy physical activity?
3. Are adolescent comply with hygienic habits?
4. Are adolescent perform risky health behavior?
5. Are adolescent have any health problems?

## 2. Subjects and Methods

**2.1 Research Design:** A cross sectional design was utilized

in this study.

**2.2 Research setting:** The study was conducted at two secondary governmental schools from rural schools (Zawiatt Bemam secondary school & Kafar Rabea secondary school) in Tala District, Menoufia Governorate, Egypt.

### 2.3 Sample

A multistage stratified random sample of 400 of adolescent students' including 160 male and 240 female aged between 15-18 years. A multi-stage stratified random sampling technique was used to select sample. At the first stage, random selection of Tala district from nine districts in Menoufia Governorate, Egypt. At the second stage, the schools stratified into rural schools and by the level of education as secondary schools, then simple random selection of two schools, Zawiatt Bemam Secondary school and Kafar Rabea Secondary School. The third stage involved selection all classes from each first grade, second and third grade.

**Sample size:** It was calculated by using the online Epi-info software for sample size calculation according to the following equation:

$$N = [DEFF * Np (1-p)] / [(d^2 / Z^2 * 1 - \alpha / 2 * (N-1) + p * (1-p))]$$

1. Population size (total secondary students during academic year 2016 about 950 in the selected schools in Tala district, Menoufia Governorate (i.e (N)= 950
2. Hypothesized frequency of outcome factor in the population (p): 50% +/- 5
3. Confidence limits as % of 100 (absolute +/- %) (d): 5%
4. Design effect (for cluster surveys-DEFF): 1
5. Sample Size (n) for 98% Confidence Levels was 400 students.

### 2.4 Instrument for data collection

Structured Interview Questionnaire (Health behavior school children) (HBSC) questionnaire. This questionnaire was developed by the international research network and adopted by WHO, (2017) [1]. It was divided into two parts.

**I: Part one: Characteristics of studies children such as** child age, gender, school name, school grade, Physical measurements such as weight, height and calculate Body Mass Index (BMI) according to the following equation:

Weight (height in meter)<sup>2</sup> and categorize it as the following:

Underweight = under 18.5

Normal weight = 18.5 to 25

Over weight = 25 to 30

Obese = Over 30.

**II Part two: life style assessment scale:** The major dimensions included in the scale were

- a- Dietary practices (7 items) about having (breakfast, lunch, dinner, 8 glasses of water, vegetables and fruits) daily.
- b- Hygienic measures (5 items) about teeth brushing morning & night daily shower, hand washing after toilet, hand washing before eating and change internal clothes daily

- c- Physical activity (3 items) about Physical Exercises at school and at & home Physical Exercises daily
- d- Smoking use (3 items) if they are smokers or not.
- e- Any chronic illness for the child or his parents such as diabetes mellitus, hypertension, cardiac diseases, sleep disorders, and hypercholesteremia.

### Scoring system

Never take zero score  
Sometimes take 1 score  
Usually take 2 scores

### 2.5 Validity

Validity indicated the degree to which the instrument measures what it is expected to measure. Therefore, content validity of questionnaire was determined by three experts in the community medicine, pediatric nursing and community health nursing. The necessary modifications were carried out according to the panel judgment on clarity of the sentences and appropriateness of the contents.

### 2.6 Reliability

This measured by the researcher for testing the internal consistency of the tools and confirmed through test re-test method with two weeks interval on a group of students not participating in the study. The reliability of the tools was done to determine the extent to which items in the questionnaire were related to each other by Chronbach's co-efficiency alpha for the questionnaire ( $\alpha = 0.97$ ). Pearson correlation co-efficiency was used to test the internal consistency ( $r=0.02-0.98$ ) for all items of the questionnaire.

### 2.7 Pilot study

It was conducted on ten percent of the study sample to check clarity and applicability of the instrument and calculate the time needed to complete the questionnaire. Based on the results of the pilot study, the necessary adjustments and clarifications of some questions were done. The pilot sample was not included in the total sample of the research work to ensure stability of the answers.

### 2.8 Ethical Considerations

- Written informed consent was obtained from both the students and their parents before participation in the study. Students informed that participation in this study is voluntary; they can withdraw at any time during the study without giving reasons. The researcher explained aim of the study to the students and reassured about the confidentiality and anonymity of their data.

