



Prevalence of Smoking Among Transgender Population Residing In Urban Chennai- A Cross Sectional Survey

Manikandan Shanmugam¹, Kurunji Kumaran Navaneethakrishnan^{2*}, Bhaskar Venkatachalam³, Rajasigamani Kandasamy⁴, And Krishna Prasanth Baalann⁵

Research Scholar, Rajah Muthiah Dental College & Hospital, Annamalai University, Chidambaram

Professor and Research Guide, Department of Orthodontics, Rajah Muthiah Dental College & Hospital, Annamalai University, Chidambaram

Professor & Head, Department of Orthodontics, Rajah Muthiah Dental College & Hospital, Annamalai University, Chidambaram

Professor, Department of Orthodontics, Rajah Muthiah Dental College & Hospital, Annamalai University, Chidambaram

Epidemiologist & Assistant Professor, Department of Community Medicine, Sree Balaji Medical College and Hospital, Bharath Institute of Higher Education & Research

Abstract: In general, there is a lack of research on the transgender population and tobacco use. Findings from previous studies are in conflict regarding the use of tobacco products among transgender populations. The purpose of this study was to estimate the prevalence of current tobacco use among transgender population in and around Chennai city. A cross sectional survey was conducted to assess the prevalence of smoking among transgender. A direct interview was conducted using questionnaire related to smoking and transgender type. Descriptive statistics was used to give the prevalence, socio demographic variables and chi square test was used to compare the smoking habit with socio demographic data. The prevalence of smoking among transgender was forty percentage. While comparing age group and smoking habit or type of transgender(male to female and female to male) and smoking there was no significant association observed(p value >0.05). Around 60% of them had the habit of Alcohol intake. While comparing education and occupation with smoking behavior, there was a strong significant association (p value 0.006, 0.002) found in this study. Cigarette was the most common type of tobacco used by these populations. Tobacco in the form of cigarette was common among Transgender population. Future research is needed with an increased sample size to assess the quantity of cigarette intake. The data from this study can be used as a preliminary report to inform best and promising practices for tobacco control and prevention for the transgender population.

Keywords: Prevalence, transgender, tobacco, smoking, habit, prevention

***Corresponding Author**

Kurunji Kumaran Navaneethakrishnan , Professor and Research Guide, Department of Orthodontics, Rajah Muthiah Dental College & Hospital, Annamalai University, Chidambaram



Received On 22 October, 2021

Revised On 25 January, 2022

Accepted On 3 February, 2022

Published On 3 March, 2022

Funding This research did not receive any specific grant from any funding agencies in the public, commercial or not for profit sectors.

Citation Manikandan Shanmugam, Kurunji Kumaran Navaneethakrishnan ,Bhaskar Venkatachalam, Rajasigamani Kandasamy, Krishna Prasanth Baalann , Prevalence of Smoking Among Transgender Population Residing In Urban Chennai- A Cross Sectional Survey.(2022).Int. J. Life Sci. Pharma Res.12(2), L13-18
<http://dx.doi.org/10.22376/ijpbs/lpr.2022.12.2.L13-18>

This article is under the CC BY- NC-ND Licence (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)



Copyright @ International Journal of Life Science and Pharma Research, available at www.ijlpr.com

I. INTRODUCTION

Transgender adults face many adversities related to stigma and discrimination. Chronic stress as a result of marginalization increases the prevalence of depressive symptoms, psychological distress, suicide, substance abuse, and smoking in this population group.^{1,2} The tobacco epidemic is one of the greatest public health threats the world has ever faced, killing more than 8 million people worldwide annually. More than 7 million of these deaths are due to direct tobacco use, while around 1.2 million are due to non-smokers exposed to secondhand smoke. More than 80% of the 1.3 billion tobacco users worldwide live in low- and middle-income countries, which are the most exposed to tobacco-related illness and death. Tobacco use contributes to poverty by diverting household spending from basic needs like food and shelter to tobacco. Tobacco use is a major risk factor for many chronic diseases, including cancer, lung disease, cardiovascular disease, and stroke. It is one of the leading causes of death and disease in India, causing about 1.35. million deaths every year. Smoking tobacco is an especially concerning issue among adolescents since experimenting with cigarettes in youth increases the odds of addiction and, thus, continuing to smoke in adulthood.³ India is also the second largest consumer and producer of tobacco. A wide variety of tobacco products are available in the country at very low prices. Nearly 267 million adults (aged 15 and over) in India (29% of all adults) use, according to the 2016-17 India Global Adult Tobacco Survey. The most common form of tobacco use in India is smokeless tobacco and the most commonly used products are khaini, gutkha, tobacco betel quid, and zarda. The ways of smoking tobacco are bidi, cigarette and hookah. Smoking may be particularly deleterious for transgender and gender non-binary youth who seek gender-affirming medical treatment, such as hormonal therapy and surgery, because it increases risk of thromboembolic events and worse surgical outcomes. Transgender are one of the many marginalized groups that continue to smoke at high rates.^{4,5,6,7} There is limited information on the prevalence of smoking among transgender people; However, the prevalence of smoking is reported to be higher in transgender adults than in the general adult population. some evidence among adults suggests high rates of smoking among these populations.⁸ Younger cohorts of gender minority individuals may be particularly vulnerable.⁹ The transgender population is considered to be mainly at risk, as it is often exposed to substance abuse, depression,

