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Relationship between physical activity and smoking behavior among college students

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Abstract

Poor diet, alcohol consumption and cigarette smoking constitute a major public health concern for West Bengal, India. These behaviours are increased among day by day among students which are problematic particularly in their concentration and physical fitness. It is well documented that cigarette smoking has negative impacts on body health, as well as social health, economy, culture, etc. So, the purpose of this study was to examine smoking behaviour and physical activity (PA) in Purba Medinipur, India and to examine cigarette smoking among young students based on education status. 50 young students (35 male, 15 female & aged 18-21 years old) from various colleges who are started cigarette smoking (minimum 2-3 cigarette / day) for 1-2 years continuously were selected. The study period was from July, 2015 to June 2016. Standardized questionnaires were supplied. The tests were used to record anthropometric data, health-related information, smoking behaviour, dietary habits and PA status. Smoking causes both immediate and long-standing effects on exercise and physical activity. Smokers also have less endurance, poorer physical performance, increased rates of injury and complications. As the college students are suffers with addiction of nicotine as well as smoking so their physical activity is reduced significantly.

Key Words : Cigarette, physical activity, smoking, tobacco.

Introduction

Smoking and physical inactivity are strongly related to a deterioration in overall health status and are among the most important modifiable risk factors for chronic disease and premature death (Papathanasiou et al., 2012; WHO, 2008 & 2011). College years often coincide with the transition from adolescence to adulthood and are a vulnerable period when young people make lifestyle decisions that once established persist into later adulthood, affecting lifelong health (Bell and Lee, 2006). It is estimated that 1 in 2 smokers will die from a smoking-related disease. Two poisons in tobacco that affect peoples' health are: Carbon monoxide is found in car exhaust fumes and is fatal in large doses. It replaces oxygen in the blood and starves organs of oxygen and stops them being able to function properly. Tar is a sticky, brown substance that coats the lungs and affects breathing. Smoking affects many different areas of the body. Smoking can increase the likelihood of having a stroke by 2 to 4 times. Strokes can cause brain damage and death. One way that stroke can cause brain injury is through a brain aneurysm, which occurs when the wall of the blood vessel weakens and creates a bulge. This

bulge can then burst and lead to a serious condition called a subarachnoid hemorrhage. Smoking can make bones weak and brittle, which is particularly dangerous for women, who are more prone to osteoporosis and broken bones. Smoking causes plaque to build up in the blood. Plaque sticks to the walls of arteries (atherosclerosis), making them narrower; this reduces blood flow and increases the risk of clotting. Smoking compromises this and can lead to autoimmune diseases, such as Crohn's disease and arthritis. Perhaps the most obvious part of the body affected by smoking is the lungs.

Smoking among college students had remained at a fairly steady level for decades: between 18 and 19 percent from 1980 to 1999, according to a survey by Monitoring the Future. But from 2000 to 2012, the proportion of college students who report smoking daily fell from 18 percent to 5 percent. Other trends have also changed over time: Whereas college women were more likely to be smokers than men from 1980 to 1992, that trend has reversed. As of 2012, 17 percent of male college students reported smoking in the past 10 days, compared to 10 percent of female college students.

Stress, defined as 'a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being' (Lazarus and Folkman, 1984), is acknowledged as a major part of the student experience (Wichianson et al., 2009). Psychological distress is an emotional state characterized by symptoms of depression and anxiety (Barlow and Durand, 2005) which is experienced in response to stress and is associated with a perceived inability to cope effectively (Ridner, 2004).

Therefore, the study of smoking behaviour and physical activity (PA) status in young adults is of critical importance for public health, not only for Purba Medinipur, but also for other States of India with a high smoking prevalence and a largely sedentary population.

Methodology

50 young students (35 male, 15 female & aged 18-21 years old) from various colleges who are started cigarette smoking (minimum 2-3 cigarette / day) for 1-2 years continuously were selected. 25 (20 male & 5 female) non-smoker young students are used for the purpose of control. The study period was from July, 2015 to June 2016. Standardized questionnaires were supplied. The tests were used to record anthropometric data, health-related information, smoking behaviour, dietary habits and physical activity status. The study protocol and all questionnaire administration procedures were extensively discussed and standardized at the beginning of the study.

Age: The oral questionary method used for age determination.

Vital Capacity: This is performed by spirometric method. For this, spirometer instrument is used. First asking the subjects to expel the maximum expired air into mouth piece before maximum inspired.

Respiratory Rate: The subjects are lying at resting condition and counting the expiration no per minutes, respiratory rate can be measured.

Pulse Rate : It is measured by counting the arterial palpitation or pulse of wrist in minute.

PFI: The physical fitness index or PFI is measured by modified Harvard step test method. First resting pulse rate is measured then after three minutes step up exercise, three recovery pulse rate e.g., 1-1.5, 2-2.5 and 3-3.5 minutes are measure, PFI is measured by following formula-

PFI = Duration of exercise (sec) x 100 / 2 x Summation of three recovery pulse rate e. g., 1-1.5, 2-2.5 and 3-3.5 minutes. Following PFI values and Physical activity are considered for this -

PFI Below 40: Activity poor, **PFI 41-50:** Activity low, **PFI 51-60:** Activity average, **PFI 61-70:** Activity good, **PFI 71-80:** Activity very good, **PFI 81-90:** Activity highest.

