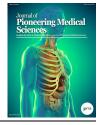
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A Qualitative Study on Attitude Towards Tobacco and Quitting among Tobacco Users in Tribal Gypsies Dwelling in Tamil Nadu

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Abstract Background: Tobacco use harms every organ in your body. Smoking tobacco introduces not only nicotine but also more than 5000 chemicals inducing numerous carcinogens (cancer - causing chemicals) into your lungs blood and organs. For the tribals of Tamil Nadu, tobacco is a part of their culture and practice. They live in the outskirts of towns and their accessibility to proper health education becomes difficult. They need a deeper understanding on tobacco effects. Aim: To conduct a qualitative study on attitude towards smoking and quitting among smokers in tribal gypsies dwelling from Tamil Nadu. Methods: A total of 30 participants who were above 18 years were included in the study. They were divided into 3 categories namely primary school completion, Middle school completed and completed high shool or above. An in depth interview and focal group discussions for the smokers in the tribal gypsies was conducted with a guide and a moderator. The areas of the discussion include reach to start smoking, knowledge regarding COTPA and quitting attempts. Open ended questions were asked and the responses were sorted thematically for result analysis. Results: Most of the participants have started tobacco from childhood seeing family and friends. It has become a addiction into their lives without them even realising it. They continue to use it because of stress and believe that their community people should use tobacco as an identity. The participants dont get affected by anti tobacco commercials and they are confident enough that government will not take action against tobacco. Conclusion: The study concluded that all the participants lack awareness about the tobacco and need a proper tailored counselling on the ill effects of tobacco, nicotine replacement therapy with regular follow up. Strict laws has to be tailored for non smoking tobacco products as well instead of concentrating only on smoking tobacco products.

Key Words Tribal gypsies, smoking, cancer, COTPA, awareness, quitting among smokers, anti tobacco

INTRODUCTION

Background

Tobacco is as old as human civilization itself, since the cultivation of Nicotiana rustica and Nicotiana tabacum dates back to 8000 years before the American Indians spread it. Smoking tobacco exposes users to around 7000 compounds, of which approximately 250 and almost 69 have been shown to be detrimental and carcinogenic, respectively [1].

Smokeless tobacco, a prevalent practice among India's tribal communities, has deep roots in their cultural and social fabric. It is often intertwined with rituals, celebrations and even daily life. For instance, the Gond and Bhil tribes in central India use smokeless tobacco as a symbol of hospitality, offering it to guests as a gesture of welcome. Similarly, the Santhal tribe in eastern India considers it a mark of respect for elders [2].

The use of smokeless tobacco among tribals is often linked to their agrarian lifestyle. It is believed to provide energy, alleviate fatigue and enhance work performance, especially during long hours in the fields. Moreover, it is seen as a stress reliever and a social bonding tool, facilitating conversations and camaraderie within the community [3].

However, the health implications of smokeless tobacco are significant. It is a major risk factor for oral and systemic illnesses, including periodontitis, cancer, premalignant lesions, dental caries and implant failure [4,5]. Despite awareness campaigns and government initiatives, the practice persists, especially among marginalized tribal groups. Factors such as limited access to healthcare, low literacy rates and cultural beliefs contribute to the continued use of smokeless tobacco [6]. When compared to non-smokers, tobacco increases tooth plaque and speeds up the development of gum disease. The most frequent cause of adult tooth loss is still gum disease. Smokers are more likely to get heart disease, stroke and lung cancer than nonsmokers. Worldwide, tobacco is the leading cause of health risks for people of all ages [1,7]. The elderly population is particularly affected by it because of their ongoing exposure to pollutants. Tobacco causes immunoinflammatory disorders that increase oxidative stress levels in the body [8].

Rationale and Knowledge Gap

While these health risks pose a threat to global populations, marginalized communities like the Narikuravar of Tamil Nadu face additional challenges due to limited access to healthcare and awareness campaigns. The "Narikuravar" community of Tamil Nadu, sometimes referred to as the tribal Gypsies, is a separate cultural group with its own traditions, rituals and way of life [9]. They have always experienced social, economic and health inequalities as well as marginalization [10,11].

Smoking and drinking are prevalent behaviors in many cultures and the attitudes towards these behaviors can vary greatly among different groups of people [12]. In particular, there is a lack of research on the attitudes towards smoking and drinking among tribal people, who may have unique cultural perspectives on these behaviors [13,14].

