

A study of perceived stress among smokers and non-smokers in Delhi NCR

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ABSTRACT

Background- Stress is one of the most pervasive phenomena of the modern lifestyle. Stress can be external and related to the environment, but may also be created by internal perception that causes an individual to experience anxiety or other negative emotions surrounding a situation, such as pressure, discomfort etc which they then deem stressful. Literature review shows that, stress among smokers is common all over the world but it has not been sufficiently studied in Indian context, therefore the present study was pursued. **Objective-** The aim of the present study was to assess the perceived stress among smokers and non-smokers, in Delhi NCR. **Material & Methods-** The sample consisted of 100 candidates, 50 smokers and 50 non-smokers. Among 50 smokers, 25 female smokers were taken and 25 male smokers. On the other hand, among 50 non- smokers, 25 female non-smokers were taken and 25 male non- smokers were taken, from Delhi NCR. The Perceived Stress Scale (PSS) Cohen et al., (1988) and initial Performa were administered. **Results-** The results of the study indicated, that perceived stress was significant among smokers as compared to non- smokers. Further among male and female smokers, more perceived stress was found among female smokers.

Keywords: *Perceived stress, Smokers, Stress, Non-smokers*

Stress is one of the most pervasive phenomena of the modern lifestyle. No individual is immune to stress, face it no matter what is his avocation Tudu & Pathak, (2013). The word is derived from the latin word, stringere Edworthy, (2000), Tudu & Pathak, (2013), meaning to draw tight. Stress can be external and related to the environment, but may also be created by internal perception that cause an individual to experience anxiety or other negative emotions surrounding a situation, such as pressure, discomfort etc which they then deem stressful. Perceived stress can be defined as feeling or thoughts that an individual has about how much stress they are under, as well as feelings about the uncontrollability and unpredictability of one's life, how often one has to deal with irritating hassles, how much change is occurring in one's life and confidence in one's ability to deal with problems or difficulties (Phillips, 2013).

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Received: September 03, 2020; Revision Received: September 21, 2020; Accepted: September 27, 2020

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A study of perceived stress among smokers and non-smokers in Delhi NCR

Tobacco smoking consists of drawing into the mouth, and usually the lungs, smoke from burning tobacco, West & Shiffman, (2016). A variety of plant materials are smoked, including marijuana and hashish, but the act is most commonly associated with tobacco as smoked in a cigarette, cigar, or pipe. Tobacco contains nicotine, an alkaloid that is addictive and can have both stimulating and tranquilizing psychoactive effects. The smoking of tobacco, long practiced by American Indians, was introduced to Europe by Christopher Columbus and other explorers. Smoking soon spread to other areas and today is widely practiced around the world despite medical, social, and religious arguments against it. Smoking in India has been known since at least 2000 BC when cannabis was smoked and is first mentioned in the Atharvaveda (compiled c. 1200 BC – c. 1000 BC). Fumigation (dhupa) and fire offerings (*homa*) are prescribed in the Ayurveda for medical purposes and have been practiced for at least 3,000 years while smoking, *dhumrapana* (literally "drinking smoke"), has been practiced for at least 2,000 years. There are approximately 120 million smokers in India. According to the World Health Organization (WHO), India is home to 12% of the world's smokers. More than 1 million people die every year due to tobacco related illnesses Chandrupatta, (2017). Tobacco was introduced to India in the 17th century. It later merged with existing practices of smoking (mostly of cannabis).

Stages of development of addiction

The initiation and development of tobacco use among children and adolescents progresses in stages: - Forming attitudes and beliefs about tobacco, trying tobacco, experimenting with tobacco, regularly using tobacco, becoming addicted to tobacco. This process generally takes about 3 years.

