Educational Intervention Program to Tackle Health Risk Behaviors among Male Secondary School Students (Tawjjehi) in Khan Younis Governorate - Gaza Strip

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Abstract
Health-risk behaviors are established during childhood, extend into adulthood, and are interrelated. It contributes to the leading causes of mortality and morbidity among children. The aim of this study was to design, implement and evaluate an Educational Intervention Program to tackle Health Risk Behaviors among Male Secondary School Students, (Tawjjehi), Khan Younis - Gaza Strip. A Quasi-experimental design was used in this study, the study sample was 366 students, (92 science students and 274 Humanities students), half of them were for intervention group and the others for control group, the study sample were selected by random sampling method. Data were obtained through four main channels; I. self-structure questionnaire for personal information, demographics characteristics, health risk behaviors (tobacco use, recreation facilities, dietary behaviors, school violence, intentional and un intentional injuries), II. student's records, III. anthropometric measurements and IV. hemoglobin level test in Male Secondary School Students, (Tawjjehi), Khan Younis - Gaza Strip . The main results three months after the program show that: Healthy students behaviors were significantly higher than post and follow up test after the educational intervention program implementation than for pretest for intervention group and greater than control group for all domains. The study concluded that the educational intervention program had a positive effect on students regarding all health risk behaviors. The study recommended that physical activities should be continued from sport teacher's, start the educational intervention program for the younger age (prep school students) and replicate the study in other setting with a larger sample of students.
Keywords: Intervention Education Program, Health risk factors, male secondary school students .

1. Introduction

Health-risk behaviors are established during childhood, extend into adulthood, and are interrelated. Health, well-being, and life-course will be affected by such risk behaviors for this age group. According to the Center for Disease Control and Prevention, health risk behavior includes: (a) activities that contribute to unintentional and intentional injuries and violence, (b) tobacco use, (c) felling sadness, and (d) recreation (Grunbaum et al., 2004). Health risk behaviors could be one of: lack of seat belt use, carrying a weapon, engaging in physical fights and seriously considering attempting suicide, in addition to smoking, (Abdel Aziz Kamal, et al, 2010).

Grunbaum et al. (2004) identified the activities that contribute to unintentional injuries that includes: not wearing seat belts or helmets, and swimming without a lifeguard. Activities that contribute to intentional injuries and violence include physical fighting, feeling unsafe at school, participating in theft, and thinking about suicide. The prevalence of smoking was 4% among 9-year-olds, 7% among 10-year-olds, 16% among 12-year-olds, 30% among 13-year-olds, and 42% among 14-year-olds in United States (Harrell, Bangdiwala, Deng, Webb, & Bradley, (1998).

Refaat (2006) revealed in his study which was conducted to assess the current awareness and practice of health risk behaviors among the students of Suez Canal University in Ismailia, Egypt, the median age of the students was 18 years, and (41%) were male. Only (18%) of them reported risky behaviors. Tobacco smoking, and drug abuse were positively correlated. Poor eating habits contributed to disorders in eating, dental caries and iron deficiency anemia (USADHHS, 2000).

Lack of regular exercise affects bone, stress and anxiety, self-esteem, and strength and endurance (Luepker, 1999). Poor sleeping habits among children or adolescence may contribute to negative mood, poor school performance and behavior problems (Patten, Choi, Gillin, & Pierce, 2000). Johnston, O'Malley, Bachman, & Schulenberg (2004) indicated in their study in America on middle and high school children that health-risk behavior is prevalent by the end of middle school. By ninth grade, many adolescents are frequently engaging in behaviors that could compromise their lifetime health and well-being. Thus, the ideal time for prevention activities is the transition from elementary to middle school. Yet adolescence is an important link in the continuum between childhood and adulthood.

1-1- Significant of the study

According to Palestinian Ministry of Health (MOH)' annual report (2010), Limited statistical data were

Journal of Education and Practice
www.iiste.org
ISSN 2222-1735 (Paper)   ISSN 2222-288X (Online)
Vol.5, No.33, 2014
IISTE

available on health risk behavior affecting secondary school students in Gaza as for smoking, aggression behaviors and school violence. This may be due to under-registration and /or incomplete documentation.

Promoting optimal emotional and behavioral health in adolescence can not only reduce the risk of adolescence developmental problems, but can also contribute to their better physical health, enhanced productivity in life, safer environments, and economic benefits for individuals as well as society at large (Nemours Health and Prevention Services, 2006). According to the researcher's observation and experiences during his work in school health and his communication with teachers, students and parents, he found that there are many unhealthy risk behaviors among students as sport injuries, smoking, aggression behaviors, violence and car accident.

1-2 Aim of the study

The overall aim of this study was to design, implement and evaluate EIP to tackle Health Risk Behaviors among male secondary school students, (Tawjjehi), Khan Younis - Gaza Strip. The study examined the EIP outcomes among 366 students who met the inclusion criteria

1-3 Research hypotheses

The main scores of improving health risk behaviors among intervention group who exposed to the EIP will be higher than the scores of the control group who did not exposed to the EIP.

