- *Basic Research*

Educational Guidelines Based on Health Belief Model regarding Cigarette Smoking Cessation among Secondary Schools Male Students

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Abstract

Background: Smoking is seen as a severe public health concern around the world due to its link to higher mortality rates, especially among adolescents. **Aim:** This study aimed to appraise the effect of educational guidelines based on health belief model on knowledge, attitude and beliefs regarding cigarette smoking cessation among secondary schools male students **Design:** A quasi-experimental research design was used. **Setting:** The study was carried out at Benha Mechanical Secondary School & Benha Decoration Secondary School for males, Qalyoubia, Egypt. **Sample**: A non-probability purposive and a snowball sampling method included 212 students. **Tools**: Three tools were used. **Tool I**: A structured interviewing questionnaire to assess demographic characteristics of the studied students, smoking status and their knowledge regarding smoking and cigarette smoking cessation. **Tool II**: To assess attitude of studied students regarding cigarette smoking cessation. **Tool III:** Health Belief Model Scale; to assess the studied students' beliefs regarding cigarette smoking cessation. **Results:** Only 14.6% of studied students had good total knowledge level pre educational guidelines improved to 72.6% post educational guidelines, 44.8% of them had positive attitude pre educational guidelines improved to 67.9% post educational guidelines, also 13.7% of them had high health beliefs pre educational guidelines improved to 61.8% post educational guidelines regarding cigarette smoking cessation. There was a positive statistical correlation between total knowledge and total attitude and between total knowledge and total health beliefs post educational guidelines. Also, there were a positive statistical correlation between total attitude and total health beliefs ($p<0.001$). **Conclusion**: The implementation of educational guidelines based on health belief model has improved secondary school male students' knowledge, attitude, and beliefs regarding smoking cessation. **Recommendation**: An educational program should be implemented for adolescent students' at all educational institutions regarding smoking cessation. Also smoking management strategies should be covered in high school curricula.

***Key words**:* Educational Guidelines, Health Belief Model, Secondary School students, Smoking Cessation.

Introduction:

Adolescence is a crucial time in a person's life because it involves important developmental processes that help someone go from childhood to adulthood **(Sharma & Panigrahi, 2020).** Adolescence is a time when people are reflecting on their new responsibilities and trying new things, making it a high-risk time for starting to smoke. Boys were more likely to smoke, combine smoking, and use smokeless tobacco. Smoking prevention among teenagers is crucial since it is anticipated that half of smokers who start smoking during adolescence will keep smoking for the next 15 to 20 years **(Huriah& Lestari, 2020; Roble et al., 2021).**

Worldwide, smoking-related diseases claim the lives of almost 6 million people each year, making cigarettes the biggest cause of mortality. Smoking may result in 10 million deaths in 2030, out of a total of 60 million fatalities **(Xi et al., 2016).** There isn't a single reason why adolescents start smoking. The complicated behavior of smoking cigarettes is influenced by psychosocial, economic, and cultural variables. There are many known risk factors for predicting teen smoking, such as ignorance of the harmful effects of smoking, low self-esteem, low self-efficacy, high levels of negative emotions, peer pressure, dysfunctional families and poor parent-child relationships, socioeconomic status, life problems, family history of tobacco use, friends who smoke, stressful life events, weak problem-solving ability, depression, anxiety, weak self-control, and low self-control **(Ghanbarnejad et al., 2022).**

Smoking reduces young people's physical fitness, including their performance and endurance, and increases the likelihood that they may develop a drug use problem and misuse that drug **(Al Omari et al., 2021).** Smoking contributes to a number of chronic illnesses, including Chronic Obstructive Pulmonary Disease (COPD), asthma, osteoporosis and rheumatoid arthritis. Children's and adults' health has been demonstrated to suffer from exposure to secondhand smoke. Smoking makes it more likely for cancer to develop in a variety of organs, especially the esophagus, pancreas, mouth, and pharynx. Additionally, men who smoke have a higher risk of dying from prostate cancer, while women who smoke have a higher risk of dying from breast cancer **(Varma & Prasad, 2019).**

Every cigarette contains a combination of nicotine and carbon monoxide, which increases blood pressure and pulse rate and puts stress on the heart and blood vessels. Strokes and heart attacks may result from this. Also, it reduces blood circulation, depriving hands and feet from oxygen, leads to smokers' limb amputation **(Ibrahim et al., 2016).**

The school setting has long been the center of emphasis for prevention and management of tobacco use. The benefits are numerous, including the accessibility and reach of

awareness among students in one location and a focus on health education that might integrate with the regular curriculum activities of schools **(Jayakrishnan et al., 2019).** It has been demonstrated that exposing teenagers to anti-smoking educational program improves their knowledge, attitudes towards smoking, and reduces smoking behaviors worldwide. Such programs seek to provide health information related to smoking via a variety of channels such as the media, educational institutions, and social influence or social competence-based tactics **(Huong et al., 2016).**