How smoking causes stress

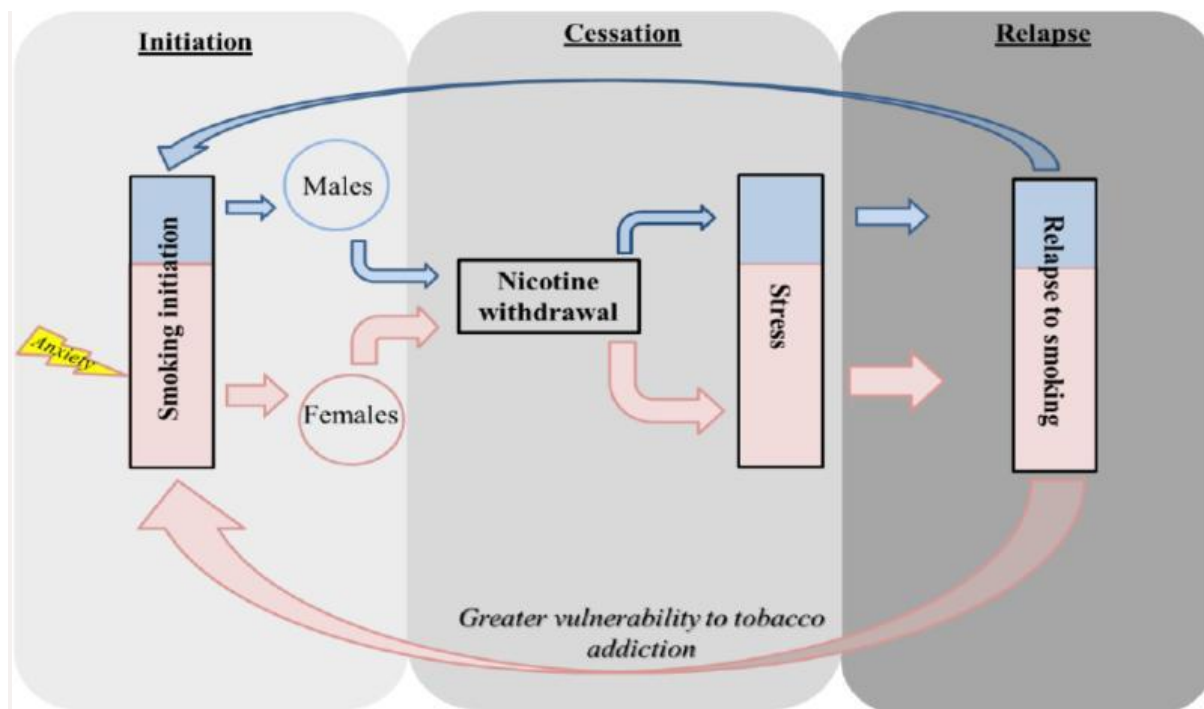
Many people who smoke do so because they believe it calms them down. This is because nicotine is a mood-altering drug and it seems to smolder feelings of frustration, anger, and anxiety when it is inhaled. Many smokers are more likely to increase their cigarette use when they are under pressure. Certain events, such as holidays, job changes, and life transitions can trigger certain habits, including smoking. The following can increase the pressure one feels:

1. New circumstances.
2. Heightened expectations.
3. Financial obligations.
4. Lengthened list of things to do

When one smokes, nicotine enters the bloodstream and travels to the brain, where it releases several neurotransmitters including dopamine, the primary reward chemical in the brain. The positive feelings one experiences when dopamine is released are short-lived. Once the dopamine levels decrease, people feel worse than before he/she lit up. In addition, smoking ultimately causes more stress. It takes a toll on the respiratory system and contributes to serious illness. These physical ailments may compound feelings of stress. Social and psychological factors also play a part in keeping smokers smoking. Although many young people experiment with cigarettes, other factors influence whether someone will go on to become a regular smoker. These include having friends or relatives who smoke and their parents' attitude to smoking. As young people become adults, they are more likely to smoke if they misuse alcohol or drugs or live in poverty. These factors make it more likely that someone will encounter stress. Most adults say that they smoke because of habit or routine and/ or because it helps them relax and cope with stress.

A study of perceived stress among smokers and non-smokers in Delhi NCR

The diagram below shows how stress is the principle factor which promotes and maintains tobacco use, among smokers



There are approximately 120 million smokers in India. According to World Health Organization (WHO) India is a home to 12% of the world's smokers. More than one million people die every year due to tobacco related illnesses. Considering the relatively high prevalence of smoking in India, and the limited number of studies on the relationship between perceived stress and smoking status in the Indian society, this study was conducted to study the perceived stress levels in smokers and non smokers in, Delhi NCR.