### 2.8 Procedure for data collection

- This study was conducted during the period starting from February 2017 to the end of April 2017. Once permission was established to conduct the study, the researchers were initiated collection.
- Necessary approval was obtained from the head of directorate of education and directors of selected schools after issuing letters to them from the Faculty of Nursing, Menoufia University explaining the aim of the study and method of data collection to obtain permission for conducting the study.
- After obtaining approval and written informed consent

from students and their parents to conduct the study, the researchers were initiated data collection from students two days per week for three months through using the instrument that involved socio-demographic data, physical measurements of weight, height and life style assessment scale.

- The instrument was accomplished during school time by the researchers. Before distributing the questionnaire, the researchers were explained purpose of the study to the students in each class and gave them instructions to fill it. Then, each student was interviewed and asked for biosocial data, physical measurements was taken and then asked for the lifestyle practices.
- Measuring height using the following steps: Remove the adolescent's shoes and bulky clothing that interferes with the measurement. Take the height measurement on flooring that is not carpeted and against a flat surface such as a wall with no molding. Have the adolescent stand with feet flat, together, and against the wall. Make sure legs are straight, arms are at sides, and shoulders are level. Be sure the student is looking straight ahead and that the line of sight is parallel with the floor. Take the measurement while the student stands with head, shoulders, buttocks, and heels touching the wall. Depending on the overall body shape of the student, all points may not touch the wall. Use a flat headpiece to form a right angle with the wall and lower the headpiece until it firmly touches the crown of the head. Make sure the measurer's eyes are at the same level as the heading. Lightly mark where the bottom of the headpiece meets the wall. Then, use a metal tape to measure from the base on the floor to the marked measurement on the wall to get the height measurement. Accurately record the height to the nearest 0.1 centimeter.
- Measuring weight using the following steps: Use a digital scale. Place the scale on firm floor. Request removing shoes and heavy clothing, such as sport shirt. Have the adolescent stand with both feet in the middle of the scale. Record the weight to the nearest decimal fraction.
- The usual period taken for completing questionnaires was about 30-35 minutes.

### 2.9 Statistical analysis

Data was entered and analyzed by using SPSS (Statistical Package for Social Science) version 22. Graphics were done using Excel program. Quantitative data were presented by mean ( $\bar{X}$ ) and standard deviation (SD). It was analyzed using student t- test for comparison between two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square ( $\chi^2$ ) test. Level of significance was set as P value  $<0.05$  for all significant tests.

### 3. Results

Table 1 & Figure (1, 2 & 3): Represents characteristics of the studied sample. It is clear from the table that the mean and standard deviation of the student age is  $16.90 \pm 1.04$ . As well as more than half of the students are normal weight (55.0%). Moreover, 11.0% of them are obese. Furthermore, 4.0% of them are underweight

Table (2): Illustrates percent distribution of male & female

regarding dietary habits. The table shows that approximately half of the students never take their breakfast (49.5%). However, few of the studied adolescent has lunch (1.7%). Also, there was a high statistical significant difference between male and female adolescent regarding having dinner, having 8 glasses of water and having vegetables daily.

Table (3): Represents percent distribution of male & female regarding hygienic habits. As illustrated in the table, it is obvious that near one quarter of the studied sample doesn't brush their teeth (23.5%). Also, there is a high statistical significant difference between male and female adolescent regards daily shower, hand washing after toilet, hand washing before eating and change internal clothes daily P value (0.000).

Table (4): Clarifies percent distribution of male & female regarding physical exercises. The table shows that there is a high statistical significant difference between male and female adolescent. In relation to physical exercises at school and physical exercises daily P value (0.000). Also, 41.0 % of the studied sample doesn't perform physical exercise daily.

Table (5): Represents percent distribution of male & female regarding smoking. The table illustrates that 70% of the studied male adolescent are smokers. Furthermore, 3.0% of them usually try to stop smoking.

Table (6): Illustrates percent distribution of chronic illness among studied sample, the results shows that 3.5% of them suffers from hypertension. Meanwhile 0.8% complains from symptoms of depression. Less than one quarter of them have sleep disorders.

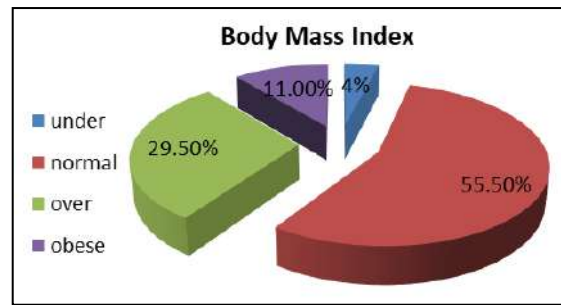
Figure (4.5& 6): Represents percent distribution of male and female adolescent regards chronic illness; it is clear that 57.2% of adolescent having hypertension are male.