One of the best frameworks for eradicating erroneous notions and establishing healthy habits is the Health Belief Model (HBM). HBM includes concepts of perceived susceptibility (subjective assessment of being at high risk to be involved in a health problem), perceived severity (subjective assessment of the severity of a health problem and its potential consequences), perceived benefits (an individual's assessment of the value of engaging in a health-promoting behavior to decrease the risk of disease), perceived barriers (an individual's assessment of the obstacles to behavior change), cues to change behavior, and self-efficacy **(Lotfi et al., 2017; Mohammadi et al., 2023).**

Community health nurses are crucial in bringing up the topic of quitting smoking with adolescents and they can offer a fair assessment of the difficulties they might experience. They can provide adolescents with smoking cessation advice and point them in the direction of the best options for quitting. Nurses should also be prepared to support and urge known smokers to quit. When possible, nurses should have appropriate training in both theory and practice to be able to offer opportunistic counsel and promote cessation **(Singh, 2019; Onodugo et al., 2019).**

Significant of the study

The incidence of smoking among Egyptians is rising as the country develops. Ninety-five percent of Egyptian smokers use cigarettes daily. Egypt experienced over 170 000 tobacco-related fatalities in 2004. 3.4 billion Egyptian pounds are spent annually on tobacco-related health issues, in addition to the years of life wasted. Between the ages of 15 and 24 make up about 21% of the Egyptian population, yet this group is at risk due to the country's rising tobacco use rate. The number of smokers in Egypt is thought to be rising by 8% annually despite the country's 2% yearly population growth **(Fouda et al., 2018).** According to the World Health Organization, the prevalence of tobacco use among Egyptian male adolescents has been on the rise, rising from 23.8% in 2000 to 29.9% in 2010, and is expected to reach 43.7% by 2025 **(WHO, 2015).**

Aim of the study:

This study aimed to appraise the effect of educational guidelines based on health belief model on knowledge, attitude and beliefs regarding cigarette smoking cessation among secondary schools male students through:

1. Assessing technical secondary schools male students' knowledge regarding smoking and cigarette smoking cessation.
2. Assessing technical secondary schools male students' attitude and beliefs regarding cigarette smoking cessation.
3. Developing, applying, and evaluating the effect of the educational guidelines based on health belief model on improving students' knowledge, attitude and beliefs regarding cigarette smoking cessation.

Research Hypothesis:

Technical secondary schools male students' knowledge, attitudes, and beliefs regarding cigarette smoking cessation will be improved after the implementation of the educational guidelines based on health belief model.

Subject and methods

Research design

To achieve the goal of the current study, a quasi-experimental research design (one group pre- and post-test) was utilized.

Research setting

The study was carried out at two Governmental Technical Secondary Schools for Males at Benha City; (Benha Mechanical Secondary School & Benha Decoration Secondary School), Qalyubia, Egypt.

Study sample

In this study, third grade of two technical secondary schools male students, who had experienced cigarette smoking in the last month, were included. After interviewing the first student who had a history of cigarette smoking in the previous month (purposive sampling), the researchers asked him to introduce his other friends who had smoked cigarette in the previous month to them (snowball sampling). After 212 students' interviews, data saturation occurred in this study.

Name of the school	Sample number
Benha mechanical secondary school	112
Benha decoration secondary school	100

Tools of the study

The researchers used the following three tools to collect the study's data:

I. An interviewing questionnaire: Was established by the researchers following reviewing relevant literature, the researchers designed it, which consists of two parts:

Part 1: A- Demographic characteristics of the studied students: It was composed of 4 items such as age, residence, who do you currently live with and do you receive pocket money.

B- Smoking status of the studied students which included 7 items such as how old were you when you smoked your first cigarette, why did you smoke your first cigarette, do any of your parents smoke cigarettes, do any of your close friends smoke cigarettes, where do you usually smoke cigarettes, have you ever quit smoking, and which method of smoking cessation have you tried before.

Part 2: Students' Knowledge regarding Smoking& Cigarette Smoking Cessation Structured Interviewing Questionnaire, which included 10 questions about health risks of smoking including heart, lung functions and cancers, methods of smoking cessation……. etc.

Scoring System for total knowledge of the studied students= 20

The total knowledge scores were calculated as follows: 2 points for each correct and complete response, 1 point for each correct but incomplete response, and 0 points for don't know. The item scores were added together for each area of expertise and then transformed into a percentage. The level of knowledge among the students was rated as high if it exceeded 75% (>15 points), fair if it fell between 50% and 75% (10–15 points), and poor if it fell below 50% (< 10 points).

Tool II: Studied Students' Attitude Questionnaire regarding cigarette smoking cessation, which adopted from **(Stone & Kristeller, 1992),** and comprised 7 items to measure the attitudes of the study participants toward cigarette smoking cessation. These items included: Have quit smoking but still worry about slipping back so need to keep working on living smoking-free, definitely plan to quit smoking in the next 30 days, still smoke but have started to change like cutting back on the number of cigarettes smoke, ready to set a quit date, definitely plan to quit smoking in the next 6 months, think about quitting smoking but have no plans to quit, have decided not to quit smoking for many lifetime and have no interest in quitting).

