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The role of the physical and athletic activity in the reduction of smoking symptoms for the secondary level students

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ABSTRACT

The study aimed to identify the role of the physical and athletic activity in the reduction of smoking symptoms for the secondary level students. The researcher have used the descriptive method and we have deliberately selected the sample, which consisted of 50 students from some of the secondary schools in northeastern Setif who smoke regularly from 06-11 cigarette a day and they don't take medicines which help them to quit smoking. We have made a test: Fagerstrom test, Horn test and Demaria test during physical and athletic education sessions according to the time tables in order to measure the student's desire to reduce smoking. After analyzing the results, we have concluded from this study that there are statistical significant differences in error ration 0,001 between the results of tribal and remote tests of Fagerstrom test, Horn test and Demaria tests in the research sample. In light of the study's results the researcher have concluded the following:

That the physical and athletic activity reduces the student's physical and psychological desire to rely on nicotine, in addition to that the physical and athletic activity increases student's desire to reduce smoking. As that physical and athletic activity may help, spacing the periods in which the smoker has an urgent desire to smoke, this positive change is due to changes, which occur in the smoker's body.

1. Introduction

The issue of smoking has aroused the interest of international health organization (WHO), and doctor's colleges in Britain and also the medical bodies in Europe and America and the ministries of health around the world, and that is after it proved beyond any doubt that smoking is more dangerous than any global disease, and the number of people who died cause of smoking in the world is tens of millions each year, also the number of those who live miserable life full of diseases is more than this (Ali Al-Bar ,1986, pp. 9)

What is dangerous in the issue of smoking is the prevalence of smoking among teenagers, the middle and secondary school students epidemically, which leads to the importance of studying the reasons motivate those students towards this behavior and knowing the risks arising from this negative phenomenon among the pre-university students. According to a study made by World Health Organization about the healthy behavior of children and adolescents in school, there is about 18% of adolescents (15 years olds) smokes cigarettes at least once a week, and a number of studies indict that in the last twenty years, the adolescents became more likely to be promoted and marketed to wards smoking behavior at an early age, and most teen smokers reported that they started smoking before the age of 18 (World Health organization , 2011).

In recently, the phenomenon of smoking has increased among our children inside and outside the school environment and students are rushing to prove themselves, by consuming different types of cigarettes, which they consider as a fashion to compete for and brag with it, ignoring the physical and psychological health risks caused by smoking, to the extent that the student in the prime of life has become addicted to smoking, it also shows symptoms show as the process of reducing or the desire to stop it is very difficult as a result excessive consumption of it and the strong desire to consume it this makes us sound the alarm.

The lesion of smoking is a worrying phenomenon that threatens the individual and the society, so it is important to know its causes and its negative impact, and try to find out the proposed ways to reduce it, so it's necessary intensify efforts and unit forces to eliminate or reduce this lesion which is increasing day after day, especially in the school environment.

The educational institution has a prominent role after the family to face these social lesions, by adopting various methods and ways, such as raising

awareness and sensitizing student to the harmful effects of smoking and its destructive consequences and organizing and seminars to introduce its risks and ways to prevent them, and presenting realistic cases to highlight the extent of its danger in the short or the long term, In addition to preparing a regular and behavioral laws to be applied and smoking students who disclosure in the school environment and strictness in imposing the maximum punishments, in addition to this programing of awareness – raising, sensitizing and therapeutic sports courses and activities at the same time inside and nitride the school.

This therapeutic awareness work must be done by all members of the educational institution, each according to this position including teachers of physical and sport education, and what they can provide through various type of physical and sports activities, where educators and doctors emphasized on the importance and the effectiveness of physical and sports activity in reducing and preventing smoking, and the desire to quit it, and this can be applied through physical and sport education sessions as the first step towards organizing and directing student behavior and preventing the lesion of smoking before he grow up with this behavior.

The theoretical background

Research problem:

The public and private de not differ that physical and sports activities have importance and status within educational institutions with their various levels concerning physical and psychological health of the students in general and secondary level students in specific, it helps to quickly adapt to the good community, and gives more desire to practice sport activities outside the school instead of being preoccupied with some improper behaviors that may lead him to physical and mental destruction and make him drown in social spy tare and deviation.

Physical and sports education sessions are the only sanctuary for student, where he empties his energies and reveals his repressions and what he suffers as physical and psychological problems, with those who listen to him and direct him whether his friends or teachers to the good behaviors, or give him the ways of treatment of the diseases he suffers from, and especially the lesion of smoking which neither the old nor the young were spared from it.