Aim and Objectives

Thus the aim of the present study was to conduct a qualitative study on attitude towards smoking and quitting among smokers in tribal gypsies dwelling from Tamil Nadu. This study will give tribal gypsies a forum to discuss their thoughts on smoking, societal norms surrounding tobacco use, reasons for quitting and difficulties faced during cessation attempts through in-depth interviews and focus groups. The null hypothesis of the study was that there is no significant difference between the attitude and knowledge about tobacco among the Narikuravr tribals of Tindivanam district, Tamil Nadu, The alternate hypothesis was that there here is significant difference between the attitude and knowledge about tobacco among the Narikuravr tribals of Tindivanam district, Tamil Nadu.

METHODS

A qualitative study was conducted among the tribal gypsy Narikuravar population of Tindivanam Tamil Nadu during June 2022. The inclusion criteria included adults above the age of 18 who uses tobacco for more than a year and were willing to participate in the study. Exclusion criteria included former tobacco users who used tobacco more than a year ago and those who were bed ridden and were not willing to participate in the study. The population were divided into 3 categories. Illiterates or primary school completion, Middle school completed and completed high shool or above. The study utilized snowball sampling to recruit participants due to the marginalized nature of the population. Informed consent was obtained in writing from all participants and their anonymity was preserved throughout the study. Totally 30 participants were recruited for the indepth interview and 12 for focus group discussion study in the allocation ratio of 1:1:1. The interviews took place in a private room within a house in the tribal settlement. Participants exhibited different levels of motivation to quit in the future. The interviews continued until no new responses or ideas emerged.

Qualitative in depth interviews were conducted among current tobacco users with the assistance of a moderator and interview guide. The interview guide was formulated to probe into different perspectives of tobacco usage. The guide was validated through a pilot study. Each interview was audio recorded and lasted for 30 minutes each.

The topics of discussion include starting of tobacc products, knowledge about ill effects of tobacco, attempts to quit smoking, awareness about COTPA, tobacco policies and nicotine replacement therapy

The focus group discussions (FGDs) involved 12 participants, divided into three categories with four participants in each group. Similar to the in-depth interviews, each FGD was facilitated by one moderator and one assistant. The discussions lasted for one hour and were audio recorded. The moderator guided the conversation, ensuring that topics were covered and the participants actively shared their views.

To identify themes, the audio recordings were listened to multiple times for familiarization. The focus group guide helped structure the emerging themes and key ideas based on participants' responses. Initially, a manual analysis was conducted, listing each participant's responses under the relevant key points. Finally, an interpretive analysis was performed to group similar points together, identifying recurring themes that revealed various aspects of smoking behavior across the three participant groups.

RESULTS

The study participants had a mean age of $34.23\pm13,78$. There were 22 (52.3%) females and 20 (47.7%) males present in the in the study. The responses gathered from the focus group discussion were categorized, leading to the identification of the following themes.

Reasons for Starting Tobacco

The first category illiterates or primary school completed participants stated that their parents use it and that created a curiosity in them; The second category of middle school completed participants expressed peer pressure which started at the age of 10 or 12 irrespective of gender. The high school completed participants who belong to the third category stated that it was considered as a macho thing in the school and it was also considered as their community students should use tobacco to be a part of the same.

Area of Discussion	Illiterates / Primary school	Middle school	High school and above
Reasons for start of tobacco	I was curious to learn more about tobacco and how it would feel after observing my parents do it.	Every single one of my gangmates was using it	In schools, a man was only deemed mature if he used tobacco. It seemed like our community people should use tobacco. Its like our identity.
Reasons to continue tobacco	All I want to do when I'm stressed out is smoke and unwind.	It's a good time pass	That has become my addiction. People from other communities also treat me as though I should be doing it.
Knowledge regarding health effects of tobacco use and COTPA	Everyone is aware of how smoking harms the lungs and increases the risk of cancer. Many of their family members have got cancer and left untreated. The prevalence of chewing tobacco was higher than the smoking tobacco. They were aware of COTPA but never followed the rules of the act.		
Aspects related to quitting attempts	Almost everyone I know use tobacco. I dont think I have to quit.	I don't think i can quit. Its a part of my life.	I made several attempts to stop, but the way people treated me kept me relapsing.
What will happen if tobacco is stopped manufacturing?	Thats not happening	When the government forbids, we'll switch to other tobacco products. There is always another present.	Those with significant levels of dependency might choose different
Anti tobacco commercials	It does't affect me at all. I dont care about them.	It does affect me when I watch them but after that it doesn't have any effect on me usage.	I regret when I watch them and try to quit, but I eventually relapse.