Scoring System for total attitudes of the studied students= 21

A three-point scale was used to grade each item. Positive items scored (1 to 3); as follows: (Disagree=1, Unsure=2, Agree=3). The ratings were given based on the three responses. For negative responses, the scoring was reversed, i.e. (Disagree=3, Unsure=2, Agree=1). For each component, the item scores were added. The total was then divided by the number of items to produce the percentage score. When the overall score was

greater than 60% (> 13 points), the adolescent students' attitude was considered positive, and when it was less than 60% (< 13 points), it was considered negative.

Tool (III): Health Belief Model Scale (HBMS): It was adopted from **(Khazaee-Pool et al., 2016).** The pre/post educational guidelines were used to assess the studied students' behaviors regarding smoking cessation. The components of the health belief model were evaluated using the Health Belief Model Scale. It is a self-reported questionnaire designed to assess perceived susceptibility, perceived severity, perceived advantages, perceived barriers, cues to action, and self-efficacy.27 questions were included, and they were divided into the following six categories.: Assess perceived susceptibility included (4 questions) (with a minimal score of 4 and optimal score of 20), 4 questions about perceived severity (with a minimal score of 4 and optimal score of 20), perceived benefits 5 questions and perceived barriers 5 questions (with a minimal score of 5 and optimal score of 25), 3 questions about cues to action (with a minimal score of 3 and optimal score of 15), 6 questions about perceived self-efficacy (with a minimal score of 6 and optimal score of 30).

Scoring System for total health belief = 135

A five-point Likert scale was used to measure the scale, and the results are summarized as: Completely disagree (1); disagree (2); no idea (3); agree (4), and completely agree (5). It should be noted that questions in the area of perceived barriers had the opposite score. The total scores were 135, divided into three categories. The total scores were constituted high belief if the score ≥ 75 % (≥101points) while constituted moderate belief if it is equals 50-<75% (67-<101points) and constituted low if it is less than 50% (<67 points). Concerning barriers, higher scores indicate low health beliefs.

Content validity

Five academic nursing staff members in community health nursing reviewed the current study to assess the tools' content validity. The proposed adjustments as correction, omission and / or addition of some items were done in response to the academic nursing specialists' evaluation of the appropriateness of the content and the clarity of the phrases.

Tools reliability:

The reliability was checked using the Cronbach's Alpha coefficient test to make sure that the items in the three tools for collecting data were largely homogeneous (reliability for knowledge was (0.75), attitude was (0.82), susceptibility was (0.85), severity was (0.75), benefits were (0.79), barriers were (0.74), cues to action were (0.81), and self-efficacy was (0.83).

Ethical considerations

Prior to beginning the study, the Scientific Research Ethical Committee in the Faculty of Nursing at Benha University approved its ethical permission. The study also complied with standard ethical guidelines for clinical research and posed no risk to the study's participants. After outlining the study's goals, securing their best cooperation, and guaranteeing the data's security, the studied students gave their written informed consent. The researchers made sure the students understood that the study was optional and that the questionnaires were anonymous. The students had the full right to decline the study's invitation or drop out at any time without providing a justification.

Administrative approval

After outlining the study's objectives and requesting approval to carry out the study, an official letter was obtained from the Dean of Faculty of Nursing; Benha University to the directors of the previously mentioned schools. The purpose and title have already been mentioned. Based on the findings of the examination of pre-educational guidelines and the available pertinent scientific materials, the researchers prepared an Arabic booklet after conducting interviews with the studied students to gather the necessary information.

Pilot study:

10% (22 students) of the total sample size of students participated in the pilot study, which was used to test the tools' usability and clarity as well as to estimate the questionnaire's turnaround time. The results of the pilot study indicated that changes had to be made before data was collected, and these changes included deleting items that were repetitive or unnecessary. Students in the pilot study were included in the study.

Educational guidelines construction:

A health belief model-based educational guideline was carried out through four phases: **Phase I: Assessment phase:** The researchers interviewed students, then explained the objectives of the research and asked about participants after gaining formal approval to carry out the study. Following that, interviews with the students were conducted to determine their demographic traits, smoking status, and smoking-related information. To build the educational guideline and evaluate the effect of implementing the health belief model, the data gathered during this phase served as the baseline. The student interviews took about 10 to 15 minutes to complete on average. The researcher created an educational guideline based on the findings from the interviewing questionnaire evaluation sheet and literature study. **Phase II: Planning phase:** The study's objectives were planned to be met by the educational guideline. **The general objective:** Apply the educational guidelines for technical secondary schools male students regarding smoking cessation with actual educational needs to improve their knowledge, attitudes, and beliefs toward smoking cessation. **Specific objectives:** This included: Providing studied students

with needed knowledge regarding smoking cessation, modifying studied students' health beliefs and attitudes regarding smoking cessation.