2- Material and Methods

2-1 Research design

A quasi-experimental design was used in this current study

2-2 Setting of the study

The current study was conducted in Khan Younis in Gaza Strip. The study was carried out at three Male Governmental Secondary Schools in Khan Younis governorate, they are AlMotanaby, Haroun Al Rasheed and Khalid Al Hassan, (the schools were selected randomly, first school from city, second school from camp and the third school from village).

2-3 Sample

Multistage probability proportional random sampling technique was used (Stratified Random sampling).

2-4 Study subjects

the study sample size determination was 366 students, by applying the same percent, number of students was (92 science students and 274 Humanities students)

2-5 Tools of data collections

The researcher used the following assessment tools to collect the needed data:

1. A structured questionnaire sheet (Pre/Post questionnaire) that was developed by the researcher after reviewing the literature review which include:
   - Personal and demographic data of students: school, school specialty, age, residential status, place of living and parent's information.
   - Assessing Student's healthy risk behaviors:
     - ❖ tobacco use: smoking age, cigarettes per day and quit smoking.
     - ❖ recreation facilities: time spent on watching TV and using computers.
     - ❖ unhealthy dietary behaviors, inadequate activity and body weight: lacking milk, fruits and vegetables in diet, skipping breakfast, fast food, physical activity, Overweight and trying to lose weight.
     - ❖ aggression behaviors: feeling of sadness, want to talk about feeling of sadness, getting type of help, resist negative peer pressure and considering attempting suicide.
     - ❖ school violence: carrying weapon, threaten someone or injured him with a weapon and physical fight.
     - ❖ intentional and unintentional injuries: Lacking use of seat belt and wearing helmet.
2. Students health file (records).
3. Anthropometric measurements (Kuczmarski et al, 2000).

   Anthropometric variables included body weight, height and Body Mass Index. Measurements were performed in the morning by a researcher according to written standardized procedures. Body weight was measured to the nearest 1 kg using calibrated portable scales. Measurements were done with minimal clothing and without shoes. Height was measured to the nearest 1 centimeter using a calibrated measuring rod while the subject was in a full standing position without shoes. The scale

checked every time before measurement.

Body mass index (BMI) was calculated as the ratio of weight in kilograms by the height squared in meters.

4. Hemoglobin level measurements for students were recorded from the

hemoglobin tests form after   received from the same laboratory clinic; pre-test and follow-up-test were done by the same laboratory technician. The same technical lab person draw blood from the students and hemoglobin test was done in the same lab in all study stages.

2-6 Educational program

An EIP was developed after assessment by the researcher after reviewing the relevant literature, the program and its booklet given to a panel of experts to be evaluated. The researcher took all comments of experts into consideration and modified the program accordingly. The booklet covered the following issues about Secondary school students Health risk behaviors: (tobacco use, recreation   facilities, unhealthy dietary behaviors, inadequate inactivity, aggression behaviors, school violence, intentional and unintentional injuries). The booklet included relevant pictures and simple instructions, and distributed to intervention students in the first session as adjunct to the EIP. The program was divided into five sessions; the first session covered the tobacco use. The second session covered the recreation facilities. The third session covered the school violence, intentional and unintentional injuries. The fourth session covered the inadequate activity and unhealthy diet. The fifth session covered the aggression behaviors. Each session was 30 - 40 minutes. Each session included the day, date, time, place, session title, main goal, and specific objectives. The booklet was delivered for intervention students within the study to facilitate their understanding of each session and guided with at the beginning of the first session.

2-7 Ethical consideration

This study was submitted to and approved by the Research Ethics Committee of the Faculty of Nursing – Cairo University .

An approval letter from Ministry of Higher education in Gaza Strip to conduct the study on governmental schools was given.

Students were given full explanations about the aim of the study and assurance about confidentiality of the information and participation is completely optional, withdrawal at any time. Consent forms were signed by each one.

2-8 Procedure

A written approval was obtained from Ministry of Higher Education (MHE) in Gaza Strip to collect data and implement the program at secondary schools in Khan Younis governorate. Sample of students' were selected based on their willingness to participate in the study. Written consent was obtained from students who match the criteria for inclusion and willing to participate in the study after explaining to them the aim of the study and procedures for data collection including the willingness for post implementation follow up three months later after the education program. The students were informed about the confidentiality of the collected data, and their right to withdraw from the study at any time. The study was conducted through 3 main phases; assessment, implementation & evaluation phase.

1. **The assessment phase**

At this stage the researcher developed the a structured questionnaire, and checked validity and reliability, pilot study was done. All the students of the sample were be randomly selected. Arrangement with school health teachers and school administrators was done.

2. **The implementation phase**

After explanations to the selected students about the research purposes and after obtaining consent forms then questionnaire was distributed to all Students by the researcher. Clear instructions were provided to them regarding filling the questionnaire and also answering the students' questions. After the students filled the questionnaire (pre-test sheet). Anthropometric measures and   Hemoglobin test were done to all study sample. Then the EIP was given to the intervention group of students.

