ORIGINAL RESEARCH

Assessment of Effect of Behavioural Counselling for Nicotine Dependency on Stress Level Among Police Personnel in Haldia City, West Bengal – A Randomized Controlled Trial

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ABSTRACT

Aim: Assessment of effect of behavioural counselling for nicotine dependency on stress level among police personnel in Haldia city, West Bengal.

Objectives: To assess the nicotine dependency among police personnel in Haldia City. To assess the stress level among police personnel in Haldia City. To find the effect of behavioural counselling for nicotine dependency on stress level among police personnel in Haldia City.

Materials and Methods: This randomised controlled trial was conducted to assess the effect of behavioural counselling for nicotine dependency on stress level among police personnel. One hundred and fifty participants were distributed to health education along with behavioural counselling as one study group and control group as the second group using lottery method with an allocation ratio of 1:1.

Results: There was a significant difference found in the effect of behavioural counselling for nicotine dependency on stress level among police personnel.

Keywords: Behavioural counselling, Nicotine dependency, Stress level, Police personnel.

How to cite this article: Chatterjee S, Gupta G, Kumari A, Sandhu KS, Prasad RR, Agrawal M. Assessment of Effect of Behavioural Counselling for Nicotine Dependency on Stress Level Among Police Personnel in Haldia City, West Bengal – A Randomized Controlled Trial. Int J Prev Clin Dent Res 2018;5(1):S105-108.

Source of support: Nil

Conflicts of interest: None

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INTRODUCTION

Tobacco use is one of the important preventable causes of death and a leading public health problem all over the world. Tobacco kills one person every 6 s and causes 1 in 10 deaths among adults worldwide which amounts to more than 5 million people a year. More than 80% of the world's tobacco-related deaths are estimated to be in low- and middle-income countries by 2030.[1] Health is a common theme in most cultures and a fundamental human right without distinction of race, religion, political belief, and economical and social condition. Oral health is an integral part of general health and is one of the determinants of quality of life. Occupational environment plays a major role on the health of the exposed. The health hazards get more severe with the difficulty of job. This fact is more important in situations as of the police personnel who provide continuous service to the civilians. Policing is a complex occupation. Due to the complexity of policing, risks and exposures may vary within forces, between forces, and internationally. Officers' involvement ranges from general, daily, proactive patrol activities, to specific criminal activities such as narcotic investigations. Because there is such a wide range of activities involved in police work, there are many health and safety issues surrounding policing as an occupation.[2] Stress has become significant due to dynamic social factors and changing of lifestyle. Stress is man's adaptive reaction to an outward situation which would lead to physical, mental, and behavioral changes.[3] Smoking is the main cause of avoidable diseases and premature disabilities in developing countries. According to the World Health Organization (WHO), by the year 2020, there will have occurred 10 million deaths from diseases associated with tobacco, of which 70% of these will be in developing countries. In India, the current data of Global Adult Tobacco Survey

(GATS) show that there are 14% of the adults; 24.3% of males and 2.9% of females are smokers and about 5 in 10 current smokers (46.6%) plan to quit.[4] It is essential to prevent oral diseases and promote oral health for this special group of population. The failure to identify and solve health concerns of officers has potentially serious consequences, as police officer's fatigue reduces contribution of policing the community. No epidemiological data have been reported on existing knowledge about tobacco use among police personnel in Haldia City. This information is important for establishing priorities and determining the type and quantity of prevention and treatment services required, as well as the type of personnel required to provide them. Keeping this in mind, this study was undertaken to assess effect of behavioral counseling for nicotine dependency on stress level among police personnel in Haldia City, West Bengal.

MATERIALS AND METHODS

This randomized controlled trial was conducted to assess the effect of behavioral counseling for nicotine dependency on stress level among police personnel. One hundred and fifty participants were distributed to health education along with behavioral counseling as one study group and control group as the second group using lottery method with an allocation ratio of 1:1. The study population comprised all police personnel from nine police stations in Haldia City, West Bengal. The study was conducted over a period of 3 months. It included baseline data along with two follow-ups after 15 days and 3rd month. The ethical clearance was obtained from the ethical committee review board of the Haldia Institute of Dental Sciences and Research, West Bengal, before the start of the study. Permission was taken from the sub-divisional officer for conducting the study on all the police personnel in all the police stations under the subdivision Haldia. Permission was taken from all the participants before conducting the study in all the police stations under the subdivision Haldia. To avoid dissemination of the interventions, participants were randomly assigned in the study and control groups using lottery method. These two groups consisted of 150 subjects. Only male participants were included who were consuming tobacco for a minimum of 6 months (any form) and minimum of 3–4 times/day. Participants were excluded who were tobacco consumers with other drug dependence and under those medications which may interfere with this intervention. Police personnel who were currently involved in any other tobacco cessation method were also excluded from the study. The study participants were selected using simple random sampling from police personnel who received health education along with behavioral counseling as the study group and control group as the second group. After obtaining the written informed consent from the participants, they were randomized to the study group and control group with an allocation ratio of 1:1.