**Table 1:** Mean and Standard Deviation of Age, Height and Weight of Studied Adolescent (n=400)

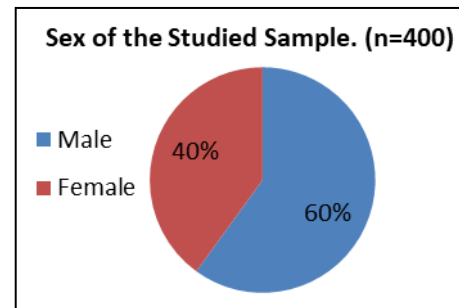
Mean and standard deviation	Age	Height	Weight
Mean ± SD	16.92±1.05	167.±12.04	67. 3 ±10.03

**Table 2:** Percent Distribution of Male & Female Regarding Dietary Habits. (n=400)

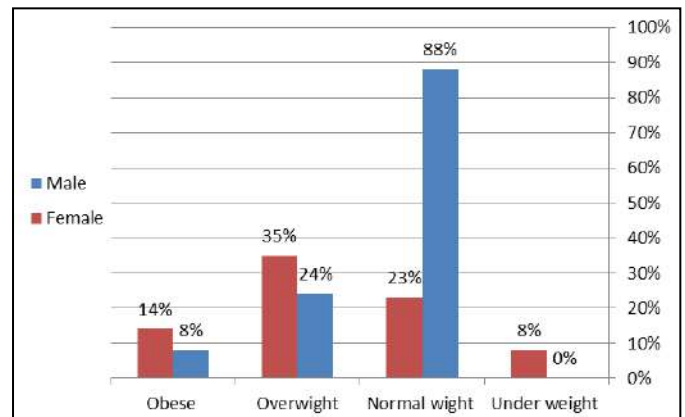
Dietary Habits	Male		Female		Total		X <sup>2</sup>	P value
	NO	%	NO	%	NO	%		
<b>1-Had breakfast daily</b>								
• Never	112	46.7	86	53.8	198	49.5	1.7	4.2
• Sometimes	112	46.7	60	37.5	172	43.0		
• Usually	16	6.7	14	8.7	30	7.5		
• Total	240	100.0	160	100.0	400	100.0		
<b>2- Had lunch daily</b>							2.04	0.12
• Never	48	20.0	46	28.7	94	23.5		
• Sometimes	188	78.3	110	68.7	298	74.5		
• Usually	4	1.7	4	2.5	8	2.0		
• Total	240	100.0	160	100.0	400	100.0		
<b>3- Had dinner daily</b>							33.9	000**.
• Never	16	6.7	30	18.7	46	11.5		
• Sometimes	144	60.0	30	18.7	174	43.5		
• Usually	80	33.3	100	62.6	180	45.0		
• Total	240	100.0	160	100.0	400	100.0		
<b>4- Had 8 glasses of water daily</b>							16.38	000**.
• Never	48	20.0	14	8.7	62	15.5		
• Sometimes	128	53.3	130	81.3	258	64.5		
• Usually	64	26.7	16	10.0	80	20.0		
• Total	240	100.0	160	100.0	400	100.0		



**Fig 1:** Body Mass Index (BMI) of the studied sample. (n=400)



**Fig 2:** Sex distribution of the studied sample. (n=400)



**Fig 3:** Distribution of BMI Regarding Sex of the Studied Sample. (n=400)

• Total								
5- Had vegetables daily								
• Never	64	26.7	14	8.7	78	19.5	45.2	.000**
• Sometimes	160	66.7	72	45.0	232	58.0		
• Usually	16	6.6	74	46.3	70	17.5		
• Total	240	100.0	160	100.0	400	100.0		
6- Had fruits daily								
• Never	16	6.7	4	2.5	20	5.0	7.9	.01**
• Sometimes	112	46.7	92	56.3	210	52.5		
• Usually	112	46.7	62	44.2	174	43.5		
• Total	240	100.0	160	100.0	200	100.0		