3. **The evaluation phase**

After implementing the EIP for male secondary school students, post-test included questionnaire sheet, height and weight measurements done to all students after one week of the last session, but the students refused hemoglobin test and reassessment was done three months later including (questionnaire, hemoglobin test, height and weight measurements), the same scales was used to the same students to examine the differences and compares the data between the intervention and the control groups. The duration of the study was 6 months; the study started from September 1st, 2011 to march1st, 2012.

2-9 Statistical analysis

The findings were computed through Statistical Package for the Social Science, for data cleaning and analysis (SPSS) software windows version 15).

Data analysis was carried out as follows: Data entry, data cleaning, statistical analysis Tools.

In order to be able to select the appropriate method of analysis, the level of measurement must be understood.

For each type of measurement, there is/are an appropriate method/s that can be applied and not others. The researcher used both qualitative and quantitative data analysis methods. For Qualitative data the researcher used the frequency and its related percentage. Comparison between groups, the Chi-square test used. To examine if the data is normal distribution or not, Kolmogorov-Smirnov Test of Normality used. To examine if the two dependent sample means are significantly different from each other, Wilcoxon test used.

3- Results

The results presented in the data which was collected from this cohort, data classified into the following parts:

1. Description of the study students' socio-demographic characteristics.
2. Haemoglobin and body mass index of students before and after being exposed to EIP.
3. Safety Measurements of students before and after being exposed to EIP.
4. Feeling of Sadness of students before and after being exposed to EIP.
5. Smoking Habit of students before and after being exposed to EIP.
6. Recreation of students before and after being exposed to EIP.

1- Description of students' socio-demographic characteristics and study setting

Table (1) reveals the study sample 366 students, half of them intervention group and the others control group, the majority of study sample in Haroun Al Rasheed school 130 student about 35.5% , while the least number in Al Motanaby school 110 student about 30.1%.The same table shows that the highest proportion of students from the humanity section about two third but the scientific section represents about one third of the study sample, 56.3% of them were refugees, 36.9% of the sample living in the city, 28.1% living in the camp and (35%) of the rest lives in village.

Table (1): Distribution of schools according to study sample, school specialty, residential status and area of living (n=366).

Variables	Schools							
	Al Motanaby		Haroun Al Rasheed		Khaled Al Hassan		Total	
	N	%	N	%	N	%	N	%
Study sample Intervention group	55	50%	65	50%	63	50%	183	50%
Control group	55	50%	65	50%	63	50%	183	50%
Total	110	100%	130	100%	126	100%	366	100%
School Specialty Scientific	28	25.5%	30	23.1%	34	27%	92	25.1%
Humanity	82	74.5%	100	76.9%	92	73%	274	74.9%
Total	110	100%	130	100%	126	100%	366	100%
Residential status Refugee	40	36.4%	120	92.3%	46	36.5%	206	56.3%
Citizen	70	63.6%	10	7.7%	80	63.5%	160	43.7%
Total	110	100%	130	100%	126	100%	366	100%
Area of living City	13	11.8%	21	16.2%	101	80.2%	135	36.9
Camp	0	0	102	78.4%	1	0.8%	103	28.1%
Village	97	88.2%	7	5.4%	24	19%	128	35%
Total	110	100%	130	100%	126	100%	366	100%

Table (2), denotes to mean of age is 18 years , mean of height is 170cm, mean of weight is 65kg and mean of Hb is 13.2gm. While BMI equal from 15.5 to 48.6 meaning that we have underweight, normal weight, overweight and obesity students.

Table (2): Mean and standard deviation of secondary students according to age, height, weight, hemoglobin and BMI.

Variable	Medium	Mean	Standard Deviation	Min	Max
Age	17.80	18	0.488	17	19
Height	167.03	170	13.283	120	195
Weight	64.69	65	10.680	43	95
Hemoglobin	13.41	13.2	1.448	9.5	18
BMI	22.45	23.5	4.297	15.5	48.6

2- Haemoglobin and body mass index of students before and after being exposed to EIP.

Table (3) reveals that (Kolmogorov-Simirnov) test, the potential P value equals (0.000) for both pre-test groups (intervention and control) in Hb and BMI which is less than the significance level (0.05), indicating that the data is not follow a normal distribution. So we used (Mann-Whitney) test, one of Non Parametric Tests to examine the differences of significance between the mean of Hb and BMI due to (intervention and control) groups.

Table (3): Test of Normality distribution of the sample

Pre-test Sample		Kolmogorov-Smirnov(a)		
		Statistic	N	P value
Hb	Intervention group	0.102	183	0.000*
	Control group	0.105	183	0.000*
BMI	Intervention group	0.116	183	0.000*
	Control group	0.116	183	0.000*

* P value is significant at level of ≤ 0.05

Table (4), shows that pre-post-follow-up test intervention group the value of Z equals (180, 185.185) and P value equals (0.000) in both of Hb and BMI in Friedman test (Friedman test uses in more than two sample groups) meaning that there is a significant differences between the mean of both Hb and BMI regarding to students intervention group, in pre-post- follow-up test intervention groups, increasing in Hb (13.4 to 14.5) and decreasing in BMI (23.8 to 22.3) in the intervention group indicate the effectiveness of educational program and continuously effective of the program.