Table 1: Brief results of thematic analysis of focus group discussion and in depth interviews

Reasons to Continue Tobacco

The first category participants were using it as a remedy to stress and tobacco usage was directly proportional to their everyday stress. Most of the participants who belonged to second category were considering it as a good time pass when they do skilled labour and use it when they are hungry during work as it reduces hunger. The third category participants stated that they were using it for so long and they are addicted to it.

Knowledge about Health Effects of Tobacco and COTPA

When asked about the harmful effects of tobacco on health, all the three groups said they are aware of the ill effects of tobacco and it affects lungs. They have learned it from movies and advertisement. And some of the participants have had relatives who had suffered of health problems due to constant tobacco use. They were aware of the COTPA act and its regulations, yet one important thing to note is that smoking is prohibited in public places according to COTPA but most of the stdy participants use smokeless tobacco products and the initial age of using tobacco was mostly from 10 years. They usually take a pack from their parents tobacco. Thus they never followed or never had to follow COTPA.

Quitting Attempts

When asked about the quitting attempt, we were shocked that many of them did not even try quitting. One of the first category participant said almost everyone in his community does use tobacco. One of the second category participants stated that its a part of her life and she doesn't think she can quit. The participant in third category tried quitting but because of the social disparities he kept using tobacco.

Cessation of Tobacco Manufacture

The first category participants dont even think they are going to stop manufacturing tobacco. Whereas the second category participant were also confident that the tobacco is not going to be stopped from manufacturing but even if it happens, they would switch to different tobacco products. High school category suggested that it would affect different dependency of participants in a different way.

Anti Tobacco Commercials

Anti tobacco commercials doesnt affect the first category at all whereas the second and third category participants said it does affect them but they eventually use tobacco as usual. We also continued asking about nicotine replacement therapy commercials. Most of the participants were not aware of them completely and they think its too expensive for them to try. They also think they want to keep living primitive and not use anything modern.

DISCUSSION

Key Findings

The majority of people began smoking while they were young, while interacting with friends and family. They aren't even aware that it has turned into an addiction in their lives. Due to stress and the belief that tobacco smoking should be a part of their community's identity, they continue to use it. The participants are sufficiently certain that the government will not take action against tobacco that they are unaffected by anti-tobacco advertisements.

Strengths and Limitations

Since its a qualitative study, its one of the first of its kind to showcase the voice of a vulnerable community. There were some limitations to the study. Firstly because of the qualitative study design, there were only 42 participants involved in the study which is a small sample size and cannot be generalised for the tribal groups of Tamil Nadu. Secondly because of the marginality and since these groups were not easy to converse, snowball sampling was done that could lead to bias

Comparison with Similar Researches

Previous research on attitudes towards smoking and drinking among tribal people has found that these behaviors are often deeply ingrained in the culture and tradition of these populations. Many studies have reported that smoking and drinking are seen as a way to connect with one's cultural heritage and to bond with other members of the community [15,16].

In a previous study it was shown that among the tribal community, tobacco use was more common (above 60%) in both males and females. Among tobacco users, medium tobacco dependency was more common. Most of them used smokeless tobacco in one form or another [17]. Peer pressure from friends, cultural views and a family history of tobacco smoking have been identified as the main contributing factors to the early initiation of the habit. Since that the tribes are deeply ingrained in their culture, involving a member of the local community may be helpful. Only after educating them about the outside world and helping them to overcome their ignorance and ridiculous cultural customs can the treatment intervention be implemented [18,19].

Another study suggested that given the social and economic vulnerability of the tribal people, tobacco management is severely hampered by a high incidence of tobacco use with a usage pattern that suggests early initiation and dependency [18,20,21]. Given the high percentage of illiteracy and the prevalence of non-commercial tobacco smoking, traditional printed warnings might not be the best kind of control. Nonetheless, health educators can take advantage of the desire and efforts made to give up tobacco smoking to spread awareness of tobacco cessation programs among men, Paniyas and the illiterate [22,23].

