Original Article

Nicotine dependence, perceived stress, and self-efficacy among primary health care professionals during the times of Covid-19 pandemic – A cross-sectional descriptive study

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Abstract

Background: Nicotine dependency would have increased during the times of COVID-19 among the primary health professionals, which would can be attributed to perceived stress and can also be influenced by self-efficacy; hence, the aim of the present study was to determine the relationship between nicotine dependence with perceived stress, self-efficacy among primary health care professionals during the times of covid-19 pandemic. **Materials and Methods:** The present study was a cross-sectional descriptive questionnaire study. The study was conducted among primary health workers of Ajmer district; stratified random sampling technique was used to collect data. A questionnaire was prepared that consists of demographic details, questions on perceived stress, self-efficacy, and nicotine dependence. **Results:** Perceived stress and nicotine dependence was high among study participants. Self-efficacy was low. There was significant ($P \leq 0.05$) association between high nicotine dependence and high perceived stress. It was also reported that majority of study participants {58 (30.4%)} with high self-efficacy significantly ($P \leq 0.05$) was associated with low nicotine dependence. **Conclusion:** High nicotine dependence was significantly associated with high perceived stress, while low nicotine dependence was significantly lower among primary health care workers' low perceived stress. Low nicotine dependence was significantly associated among study participants with high self-efficacy.

Keywords: Dependence, nicotine, pandemic, primary health, self-efficacy, stress

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Introduction

Perceived stress is the emotions or mind that a person has approximately how an awful lot stress they may be below at

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a given factor in time or over a given time period. Perceived stress contains emotions approximately the uncontrollability and unpredictability of one's existence, how regularly one has to address irritating hassles, how an awful lot alternate is taking place in one's existence, and self-belief in one's capacity to address issues or difficulties. It is not measuring the kinds or frequencies of demanding occasions that have took place to a person; however, alternatively how an individual's feels approximately the overall stressfulness in their existence and their capacity to address such stress.[1]

To decrease perceived stress, large number of people find consumption of tobacco as the main solution.[2] There is a developing frame of proof suggesting that excessive stages of perceived stress are related to increased prevalence of tobacco consumption.[3-5] A latest systematic overview determined that 40 qualitative research encouraged that smoking is a main method to 'control stress' even as it decreases arousal stages.[6] Whilst there have been worries that stopping smoking may also bring about increased arousal and stress levels and therefore a deterioration of intellectual health,[7] a latest meta-evaluation determined that anxiety, depression and stress all substantially reduced after smoking cessation.[8] To decrease stress, people retorts to continuous tobacco consumption which leads to increase in nicotine dependence.[9]

Tobacco consumption and nicotine dependence is high in rural population in India.[10] The primary health care centers in India can play an important role in tobacco cessation for the rural population, among which tobacco consumption is present at an epidemic level.[11] In contrary to this, primary health care workers themselves consume tobacco and have high nicotine dependence which does not set a good example for rural population and further create a big obstacle in the path national tobacco control program. In a study by Mony PK *et al*.[12] doctors have reported higher tobacco use rates (6.9%) compared to community link workers (LWs) (2%) and nurses (<1%) but were less interested for further tobacco control training (77%) compared to the others (>95%). The reason for high tobacco rates among primary health workers may be due to perceived stress caused by multitude responsibilities such as providing basic medical care, health services, maternal and child health services, sanitation, national health program, health education, etc. Delivering health services in rural areas is a difficult job for healthcare workers because of various factors. Inadequate staffing might lead to overloaded work and has created very tight bottlenecks in the provision of services. In addition to this, accredited social health activists and anganwadi workers have restricted opportunities for promotion and low salaries. Such situations may make the workers less motivated and experience work stress which in turn effects on delivery of healthcare.[13] These responsibilities have increased manifolds during Covid-19 pandemic. This had made the matter altogether worse, as tobacco effects on lungs makes tobacco consumer more vulnerable to Covid-19 infection and increase in stress leads to more tobacco consumption, hence increase in nicotine dependence among primary health care professionals.

Studies have proven that smoking is associated with a range of mental traits. Smoking abstinence self-efficacy can effectively improve the fulfilment of smoking cessation.[14,15] Self-efficacy is smokers' notion that they are able to exert manipulate over their smoking activity[16]; so self-efficacy may be considered as an essential component in wholesome behaviour change[17] Some research have proven that there is a significant relationship among smoking abstinence self-efficacy and nicotine dependence.[18,19] Meanwhile, research have proven that self-efficacy also can have an effect on using coping styles.[20,21] In addition, coping style and self-efficacy affect success in quitting smoking;[22] therefore, as an important mediator in the process of psychological stress, coping style is the response of smokers to deal with changes in their internal and external environment that are beyond their capacities.[23]

In spite of such an important role of perceived stress in increasing nicotine dependence and role of self-efficacy in decreasing nicotine dependence. No study till date had been conducted to determine the relationship of nicotine dependence with perceived stress and self-efficacy among primary health workers. Therefore, the aim of this study was to determine the relationship between nicotine dependence with perceived stress among primary health care professionals.