Table (4): Friedman test of Hb and BMI among Pre-Post-Follow-up-test of the intervention secondary students.

Pre-Post-follow-up test intervention group					Friedman test	
Variables		N	Mean	Std. deviation	Z	P value
Hb	Pre intervention group	183	13.4230	1.50939	180	0.000*
	Post intervention group	183	13.4230	1.50939		
	Follow-up intervention group	183	14.5415	1.10906		
BMI	Pre intervention group	183	23.8003	5.26362	185.185	0.000*
	Post intervention group	183	23.8003	5.26362		
	Follow-up intervention group	183	22.3199	4.41301		

* P value is significant at level of ≤ 0.05

3- Safety Measurements of students before and after being exposed to EIP.

Table (5) reveals that there is the same number of students who rides a bicycle or a motorcycle in intervention groups in pre-post-test, and shows that there is no statistical significant differences between students who rides a bicycle or a motorcycle in intervention groups in post-follow-up-tests, which consistently, confirms that the students usually use these transportations in traveling to school, in post-follow-up intervention groups. In contrary, the result revealed there is a statistical significant differences between students who wears a helmet while riding a bicycle or a motorcycle or a passenger wearing a seat belt in a car, in pre post intervention groups, and in post follow up intervention groups.

Additionally, the same table indicates that there is the same results in pre post-test intervention groups regarding to carrying a weapon such as a gun or knife and a physical fight any person in school property, because there is no changes in answers in the last two weeks. Congruently, there is a statistical significant difference between post-follow-up intervention groups regarding to carrying a weapon such as a gun or knife, a physical fight any person in school property and students who threatening someone or injured him with a weapon, these results indicate effectiveness of the educational program and continuously effective of the program during post and follow up.

Table(5): Chi-Square test of safety measurements usage among Pre-Post-Follow-up intervention Group students

Variables		Intervention group											
		Pre group		Post group		Chi-Square		Post group		Follow-up group		Chi-Square	
		N	%	N	%	χ^2	P	N	%	N	%	χ^2	P
Riding a bicycle or a motorcycle	Yes	99	54.1%	99	54.1%	0.000	0.542	99	54.1%	106	57.9%	0.543	0.264
	No	84	45.9%	84	45.9%			84	45.9%	77	42.1%		
wearing a helmet	Never	58	58%	22	22%	33.328	0.000*	22	22%	0	0%	55.506	0.000*
	Rarely	14	14%	13	13%			13	13%	2	1.9%		
	Sometimes	20	20%	35	35%			35	35%	24	22.4%		
	Mostly	5	5%	15	15%			15	15%	44	41.4%		
	Always	3	3%	15	15%			15	15%	37	34.6%		
wearing a seat belt	Never	147	80.3%	99	54.1%	31.824	0.000*	99	54.1%	36	19.7%	64.944	0.000*
	Rarely	18	9.8%	29	15.8%			29	15.8%	22	12%		
	Sometimes	11	6%	37	20.2%			37	20.2%	58	31.7%		
	Mostly	3	1.6%	12	6.6%			12	6.6%	56	30.6%		
	Always	4	2.2%	6	3.3%			6	3.3%	11	6%		
Carrying a weapon such as a gun, knife	Never	153	83.6%	153	83.6%	0.000	1.000	153	83.6%	172	94%	15.073	0.001*
	Once or twice	11	6%	11	6%			11	6%	9	4.9%		
	Many times	19	10.4%	19	10.4%			19	10.4%	2	1.1%		
threaten someone or injured him with a weapon	Never	161	88%	161	88%	0.000	1.000	161	88%	176	96.2%	11.983	0.002*
	Once or twice	12	6.6%	12	6.6%			12	6.6%	7	3.8%		
	Many times	10	5.5%	10	5.5%			10	5.5%	0	0%		
a physical fight any person	Never	112	61.2%	112	61.2%	0.000	1.000	112	61.2%	143	78.1%	29.187	0.000*
	Once or twice	46	25.1%	46	25.1%			46	25.1%	40	21.9%		
	Many times	25	13.7%	25	13.7%			25	13.7%	0	0%		

* P value is significant at level of ≤ 0.05

4- Feeling of Sadness of students before and after being exposed to EIP.
Table (6), illustrates that there is no statistical significant differences between students who feel of sadness in pre-post and post-follow-up intervention group, confirms that feeling of sadness changes slowly during period of time, its related to personality and need more continuous education to change. In contrary, the result revealed there is a statistical significant differences between students who (want to talk about feelings of sadness, able to talk about feelings of sadness, get a kind of help if need and resist a negative peer pressure) in intervention group in both pre-post and post-follow-up test, meaning, the effectiveness of the educational program and continuously effective of the program because of statistical significant differences between intervention group in all pre-post-follow-up stages.