Explanation of the Key Findings

Overall, the findings of earlier studies on tribal people's attitudes about drinking and smoking indicate that these habits are frequently deeply embedded in these societies' customs and cultures [24]. According to numerous studies,

drinking and smoking are viewed as ways to strengthen ties with other community members and to stay connected to one's cultural background [25-27].

Implications and Action Needed

Tobacco usage is ingrained in the social mores and culture of many tribal cultures, including those in Tamil Nadu. It frequently transcends simple habit and is incorporated into social events, everyday routines and rituals [28]. Offering tobacco, for example, is frequently passed down through the generations and might be interpreted as a show of respect or trust. Due to the cultural normalization of tobacco use, quitting can be a complicated topic because it may be interpreted as a rejection of established values as well as a personal choice [29].

The long-term health effects of tobacco use are serious, but they may not be fully recognized or prioritized in communities where tobacco use is a deeply rooted cultural practice. Whether smoked or chewed, tobacco can cause severe health issues such as chronic respiratory diseases like chronic obstructive pulmonary disease (COPD) and emphysema, cardiovascular diseases and various cancers [30]. Smokeless tobacco is particularly associated with a higher risk of oral cancers. Nicotine addiction makes quitting more difficult by altering brain chemistry, often contributing to mental health problems like anxiety and depression. Tobacco use also has adverse effects on reproductive health, leading to infertility in men and pregnancy complications in women. In rural and tribal areas with limited healthcare resources, the burden of tobacco-related diseases can strain healthcare systems and result in higher rates of illness and death [31].

Despite these risks, many people in tribal gypsy communities may not fully understand the health dangers of tobacco due to a lack of education and the normalization of tobacco use in their culture. Therefore, it is important to deliver health education about the long-term impacts of tobacco in a way that aligns with the community's cultural understanding [32].

Moreover, research indicates that these actions are frequently employed as coping strategies to manage the stress and trauma that are frequently connected to living on reservations. To create successful treatments that encourage better behaviors among tribal people, it is essential to comprehend these intricate cultural and social factors [33].

CONCLUSION

Since tobacco use is linked to identity and social norms, any program aimed at helping people quit smoking needs to be attentive to cultural differences. In order to modify health messages that honor cultural customs while highlighting the advantages of quitting, effective interventions should collaborate with local leaders and cultural mediators. In order to promote good change, it is essential to have an open and courteous conversation with the community regarding the health dangers associated with tobacco use while keeping in mind their cultural norms. People can be encouraged to make healthier decisions by using techniques like peer-led conversations and storytelling to increase understanding of the risks.

Ethical Statement

Ethical clearance was obtained from Institutional ethics committee, Saveetha University with the number SRB/SDC/UG-2108/22/PHD/092.