Also, through the student's practice of some compulsory physical and sports activities inside the school in the secondary level in Algeria, the student addicted to smoking discovers that he can not continue practicing a

some of the tasks and performed exercises, and especially the competitive exercises, and this is due to the failure of some of his functional organs, such as respiratory system and the circulatory system, feeling tired and shortness of breath for even a slightest effort.

From here, a conviction arises to him, accompanied with dissections and awareness that he must stop smoking and take a treatment.

Through all what is motioned above, the research problem is manifested in the following main question:

- Does practicing physical and sport activity have a role in alleviating the symptoms of smoking among students who smoke in the secondary level?

The following sub- question emerge from the main question:

- Are there statistically significant differences in the levels of physical habituation to nicotine (addiction) and the degree of success of smoking cessation among smoking students?
- Are there statistically significant differences in the levels of psychological desire to smoke cigarettes among smoking students?

Literature Review

Research terms:

- **Physical and sports activity:**

"MATT FIF" defines physical and sports activity as an activity of special form, and it is the organized competition in order to measure the capacities and ensure their maximum determination, thus, what distinguishes sports activity that is the physical training with the aim of achieving the best possible result in the competition, not for the sake of the individual athlete only, but for the activity itself (Amin Anwar , 2001, pp 22).

- **Smoking:**

A behavioral habit that includes the process of detecting tobacco that contain quantities of tor and nicotine (World Health organization , 2011)

- **Addiction:**

Ti is a state of chronic poisoning that harms the individual and society, resulting from repeated abuse of a specific drug that may be of plant origin (natural), such as opium and cocaine, or synthetic that is inhaled, drunk, or injected, such as morphine (Fathi , 2005, pp 8).

- **Age group (18-21 years):**

It is called youth, as it is considered the stage of making critical decisions in which he takes future professions, as well as choosing to marry or abstain from it, and it is which growth reaches the stage of maturity and tends to emotional stability and crystallization of some personal emotions and self-

reliance and the search for social status, and has emotions towards beauty and then nature and the other sex (Hamid Abdel Salam , 1986 , pp 263-264)

The previous studies:

- **(Ussher , Nunziata , Cropley , & Robert , 2001, pp. 66—72)**

Titled the effect of short bout of the exercise on smoking cessation and desire to smoke, this study aimed to investigate the effect of a short bout of moderate intensity exercises on the desire to smoke and the symptoms of abstinence from smoking, the researchers used 72 smokers with an average age of 40 years, who were divided in two control group; the first one doesn't practice physical activity, and the second watch videos and amothers experimental group which practice 10 minutes of moderate intensity aerobic physical activity, the researchers used the Fagerstom test as a statistical method, and after analyzing the results, the researchers reached the following conclusion: there is a decrease in the desire to smoke between the experimental group and the two control group during the physical activity and even after 5 and 10 minutes from its end (Ussher , Nunziata , Cropley , & Robert , 2001)

- **(Taylor & Katomeri , 2007, pp. 1183—90)**

Titled walking reduces the fear of cigarette cessation symptoms and delays smoking addiction, this study aimed to investigate the effect of walking en-smoking cessation; the researchers used 60 smokers who smoke regularly, their average age 28,6 years, it was divided into two grouped negative control group that does not practice physical activity while the second experimental group which practice brisk walking (aerobic) for a period of 15 minutes at a low intensity, after statistical processing, the researchers reached the following:

There are significant differences between the experimental group and the control group in favor of the experimental group (Taylor & Katomeri , 2007)

- (Janse Van Rensburg & Taylor , 2008, pp. 193—9):

Entitled the Acute Effect of Exercise on Smoking Behavior, the study aimed to find out the effect of acute exercise on smokers, the researchers chose 23 smokers randomly, and the experimental group was subjected to physical activity (aerobic exercises) of low intensity for 15 minutes, and another negative control group, after statistical processing, the researchers concluded the following: There is a decrease in the desire to smoke among the experimental group and the control group at the end of the physical activity and even 5 and 10 minutes after its end. (Janse Van Rensburg & Taylor , 2008)

2. Method and Materials

- Method used in the research:

Given the nature of our research topic and its problem related to the importance of physical activity in alleviating the symptoms of smoking, the researcher relied on the appropriate descriptive in the style of comparative causal studies approach to the research topic and achieving its objectives.