\*\* Significant

**Table 3:** Percent Distribution of Male & Female Regarding Hygienic Habits. (n=400)

Hygienic Habits	Male		Female		Total		X <sup>2</sup>	P value
	NO	%	NO	%	NO	%		
1-Teeth brushing morning &night							3.2	0.2
• Never	64	26.7	28	17.5	192	23.0		
• Sometimes	64	26.7	58	36.3	122	30.5		
• Usually	112	46.6	74	46.2	186	46.5		
• Total	240	100.0	160	100.0	400	100.0		
2- Daily shower							44.1	0.000
• Never	4	1.7	4	2.5	8	2.0		
• Sometimes	76	31.6	126	81.3	202	50.5		
• Usually	160	66.7	30	18.7	190	47.5		
• Total	240	100.0	160	100.0	400	100.0		
3- Hand washing after toilet							6.3	0.04
• Never	16	6.6	14	8.7	30	7.5		
• Sometimes	16	6.6	28	17.5	44	11.0		
• Usually	208	86.8	118	73.8	326	81.5		
• Total	240	100.0	160	100.0	400	100.0		
4- Hand washing before eating							16.38	.000
• Never	32	13.3	14	8.7	32	15.5		
• Sometimes	80	33.3	56	35.0	258	64.5		
• Usually	124	53.4	90	56.3	80	20.0		
• Total	240	100.0	160	100.0	400	100.0		
5- Change internal clothes daily							11.00	0.004
• Never	4	1.7	14	8.7	18	4.5		
• Sometimes	124	51.6	72	45.0	196	49.0		
• Usually	112	46.7	74	46.3	186	46.5		
• Total	240	100.0	160	100.0	400	100.0		

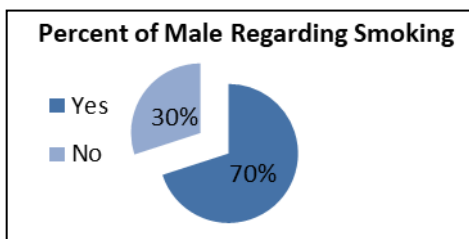
**Table 4:** Percent Distribution of Male & Female Regarding Physical Exercises. (n=400)

Physical Exercises	Male		Female		Total		X <sup>2</sup>	P value
	NO	%	NO	%	NO	%		
1- Physical Exercises At School							32.33	0.000
• Never	112	46.6	70	43.7	182	45.5		
• Sometimes	64	26.7	86	53.8	150	37.5		
• Usually	64	26.7	4	2.5	68	17.0		
• Total	240	100.0	160	100.0	400	100.0		
2- Physical Exercises At home							3.6	0.1
• Never	80	3.3	70	43.7	150	37.5		
• Sometimes	96	40.0	44	27.5	140	35.0		
• Usually	64	26.7	46	28.8	110	27.5		
• Total	240	100.0	160	100.0	400	100.0		
3- Physical Exercises daily							27.85	0.000
• Never	64	26.7	100	62.5	164	41.0		
• Sometimes	112	46.6	28	17.5	140	35.0		
• Usually	64	26.7	32	20.0	92	24.0		
• Total	240	100.0	160	100.0	400	100.0		



**Table 5:** Percent Distribution of Male & Female Regarding Smoking. (n=400)

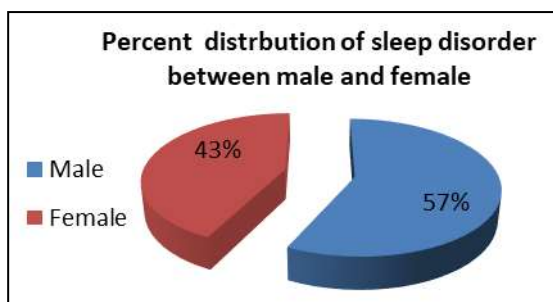
Items	Male		Female	
	No.	%	No.	%
1- Did you smoking				
• Yes	168	70.0	0	0.0
• No	72	30.0	160	100.0
• Total	240	100.0	160	100.0



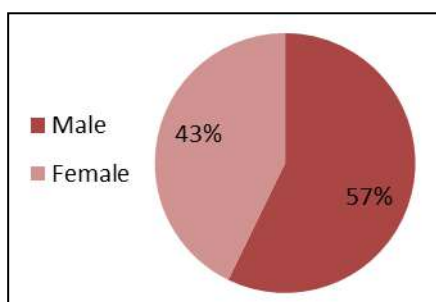
**Fig 4:** Percent of Male distribution regarding smoking

**Table 6:** Percent Distribution of Chronic Illness

Items	Total	
	No	%
<b>1- Hypertension</b>		
• Present	7	3.5
• Absent	193	96.5
• Total	200	100.0
<b>3- Sleep disorders</b>		
• Present	39	19.5
• Absent	161	80.5
• Total	200	100.0



**Fig 5:** Percent distribution of sleep disorder between male and female



**Fig 6:** Percent distribution of male and female regarding hypertension

**4. Discussion**

Sousaa, Gaspara, Fonseca, Hendricks, & Murdaugh (2015)<sup>[18]</sup>: (A vital component for attaining the goals of Healthy People 2020 is the promotion of healthy lifestyles. Health promotion continues to be considered the most cost effective approach to improving well-being and quality of

life. It has been estimated that as much as 60% of the quality of an individual’s health and life depends on his/her behavior and lifestyle).