Content of educational guidelines: The following topics were covered in the educational guidelines' content in order to meet the needs of the students in terms of quitting smoking: what smoking means, what kinds of smoking there are, what tobacco is made of, why people smoke, how smoking affects health and how it affects all body systems, what passive smoking does to the body, how to stop smoking, and withdrawal symptoms of smoking cessation.

All studied students received the same guidelines content using the same teaching methods which included the following: Lectures / group discussion, brainstorming as well as a demonstration & re-demonstration. The relevant materials for teaching, comprising a booklet and posters, were especially made for the educational guidelines. **III. Implementation phase:** The study was conducted over a period of 3 months which started from the mid of February 2022 to the mid of May 2022. Data was collected by interviewing the students in the selected schools at Benha City and also, implementation of the model was carried out at the previous schools that mentioned before. Through the four sessions, the content has been covered in order. The length of each session varied from 30 to 45 minutes, including discussion periods based on student achievement, advancement, and feedback. Small groups of the entire sample were formed. Each school's students were divided into 6 groups (12 groups from the two selected schools), each group ranged from 16-18 students. Each group took part in 4 separate sessions 4days/week (Sunday and Monday for Benha mechanical secondary school, while Tuesday and Wednesday for Benha decoration secondary school) from 9:00 am to 2:00 midday. All sessions were held in the meeting room of teachers during the activity periods of students. An introduction to the educational guideline and its goals was given at the start of the first session, and knowledge about smoking cessation behavior was then discussed to motivate the students. In subsequent sessions, the researchers demonstrated seriousness of smoking (perceived severity), health risks of smoking (perceived susceptibility), and emphasized benefits of smoking cessation (perceived benefits). The researchers encouraged group talks to get past any obstacles (perceived obstacles) in the way of self-efficacy and healthy behaviors. Following each session, evaluations of the prior session were completed, and the objectives of the next ones were stated. **IV: Evaluation phase:** After the health belief model-based education had been implemented, students were given a post-test to assess their knowledge and attitudes toward cessation smoking. This test followed the same structure as the pre-test, and its purpose was to gauge how well the implemented guideline was working. This evaluation was carried out right away after the guidelines were implemented.

Statistical Analysis:

Statistical Package for Social Sciences (SPSS) version 22 was used to score, tabulate, and analyze the data that had been collected. To compare the differences in student knowledge and attitude toward quitting smoking between pre- and post-educational guidelines based on the health belief model, the data were arranged into tables using Chi-Square, t-test, correlation coefficient, mean, standard deviation, number, and percentage distribution. A p-value of 0.05 was regarded as statistical significance, a p-value of 0.001 as highly significant, and a p-value of >0.05 as insignificant.

Results:

Table (1): Shows that; 45.8% of the studied students aged 17 years old with mean age 17.78±0.81 and 56.6% of them were living in rural areas. Also; 80.2% of them were living with their both parents and 84.9% of them were receiving pocket money.

Table (2): Illustrates that; 73.1% of studied students aged from 10 to less than15 years old when smoked their first cigarette. Regarding reasons for cigarette smoking, 56.6% of them were smoking because of peer influence followed by curiosity for 23.5% of them. In addition, 75.5% of them had parents that smoke cigarettes. Also; 87.3% of them had close friends that smoke cigarettes and 73.6% of them were smoking at friends' places. Regarding quit smoking; 89.6% of the studied students tried to quit cigarettes smoking before and 76.3% of them used nicotine patch to quit smoking followed by 63.2% quit smoking through consultation.

Figure (1): Shows that; 54.3% of the studied students had poor total knowledge level regarding smoking and cigarette smoking cessation pre implementation of the educational guidelines while 72.6% of them had good total knowledge level post implementation of the educational guidelines.

Figure (2): Shows that; pre-educational guidelines; 44.8% of the studied students had positive total attitude regarding cigarette smoking cessation, which increased to 67.9% after implementation of the educational guidelines.

Table (3): Demonstrates that a highly statistically significant improvement was found pre and post educational guidelines application in all items of health belief model ($p<0.001$).

Figure (3): Shows that only 13.7% of the studied students had high health beliefs regarding cigarette smoking cessation pre-educational guidelines which improved to 61.8% post educational guidelines.

Table (4): A positive statistical correlation was found between total knowledge and total attitude and between total knowledge and total health beliefs while, negative statistical correlation was found between total attitude and total health belief pre-educational guideline. While post educational guideline a positive statistical correlation was found between total knowledge and total attitude and between total knowledge and

total health belief. Moreover, a positive statistical correlation was found between total attitude and total health belief ($p<0.001$).

Table (1): Frequency distribution of the studied students regarding their demographic characteristics, (n=212).