Table (6): Chi-Square test of Feelings of Sadness among Pre-Post-Follow-up intervention group students

Variables		Intervention group												
		Pre group		Post group		Chi-Square		Post group		Follow-up group		Chi-Square	
		N	%	N	%	χ^2	P	N	%	N	%	χ^2	P
Feelings of Sadness	Yes	124	67.8%	124	67.8%	0.000	0.545	124	67.8%	128	69.9%	0.204	0.367
	No	59	32.2%	59	32.2%			59	32.2%	55	30.1%		
Want to talk about feelings of sadness	Yes	40	31.5%	69	53.5%	12.660	0.000*	69	53.5%	93	69.9%	7.496	0.004*
	No	87	68.5%	60	46.5%			60	46.5%	40	30.1%		
Able to talk about feelings of sadness	Yes	36	28.3%	51	39.8%	3.749	0.035*	51	39.8%	88	66,2%	18.153	0.000*
	No	91	71.7%	77	60.2%			77	60.2%	45	33.8%		
Getting kind of help if need	Never	38	29.9%	15	4.8%	15.386	0.004*	15	4.8%	8	6.1%	14.245	0.007*
	Rarely	34	26.8%	32	25.2%			32	25.2%	22	16.7%		
	Sometimes	37	29.1%	48	37.8%			48	37.8%	40	30.3%		
	Mostly	13	10.2%	23	18.1%			23	18.1%	46	34.8%		
	Always	5	3.9%	9	7.1%			9	7.1%	16	12.1%		
Resist negative peer pressure	Strongly agree	59	32.3%	71	38.8%	23.923	0.000*	71	38.8%	89	48.6%	11.098	0.025*
	Agree	61	33.3%	85	46.4%			85	46.4%	85	46.4%		
	Not sure	19	10.4%	15	8.2%			15	8.2%	5	2.7%		
	Disagree	12	6.6%	4	2.2%			4	2.2%	1	0.5%		
	Strongly disagree	32	17.5%	8	4.4%			8	4.4%	3	1.6%		

* P value is significant at level of ≤ 0.05

5- Smoking Habit of students before and after being exposed to EIP.
Table (7) shows that there is no new smokers in both pre-post and post- follow-up intervention group, this confirms that the smoking habit is linked to the surrounding circumstances and habits and it's better to educate students early as possible and also need continues educated them in the long time. In contrary, the result revealed there is a statistical significant differences between students who (smoking number of days per month, number of cigarettes per day, smoke at least one cigarette daily, try quit smoking cigarettes, visit a dentist and brush their teeth) and other students in intervention group in pre post-test, and post-follow-up test, meaning, the effectiveness of the educational program and continuously effective of the program because of statistical significant differences between intervention group in all pre-post-follow-up stages.

Table (7): Chi-Square test of Smoking Habit among Pre-Post-Follow-up intervention Group students

Variables		Intervention group												
		Pre group		Post group		Chi-Square		Post group		Follow-up group		Chi-Square	
		N	%	N	%	χ^2	P	N	%	N	%	χ^2	P
Trying smoking cigarette	Yes	68	37.2%	68	37.2%	0.000	1.000	68	37.2%	68	37.2%	0.000	1.000
	No	115	62.8%	115	62.8%			115	62.8%	115	62.8%		
No of days smoking per month	1 or 2 days	24	35.3%	24	35.3%	25.203	0.000	24	35.3%	45	67.6%	28.348	0.000
	3 - 5 days	4	5,9%	12	17.6%			12	17.6%	17	25%		
	6 - 9 days	9	13.2%	23	33.8%			23	33.8%	5	7.4%		
	10 - 19 days	12	17.6%	7	10.3%			7	10.3%	0	0.0%		
	20 - 30 days	19	27.9%	2	2.9%			2	2.9%	0	0.0%		
Cigarettes per day	Part of cigarettes	19	27.9%	24	35.3%	9.018	0.051	24	35.3%	34	50%	20.562	0.000
	One cigarette	12	17.6%	18	26.5%			18	26.5%	29	42.6%		
	2 – 5 cigarettes	13	19.1%	14	20.6%			14	20.6%	5	7.4%		
	6 – 10 cigarettes	8	11.8%	8	11.8%			8	11.8%	0	0.0%		
	11- 20 cigarettes	16	23.5%	4	5.9%			4	5.9%	0	0.0%		
At least one cigarette daily	Yes	27	39.7%	13	19.1%	6.942	0.007	13	19.1%	6	8.8%	2.998	0.048
	No	41	60.3%	55	80.9%			55	80.9%	62	91.2%		
Trying quit smoking cigarettes	Yes	53	77.9%	60	88.2%	2.564	0.045	60	88.2%	66	97.1%	3.886	0.038
	No	15	22.1%	8	11.8%			8	11.8%	2	2.9%		
Visit a dentist	Yes	85	46.4%	108	59%	5.779	0.011	108	59%	131	71.6%	6.379	0.008
	No	98	53.6%	75	41%			75	41%	52	28.4%		
Use tooth brush	Never	50	27.3%	23	12.6%	39.120	0.000	23	12.6%	12	6.6%	13.785	0.008
	Once	69	37.7%	52	28.4%			52	28.4%	40	21.9%		
	Twice	46	25.1%	43	23.5%			43	23.5%	35	19.1%		
	3 times	12	6.6%	45	24.6%			45	24.6%	76	41.5%		
	≥ 4 times	6	3.3%	20	10.9%			20	10.9%	20	10.9%		