Therefore, this study was done to assess adolescent lifestyle (dietary practices, hygienic measures, physical activity, and smoking). Regarding characteristics of the studied sample, it was clear that 11.0% of the students were obese. Such finding was consistent with the results of the study of Enes & Slater (2015)<sup>[19]</sup> and Taha & Mohammed (2015)<sup>[19]</sup>, who indicated that 10% of their studied sample, were obese. Furthermore, 4.0% of the studied sample was underweight. This finding was disagreed with the finding of Taha & Mohammed (2015)<sup>[19]</sup> who found that 3.3 % of their sample was underweight. Above all, 29.5% of studied students were overweight. This result was supported by the results of Virtanen *et al.*, 2015 who found thirteen percentages of the participants were overweight. It was clear from the result that the accumulation of irregular eating habits resulted in weight gain.

In relation to percent distribution of male & female regarding dietary habits, the result showed that approximately half of the studied sample (49.5%) never had their breakfast. Such finding was inconsistent with the result of Mary, D'souza, & Roach, (2014)<sup>[13]</sup> who found that 53.2% of their sample always had their breakfast. The results might be due to lack of time to take their breakfast plus they reported that they had no appetite in the morning. Regarding having lunch; it was found that none of the studied students had lunch. This finding was in agreement with the findings of Cristiani, Kumbamu, Asiedu, O'Brien, & Kumar (2017) who found that little of their studied sample had lunch regularly. In my opinion adolescent did

not present at lunch time at their homes so, they need to have intervention studies to determine which combination of parenting practices will lead to improvements in adolescent diets.

Also, there was a highly statistical significance difference and a statistical significance difference between male and female in relation to had 8 glasses of water, had vegetables daily, and had fruits daily. This result was in a line with Badr, Lakha & Pennefather, (2017) <sup>[3]</sup> who found a statistical significance difference between boys and girls regarding consumption of fruits and vegetables. This finding revealed that both boys and girls need education programs regarding healthy eating habits.

Concerning the percent distribution of male & female regarding hygienic habits, it was obvious that approximately half of the studied sample usually brushes their teeth; this result was in agreement with Egypt Fact Sheets 2006 and 2011. In relation to percentage of students who never washed their hands after using the toilet, it was found that 7.5 % of the student never washed their hands such finding was in agreement with Egypt Fact Sheets 2011 as they reported that 9% of students 13-15 year old never or rarely washed their hands after using the toilet. This result reflected the fact that poor hygiene can be a sign of self-neglect, which is the inability or unwillingness to attend to one's personal needs.

Regarding percent distribution of male & female physical exercises, it was clear that approximately one third (32%) of males vs 0, 23, and 16 % of females perform physical exercises at school, physical exercises at home, and physical exercises daily, this finding was in agreement with WHO (2018) <sup>[23]</sup> which reported that 12% of adolescents (aged 12—18 years) reach the recommended levels of physical activity for health (60 minutes of moderate- to vigorous-intensity physical activity per day). Girls were less likely than boys to meet the recommended physical activity levels. This difference is evident in adolescents (15%). The likelihood of meeting the recommended physical activity levels decreases with age. These results reflected the reality of lack of place for physical activity at rural areas. Also, the studied student were too overloaded with their study

Concerning percent distribution of male & female regarding smoking, it was clear that 16.3% of studied males were smokers. This finding was agreed with Unicef report 2015 which found that 18.9 % of male adolescent were smokers. This might due to the peer effect. Such result was disagreed with the result of Cambron, Kosterman, Catalano, Guttmannova, & Hawkins, 2018 who found that 47.1% of studied males were smokers. Such difference might be due to the difference of study settings. In my opinion such result are due to the customs of our community.

In relation to chronic illness. Regards sleep disorders 19.5% of the studied sample complained from sleep disorders. Such finding was agreed with Qidwai, *et al.*, (2010) <sup>[15]</sup> in their study as they found 18% of their sample diagnosed with sleep disorders. This might be due to fear of exams and excessive homework duties.

## 5. Conclusion

This study concluded that the studied adolescents didn't comply with health lifestyle in eating, hygienic measures, physical exercises. As well they had risk health behavior

such as in adequate sleep, and smoking.

## 6. Recommendations

- Evidence-based health education for adolescents to provide guidance about adherence to healthy lifestyle should be done
- Engagement of adolescents in lifestyle modification school programs
- Parent's involvement in parental classes about healthy diet to help all family.
- Further studies on a larger sample should be done to allow generalizability of the results.

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