METHODOLOGY

The aim of present research was to study perceived stress among smokers and non smokers, in Delhi NCR. The objectives were, a) to study and compare perceived stress among smokers and non smokers, b) to study and compare perceived stress among female smokers and male smokers, c) to study and compare perceived stress among female smokers and female non smokers, d) to study and compare perceived stress among male smokers and male non smokers, with the following four null- hypothesis, which are as follows: a) There is no difference in perceived stress among two groups i.e., smokers and non smokers, b) there is no difference in perceived stress among female smokers and male smokers, c) there is no difference in perceived stress among female smokers and female non-smokers, d) there is no difference in perceived stress among male smokers and male non-smokers.

Sample

The study population consisted of smokers and non smokers of Delhi NCR who were smoking from last 5 years and smoking more than 10 cigarettes a day. Purposive sampling was used for this study. Total 100 samples of Delhi NCR consisted of, 50 smokers and 50 non smokers. Further among 50 smokers, 25 female smokers were taken and 25 male smokers were taken. Further among 50 non smokers, 25 female non smokers were taken and 25 male non smokers were taken of Delhi NCR fulfilling the following inclusion and exclusion criteria i.e., smokers and non smokers between ages of 22 to 30 years were taken

A study of perceived stress among smokers and non-smokers in Delhi NCR

of Delhi NCR, of both genders male and female, and only those were taken who could read and write English. Further exclusion criteria included, smokers and non smokers below 22 years of age and above 30 years of age were not taken, for the study, and those smokers suffering from any kind of medical or physical illness, disease or disability were not included, and those who could not read and write English.

Table:- A Description of the Identified Sample

Sectors	Smokers	Non Smokers
N	50	50
Age Range	22-30	22-30
Age Mean	24.6	25.8
Sex		
Female	25	25
Male	25	25
Education		
Graduate	75	70
M.A	25	30
Annual Income		
Up to 7000	25	25
8000-15000	30	40
15000 and above	45	35

Instruments

- 1. Demographic Information Sheet:** Demographic information sheet, containing various demographic information about the sample including name, age, gender, sex, education, years of smoking, number of smokes per day etc. was taken.
- 2. Perceived Stress Scale (PSS) Cohen et al., (1988):** The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are stressful. Items were designed to tap how unpredictable, uncontrollable, and overload respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The items are easy to understand, and the response alternatives are easy to grasp. It consists of 10 items and for each item respondent indicates the frequency of the stress on a 4 point scale from 0 (never) to 4 (very often). Further it takes 5 minutes to complete the test and next 5 minutes for scoring.

Procedure

The inclusion and exclusion criteria were applied to the smokers of Delhi NCR. The nature of the study was explained to the smokers of Delhi NCR, who fulfilled the inclusion and exclusion criteria. After furnishing the necessary information about the study, a written informed consent was obtained from sample. After taking the consent, the perceived stress scale (PSS) Cohen et al., (1988) was administered on smokers.

Statistical analysis techniques

For statistical analysis Mean, Standard Deviation and t-test was used.

RESULTS

Table 1 shows the mean, standard deviation and t-value of two groups i.e., smokers and non-smokers

Sector	Mean	Standard- deviation	t-value
Smokers	22.63	3.92	.93
Non-smokers	28.56	4.03	

As can be observed from the table, the mean of smokers was found to be lower than the mean of non-smokers, t-value .93, df 60, found to be non-significant at .05 level.

Table 2 shows the mean, standard deviation and t-value of two groups i.e., female smokers and male smokers

Sex	Mean	Standard-deviation	t-value
Female smokers	23.03	4.62	.86
Male smokers	31.4	4.75	

As can be observed from the table, the mean of female smokers was found to be lower than the mean of male smokers, t-value .86, df 60, found to be non-significant at .05 level.

Table 3 shows the mean, standard deviation and t-value of two groups i.e., female smokers and female non-smokers

	Mean	Standard-deviation	t-value
Female smokers	22.46	4.22	.51
Female non-smokers	23.68	4.33	

As can be observed from the table, the mean of female smokers was found to be lower than the mean of female non-smokers, t-value .51, df 28, found to be non-significant at .05 level

Table 4 shows the mean, standard deviation and t-value of two groups i.e., male smokers and male non-smokers.

	Mean	Standard-deviation	t-value
Male smokers	21.67	3.37	.71
Male non-smokers	22.48	5.03	

As can be observed from the table, the mean of male smokers was found to be lower than the mean of male non-smokers, t-value .71, df 28, found to be non-significant at .05 level.