REFERENCES

- Prathiba, Reichal C. *et al.* "A Qualitative Study on Attitude Towards Smoking and Quitting Among Smokers in Tribal Gypsies Dwelling from Chennai." *Journal of Pioneering Medical Sciences*, vol. 12, no. 2, December 2023, pp. 4-9. http://dx.doi.org/10.61091/ jpms20231222.
- [2] Thakur, Indranil, et al. "Prevalence and Determinants of Tobacco Product Use Among the Tribal Community of West Bengal: A Crosssectional Survey." Journal of the Association of Physicians India, vol. 67, no. 4, 2019, pp. 97-98. https://pubmed.ncbi.nlm.nih.gov/31309812.
- [3] Pullishery, Fawaz. "Oral malignancies and tobacco related habits among aranadar tribals in kerala, India: A population based study." *Tobacco Induced Diseases*, vol. 16, no. 1, March 2018. http://dx.doi.org/10.18332/tid/84195.
- [4] Pradeep, V.R. "Assessment of Oral Health Beliefs and Oral Hygiene Practices Among Tribal Gypsies in Tamil Nadu." *Journal of Pioneering Medical Sciences*, vol. 12, no. 3, December 2023, pp. 11-14. http://dx.doi.org/10.61091/jpms20231233.
- [5] Sarojini, K. et al. "Self Perceived Stress and Oral Health Related Quality of Life Among Tribal Gypsies in Chennai." *Journal of Pioneering Medical Sciences*, vol. 12, no. 3, December 2023, pp. 15-19. http://dx.doi.org/10.61091/jpms20231234.
- [6] Verma, Shiwani. "Evaluation of knowledge and attitude towards ill effects of tobacco and alcohol: A systematic review." *International Journal of Advance Research in Community Health Nursing*, vol. 6, no. 1, January 2024, pp. 27-33. http://dx.doi.org/10.33545/ 26641658.2024.v6.i1a.164.
- [7] Chellappa, Lalitha Rani, et al. 2021. "A qualitative study on attitude towards smoking, quitting and tobacco control policies among current smokers of different socio-economic status." Journal of Family Medicine and Primary Care, Vol. 10, No. 3. pp: 1282-1287. http://dx.doi.org/10.4103/jfmpc.jfmpc_1628_20.
- [8] Agnihotri, Rupali and Sumit Gaur. "Implications of tobacco smoking on the oral health of older adults." *Geriatrice and Gerontology International*, vol. 14, no. 3, 2024, pp. 526-540. http://dx.doi.org/ 10.1111/ggi.12285.
- [9] Nazir, Muhammad Ashraf, 2017. "Prevalence of periodontal disease, its association with systemic diseases and prevention." *International Journal of Health Sciences*, vol. 11, no. 2, 2017 https://pubmed. ncbi.nlm.nih.gov/28539867.
- [10] Ganesh, Balasubramanian, et al. "Particularly vulnerable tribal groups of Tamil Nadu, India: A sociocultural anthropological review." Indian Journal of Public Health, vol. 65, no. 4, December 2020, pp. 403-409. http://dx.doi.org/10.4103/ijph.ijph_2_21. Barma, Manali Deb, et al. "Quality of life among head and neck cancer treated patients in south India: A cross-sectional study." Journal of Oral Biology and Craniofacial Research, vol. 11, no. 2, April 2021, pp. 215-218. http://dx.doi.org/10.1016/j.jobcr.2021.02.002.
- [11] Sudhinaraset, May, et al. "Social and Cultural Contexts of Alcohol Use: Influences in a Social-Ecological Framework. Alcohol Research, vo. 38, no. 1, 2016. https://pubmed.ncbi.nlm.nih.gov/27159810.