HIV infection, and social and occupational discrimination, all of which are related with a higher prevalence of smokers.¹⁰ The present research is the first study to evaluate the prevalence of cigarette use among transgender adults from a developing country like India.

2. METHODS

A cross sectional survey was conducted among 159 transgender individuals. All procedures performed in this study involving human participants were in accordance with the ethical standards of Sree Balaji Medical College and Hospital, Institutional Human Ethical Committee (Ref. No. 002/SBMC/IHEC/2020/1367). Written consent was taken from the individuals for participating in the study. Convenient sampling technique was used to choose the population. Age group from 25 and above was enrolled.

3. MEASUREMENT

Questions related to tobacco usage were used to assess tobacco practices. First question was "Do you smoke?) with the following response options: "No, or "Yes, " The second item is what form of tobacco will you prefer to take? Like bidi, cigarette and hookah. All the questions were asked qualitatively not quantitatively. And Socio demographic characteristics of the participants were collected.

4. STATISTICAL ANALYSIS

Analyses were done using SPSS ver24. Prevalence was given in percentage and we used 2-tailed χ^2 tests, with statistical significance set at $P < .05$, to assess within-group differences and between-group. Transgender individuals with an unknown gender were excluded from the analysis.

5. RESULTS

We collected the data related to socio demographic characteristics included age, sex, education status, occupation status. Total of 159 populations were enrolled for this study. Of which almost equal proportion of male to female and female to male transgender were selected for this study. Age group range from 25 to 56 years and the mean age was 38 years. Majority (82%) of them were unemployed(Table 1) .

Table-I Demographic characteristics

| Transgender | Frequency | Percentage |
|-------------------|-----------|------------|
| Male to female | 79 | 49.7 |
| Female to male | 80 | 50.3 |
| Age group | | |
| 20-30 | 29 | 18.2 |
| 31-40 | 65 | 40.9 |
| 41-50 | 63 | 39.6 |
| >50 | 2 | 1.3 |
| | 159 | 100.0 |
| Employment | | |
| Employed | 29 | 18.2 |
| Unemployed | 130 | 81.76 |

Table 1- almost equal proportion of male to female and female to male transgender, Age group range from 25 to 56 years and the mean age was 38 years. Age group above 50 years is very small. Majority (82%) of them were unemployed.

Figure-1 shows, the level of education among study population. Majority (82%) of them did their elementary school level and 10% of them were illiterate.

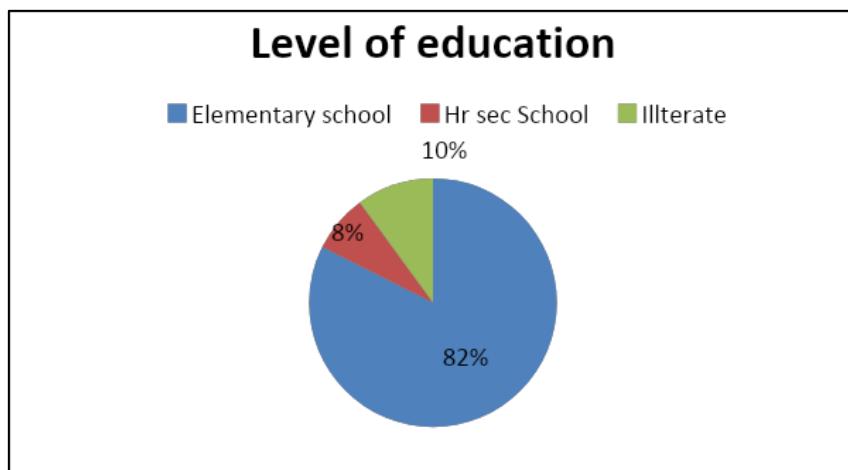


Fig-1 Education level

Figure-1 shows majority of them went to elementary school and discontinued their education, 8 percentage had gone up to secondary level of education and 10 percentage have not been to school for education.