In this study, behavior counseling was used for tobacco cessation. Behavior counseling was given to all the participants in both the groups at their working place. It highlighted the interventions of the MPOWER package, emphasizing mainly on the encouragement to maintain the abstinence, reminding about importance of maintaining abstinence, advising about stress, mood management, and so on. The participants of the control group were provided with health education at baseline which contained information mainly on tobacco cessation. The investigator was trained at the program conducted by the experts from the National Institute of Mental Health and Neuro Sciences (NIMHANS) for tobacco cessation counseling approach at the "The Oxford Dental College, Bengaluru." Data will be entered into SPSS for Windows version 23 for analysis. Descriptive statistics, including frequency, percentage, and mean, will be used to summarize the outcome and other variables. Chi-square test will be used to compare categorical variable between subgroups.

RESULTS

The design of the study is randomized control trial with parallel group design with an objective to know the effect of behavioral counseling based intervention on tobacco cessation counseling. One hundred and fifty participants were randomly allocated to the study group and control group using lottery method with 75 participants in each group.

The mean age in the study group was found to be 32.33 ± 5.1 years (Mean ± SD) and in the control group, it was 31.39 ± 4.9 years with a mean difference of 0.944 and after performing independent sample *t*-test, the difference was found to be insignificant ($P = 0.801$).

Comparison of the mean of total Fagerstrom scale scores between the study group and control group subjects from baseline, 15 days, and 3 months was found to be significant [Tables 1 and 2]. Comparison of the mean of total Maslach Burnout scale (stress level) scores between the study group and control group subjects from baseline, 15 days, and 3 months was found to be significant [Tables 3 and 4].

DISCUSSION

Good oral health among serving personnel is essential for their efficient performance. Good oral health of the police personnel would reduce the number of urgent dental intervention and absence from duties and hence would improve the security of the entire community.[3]

The study area Haldia City, being the industrial area of coastally located Indian state West Bengal, possesses all the major administrative offices, Haldia Port, companies, and political offices, thereby keeping policemen under constant workload and stress, which makes it common for them to neglect their general health including oral health. Furthermore, stress acts as a potential factor for engaging in deleterious habits which further deteriorates oral health. The present study, to our knowledge, is the first epidemiological study related to oral health education about tobacco use among police personnel of Haldia City. The survey featured a total of 299 police personnel with a mean age of 29.78 years.

Adverse habits such as smoking, tobacco chewing, and alcohol consumption are the key health behaviors that have wide implications for fitness and performances. A study done among police personnel of Kolkata by Sen *et al*. showed that the alcohol and smokeless tobacco chewing habits are significantly higher among the policemen, whereas smokeless tobacco consumption was found to be one of the risk factors for developing hypertension in policemen.[4] Analysis of pernicious habits in this study revealed that majority police personnel indulged in some form of adverse habit, mainly tobacco consumption. The habits among the noncommissioned soldiers of Bangladesh army were found to be as low as smoking 6.0%, beetle nut chewing 4.0%, and snuffing 3.0%. Chisick *et al*. reported doubling of tobacco use in those on active duties.[5] The present study among active police personnel reveals 36.3% practiced tobacco chewing in some form or the other; whereas, frequency of smoking among Pakistani army soldiers was reported to be as high as 47.6%.[4] Badel *et al*. reported indulgence of maximum number (53.2%) of Croatian Army personnel in smoking. This difference can be attributed to the fact that deleterious habits differ across the globe.

Gillani *et al*. revealed that majority of Pakistani army soldier who smokes belongs to the age group of 30–40 years. Nelson also indicated an increasing rate of tobacco use among young military members.[6] Grassier

Table 1: Comparison of mean of total Fagerstrom scale scores between the study group subjects from baseline, 15 days, and 3 months

Group	Mean±SD	*F* value	*P* value
Baseline	9.42±3.6	279.763	<0.001**
15 days	5.82±1.9		
3 months	2.04±1.2		

Test applied: Repeated measure ANOVA *P<0.05 – statistically significant, **P<0.001 – statistically highly significant

(I)	(J)	Mean difference (I-J)	95% confidence interval for difference		*P* value
			Lower bound	Upper bound	
Baseline	15 days	3.596	2.692	4.501	<0.001**
	3 months	7.377	6.518	8.237	<0.001**
15 days	3 months	3.781	3.372	4.189	<0.001**

Test applied: *Post hoc* with Bonferroni

Table 2: Comparison of mean of total Fagerstrom scale scores between the control group subjects from baseline, 15 days, and 3 months