The descriptive approach collects and categorizes data, and attempts to interpret and analyze it in order to measure and know the impact and influence of factors on this phenomenon under study in order to draw conclusions and know how to control and control these factors (Rabeh , 1984 , pp 23)

2.1. Participants

If the definition of a research community is " all the individuals, events, or things that are the subject of a problem,

The research community should include the following points: It contains all the groups that are included in the research, also it includes all members of the original community, and the data should be accurate and taking into account the non-repetition of the individuals or some of the research sample (Hassan Ahmed & Suzan Ahmed Ali , 1999 , pp 45)

Therefore, the community of our study consists of smoking students in the secondary level of some secondary schools in the north- east of the state of Setif.

The basic research sample included smoking male students in some secondary schools in the north-east of the state of Setif and those who were not involved in sports clubs and who were qualified to practice physical and sports education , which their number reached 50 smoking student with an average age of 20.3 years who regularly smoke more than one cigarette a day , and those who do not take medications to help them reduce smoking, They do not engage in any outdoor sports activity, whether recreational or competitive and therefore were chosen in a deliberate way to avoid extraneous factors.

2 .2. Materials

The researchers used a set of tools to get acquainted with the theoretical aspect about the subject of the research through various Arab and foreign literature, sources and references, in addition to the use of the Internet.

The researchers also used three questionnaires represented in the Fagerstrom test proposed by Heatherton, and others in 1991 to measure the physical habituation to nicotine (Underner , Le Houezec , Perriot , & Peiffe, 2012, p.

364) And the Demaria Grimaldi test to measure the chance of success in getting rid of smoking symptoms, and helps to choose the right moment to quit smoking (Demaria , Grimaldi , Loufrani , & Lagrue , 1987, pp. 3321-5) Finally, the Horn test, which allows the creation of a psychological model of smoking addiction, by finding the associated and accompanying sensations during smoking: pleasure, relaxation, well-being, anxiety and stress, and this test also identifies the various factors leading to smoking (Di Franza & coll , 2002, pp. 397-403)

-Scientific basis for the tests:

- **Stability:**

To calculate the test stability coefficient, the two researchers applied the test method and re-applied it to the exploratory experiment sample and then excluded from the basic experiment by distributing questionnaires to 15 smoking students from the secondary schools concerned with the study on 17/10/2016.

The questionnaires were redistributed to the same sample after 15 days, i.e. 02/11/2016, taking into consideration the circumstances in which the questionnaires were distributed.

The first time, so that there is no room for the emergence of some variables that can affect the results.

After statistical processing, we found the reliability coefficients of the Fagerstrom, Di Maria Grimaldi and Horne test in order as It follows: 0.762, 0.791 and 0.767, which is greater than the tabular account r = 0.742 at an error rate of 0.001 and a degree of freedom of 14, this indicates that the questionnaires have a high degree of stability.

- **Honesty:**

The researcher used the validity of the content, by distributing the form to a group of arbitrators in order to express their opinion about each paragraph (question) and the extent to which it belongs to the axis of which it is part, and this is calculated by chi-square, and it was noted that there are statistical differences between the opinions of the arbitrators about the extent to which the paragraphs belong to the axes of the form, where The calculated chi-squared value was greater than the tabular chi-squared value in all test items of Fagerstrom, Di Maria Grimaldi and Horne. This indicates that all the paragraphs of the form belong to its axis, and thus the validity of its content

- **Objectivity:**

The questionnaires in this research are easy, clear, non-interpretable, and far from self-evaluation. Thus, the questionnaires are of good objectivity.

2 .3 . Design and Procedure

- **Basic experiment:**

The researchers distributed the questionnaire to 35 smoking students before and after the beginning of the physical education session on 9/11/2016 in order to answer it ،the process extended for a whole month until 8/12/2016, after that the forms were filled out and the results were obtained.

- **Pre-tests:**

The two researchers with the assistant work team conducted the pre-test by distributing the questionnaires to the basic research sample before practicing the physical education session with the teacher and answering them, then collecting them and converting them into results.

- **Followed program:**

The maintenance program (aerobic activity) prepared by the Ministry of Education was implemented for a full semester, at a rate of one hour per week.

