

Psychosocial factors associated with reverse smoking: A qualitative research

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Abstract

Objectives: Reverse smoking is a peculiar form of smoking in which the smoker puts the lit end of the cigarette into the mouth and then inhales the smoke. There may be many predisposing factors that influence an individual to cultivate this habit, of which psychosocial habits could be the predominating factor. Hence, the present study was undertaken to evaluate the psychosocial factors that influence an individual to undertake this peculiar habit of reverse smoking.

Materials and Methods: A total of 128 habitual reverse smokers were included in the study, out of which 121 were females and 7 were males. A pretested open-ended questionnaire was used for data collection. Data was collected by direct interview method. Snowball sampling technique was employed in collecting the information regarding regular reverse smokers. Interviews were continued until new information did not provide further insights into the categories. The people who could not understand verbal commands and questions and who did not give an informed consent were excluded from the study. Statistical analysis was done using MS Office Excel using Chi-square test of Goodness of fit.

Results: In contrast to the conventional smokers, various new reasons were identified for starting reverse smoking, of which the most important was that they had learned this habit from their mothers. This was followed by other reasons such as peer pressure, friendship, and cold climatic conditions. **Conclusion:** This study provided an insight into the various factors that could influence an individual to take up this peculiar habit of reverse smoking.

Key words: Psychosocial factors, reverse smoking, socioeconomic status, tobacco

INTRODUCTION

In India, tobacco is smoked and chewed in a wide variety of forms. Of the various forms of tobacco usage, reverse smoking is a peculiar form of smoking in which the smoker puts the lit end of a *chutta* into his/her mouth during smoking and then inhales the smoke from the lit end. A *chutta* is a coarsely prepared cheroot

varying in length from 5 to 9 cm which could be either hand rolled or factory produced [Figure 1].^[1] Typically, the reverse smoker smokes up to two chuttas a day because in this form of smoking a chutta lasts longer. The highest intraoral temperatures of the chutta can reach up to 760°C, and the intraoral air can be heated to 120°C.^[2] Air is supplied to the zone of combustion

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Figure 1: A hand rolled chutta used in reverse smoking

through the non-heated extreme of the cigarette, at the same time, the smoke is being expelled from the mouth and ashes are thrown out or swallowed. The lips keep the chutta wet, which increases its time of consumption from 2 to 18 minutes. In a survey, an estimated population of approximately 43.8% out of 10396 villagers was found to be reverse smokers with the female-to-male ratio being 1.7:1.^[3] The habit of reverse smoking is a specific and peculiar custom in groups with low economical resources. Moreover, it presents itself in warm or tropical zones, with higher frequency in women, especially after the third decade of life. The habit of reverse smoking is known to be practiced by people in America (the Caribbean area, Columbia, Panama, Venezuela), Asia (South India), and Europe (Sardinia).^[4] In Seemandhra Pradesh, it is prevalent in the coastal areas of Godavari, Visakhapatnam, Vizianagaram, and Srikakulam districts. This survey was conducted to study the psychosocial factors that could influence reverse chutta smoking, which is widespread in the eastern coastal districts of Andhra Pradesh, India, particularly Vishakhapatnam and Srikakulam.

MATERIALS AND METHODS

The current study is a qualitative research which was conducted to investigate the psychological and social factors related to reverse smoking. The information regarding the social and psychological factors related to reverse smoking was collected using a structured interview. This study included only reverse smokers from Appughar and Pedhalaripeta areas of Visakhapatnam district of Andhra Pradesh. Ethical committee approval was obtained from the ethical committee of GITAM Dental College and Hospital. A pretested open-ended questionnaire was used for

data collection. A questionnaire was prepared by the senior faculty in the department of Oral Medicine and Radiology, and a pilot study was carried out to check the validity of the questionnaire. The entire questionnaire was prepared in local language and was given to the reverse smokers who were asked to fill it. For the people who were illiterate, questions were asked verbally and their answers were recorded. Because most of the reverse smokers were fisherman and illiterates, we took assistance of the local village heads or a local person who was well-known to them; in spite of this, difficulty was faced in persuading women who practice this habit hiding from their husbands and society. Samples were collected using snowball sampling technique, and the estimation of sample size was calculated based on the prevalence of 43.8%,^[2] with an allowable error of 20% of P which was 128. In a span of 1 month, a one-on-one interaction with approximately 128 natives of Visakhapatnam district was carried out, of which 121 were females and 7 were males. Data was collected by the direct interview method. A prior informed consent was obtained by all the participants to participate in the study. Interviews were continued until new information did not provide further insights into the categories. The people who could not understand the verbal commands and questions and who did not provide an informed consent were excluded from the study. The data collected was assessed and subjected to statistical analysis.