Demographic Characteristics	No.	%
Age:		
16	63	29.7
17	97	45.8
18	52	24.5
Min –Max 16-18		
Mean ±SD 17.78±0.81		
Residence:		
Rural	120	56.6
Urban	92	43.4
Who do you currently live with:		
Both parents	170	80.2
One parent	42	19.8
Do you receive pocket money:		
No	32	15.1
Yes	180	84.9

Table (2): Frequency distribution of the studied students regarding their smoking status, (n=212).

Smoking Status	No.	%
How old were you when you smoked your first cigarette		
5->10 years	57	26.9
10->15 years	155	73.1
Why did you smoke your first cigarette*:		
Curiosity	50	23.5
Peer influence	120	56.6
Stress/depression	45	21.2
Availability	30	14.1
Do any of your parents smoke cigarettes:		
No	52	24.5
Yes	160	75.5
Do any of your close friends smoke cigarettes:		
No	27	12.7
Yes	185	87.3
Where do you usually smoke cigarettes:		
At school	44	20.7
At Home	12	5.7
At friends' places	156	73.6
Have you ever try to quit smoking:		
No	22	10.4
Yes	190	89.6
Which method of smoking cessation have you tried before? *(Select all that apply), (n=190):		
Nicotine gum or lozenges	50	26.3
Nicotine patch	145	76.3
Nicotine inhaler or nasal spray	45	23.7
Electronic cigarette	30	15.8
Cessation medication	50	26.3
Consultation	120	63.2
Educational program	52	24.5

***Answer not mutually exclusive**

Figure (1): Percentage distribution of the studied students' total knowledge level regarding smoking and cigarette smoking cessation pre and post educational guidelines, (n=212).

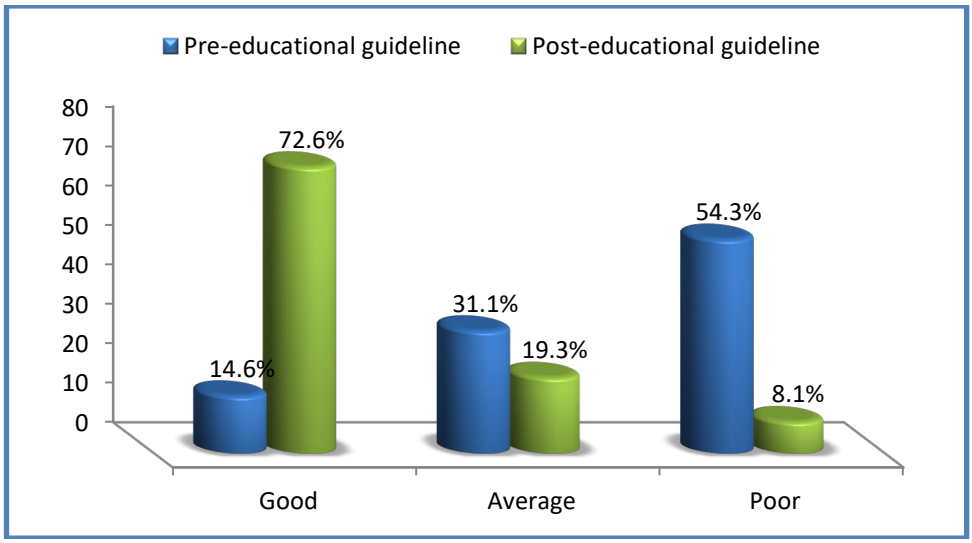

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Figure (2): Percentage distribution of the studied students regarding their total attitude level about cigarette smoking cessation pre and post educational guidelines (n=212).

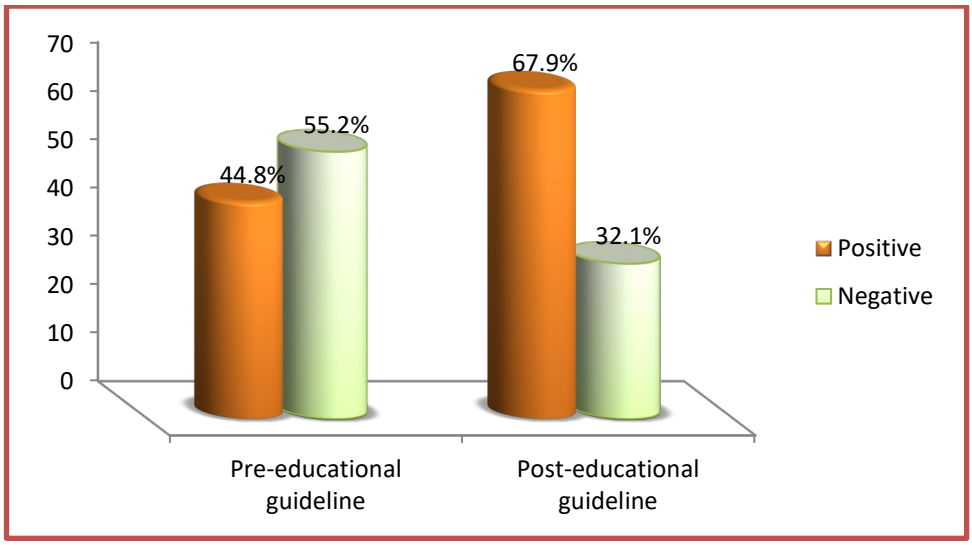

Table (3): Mean and standard deviation of studied students regarding their total health beliefs regarding cigarette smoking cessation pre and post educational guidelines (n=212).