- **Post tests:**

After completing the physical education session, the forms were distributed and in the same circumstances in which the tribal forms were distributed

2 .4. Statistical Analysis

The researchers used the StatPlus program to extract the following: percentage, arithmetic mean, deviation Standard, Karl Pearson's simple correlation coefficient, Chi-squared distribution, coefficient of difference T and Cohen's d effect size.

3. Results

Table 1. The significance of the differences between the arithmetic means and standard deviations before and after the Fagerstrom test and the Di Maria Grimaldi test for the research sample:

		Sample numer	Arithmetic Mean	Deviation Standard	Coefficient of difference (T)	Result	Cohen's d
Fagerstrom Test	Pre-test	35	6,85	4,38	-3,862*	Statistically Significant	0,652
	Post test		5,34	2,07			
Di Maria Grimaldi test	Pre-test		5,77	1,84	3,689*	Statistically Significant	0,623
	Post test		7,25	4,21			

* Significant at an error rate of 0.001 and a degree of freedom of 34 and tabular account T = 3,348

Through the results obtained from the Fagerstrom test and the Di Maria Grimaldi test of the research sample for secondary schools and after using the statistical program (StatPlus) to calculate the arithmetic mean, and the

standard deviation and the coefficient of differences (T) as shown in Table No. 01, it becomes clear to us: The arithmetic mean account of Fagerstrom pre-tests was (6.85) and standard deviation (4.38), while the arithmetic mean of the post-tests amounted to (5.34) and standard deviation (2.07), and the account of the coefficient of differences (T = 3,862) It is greater than the tabular account T = 3.348, with an error rate of 0.001, and a degree of freedom of 34, As for the Di Maria Grimaldi test, the arithmetic mean account of the pre-tests was (5.77), with a standard deviation (1.84), and the arithmetic mean account of the post-tests was (7.25), with a standard deviation (4.21), while the account of the coefficient of differences (T = 3.689), which is greater than the tabular account, T = 3.348, was recorded at an error rate of 0.001, and a degree of freedom 34.
While the effect size (Cohen's d) for the Fagerstrom Test and Di Maria test for the experimental group between the pre-test and the post-test was estimated at 0.652 and 0.623, respectively, and the strength of the effect is explained as a medium effect.

Table 2. The significance of the differences between the arithmetic means and the standard deviations before and after the Horn test for the research sample:

Horn Test	Sample	pre-test		post test		T Test	significance	Cohen's d
		S	D	S	D			
Energizing	35	6,77	1,57	7,25	1,52	2,082	not significant	-
moment of peasure		10,17	5,59	8,25	2,99	4,385*	Significant	0,736
Relaxation		11,05	6,57	8,88	2,88	3,473*	Significant	0,587
Stress		11,85	5,57	9,05	2,71	5,797*	Significant	0,979
absolute need		5,08	2,14	3,94	1,69	2,016	not significant	-
acquired need		8,11	2,55	8,00	2,53	0,18	not significant	-

* Significant at an error rate of 0.001 and a degree of freedom of 34 and tabular account T = 3,348

Through the results obtained from the Horn test of the research sample of the secondary schools concerned and after using the program (StatPlus) by calculating the arithmetic mean, standard deviation and coefficient of difference (T) as it is shown in Table 02, it becomes clear to us:
The account of the arithmetic mean of the pre-tests showed the following feelings: pleasure, relaxation and anxiety were (10.17-11.05-11.85) and with a standard deviation (5.59-6.57-5.57), respectively, which represents the strong psychological addiction model and the need for nicotine. They are biochemical processes that occur in the brain that are carried out by the secretion of hormones that give us Feeling of delectability, comfort and

pleasure while smoking a cigarette also the hormone of adrenaline is secreted, and there is a change in Dopamine levels.

As for the arithmetic mean of the post-tests for the same previous feelings (8.25-8.88-9.05) and with a standard deviation of (2.99-2.88-2.71), which show a weak psychological habituation towards nicotine, While the account of the coefficient of differences was (T=4.385-4.473-5.797), which is greater than the tabular account of T= 3.348, With an error rate of 0.001, and the degree of freedom is 34.