DISCUSSION

Tobacco smoking consists of drawing into the mouth, and usually the lungs, smoke from burning tobacco, West & Shiffman, (2016). Tobacco use is a significant global public health issue and there are approximately 1 billion smokers in the world, with 80% of those currently living in low- and middle-income countries (Ng, et al., 2014). There is growing body of evidence suggesting that high levels of perceived stress are associated with prevalence of smoking. It is widely understood that today smokers face many stressors and its related issues among them. There is ample of literature that proposes many probable causes that could contribute in the origin and maintenance of stress among smokers. A stressed smoker would mean numerous effects on psychological, emotional, and physical well-being of present and future adults. However, majority of the prior research on stress

A study of perceived stress among smokers and non-smokers in Delhi NCR

level among smokers have been conducted outside India. There have been no reported studies on the stress level among smokers, especially in Delhi NCR (India). Therefore, in view of the dearth of studies the present study aims to explore the stress among smokers and nonsmokers in Delhi NCR.

Perceived stress level among smokers and non-smokers

In the sphere of perceived stress level among smokers and non- smokers, the results signify that more perceived stress was among the smokers as compared to the non- smokers because the mean (22.63, table no: -1) for the smokers was found to be lower than the mean of non-smokers (28.56, table no: -1). In the light of the above findings, thus our first null hypothesis of no difference in perceived stress among smokers and non-smokers gets rejected. Further our first hypothesis is also getting rejected as our t value .93 (table no:- 1) came out to be non-significant at .05 level, which indicates that there is difference in the perceived stress level among smokers and non- smokers, i.e, perceived stress level among smokers is significant then non- smokers. The review in this sphere is in consonance with our findings. Hamidreza, et al., (2011) in a study among central Iran compared stress level in smokers, non-smokers and those who had quit smoking. This study was conducted as part of Isfahan Cardiovascular Research Program on 9752 individuals in the cities of Isfahan, Arak, and Najafabad. Sampling was performed using multi-stage cluster randomization method. Data on age, sex, demographic characteristics, and smoking status was collected through interviews. Stress level detected by General Health questionnaire. Logistic regression and chi- square test was used for data analyzing. The results of this study demonstrated higher stress levels in smokers. Since studies have confirmed that mental stress play a significant role in beginning to smoke, it seems suitable that a more sensible approach be adopted towards developing interventions aimed at reducing stress in the community, and that ways of solving the problem, controlling stress and improving the quality of life along with stress reduction be given serious consideration, so that we can witness a reduction in the prevalence of smoking in the community.

Perceived stress in female smokers and male smokers

In the sphere of perceived stress among female smokers and male smokers, the results signify that more perceived stress was among the female smokers as compared to the male smokers because the mean (23.03, table no: -2) for the female smokers was found to be lower than the mean of male smokers (31.04, table no:-2). In the light of the above findings, thus our second null hypothesis of no difference in perceived stress among female smokers and male smokers gets rejected. Further our second null hypothesis is also getting rejected as our t value .86 (table 2) came out to be non significant at .05 level, which indicates that there is difference in the perceived stress among female smokers and male smokers, i.e, perceived stress among female smokers is significant then male smokers. The earlier studies are also, in confirmation with the findings of our study.

Similar results were found by Kim & Park, (2016), in a study on relationship between stress and smoking among Korean adolescents, as well as the influence of gender and this relationship among 3930 adolescents aged 12-18 years, collected in the 2007-2012 Korea National Health and Nutrition Examination surveys. The study found a statistically significant association between stress and smoking among Korean adolescents and this association was stronger in girls than boys.

Perceived stress and smoking-related behaviors and symptomatology in male and female smokers was studied by Lawless, et al., (2015). This study investigated this association, as

A study of perceived stress among smokers and non-smokers in Delhi NCR

well as the influence of sociodemographic variables. This is a retrospective analysis of 62 smokers (41 males, 21 females) enrolled in a smoking cessation study. At the screening visit sociodemographic information, smoking behaviors and survey measures were completed. These included the Perceived Stress Scale (PSS), Minnesota Nicotine Withdrawal Scale (MNWS), and others. Analyses were conducted using multiple linear regression models. PSS score was found to have a negative association with number of cigarettes smoked in males (slope -0.29 ± 0.08 ; $p=0.0009$) and females (slope -0.20 ± 0.18 ; $p=0.26$) with no difference in effect between genders ($p=0.64$). Linear regression of MNWS on PSS revealed a positive association for both males (slope 0.41 ± 0.068 ; $p<0.0001$) and females (slope 0.73 ± 0.14 ; $p<0.0001$). There was a significant difference in effect between genders ($p=0.04$). In conclusion a strong positive association was observed between perceived stress and nicotine withdrawal symptomatology in smokers of both sexes, with a larger effect seen in women. These findings emphasize the importance of stress reduction in smokers, which may lead to fewer withdrawal symptoms and more effective smoking cessation.