Group	Mean±SD	*F* value	*P* value
Baseline	9.75±3.2	13.871	<0.001**
15 days	9.22±1.8		
3 months	8.18±2.2		

Test applied: Repeated measure ANOVA

(I)	(J)	Mean difference (I-J)	95% confidence interval for difference		*P* value
			Lower bound	Upper bound	
Baseline	15 days	0.526	−0.325	1.378	<0.407
	3 months	1.561	0.649	2.474	<0.000**
15 days	3 months	1.035	0.801	1.269	<0.001**

Test applied: *Post hoc* with Bonferroni

Table 3: Comparison of mean of total Maslach Burnout scale (stress level) scores between the study group subjects from baseline, 15 days, and 3 months

(I)	(J)	Mean difference (I-J)	95% confidence interval for difference		*P* value
			Lower bound	Upper bound	
Baseline	15 days	5.596	3.593	6.401	<0.001**
	3 months	9.377	8.518	10.237	<0.001**
15 days	3 months	3.781	3.372	4.189	<0.001**

Test applied: *Post hoc* with Bonferroni

Table 4: Comparison of mean of total Maslach Burnout scale scores (stress level) among the control group subjects from baseline, 15 days, and 3 months

Group	Mean±SD	*F* value	*P* value
Baseline	25.75±4.2	15.159	<0.001**
15 days	21.75±2.3		
3 months	19.75±3.3		

Test applied: Repeated measure ANOVA

(I)	(J)	Mean difference (I-J)	95% confidence interval for difference		*P* value
			Lower bound	Upper bound	
Baseline	15 days	3.526	2.325	4.378	<0.407
	3 months	6.561	5.749	7.545	<0.000**
15 days	3 months	4.035	3.401	4.479	<0.001**

Test applied: *Post hoc* with Bonferroni. *P<0.05 – statistically significant, **P<0.001 – statistically highly significant

et al. studied that the prevalence of tobacco use was highest among soldiers between 18 and 24 years of age and those serving in junior ranks. Findings of the present study show contrast results with low indulgence of young police personnel (36%) and lower rank (11.4%) in detrimental habits. These results also show an increase in the adverse habits from 21 to 30 years.[7] This reflects the tobacco use behavior that police personnel bring with them when they enter the police force. Chisick *et al*. concluded that active duty and military environment encouraged the initiation and increase in the use of tobacco, which is supported by the present study.

Tobacco users have higher absenteeism, impaired perceptual and motor skills, and poorer endurance than non-tobacco users. Furthermore, with respect to managing stress, a research finding among military personnel indicates that tobacco use is more likely to accentuate a stress response rather than to suppress it and that nicotine consumers are overall less effective in dealing with combat stress.

This study showed that the oral health education through behavioral counseling has an important role in giving advice about smoking cessation to police personnel. A study conducted by Pantsidis *et al*. also showed that oral health education has a role in giving advice or information about smoking cessation to patients (98.7%). Health workers are regarded as the most reliable source of advice and information on health issues and they act as role models for the rest of society.[8] Several studies have demonstrated the crucial role of health workers in the promotion of tobacco cessation through counseling. Similar to the previous studies (Schmelz *et al*., 2010, Corelli *et al*., 2005, Saba *et al*., 2013, Prabandari *et al*.), the results of this study have found that oral health education had positive effect on police personnel knowledge, perceived role, self-efficacy, and ability to perform tobacco cessation counseling.[9] These findings are notable because such program was entirely new in Haldia City, West Bengal.

Difference in reduction in nicotine dependency among the study group was reported significant in this study over a period of 3 months with the behavioral counseling based health education provided to the participants of the study group. This can be attributed to the fact that health education worked well. Hence, the follow-up duration of the study was limited to 3 months and further follow-ups or longer duration of follow-ups can show better results between the groups and also better reduction in nicotine dependency among all the participants. Studies done by Stein, Newcomb, and Bentler, 1976–1988, with longer follow-up durations have shown better reduction in nicotine dependency (61%) among the study participants, similar results are seen with the study done by Bailey *et al*. which at 6-month follow-up showed that extended cognitive behavioral therapy participants had higher abstinence rates compared to standard cognitive-behavioral therapy participants (21% vs. 7%).[10] Despite the shortcomings, even though the study was conducted among police personnel of one city, the sample size is fairly adequate and represents the overall pattern of adverse addictive tobacco habits among Indian police personnel. The study found some important and often neglected correlates of ill effects of tobacco and oral health. Anti-tobacco advocacy offers an approach in improving both general and oral health. Banning tobacco usage shifts the responsibility for health from the formal healthcare system to individuals. Successful and effective implementation of anti-tobacco acts and rules lies with in communities and decision-makers at all levels of society. A crucial need for strict implementation of anti-tobacco act is clearly evident.

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