The value of the effect size (Cohen's d) of the Horn test in sensations: moment of pleasure, relaxation, Stress in the experimental group ranged between the pre-test and the post-test was estimated (0,736- 0,587-0,979) respectively and explains the strength of the effect of each of the moments of pleasure and relaxation with a medium effect, while Stress is a strong effect, while The rest of the feelings have no effect

4. Discussion

The researchers concluded that there is even a slight effect between the pre and post tests in the research sample for the two tests Fagerstrom and Di Maria Grimaldi, and this confirms that practicing physical and sports activity reduces students' physical habituation to nicotine and increases the degree of their success to quitting smoking. This also indicates the importance of aerobic activity in the secondary level to reduce the student's physical desire to depend on nicotine or not and increase the success rate of reducing smoking, in which he emphasized (Taylor & Katomeri , 2007) on the importance of low intensity aerobic brisk walking activity for smoking cessation in his study.

The researcher see that these differences may be due to the weak intensity of physical and sports activity, and this is what was indicated by (Underner , Le Houezec , Perriot , & Peiffe, 2012) in their survey study, where they found 7 studies containing different levels of physical activity intensity, all of them are aerobic activity, 6 of them it was noted that there is a benefit from physical activity to relieve Smoking each time, and this effect varies according to the intensity of the physical activity (Underner et al, 2015, p. 3) This is what was reached by the studies of: (Janse Van Rensburg & Taylor , 2008), where there was a reduction in the desire to smoke among the experimental group and the control group at the end of the physical activity and even after 5 and 10 minutes from its end.

According to a study (Ussher , Nunziata , Cropley , & Robert , 2001) Where the researchers confirmed that there was a reduction in the desire to

smoke between the experimental group and the two control groups during physical activity and even after 5 and 10 minutes of its end, while only one study found (Everson , Daley , & Ussher , 2006) Among adolescents, and the only one that did not find significant significance in reducing smoking for the group practicing moderate or light intensity physical activity and explained (Underner et al, 2015, p. 3) that the time or intensity of physical activity is weak and very little among young people with an average age of 17.7

The researcher also concluded that there is a discrepancy between the pre and post tests in the research sample for the Horn test, which confirms that physical and sports activity relieves psychological addiction to nicotine and reduces smoking. In the previous cases, the release of endorphins, which leads to feeling better in the end.

(Taylor & Katomeri , 2007) the decrease of the desire as a result of physical activity can be explained as partial changes of dopamine activity at the level of the emotional center system (the limbic system) through the brain reward system, as shown on mice.

(Pomerleau , Scherzer , & Grunberg NE, et al , 1987, p. 27) see that high intensity physical activity leads to an increase in the account of noradrenaline, adrenaline and beta-endorphin compared to its normal account, and the very high concentrations are at the end of the physical activity and then decrease rapidly in 20 minutes after the end of the physical activity, On the other hand, during Low intensity physical activity We do not observe any changes in the three compounds (Pomerleau , Scherzer , & Grunberg NE, et al , 1987, p. 27)

In the same context, (Underner et al, 2015) finds that reducing the stimulation of tobacco through physical activity It can be offset by a decrease in the activity of the brain area related to concentration and vision, and this phenomenon does not occur in a position of rest (Underner et al, 2015, p. 3)

5. Conclusion:

Smoking is a widespread habit within secondary schools, as it affects the health of the student and his output, given the seriousness of this phenomenon, which has become a concern for the entire educational family and society, we, as specialists in the field of physical education, must move in order to contribute as much as possible to combat it through the preparation and application of well-studied and controlled physical and

sports activities in order to reduce the Symptoms of smoking for students, as well as improving their psychological and emotional state. Numerous studies and research have proven that regular physical and sports activity is the strongest factor in helping to reduce smoking, as it fills the psychological and physical vacuum of nicotine and distracts the smoker from the need for it, and reduces his desire to take a cigarette And about the mechanism of physical and sports activity to help reduce smoking, it was found that physical and sports activity It leads to the secretion of the hormone dopamine, which has the effect of closing, as it sticks to the neurochemical receptors, It performs the same effects that an addict misses which is caused by nicotine, and that reduces symptoms of dependence and addiction.

Regular physical and sports activity has the ability to reduce smoking because it reduces anxiety and stress It relieves withdrawal symptoms and improves the mood, in addition to its ability to distract the focus towards other things.

That is why we have made a study dealing with the role of physical and sports activity in reducing the symptoms of smoking among secondary school students in some secondary schools in the north-eastern state of Setif, from which we reached the importance of students' practice of physical and sports activity to relieve the symptoms of physical and psychological addiction, which helps students to distance Between the time periods in which the smoker student feels an urgent desire to smoke, these positive changes are due to changes occur within the student's body

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