6- Recreation of students before and after being exposed to EIP.
Table (8), shows that there is a statistical significant differences between students who watch TV and use the computer and other students in both pre post-test and post-follow-up intervention group, this confirms that, the effectiveness of the educational program and continuously effective of the program because of statistical significant differences between intervention group in all pre-post-follow-up stages.

Table (8): Chi-Square test of recreation among Pre-Post-Follow-up intervention group students

Variables		Pre		Post		Chi-Square		Post		Follow-up		Chi-Square	
		N	%	N	%	χ^2	P	N	%	N	%	χ^2	P
Daily watch TV	Never	18	9.8%	24	13.1%	7.228	0.004	24	13.1%	40	21.9%	67.344	0.000
	‹ 1 hour	36	19.7%	45	24.6%			45	24.6%	78	42.6%		
	1 hours	51	27.9%	57	31.1%			57	31.1%	64	35%		
	2 hours	55	30.1%	46	25.1%			46	25.1%	1	0,5%		
	≥ 3 hours	23	12.6%	11	6%			11	6%	0	0%		
Daily use a computer for something that is not school work	Never	47	25.7%	48	26.2%	20.556	0.000	48	26.2%	59	32.2%	26.962	0.000
	‹ 1 hour	34	18.6%	44	24%			44	24%	66	36.1%		
	1 hours	42	23%	65	35.5%			65	35.5%	56	30.6%		
	2 hours	37	20.2%	19	10.4%			19	10.4%	2	1.1%		
	≥ 3 hours	23	12.6%	7	3.8%			7	3.8%	0	0%		

4.Discussion
Hemoglobin and Body mass Index
This study revealed that (27.9%, 7.1%) of pre-test intervention students were overweight and obese respectively, decreased to (7.7%, 4.9%) of follow-test intervention students were overweight and obese respectively, (BMI, 25-29.9, ≥ 30 respectively), meaning that the effectiveness of the educational intervention program . Also, this study showed that the mean of BMI was 23.8 among pre-post intervention group, because the period between two tests not enough to change (two weeks only), but after 4 months the mean of BMI decreased to 22.3 among follow up intervention group, confirmed that, continuously effective of the program on intervention students to follow up test stage. In general, average BMI is highest in the Americas, Europe and the Eastern Mediterranean, and it increases in almost all countries due to changes in diet and increasing physical inactivity, (WHO, 2005).
According to WHO (2001), Hemoglobin < 11 is anemic person. This study showed that (6.6%) of pre intervention students were anemic, decreased to (1.6%) of follow up test, meaning that there are more improvement for intervention student regarding anemia.

Safety Measurements
In view of the findings, we found that about (60%) of students were riding a bicycle or motorcycle indicating that most students usually use these transportations in traveling to school, (71.5%) of them had rarely or never worn a bicycle helmet. Similar finding were seen among Americans, (66.8%) of high school students had ridden a bicycle during the 12 months before the survey, (85.1%) of them had rarely or never worn a bicycle helmet, (24.3%) had ridden a motorcycle during the 12 months before the survey, (33.9%) of them had rarely or never worn a motorcycle helmet, YRBS, (2007).
According to Palestinian Ministry of Interior and National Security report in 06/02/2011 there were 5266 road traffic accidents (RTA) in 2010, of them (0.03%) deaths, (41.2%) wounded cases because of motorcycle accidents. While, (30%) of American road traffic accidents wounded because of motorcycles (YRBS, 2007).
This study showed that (90.1%) of students (during the 30 days before the survey) who had rarely or never worn a seat belt when riding in a car driven by someone else, while, (73%) of Egyptian's students were rarely or never used seat belt when riding in a car (Abdel Aziz Kamal, et al, 2010), (72.5%) of male students were never or rarely wore a helmet when riding a bicycle or other non-motorized vehicle during the past 30 days in UAE, (Al-Matroushi, 2005), (94%) in Riyadh, (Bendak, 2005) and (98.8%) in Al Khobar and Dammam, (Attia, 2007), in contrast, (13.8%) of American high school students nationwide (during the 30 days before the survey) who had rarely or never worn a seat belt when riding in a car driven by someone else, YRBS, (2007), reflexing strong restriction roles in American than Arabic people.
Christine Jildeh, et al., (2006), found that among male Palestinian adolescents (53.5%) were injured during the past 12 months. This result is close to results of other studies which show (39.7%) in UAE, (Al-Matroushi, 2005), (63.9%) in Spain, (58.1%) in Germany, and (58%) in Austria, (Pickett W., et al, 2005).