Items	Pre- Educational Guidelines	Post-Educational Guidelines	t test	p-value
	Mean ±SD	Mean ±SD		
Perceived susceptibility	11.09±3.55	15.62±2.88	15.57	.000**
Perceived severity	7.41±2.67	18.28±3.13	30.32	.000**
Perceived benefits	10.46±3.17	18.28±3.13	12.46	.000**
Perceived barriers	16.50±3.74	9.83±2.93	18.02	.000**
Perceived self-efficacy	16.21±5.22	26.91±3.37	25.08	.000**
Cues to action	16.72±3.03	21.53±3.35	15.26	.000**
Total belief	82.42±7.90	110.47±12.32	17.63	.000**

** highly statistically significance p<0.001 *paired t test was used

Figure (3): Percentage distribution of the studied students regarding their total health beliefs level pre and post educational guidelines, (n=212).

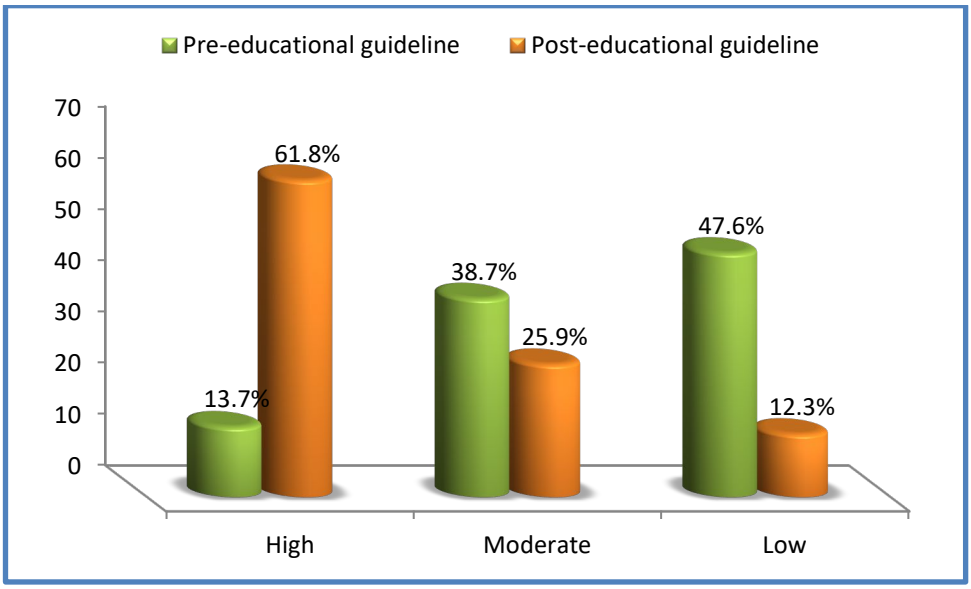

Table (4): Correlation matrix between total knowledge, attitude and total health beliefs among studied students regarding cigarette smoking cessation pre and post educational guidelines (n=212).

Items			Total knowledge	Total attitude	Total health belief
Pre – Educational Guidelines	Total knowledge	R	1	.613	.408
		p-value		.000**	.000**
		N	212	212	212
	Total attitude	R	.613	1	.100
		p-value	.000**		.147
		N	212	212	212
	Total health belief	R	.408	.100	1
		p-value	.000**	.147	
		N	212	212	212
Post-Educational Guidelines	Total knowledge	R	1	.848	.624
		p-value		.000**	.000**
		N	212	212	212
	Total attitude	R	.848	1	.260
		p-value	.000**		.000**
		N	212	212	212
	Total health belief	R	.624	.260	1
		p-value	.000**	.000**	
		N	212	212	212

**** highly statistically significance p<0.001**

Discussion

Teenagers who smoke tend to do so frequently. Campaigns aimed at helping people quit smoking that include behavioral, legal, and financial approaches should receive special attention. Teenage tobacco use poses a serious public health issue, particularly in underdeveloped nations. The risks of smoking consequences are higher in younger

smokers. Lung cancer, atherosclerotic cardiovascular disease, and COPD are the leading causes of smoking-related mortality **(Albangy et al., 2019).**

Concerning demographic characteristics of studied students, about two-fifths of the students in the study were 17 years old, with Min –Max16-18 and Mean ±SD were 17.78±0.81, more than half of them lived in rural areas. Additionally, most of them received pocket money and were still living with both parents. These results were in the same line with **Al-Murshedi & Baiee (2018),** who conducted research in Al-Hilla City, Iraq, N=810, revealed that the participants' mean age was (17.15± 1.21) years, with ages ranging from 15 to 23 years. Additionally, the bulk of participants were males (70%) while (89.9%) from metropolitan areas, and 60 % had good economic status.