BMI: For the BMI measurement weight in kg and height in metre is determined then by following formula it is measured BMI = Body mass in kg / Height in metre square. Following BMI values are considered in the study, Under weight = < 18.5, Normal weight = 18.5 - 24.9, Over weight = 25 - 29.9, Obesity = > 30 kg/ metre^2.

For statistical analysis, the data were calculated by student's 't' test analysis.

Results

Tobacco use has predominantly negative effects on human health and has a close link between smoking, vital capacity and physical fitness index. Smoker students claimed that they were interested with addiction of nicotine as well as smoking due to their everyday stress. But our result claimed that smokers suffered more stressful day than the non-smokers. Both male and female smokers were increased day by day. Smokers were suffered more by headache, increased heart rate, vital capacity, physical fitness index and blood pressure than non-smokers in both the male and female smokers. Most of the female smokers were affected more by headaches and dizziness than male smokers. They were much interested with Bollywood cinema in comparison with male smokers. They inhale one cigarette and passing it each other friends. Most of the male smokers did not pay attention his course perfectly and they did not attend all classes regularly. They were much interested to ride with bike.

Toxicity of Tobacco with Physical Exercise

Physical exercise can include training that focuses on accuracy, agility, power and speed. Tobacco use has predominantly negative effects on human health and has a close link between smoking, vital capacity and physical fitness index. Smoker students claimed that they were suffered with addiction of nicotine as well as smoking due to their everyday stress. But our result claimed that smokers suffered more stressful day than the non-smokers. Smokers were suffered more by headache, increased heart rate, vital capacity, physical fitness index and blood pressure than non-smokers in both the male and female smokers. Female smokers were affected more by headache than male smokers. Male smokers did not pay attention his course perfectly. Male smokers did not attend all classes regularly.

Effects of Physical Exercise with Smoking

Nicotine makes smoker students feel good when you are smoking, but it can make you anxious, nervous, moody, and depressed after 1-2 hours. Smoking increases their heart rate and blood pressure. Smoker male students were decreased physical fitness index due to less blood and oxygen flows to the muscles. Smoker female students did not inhale much smoke inside her body in most cases. So they did not much affect in PFI.

After 30 minutes 'dynamic' exercises such as steady running per day of smoker students get improve the health, quality of life, vital capacity and PFI significantly due to lowering of the diastolic blood pressure. Other hand, conversely, static exercise (such as weight-lifting) can cause the systolic pressure to rise significantly (during the exercise).

Conclusion

Exercise is the movement of different body part at static and dynamic kinds. Smoking students has harmful effects to body include physical activity. The college students are addicted with smoking by different causes and suffers with at decreased level of low performance. Through smoking tobacco entering into blood stream decreased the activity of lung, heart, blood vessels etc. Reduction in health-damaging smoking behavior among adolescents could be an additional benefit of being physically active. It is clear that students link with smoking lowered the physical activity with decreased the efficiency with activity. This research established that after increasing physical activity of these students increased physical fitness.

Table 1. Personal characteristics, smoking behaviour and physical activity status of the students.

	Total students	Male	Female
A) Non- smoker			
Age (yr.)	17 -22 yr.	17 -22 yr.	17 -22 yr.
BMI (kg/metre^2)	20.78 ± 0.65	22.36 ± 0.75	18.98 ± 0.62
Vital Capacity (ml)	2868 ± 82.06	3070 ± 120.91	2784 ± 102.89
Respiratory Rate (breath/minute)	17.80 ± 0.66	20.20 ± 0.86	16.00± 0.71
Pulse Rate (beats/minute)	75.00 ± 4.18	80.00 ± 3.54	68.00 ± 2.55
Physical Fitness Index (PFI)	66.20 ± 2.48	71.60 ± 2.58	60.60± 2.60
B) Smoker			
Age (yr.)	17 -22 yr.	17 -22 yr.	17 -22 yr.
BMI (kg/metre^2)	22.21 ± 0.61 NS	23.50 ± 0.55 NS	19.54 ± 1.04 NS
Vital Capacity (ml)	2462 ± 49.94 P<0.01	2498 ± 34.99 P<0.01	2258 ± 62.24 P<0.01
Respiratory Rate (breath/minute)	22.60 ± 1.21 P<0.01	21.00 ± 1.14 NS	17.20 ± 0.86 NS
Pulse Rate (beats/minute)	77.00 ± 2.56 NS	81.20 ± 1.24 NS	70.80 ± 1.83 NS
Physical Fitness Index (PFI)	58.00 ± 2.03 P<0.05	58.40 ± 2.86 P<0.01	56.40 ± 2.12 NS
C) **Remove Smoking (Compares with smokers) Subjects**			
Age (yr.)	17 -22 yr.	17 -22 yr.	17 -22 yr.
BMI (kg/metre^2)	21.00 ± 1.08 NS	21.25 ± 0.63 NS	19.50 ± 0.65 NS
Vital Capacity (ml)	2908 ± 27.09 P<0.001	3056 ± 61.53 P<0.001	2732 ± 57.04 P<0.001
Respiratory Rate (breath/minute)	21.60 ± 0.51 NS	21.80 ± 0.97 NS	19.40 ± 0.51 NS
Pulse Rate (beats/minute)	72.80 ± 1.50 NS	78.20 ± 1.16 NS	69.00 ± 0.69 NS
Physical Fitness Index (PFI)	72.20 ± 0.97 P<0.001	69.60 ± 1.21 P<0.01	59.80 ± 0.86 NS
*NS = Not significant & P<0.05/<0.01/<0.001 = Significant			

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