This study reported that (21.9%) of students were a physical fight any person once or twice during the last 3 months, in contrast with UAE, Oman and Jordan, (40.8%, 41.6% and 46.6% respectively) of students, (Al-Matroushi, 2005).

According to this study, (16.5%) of students had carried a weapon such as a gun or knife in school property, and about (18.0%) of secondary school students in USA, (YRBS, 2007). While (2.9%) in Egypt, (Abdel Aziz Kamal, et al, 2010), meaning that there are strong restriction role for carrying a weapon in Egypt.

Feeling of Sadness

The study findings showed that more than (67%) of students were felt sadness, (25.4%) want to talk about their feeling sadness, (24.6%) able to talk about feeling sadness and (32.3%) resist negative pressure during the last three months before the study. In UAE, (32.0%) of students felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities during the past 12 months, (24.8%) of students reported that most of the students in their school were never or rarely kind and helpful during the past 30 days, (13.4%) seriously considered attempting suicide, (10.3%) made a plan about how they would attempt suicide during the past 12 months, Al-Matroushi, (2005). In Egypt, (8.9%) of students seriously considered attempting suicide on 1 or more time in the last 12 months, (Abdel Aziz Kamal, et al, 2010). In USA, During the 12 months before the survey, (21.2%) of male high school students had felt so sad or hopeless almost every day for 2 or more weeks in a row that they stopped doing some usual activities, (10.3%) had seriously considered attempting suicide, (9.2%) had made a plan about how they would attempt suicide, (4.6%) had attempted suicide one or more times during the 12 months before the survey, (1.5%) had made a suicide attempt that resulted in an injury, poisoning, or an overdose that had to be treated by a doctor or nurse (YRBS, 2007).

These results were inconsistent with this study which showed that the highest percent of feeling sadness (67%), it may be due to unstable complex situation (politics or economics) and to Israeli occupation and violence. It is noteworthy that this study also indicates that no one of student was attempt suicide nor suicide at all, it may be related to strength of the family role and their protective nature, the religious, culture and closed environment.

And this study signified that decreasing number of feeling sadness times and increasing desire and ability to talk about feeling sadness and increasing resisting negative peer pressure from pre-test to follow up test meaning that the effectiveness of the EIP.

Smoking Habit

In view of the findings, regarding to age of starting smoking, the current study found that (32.3%) of the students started smoking before 13 years old, the result was in accordance with the WHO (2002) showed that about twenty percent of young teens (13 - 15) years old began smoking at this period of age. Congruent with other studies Harris, et al., (2009) and Stanton, et al., (1992) have found that most smokers begin during adolescence or early adulthood. Contrary, with Barber, et al., (1996) who indicated that boys adolescences started smoking within the 14 - 15 year-old age group. And with MMWR, (2008) adolescents aged 12 to 18 years, try smoking a cigarette for the first time in the USA. The explanation of the results is that the presence of peers that smoke and media featuring high-status models smoking may also encourage smoking, because teenagers are influenced more by their peers than by adults.

This study showed that more than (35.5%) of students tried smoking cigarettes, contrary, with MMWR (2003) report claimed that (31%) of youths aged 12 -17 started to smoke in 2002 and 33.3 in 2003 in USA. In contrast, according to YRBS, (2007) demonstrates that (51.3%) of male school students had ever tried cigarette smoking (even one or two puffs), (12.4%) of students had ever smoked at least one cigarette every day for 30 days, (20.0%) of students had smoked cigarettes on at least 1 day during the 30 days before the survey, (8.1%) of students had smoked cigarettes on 20 or more days during the 30 days before the survey and (10.7%) of students had smoked more than 10 cigarettes per day on the days they smoked during the 30 days before the survey.

This study revealed that (38.4%) of smoked students smoked one or two days monthly, while (27.8%) smoked every day during the last month before the study, however, WHO (2002), reported that 100,000 children begin smoking every day. Leben in Deutschland, (2009) found that (27%) of the Germany population admitted to being current smokers, (23%) were regular smokers while (4%) smoked irregularly, and (25%) of all 15-year-old males smoke daily.

The results of this study reported that about (30.1%) smoked part of cigarette daily, while (24.9%) smoked about 20 cigarettes daily, In 2005, it was estimated that (20.9%) of all USA adults were current cigarette smokers. Of them, (80.8%) smoked every day, and (19.2%) smoked some days.

The result demonstrated that About (40%) smoked at least one complete cigarette daily, while in USA, according to the Centers for Disease Control and Prevention, (CDC), (75%) of high school students report smoking cigarette at least one complete cigarette daily (MMWR, 2008).