Questionnaire included a total of 14 questions, of which questions 1–5 were based on the demographic data of the individual to ascertain the fact that the person belonged to the local area along with his socioeconomic status based on the Alagapan's income index. Questions 6–14 were based on the various psychosocial aspects of the habit.

The questionnaire contained following questions which were translated to the local language.

1. Name
2. Age
3. Sex
4. Occupation
5. Income
6. What are the reasons for starting reverse smoking?
7. What do you achieve from reverse smoking?
8. Do you encounter any discomfort before/during/after reverse smoking?
9. Is there anyone in your family or friends who reverse smoke?
10. What is your opinion about reverse smoking?
11. What are the effects of reverse smoking on your health?

12. Have you ever thought of quitting? If yes, why have you not quit?
13. Is smoking associated with other activities?
14. Do you think smoking creates a bond between smokers?

RESULTS

The data collected was immediately transcribed and subjected to statistical analysis. Table 1 shows the highest percentage of reverse smokers who acquired this habit from their parents, followed by other reasons such as peer pressure and cold climatic conditions. A total of 53.2% of reverse smokers said that they achieved satisfaction from reverse smoking; 95.2% said that they did not encounter any discomfort because of this habit [Table 1]. A high percentage of family and friends of reverse smokers also had the habit of reverse smoking. A high percentage of reverse smokers did not have any opinion regarding their habit. Most of the reverse smokers thought that it was good for their health. The various reasons for which reverse smokers did not quit the habit are listed in Table 1. A total of 42.9% of the individuals also had other habits such as intake of tea and alcohol. The highest percentage of reverse smokers thought that it does not create bond between smokers.

DISCUSSION

Smoking is a practice in which a substance, most commonly tobacco, is burned and the smoke is tasted or inhaled. Tobacco smoking is today by far the most popular form of smoking and is practiced by one billion people in a majority of human societies. Statistics show that 47% of men and 20% of women either smoke or chew tobacco. In India, tobacco consumption is responsible for half of all the cancer in men and a quarter of all the cancers in women. India also has one of the highest ratios of oral cancer in the world. The World Health Organization predicts that tobacco deaths in India may exceed 1.5 million annually by 2020.^[5] Reverse smoking is a peculiar form of smoking in which the smoker puts the lit end of a *chutta* into his/her mouth during smoking and then inhales the smoke from the lit end [Figure 2]. It is prevalent in countries such as Sri Lanka, Venezuela, and Sardinia and Panama.^[4] In India, it is popular in the state of Andhra Pradesh, especially in the districts of Vizianagaram, Srikakulam, and Visakhapatnam. In addition, it is also seen in southern coastal areas of Odisha and Goa.^[6,7] There are no current studies discussing its exact prevalence because there seems to be a decline in