Perceived stress level in female smokers and female non- smokers

In the sphere of perceived stress level among female smokers and female non- smokers, the results signify that more perceived stress was among the female smokers than among female non- smokers because the mean (22.46, table no:-3) for the female smokers was found to be lower than the mean of female non- smokers i.e., (23.68, Table no:-3). In the light of the above findings, thus our third null hypothesis of no difference in perceived stress among female smokers and female non- smokers gets rejected. Further our third hypothesis is also getting rejected as our t value .51 came out to be non significant at .05 level (table no:- 3), which indicates that there is difference in the perceived stress among female smokers and female non- smokers, i.e, perceived stress among female smokers is significant then female non- smokers.

These findings are supported by the review done by Torres & O' Dell, (2016) which posits that in women, stress is a principal factor that promotes the initiation of tobacco use and relapse behavior during abstinence. Studies are reviewed at both the clinical and pre-clinical levels to provide support for the hypothesis that stress plays a central role in promoting tobacco use vulnerability in females. The clinical implications of this work are also considered with regard to treatment approaches and the need for more research to help reduce health disparities produced by tobacco use in women.

Perceived stress level in male smokers and male non- smokers

In the sphere of perceived stress level among male smokers and male non- smokers, the results signify that more perceived stress was among the male smokers than male non- smokers because the mean (21.67, table no:-4) for the male smokers sector was found to be lower than the mean of male non- smokers (22.48, Table no:-4). In the light of the above findings, thus our fourth null hypothesis of no difference in perceived stress among male smokers and male non- smokers gets rejected. Further our fourth null hypothesis is also getting rejected as our t value .71 (table 4) came out to be non significant at .05 level, which indicates that there is difference in the perceived stress among male smokers and male non- smokers, i.e, perceived stress among male smokers is significant then male non- smokers.

The earlier studies are also, in confirmation with the findings of our study:

Both of these factors, smoking and stress were commonly seen in medical students undergoing vigorous medical education and training, by Alkhalaf, (2018). The current study aimed to investigate the effects of smoking and perceived stress reactivity on the academic

A study of perceived stress among smokers and non-smokers in Delhi NCR

performance of medical students at Al Baha University, Saudi Arabia. The study was conducted on medical students from Al Baha University, Saudi Arabia. With consent from each medical student, the Perceived Stress Reactivity Scale (PSRS) and Perceived Stress Scale 10 (PSS-10) were administered to measure stress, and grade point average (GPA) was obtained from the faculty of medicine administrative office. The current study was approved by Dean of the Faculty of Medicine, Al Baha University. Of the 185 male medical students, the 34 students who were smokers had lower GPAs (Mean = 2.48) than the 151 nonsmokers (Mean = 2.89). A strong and significant positive correlation was observed between smoking and GPA. Additionally, analysis of PSRS also showed strong associations with GPA, such that prolonged reactivity and reactivity to work overload as measured by the PSRS were positively correlated with GPA. Conclusions: These findings indicate that medical students who smoke cigarettes and experience stress have lower GPAs, which might also predict poorer professional performance after graduation.

Limitations

Since, the study sample is small; results cannot be generalized to a larger population. A prospective study with a larger sample size and objective data evaluation would be ideal.

CONCLUSION

In nutshell, perceived stress level has a significant impact among smokers as compared to non-smokers, therefore it is important to intervene.

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Acknowledgement

The author appreciates all those who participated in the study and helped to facilitate the research process.

A study of perceived stress among smokers and non-smokers in Delhi NCR

Conflict of Interest

The author declared no conflict of interest.

How to cite this article: Kaur Pruthi G. (2020). A study of perceived stress among smokers and non-smokers in Delhi NCR. *International Journal of Indian Psychology*, 8(3), 1985-1993. DIP:18.01.207/20200803, DOI:10.25215/0803.207