Concerning studied students smoking status, the present study indicated that more than three-quarters of the investigated adolescents were between the ages of 10 to less than 15years old when they smoked the first cigarette. This finding agreed with **Akl et al. (2022),** who carried a study on smoking behavior among adolescents; Lebanon, N= 1133, and found that the average age of first-time experience with a cigarette was around 13 years old. A significant peak three fifth was reached at age 16, and it then continued to rise steadily more than two thirds until age 17. This might be due to early cigarette usage can pose a severe risk to one's health and wellbeing since those who begin smoking earlier are more likely to become heavy smokers and are less likely to quit.

More than half of the students in the study who started smoking did so because of peer pressure, while less than quarter did it out of curiosity. Additionally, the majority of them had close friends who smoked cigarettes and more than three-quarters of them had parents who smoked. They also frequently smoked cigarettes at friends' places. These results disagreed with **Sharma& Shah (2020),** who carried out research in the Kathmandu Metropolitan City, Nipal, N=445, and discovered that more than a quarter of their respondents who smoked, their fathers also smoked in the past. This may be because students may imitate their parents, as well as cigarette smoking, being accepted by friends, and frequently visiting social places like coffee shops which influence unhealthy behavior.

Additionally, the present study indicated that the majority of the subjects tried to quit smoking; more than three-quarters of them had tried nicotine patches, and more than one-third of them had sought counseling. These results were consistent with **Lund & Kvaavik (2021),** who did a study in Norway, N=740 and found that the majority of the sample (86%) had attempted to quit within the previous year. One-fourth of the sample (25%) did not use any of the suggested approaches for quitting smoking. E-cigarettes (26%) and Nicotine Replacement Therapies (NRTs) (26%) were the most often utilized quit-smoking aids, followed by cessation apps (37%).

Concerning studied students' total knowledge level about smoking& cigarette smoking cessation pre and post educational guidelines, less than a fifth of the students in the study had good overall knowledge before educational guidelines, but that number increased to more than two thirds after educational guidelines. These results supported by **Kaur et al. (2019),** who conducted research in India, and revealed that the mean posttest knowledge score was, on average, greater than the mean pretest knowledge score (7.04+1.43), at 14.67 + 1.31. Thus, the results indicated that there would be a significant (7.63) difference between the mean of the pretest and posttest knowledge. This might be due to the dissemination of instructional booklets and vocal instruction information, cause the justification for knowledge enhancement.

Regarding studied students' total attitude toward cigarette smoking cessation, the present study demonstrated that pre-educational guidelines, more than two fifth of students had positive total attitude toward smoking cessation, while post educational guidelines, more than two thirds of them had positive total attitude level. These results contradicted with **Anan et al. (2022),** who clarifies that less than two thirds of the studied sample had negative attitude toward smoking cessation compared to more than one third had a positive attitude. This might conclude that using organized educational instructions based on a health belief model was a successful strategy to change the mindset of male secondary school pupils toward quitting smoking.

Concerning studied students' health beliefs toward cigarette smoking cessation pre and post educational guidelines, the present study's findings showed that there was a highly statistically significant improvement in all the health belief model's components between pre and post educational guidelines (p 0.000). This finding was consistent with **Lotfi et al. (2017),** who demonstrated that the mean score of components of health belief model including perceived severity, perceived benefits, perceived barriers, and guideline to action had significant increase after educational intervention than before. This result demonstrated that providing study participants with knowledge without considering the procedural or judgmental skills that would allow them to "know how" to apply, judge, and make decisions helped them improve their health beliefs and predict these results.

The previous results contradicted with **Pribadi & Devy (2020)**, who conducted research in Indonesia, N=58, and found that the variables of perceived susceptibility, severity, benefits, and self-efficacy all have a significant improvement after health belief model implementation. These findings, in the researcher's opinion, demonstrated that individuals might not pay attention to information about a threat if they did not think themselves to be at risk (low perceived susceptibility) or to be relevant (low perceived severity). Young people may participate in more risky habits like smoking because they occasionally do not regard their acts as dangerous.

The findings of the current study showed that a minority of the students had high total health beliefs prior to educational guidelines and this number increased to three fifths after these guidelines. This finding consisted with **Lotfi et al. (2017)** who reported that the average score for the components of the health belief model, including the perceived intensity, perceived benefits the perceived barriers and guide to action after the educational intervention increased than before. It was concluded that structured instruction based on a model of health beliefs was a successful strategy for improving the health beliefs of male secondary school students regarding quitting smoking.