Table 1: Answers for the questions asked during the survey

Answer	Number	Percentage
Learned from mother	59	45.98
Neighbours	36	27.78
Mother/family head/during delivery	06	4.78
RMP doctor	20	15.88
Cold weather	07	5.58
Total	128	100.0
<i>χ^2 test value is 77.52 with 4 df; $P < 0.0001$ is highly significant</i>		
Habit	57	44.4
Satisfaction	68	53.2
Good digestion	03	2.4
Total	128	100.0
<i>χ^2 test value is 56.71 with 2 df; $P < 0.0001$ is highly significant</i>		
Yes	06	4.8
No	122	95.2
Total	128	100.0
<i>χ^2 value is 105 with 1 df; $P < 0.0001$ is highly significant</i>		
Family	54	42.1
Friends	28	21.4
Both	09	7.1
Mother in law	14	11.1
Co-sister	11	8.7
None	12	9.5
Total	128	100.0
<i>χ^2 value is 85.19 with 5 df; $P < 0.0001$ is highly significant</i>		
Good	19	15.1
No opinion	104	81.7
Bad	05	3.2
Total	128	100.0
<i>χ^2 value is 134.52 with 2 df; $P < 0.0001$ is highly significant</i>		
Good	105	81.7
Bad	23	18.3
Total	128	100.0
<i>χ^2 value is 52.52 with 1 df; $P < 0.0001$ is highly significant.</i>		
Breathlessness	03	2.34
Giddiness	01	0.78
Indigestion	11	8.59
Palpitations	01	0.79
Addiction	54	42.19
Not thought of quitting	49	38.28
Quitted	09	07.03
Total	128	100.0
<i>χ^2 value is 174.33 with 6 df; $P < 0.0001$ is highly significant</i>		
Yes	55	42.9
No	73	57.1
Total	128	100.0
<i>χ^2 value is 2.52 with 1 df; $P > 0.05$ is not significant</i>		
Yes	13	10.3
No	115	89.7
Total	128	100.0
<i>χ^2 value is 81.28 with 1 df; $P < 0.0001$ is highly significant</i>		

such habits due to urbanization and increased literacy rates. Mucosal changes associated with reverse



Figure 2: Reverse chutta smoking

smoking exhibit a spectrum of clinical changes. The clinical aspect of oral mucosa varies when compared to conventional smokers. The most prominent changes associated with reverse smoking reported in literature were seen on the palate and tongue because of close proximity of heat and tobacco products during smoking. The oral mucosal lesions predominantly associated with reverse smoking are hyperpigmentation, depigmentation, stomatitis nicotina, preleukoplakia, leukoplakia, erythroplakia, and palatal cancer.^[4,8,9] Despite its harmful effects on health, hardly any literature exists pertaining to the social and psychological factors associated with its initiation and abiding factors of reverse smoking. Hence, in the current study, a qualitative research was conducted to comprehend the various psychological and social factors associated with reverse smoking.

Several strong predictors of conventional smokers emerged in the literature, including intention to smoke, knowledge about smoking, pro smoking beliefs, refusal skills, self-efficacy, friends smoking, friends' approval of smoking, parent smoking, parents' approval of smoking, and perceived prevalence of peer smoking.^[10,11] In contrast to the reasons for conventional smoking, the present study revealed various new reasons for the initiation of reverse smoking. This study has shown that there was a statistically significant association between age and the reasons for starting reverse smoking. A total of 45.98% participants said that they acquired this habit from their parents when their parents asked them to light and bring a cigar for them to smoke; this is in contrast to the reason given that chutta is less likely to be extinguished by water being splashed on it during their household work, as well as the possibility of hot ashes of cigar falling on nursing infants.^[3] Other reasons such as peer group, advice by the family and village heads during

pregnancy and for bleeding gums, farming in the cold weather etc., with the respective percentages of 27.78%, 15.88%, 5.58%, were found to be the other reasons that show a lack of awareness of the people toward healthier lifestyles.

In case of conventional smoking, smokers are said to achieve relaxation, enjoyment, and pleasure,^[12] however, in reverse smoking, 53.2% of people said that they achieve satisfaction on reverse smoking which shows lack of awareness of the people toward healthier lifestyles and addiction of the people to this habit; 44.4% of the participants said that they achieved no significant benefits and 2.4% of the participants answered that they were smoking as it helped in digestion of food. Various other answers that were found during the survey were that it is helpful in asthma patients, to control bleeding gums, as well as an anti-emetic during early pregnancy. All the values showed a high statistical significance of P value < 0.0001 .

Reverse smoking is known to cause various changes in oral mucosa ranging from the minimal changes, such as leukoedema, melanosis, smoker's palate, to more severe potentially malignant disorders or lesions, such as leukoplakia, erythroplakia, which can finally lead to oral cancer. The poor knowledge of reverse smokers of the ill effects of tobacco and tobacco-related products might be the reason that when they were asked about noticing any changes in their mouths related with reverse smoking, the most common answer was a no.^[11] In the present study, there was a significant correlation of P value < 0.0001 , where 95.2% of the participants said that they did not encounter any discomfort during or after reverse smoking whereas only approximately 4.8% of people reported discomfort such as an ulcer on the palate, which showed the chronic effects of the habit.