- [12] Zhang, Jiaxin, *et al.* "The impact of smoking on subgingival plaque and the development of periodontitis: A literature review." *Frontiers in Oral Health*, vol. 2, no. 2021, October 2021. http://dx.doi.org/ 10.3389/froh.2021.751099.
- [13] Sowmya, S. and A. Haripriya. "The influence of epilepsy on oral health outcomes: A retrospective study in south Indian adults." *Cureus*, vol. 16, no. 8, August 2024. http://dx.doi.org/10.7759/cureus.66101.
- [14] Smith, Stevens S., et al. "Culturally tailored smoking cessation for adult American Indian smokers." *The Counseling Psychologist*, vol. 42, no. 6, July 2014, pp. 852-886. http://dx.doi.org/10.1177/ 0011000014542601.
- [15] Sowmya, S. and R. Sangavi. "Effectiveness of oral health education and interventions in improving oral health outcomes in type ii diabetes mellitus patients: A prospective study." *Cureus*, vol. 16, no. 4, April 2024. http://dx.doi.org/10.7759/cureus.58227.
- [16] Rajeswari, K. *et al.* "Pattern of smoking, tobacco use and alcoholism in tribal population." *The Pharma Innovation Journal*, vol. 8, no. 4, 2019, pp. 1011-1017. https://www.thepharmajournal.com/ archives/2019/vol8issue4/PartQ/8-3-116-755.pdf.
- [17] Chellappa, Lalitha Rani, et al. 2021. "Prevalence and dependency of tobacco use among tribal gypsies in thoothukudi district - a cross sectional study." Journal of Family Medicine and Primary Care, Vol. 10, No. 2. pp: 738-744. http://dx.doi.org/10.4103/ jfmpc.jfmpc_1344_20.
- [18] Nivethitha, R. and L. Leelavathi. "Awareness on ill effects of tobacco usage among tobacco users." *Journal of Advanced Pharmaceutical Technology and Research*, vol. 13, no. 1, November 2022, pp. S217-S222. http://dx.doi.org/10.4103/japtr.japtr_147_22.
- [19] Murmu, Jogesh, et al. "Social determinants of tobacco use among tribal communities in India: Evidence from the first wave of longitudinal ageing study in India." PLOS ONE, vol. 18, no. 3, March 2023, http://dx.doi.org/10.1371/journal.pone.0282487.
- [20] Shanmugam, S.B. et al. "Antioxidant activity of silver nanoparticles using Picrorhiza Kurroa root extract." *Journal of Population Therapeutics and Clinical Pharmacology*, vol. 29, no. 02, 2023, pp. 140-147. https://doi.org/10.47750/jptcp.2022.957.
- [21] Javed, Reshma, et al. "Prevalence, pattern and determinants of tobacco use among persons of tribal origin in a primary care centre in wayanad, kerala." International Journal of Community Medicine And Public Health, vol. 7, no. 8, July 2020, pp. 3153-3159. http://dx.doi.org/ 10.18203/2394-6040.ijcmph20203393.
- [22] Balasubramaniam, Arthi and Meignana Indiran Arumugham. "Salivary oxidative stress level among tobacco chewers and smokers." *Journal* of Advanced Pharmaceutical Technology and Research, vol. 13, no. 1, November 2022, pp. S21-S25. http://dx.doi.org/10.4103/ japtr.japtr_116_22.
- [23] Gupta, Bhavana, *et al.* "Occurrence of oral premalignant lesions among tobacco users in a tribal population: A systematic review and metaanalysis." *Cureus*, vol. 15, no. 10, October 2023. http://dx.doi.org/ 10.7759/cureus.47162.
- [24] Muthanandam, Sivaramakrishnan, et al. "Burden of oral precancer and cancer among an indigenous tribal population of south India-an evaluative study." *Indian Journal of Dental Research*, vol. 33, no. 3, July 2022, pp. 253-257. http://dx.doi.org/10.4103/ijdr.ijdr_552_21.
- [25] Sadath, Anvar, et al. "Smoking, betel quid chewing and alcohol use among an indigenous primitive tribal group in the kerala state of India: Secondary analysis of a tribal household survey." Journal of Ethnicity in Substance Abuse, vol. 22, no. 1, March 2023. http://dx.doi.org/ 10.1080/15332640.2023.2185721.
- [26] Rao, V.G., et al. "Smoking and alcohol consumption: Risk factors for pulmonary tuberculosis among the tribal community in central India." *Indian Journal of Tuberculosis*, vol. 64, no. 1, January 2017, pp. 40-43. http://dx.doi.org/10.1016/j.ijtb.2016.11.009.
- [27] Kozlowski, Lynn T. "Tribes of trust or distrust, "attitude roots" and encouraging scientific participation in the tobacco harm-reduction debate." *Nicotine and Tobacco Research*, vol. 23, no. 8, January 2021, pp. 1441-1443. http://dx.doi.org/10.1093/ntr/ntab006.

- [28] Francis, Delfin Lovelina. "Tobacco use, awareness and cessation among malayali tribes, yelagiri hills, Tamil Nadu, India." *Tobacco Induced Diseases*, vol. 16, no. 1, March 2018. http://dx.doi.org/ 10.18332/tid/83755.
- [29] Muthanandam, Sivaramakrishnan, et al. "Assessment of knowledge, awareness and attitude towards oral precancer and cancer among narikuravar population in pondicherry state." South Asian Journal of Cancer, vol. 10, no. 4, November 2021, pp. 225-229. http://dx.doi.org/ 10.1055/s-0041-1733316.
- [30] Valsan, Iris. "Oral health status and treatment needs of paniya tribes in kerala." *Journal of Clinical and Diagnostic Research*, vol. 10, no. 10, December 2015. http://dx.doi.org/10.7860/jcdr/2016/21535.8631.
- [31] Francis, Delfin Lovelina. "An assessment of oral health status, tobacco use and cancer awareness among tea plantation workers (irula tribes), nilgiri hills, tamilnadu, India." *Tobacco Induced Diseases*, vol. 16, no. 1, March 2018. http://dx.doi.org/10.18332/tid/83798.
- [32] Rahmath, Meeral P., et al. "Oral health status and behaviour among kanikkaran tribes of mundandhurai hills in tirunelveli district, Tamil Nadu." Journal of Oral Biology and Craniofacial Research, vol. 14, no. 3, May 2024, pp. 245-251. http://dx.doi.org/10.1016/ j.jobcr.2024.03.006.