The findings of the current study showed a statistically significant positive correlation between total knowledge, total attitude, and overall health belief. Additionally, a statistically significant correlation between overall attitude and overall health belief was discovered after educational guidelines (p 0.001). These findings were consistent with **Tawfik et al. (2022),** who conducted study in Egypt, N=262, and found that a statistically significant positive correlation between knowledge and belief variables, post-intervention perception of risk susceptibility and risk severity were the variables that significantly predicted a decrease in the likelihood of a student being a moderate or heavy smoker (p 0.001). Contrarily, **Pribadi & Devy (2020)** who found a weak positive correlation, except for perceived barriers variable which has a weak negative correlation. This could be as a result of the general educational content that students received, which highlighted the advantages of action, reduced barriers, and offered support that increases self-efficacy and the likelihood of effective behavior changes with increasing knowledge and changing attitude.

Conclusion:

According to the study's findings, the implementation of educational guidelines based on health belief model has improved secondary school male students' knowledge, attitude, and beliefs regarding smoking cessation. The results of the present study thus provided evidence in support of the hypothesis that was suggested.

Recommendations: Based on the findings of the present study, the following recommendations are suggested:

- An educational program should be carried out for adolescent students' at all educational institutions regarding smoking cessation. Also smoking management strategies should be covered in high school curricula.
- Maintain longer consultations or scheduled follow-up meetings for discussing and tracking quitting attempts.
- A variety of therapy choices, including alternative therapies, ought to be accessible, especially when mainstream treatments haven't been able to help with quitting.

- More research is required to carry out a comparison of qualitative and quantitative smoking cessation techniques, which could boost quit rates at the national level.

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الملخص العربى

الإرشادات التعليمية القائمة على نموذج المعتقد الصحى فيما يتعلق بالإقلاع عن تدخين السجائر بين طلاب المدارس الثانوية بنين

الخلفية: يعتبر التدخين، وخاصة بين المراهقين، مصدر قلق خطير على الصحة العامة في جميع أنحاء العالم لأنه يرتبط بزيادة الوفيات.

. **الهدف:** هدفت الدراسة إلى تقييم تأثير الإرشادات التعليمية القائمة على نموذج المعتقد الصحى على معلومات وإتجاهات ومعتقدات طلاب المدارس الثانوية بنين فيما يتعلق بالإقلاع عن تدخين السجائر.

تصميم البحث: تم استخدام تصميم شبه تجريبي لإجراء الدراسة.

مكان الدراسة أجريت الدراسة في مدرسة بنها الثانوية الميكانيكية ومدرسة بنها الثانوية الزخرفية بنين فى مدينة بنها، القليوبية، مصر.

العينة: عينة غير إحتمالية غرضية وطريقة كرة الثلج تضمنت 212 طالبا من الأماكن المذكورة سابقاً.

الأدوات: تم استخدام ثلاث أدوات. **الأداة الأولى:** استبيان مقابلة منظم: يتكون من جزأين، الجزء الأول: لتقييم الخصائص الديموغرافية للطلاب المدروسين وحالة التدخين لديهم. الجزء الثاني: تقييم معرفة الطلاب المدروسين فيما يتعلق بالتدخين والاقلاع عن تدخين السجائر . **الأداة الثانية**: تقييم اتجاهات الطلاب المدروسين فيما يتعلق بالإقلاع عن تدخين السجائر. **الأداة الثالثة:** مقياس نموذج المعتقد الصحي؛ لتقييم معتقدات الطلاب المدروسين فيما يتعلق بالإقلاع عن التدخين.

النتائج: فقط 14.6 % من الطلاب المدروسين لديهم إجمالى معلومات جيدة قبل الإرشادات التعليمية، تحسنت إلى 72.6% بعد الإرشادات التعليمية، 44.8% منهم لديهم اتجاهات إيجابية قبل الإرشادات التعليمية تحسنت إلى 67.9% بعد الإرشادات التعليمية ، كما أن 13.7% منهم كان لديهم معتقدات صحية عالية قبل الإرشادات التعليمية تحسنت إلى 61.8٪ بعد الإرشادات التعليمية فيما يتعلق بالإقلاع عن تدخين السجائر . كان هناك ارتباط إحصائي موجب بين المعرفة الكلية والاتجاه الكلي وبين المعرفة الكلية والاعتقاد الصحي الكلي بعد الإرشادات التعليمية. كما وجد ارتباط إحصائي موجب بين الاتجاه الكلي والاعتقاد الصحي الكلي ($p<0.001$)

الخلاصة: تنفيذ الإرشادات التعليمية القائمة على نموذج المعتقد الصحى أدى إلى تحسين معرفة واتجاهات ومعتقدات طلاب المدارس الثانوية الفنية بنين فيما يتعلق بالإقلاع عن التدخين.

التوصيات: ينبغي تنفيذ برنامج تعليمي للطلبة المراهقين في جميع المؤسسات التعليمية فيما يتعلق بالإقلاع عن التدخين. كما ينبغي تغطية استراتيجيات إدارة التدخين في مناهج المدارس الثانوية.