Materials and Methods

It was a descriptive cross-sectional questionnaire study. The study was conducted in December 2020–January 2021. The locale of study was primary health care centers in rural areas of Ajmer district. The sampling technique used was (stratified) random sampling. Ajmer district has 63 primary health centers.[24] The district was divided into four directions east, west, north, and south. From each direction, 10 primary health care centers were selected randomly. Among 40 primary health care centers, all the professionals consuming tobacco in any form (smoke or smokeless) and given their consent form were included in the study. The professionals included were doctors, nurses, pharmacists, and health professionals from other streams such as ayurveda, homeopathy, dentists, and others.

Written Informed consent was collected from all study participants. Ethical clearance was obtained from independent ethical committee. Before the start of the study, a pilot survey was conducted to check the feasibility of the study and to determine validity and reliability of the questionnaire. By applying Cronbach's Alpha (α), the values were 0.87. The value kappa was 0.89 by using test–retest. The questionnaire was in local language for better understanding and to increase the reliability and validity of questionnaire.

The questionnaire consists of demographic details of the participants; nicotine dependence was calculated using Fagerstrom test.[25] The questionnaire for both smoke and smokeless form of tobacco was clubbed together to form one single scale. The questionnaire to determine self-efficacy of study participants

was Smoking Abstinence Self-efficacy Questionnaire[26] consists of six questions. Perceived stress was evaluated using perceived stress scale that consists of 10 questions.[27]

Statistical analysis

Statistical analysis was done by using SPSS version 20. The data was entered in Microsoft excel 2010. Demographic details, nicotine dependence, perceived stress, and self-efficacy were determined by using descriptive analysis. The relationship between nicotine dependence and perceived stress, self-efficacy was determined by applying Chi-square test. *P* value was kept at 0.05.

Results

The response rate was 79%. As talking on tobacco was very sensitive issue for primary health workers. Table 1 shows the demographic details of study participants. Majority of study participants {71 (37.2%)} were belonged to age group of 36–37 years. Male study participants {117 (61.3%)} were in majority. Most of the study participants {81 (42.4%)} were from rural areas. The study participants consist of 48 doctors, 61 nurses, 43 pharmacists, and 39 from other fraternity.

Table 2 shows that majority of study participants {61 (31.9%)} sometimes got upset due to unexpected incident in the last month. Most of them were nervous and stressed {60 (31.5%)}. Most of the study participants {76 (39.8%)} never able to control irritation in their life. In the last month, about 81 (42.4%) of study participants got angered as things were outside their control. Most of them {61 (31.9)} fairly often felt that difficulties were compiled so high that cannot be overcome.

Most of the study participants {75 (39.2%)} were not at all confident that they cannot consume tobacco, if they are agitated or tense. If offered a tobacco of their own brand, about 98 (51.3%) study participants were not at all confident they will not consume it. If someone is enjoying smoking, most of the respondents reported that they are "Certainly Not" {59 (30.9%)} confident whether they will also consume tobacco or not Table 3.

Table 1: Demographic detail of study participants (*n*=191)

Demographic Details		*n* 61 (%)
Age in years	25-36 years	68 (35.6)
	36-47 years	71 (37.2)
	48-60 years	52 (27.2)
	Total	191 (100)
Gender	Male	117 (N 61 0.3)
	Female	74 (38.7)
	Total	191 (100)
Location	Rural	81 (42.4)
	Peri-urban	69 (36.1)
	Urban	41 (21.5)
	Total	191 (100)
Designation	Doctors	48 (25.1)
	Nurse	61 (31.9)
	Pharmacists	43 (22.5)
	Other fraternity	39 (20.4)
	Total	191 (100)

Table 4 shows nicotine dependence of primary health care professionals. It was reported that most of the study participants {60 (31.4%)} need tobacco within 31–60 min after waking up. In total, 111 (58.1%) of study participants difficult to avoid tobacco in the places where it is forbidden. Most of the study participants hate {159 (83.2%)} to give up the tobacco at morning time. Majority of study participants {101 (52.9%)} do not consume tobacco if they are ill and are in bed most of the day.