The results of this study identified about (79%) of students smokers tried to quit smoking cigarettes, the result was in accordance with other studies YRBS, (2007) reported that (49.7%) of male school students had tried to quit smoking cigarettes during the 12 months before the survey, Narkiewicz, et al., (2005) who found that (80%) of all smokers desire to quit and Rock, (2007) showed that from 1965 to 2006, rates of smoking in USA declined from (42% to 20.8%), however, tobacco consumption continues to rise at (3.4%) in 2002 (WHO, 2002), and smoking is rising in developing countries by more than (3%) a year, (Washington Post, Aug. 2000).

The evidence provided by this study strongly suggests that the effectiveness of the EIP and continuously effective of the program because there were decreased in number of days smoking per month and in number of cigarettes per day and improve in number students who have tried to quit smoking cigarettes among intervention students through pre- post- follow up test.

This study showed that (46.4%) of intervention students visited a dentist during the last three months before the program started, increased to (59%) in post-test reached to (71.6%) in the follow up test, and (27.3%) of intervention students never used tooth brush during the last three months before the program started, decrease to (12.6%) in post-test reached to (6.6%) in the follow up test. The   explanation of the results is that the effectiveness of the EIP and confirms that continuously effective of the program.

Recreation

This study showed that (10.4%) of students never watch TV during the last week before the study on an average school day, (22.7%) watched TV one hour daily during the last week before the study on an average school day and (12.9%) watched TV three or more hours daily during the last week before the study on an average school day, in UAE, (40.7%) of students watched TV for three hours or more daily (Al-Matroushi, 2005) and (39%) of adolescents spent 2.5 hours per day on watching TV (Henry et al., 2004), in Saudi Arabia, (54.2%, 32,9% and 12.9%) of students were watching TV (three, five and more than six respectively) hours daily in Jeddah (Hazzaa et al., 2011), (84%) of male adolescents spent 2 hours on watching TV and using the computer daily (Thanaa A., et al., 2011) and (38%) of male adolescents watched TV for more than 3 hours per day (Mahfouz et al., 2008), in Abha, in China, (44.3%) of Chinese adolescence spent 2.5 hours on TV viewing (Cuz et al., 2011), in Canada, (34%) of Canadian adolescence spent 2.5 hours on TV viewing (Mark et al., 2006), in Italy, (60%) of Italian adolescence spent 2.8 hours on TV viewing (Patriarca et al., 2009), in Greek-Cypriot, (52.4%) of adolescents spent 2.5 hours on TV viewing (Loucaides et al., 2011), in Finnish, (48%) of adolescents reported watching TV 2 hours per day (Tammelin et al., 2007), in contrast, in USA, (35.4%) of youth and young people had watched TV three or more hours per day on an average school day, in accordance with another studies, (37.5%) of male secondary school students watched TV three or more hours per day (YRBS, 2007), (65%) of American adolescence spent 2 hours on TV viewing (Martinez-Gomez et al., 2010) and (71%) of American adolescents spend 6.5 hours per day on TV viewing (Roberts et al., 2005).

The results of this study in the same table identified that (27.9%) of students were never use a computer for something that is not school work during the last week before the study on an average school day, (20.3%) were used a computer one hour for something that is not school work during the last week before the study on an average school day and (12.1%) were used a computer three or more hours for something that is not school work during the last week before the study on an average school day. In contrast, according to YRBS (2007), (29.1%) of high school students nationwide played video or computer games or used a computer for something that was not school work for three or more hours per day on an average school day.

In view of the finding of this study, the evidence provided by this study strongly suggests that there were strongly significant association between EIP and positive progress and improvement among intervention student's behavior, that's we found that (9.8%) of intervention students were never daily watched TV, during the last week before the study on an average school day, increased to (13.1%) after post-test, reached to (21.9%) after follow up test period of time. While (12.6%) watched TV three or more hours daily during the last week before the study on an average school day, decreased to (6%) after post-test reached to zero after follow up test, meaning the effectiveness of the EIP. This result is congruent with using a computer, we found that (25.7%) of the intervention students who never use a computer for something that is not school work during the last week before study on an average school day, increased to (26.2%) after post-test reached to (32.2%) while (12.6%) of them used a computer three or more hours for something that is not school work during the last week before study on an average school day, decreased to (3.8%) after post-test reached to zero after follow up test. Contrary with the effectiveness of the EIP and confirmed that, the continuously effective of the program on intervention students to follow up test stage.

5.Conclusion

The study concluded that the educational intervention program EIP for students had improved and change their health behaviors that support the research hypotheses (the main scores of improving health risk behaviors among intervention group who exposed to the EIP will be higher than the scores of the control group who did not

exposed to the EIP) with statistical significance.

6. Recommendations

1.   Physical activities should be continued from the school and sport teacher.

2.   Early intervention educational programs for health risk behaviors must be directed to the younger age group students (Prep school students).

3.   Training of school staff and teachers on issues related to health education, accidents and violence prevention.

For research:

1.   Replicate the study in other setting with a larger and probability sample of students.

2.   further research studies should include more in-depth questions on the elements of health risk behaviors (intentional and unintentional injuries, school violence, smoking, physical inactivity, dietary practices, felling sadness, obesity and recreation) specially in Gaza Strip.

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