There was a statistically significant correlation ($P < 0.0001$) of a reverse smoker with their family members. Either knowingly or unknowingly, family members played a major role in influencing the participants to take up reverse smoking, as seen in this study, where the peers and their friends influenced them after their parents at home. In our study, 42.1% of the participants were influenced by their family members and 21.4% were influenced by the peers and friends group, 7.1% were influenced by both, 11.1% by their mothers in laws after marriage, and 9.5% by none.

When enquired about the opinion of the participants regarding the habit of reverse smoking, 81.7% of the

participants said that they do not have any opinion about this habit and 15% felt that it is good habit ($P < 0.0001$). This shows that, even though they do not have any physical benefit, people still continued the habit. Only 3.2% of the participants said that it was a bad habit.

A study conducted by Gomez *et al.* reported various oral manifestations of reverse smoking such as leukoedema, white plaque, white papule, umblicated papule, and red macule.^[1] This could be related to other factors such as the early age of starting the habit, which makes the changes appear in a chronic and progressive manner; thus, the population might view them as natural. Further, limited access to health services in these villages and little information about oral health care can also be related. In this study, 81.7% of the participants did not think that reverse smoking had any ill effects on their health whereas 18.3% thought that reverse smoking does cause certain ill effects. This shows high statistical significance ($P < 0.0001$) regarding opinion about the ill effects of reverse smoking. Another crucial finding in our study was that male participants had encountered the ill effects of reverse smoking whereas female participants showed only few effects of reverse smoking. This could be because of the fact that the reverse smoking changes associated in males could be due to the synergistic effects of reverse smoking along with other habits such as alcohol consumption. A total of 42.9% of male participants in our study expressed that the habit of reverse smoking was associated with consumption of alcohol and tea.

There was statistical correlation ($P < 0.0001$) among the reasons for which reverse smokers did not quit the habit. In the present study, among most of the reverse smokers who desired to quit the habit only few succeeded, which suggests that they may be aware of reverse smoking being harmful but did not have a source to motivate/persuade/counsel them which could help them quit the habit. Adolescents who began smoking at a younger age were more likely to become regular smokers and less likely to quit smoking.^[10,13] A total of 38% of the participants in our study said that they never thought of quitting the habit, and 42.1% of the subjects said that they are addicted to the habit and thus cannot stop the habit of reverse smoking.

When enquired about the association between the smokers, it was revealed that, although reverse smoking did not provide any physical benefit to the individual, they continued the habit; 10.3% of the

participants thought that it was a source of socializing, which was not statistically significant ($P > 0.05$). All the participants in our study who got acquainted to reverse smoking belonged to lower socioeconomic strata, and hence, there could be a possible correlation between their economic status and smoking habits. Our findings correlated with the study conducted by Alvarez *et al.*,^[1] which showed that population with limited economic resources and with little knowledge of harmful effects tobacco are at high risk to acquire this habit.

Though the present survey was conducted in a very small group of population of reverse smokers in Visakhapatnam district, the questions asked were significant to the existing habit; however, parallels could not be drawn with any other similar study due to lack of literature in regards to psychosocial aspects of reverse smoking worldwide. Hence, this stands as the only study which has probably investigated the psychosocial factors and the reasons that led the individual to take up this peculiar habit. The limitations of this study are small sample size and that it was based only on the individual's response to the questionnaire. Larger populations should be evaluated for further insights into many more factors regarding reverse smoking, which may require timely intervention by oral health care providers to prevent the harmful effects of reverse smoking.

CONCLUSION

The current study concludes that a majority of the reverse smokers acquired the habit mainly from their mother and from the people around them, mainly family and friends. Second, they are perpetuating the habit without any physical benefits and that they had tried to stop the habit but could not, which suggests a strong psychological impact of reverse smoking. Complex array of factors influence and determine human behavior. Major emphasis on health promotion is therefore necessary to make healthy choices, which include measures that highlight the importance of educating individuals against the hazards of disease. Information campaigns targeted at high risk groups in an attempt to change personal habits and behaviors have to be conducted. Individuals and communities have to be empowered in the process of setting priorities, making decisions and planning and implementing strategies to achieve better health.

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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