Table 5 shows that on applying Chi-square test, it was observed that study participants {51 (26.7%)} with high nicotine dependence was significantly ($P \leq 0.05$) associated with high perceived stress. Also, majority of study participants {49 (25.7%)} with low perceived stress was significantly ($P \leq 0.05$) associated with low nicotine dependence.

Table 6 shows that majority of study participants {58 (30.4%)} with high self-efficacy are significantly ($P \leq 0.05$) associated with low nicotine dependence.

Discussion

The present study was conducted to determine the relationship between nicotine dependence and perceived stress, self-efficacy. Primary health professionals can play an important role in tobacco cessation in rural areas where tobacco consumption is rampant.[11] As revealed in different studies, tobacco clients are bound to attempt a quit endeavor when their medical care supplier advise them to quit.[28,29] An in-depth cessation counseling by medical service supplier for tobacco suspension can help an enormous number of patients, who are tobacco clients and who come to essential consideration offices. Tobacco cessation efforts of primary health care workers depends on their tobacco consumption habits.[30] If the primary health care workers himself suffering from nicotine dependence, they will be less motivated for tobacco cessation.

Both perceived stress and self-efficacy had an impact on nicotine dependence, but in opposite manner. Empirical research also suggested that high stress is associated with cigarette smoking, recent increase in smoking, and low self-efficacy to quit smoking in working adults.[31]

In the times of Covid-19 pandemic where frontline workers are working tirelessly, the presence of perceived stress is very normal. Therefore, to decrease the stress, there was an increase in the tobacco consumption and which leads to increased nicotine dependence. In the present study, there was high perceived stress among primary health workers; the same results were shown in study conducted by Magill E *et al.*[32] among frontline workers

Table 2: Perceived stress among primary health professionals (*n*=191)

	Never 0	Almost never 1	Some times 2	Fairly often 3	Very often 4	Total
1. In the last month, how often have you been upset because of something that happened unexpectedly?	14 (7.3)	19 (10.0)	61 (31.9)	54 (28.3)	43 (22.5)	191 (100)
2. In the last month, how often have you felt that you were unable to control the important things in your life?	31 (16.2)	27 (14.1)	73 (38.2)	36 (18.8)	24 (12.7)	191 (100)
3. In the last month, how often have you felt nervous and "stressed"?	09 (4.7)	25 (13.2)	51 (26.8)	46 (23.8)	60 (31.5)	191 (100)
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	56 (29.3)	44 (23.0)	61 (31.9)	18 (9.4)	12 (6.4)	191 (100)
5. In the last month, how often have you felt that things were going your way?	62 (32.5)	44 (23.0)	46 (24.1)	25 (13.1)	14 (7.3)	191 (100)
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	13 (6.8)	20 (10.5)	65 (34.0)	60 (31.5)	33 (17.2)	191 (100)
7. In the last month, how often have you been able to control irritations in your life?	76 (39.8)	41 (21.6)	46 (23.8)	18 (9.5)	10 (5.3)	191 (100)
8. In the last month, how often have you felt that you were on top of things?	68 (35.5)	43 (22.5)	49 (25.7)	21 (11.0)	10 (5.3)	191 (100)
9. In the last month, how often have you been angered because of things that were outside of your control?	09 (4.7)	23 (12.0)	81 (42.4)	37 (19.4)	51 (26.5)	191 (100)
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	08 (4.2)	21 (11.0)	54 (28.3)	61 (31.9)	47 (24.6)	191 (100)

Table 3: Self-efficacy among study participants (*n*=191)

Self-Efficacy	Certainly=4	Probably=3	Neutral/do not know=2	Probably not=1	Certainly not=0	Total
Q1. You feel agitated or tense. Are you confident that you will not consume tobacco?	11 (5.8)	10 (5.2)	45 (23.6)	50 (26.2)	75 (39.2)	191 (100)
Q2. You are (very) angry. Are you confident that you will not consume tobacco?	28 (14.7)	24 (12.6)	37 (19.4)	49 (25.6)	53 (27.7)	191 (100)
Q3. You are in a café, at a party, or paying a visit. Are you confident that you will not consume tobacco?	29 (15.2)	31 (16.2)	34 (17.8)	40 (20.9)	57 (29.9)	191 (100)
Q4. You feel (very) sad. Are you confident that you will not consume tobacco?	20 (10.5)	12 (6.3)	27 (14.1)	61 (31.9)	71 (37.2)	191 (100)
Q5. Someone offers you a tobacco of your own brand. Are you confident that you will not consume tobacco?	14 (7.3)	11 (5.8)	10 (5.2)	58 (30.4)	98 (51.3)	191 (100)
Q6. You see someone enjoy smoking. Are you confident that you will not consume tobacco?	19 (9.9)	21 (11.0)	51 (26.7)	41 (21.5)	59 (30.9)	191 (100)

during Covid-19 pandemic. It was found in the examination that most wellbeing labourers have some unfavourable mental encounters during episodes, with uneasiness and stress being most common. In the investigation by Bommele J *et al.*,[33] it was accounted for that pressure was related to both expanded and decreased smoking, autonomously from saw trouble of stopping and level of inspiration to stop during Covid-19 pandemic. In the present study, low nicotine dependence was significantly associated with high self-efficacy among primary health workers. The same results was reported in study by Ma H *et al.*, Goyal *et al.* and Chhabra C *et al.*[23,34,35] in which it was reported that the use of negative coping styles can lead to increased nicotine dependence on the one the other hand, while on the other, negative coping styles can lead to a reduce level of the smoking abstinence self-efficacy and thus an increase in nicotine dependence.

According to literature reviewed, present study was first of its kind to be conducted among primary health workers, to determine the relationship of the self-efficacy, perceived stress, and nicotine dependence. This study can be used as a starting point for policy makers to take steps towards improving the psychological health of primary health workers, so as to decrease nicotine dependence by decreasing perceived stress and increasing self-efficacy. More studies mainly longitudinal should be conducted on the same direction to explore more factors to improve mental health of primary health workers who are serving to large rural population with meagre resources.

Conclusion

From above, it was concluded that high nicotine dependence was significantly associated with high perceived stress while low nicotine dependence was significantly lower among primary health care workers low perceived stress. Low nicotine dependence was significantly associated among study participants with high self-efficacy.

Table 4: Nicotine dependence among study participants (n=191)

Nicotine Dependence	Current Tobacco Consumers *n* (%)	
Q1. How soon after you wake up do you take smoke/smokeless tobacco?	Within 5 min	38 (20.4)
	6-30 min	49 (25.7)
	31-60 min	60 (31.4)
	After 60 min	44 (22.5)
	Total	191 (100)
Q2. How often do you intentionally swallow tobacco juice?	Always	59 (30.9)
	Sometimes	101 (52.9)
	Never	31 (16.2)
	Total	191 (100)
Q3. Do you find it difficult to refrain from taking smoking/ smokeless tobacco in the places where it is forbidden (e.g., in church, at the library, in cinema)?	Yes	111 (58.1)
	No	80 (41.9)
	Total	191 (100)
Q4. Which smoking/smokeless tobacco would you hate to give up most?	The first one in the morning	159 (83.2)
	Any other	32 (16.8)
	Total	191 (100)
Q5. How many in number smoke tobacco do you consume per day?	31 or more	12 (14.6)
	21-30	14 (17.0)
	11-20	47 (57.3)
	10 or less	9 (11.1)
	Total	82 (100)
Q6. How many cans/pouches per week do you use?	More than 3	90 (82.6)
	2-3	10 (9.2)
	1	9 (8.2)
	Total	109 (100)
Q7. Do you take smoking/smokeless tobacco frequently during the first hours after awakening than during the rest of the day?	Yes	183 (95.8)
	No	8 (4.2)
	Total	191 (100)
Q8. Do you take smoking/smokeless tobacco if you are so ill that you are in bed most of the day?	Yes	90 (47.1)
	No	101 (52.9)
	Total	191 (100)

Table 5: Relationship between nicotine dependence and perceived stress

Nicotine dependence	High perceived stress *n* (%)	Medium perceived stress *n* (%)	Low perceived stress *n* (%)	Total *n* (%)
High	51 (26.7)	21 (11.0)	00 (0.0)	72 (37.7)
Medium	18 (9.4)	25 (13.1)	08 (4.2)	51 (26.7)
Low	02 (1.0)	17 (8.9)	49 (25.7)	68 (35.6)
Total	71 (37.1)	63 (33)	57 (29.9)	191 (100)
Chi-square value	12.348	0.621	9.827	
P	0.05*	1.23	0.05*	

$P \leq 0.05$*

Table 6: Relationship between nicotine dependence and self-efficacy

Nicotine dependence	High self-efficacy *n* (%)	Medium self-efficacy *n* (%)	Low self-efficacy *n* (%)	Total *n* (%)
High	00 (0.0)	14 (7.3)	56 (29.3)	70 (36.6)
Medium	04 (2.1)	13 (6.8)	21 (11.0)	38 (26.7)
Low	58 (30.4)	24 (12.6)	01 (0.5)	83 (35.6)
Total	71 (32.5)	48 (26.7)	79 (40.8)	191 (100)
Chi-square value	18.002	1.187	2.164	
P	0.05*	0.87	0.07	

$P \leq 0.05$*

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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