| Table-2 Prevalence of smoking and alcohol among transgender | | |
|---|-----|-------|
| | N | % |
| Tobacco | | |
| Yes | 63 | 39.6 |
| No | 96 | 60.4 |
| Alcohol | | |
| Yes | 95 | 59.7 |
| No | 64 | 40.3 |
| Type of tobacco | | |
| Cigarette | 34 | 21.4 |
| Bidi | 29 | 18.2 |
| Hookah | 7 | 4.4 |
| | 159 | 100.0 |

Table-2 shows 60 percent do not use tobacco and 40 percent uses tobacco of which 21 percent smokes cigarette, 18 percent smokes bidi and 4 percent uses hookah. 40 percent don't consume alcohol and 60 percentage are alcoholic.

Around 40% of them were using tobacco but 60% of them had the habit of alcohol intake. (Table-2) Among the smokers (40%) many of them using cigarette (21%) followed which bidi. (18%).

| Table-3: Comparison of gender with the habit of tobacco | | | | | |
|---|---------|----|------------|------------|-------------------------|
| Transgender group | Tobacco | | Pearson al | Chi-square | Correlation coefficient |
| | Yes | No | | | |
| Male to female | 34 | 45 | 79 | 0.382 | 0.069 |
| Female to male | 29 | 51 | 80 | | |

Table-3 shows the comparison between male to female and female to male groups with the habit of tobacco usage. No significant differences were observed between both the groups (p-value- 0.382).

Comparing the type of transgender and tobacco usage, there was no significant different (p-value- 0.382) was observed in this research (Table-3).

| Table-4: Comparison of gender and alcohol | | | | | |
|---|---------|----|-------|------------|-------------------------|
| Transgender group | Alcohol | | Total | Chi-Square | Correlation coefficient |
| | Yes | No | | | |
| Male to female | 46 | 33 | 79 | | |
| Female to male | 49 | 31 | 80 | 0.069 | 0.410 |
| Total | 95 | 64 | 159 | | |

Table-4 shows the comparison between male to female and female to male groups in alcohol consumption . No significant differences were observed between both the groups (p-value-0.069).

While comparing the type of transgender and alcohol usage, there was no significant different (p-value- 0.069) was observed in this research (Table-4).

Table-5: Comparison of age group with the habit of tobacco

| Age group | Tobacco | | Total | Chi-square |
|-----------|---------|----|-------|------------|
| | Yes | No | | |
| 20-30 | 16 | 13 | 29 | |
| 31-40 | 41 | 24 | 65 | |
| 41-50 | 38 | 25 | 63 | 0.893 |
| >50 | 1 | 1 | 2 | |
| Total | 63 | 96 | 159 | |

Table-5 shows the comparison of the age groups with the habit of tobacco usage. There was no significant correlation observed between the age groups and habit of tobacco.

Table-6: Comparison of age group with the habit of alcohol

| Age group | Alcohol | | Total | Chi-square |
|-----------|---------|----|-------|------------|
| | Yes | No | | |
| 20-30 | 17 | 12 | 29 | 0.346 |
| 31-40 | 41 | 24 | 65 | |
| 41-50 | 37 | 26 | 63 | |
| >50 | 0 | 2 | 2 | |
| Total | 95 | 64 | 159 | |

Table-6 shows the comparison of age groups and the habit of alcohol. There was no significant differences observed between the age groups and alcohol consumption (P-value -0.346)

Table-7 Level of education and smoking

| Education | Smoking | | Tot al | p- value |
|-------------------|---------|----|-----------|-------------|
| | Yes | No | | |
| Elementary school | 47 | 84 | 131 | 0.006 |
| Hr.Sec School | 10 | 2 | 12 | |
| Illiterate | 6 | 10 | 16 | |
| | 63 | 96 | 159 | |

Table-7 shows the comparison of level of education and the habit of Smoking. A strong association was found with the level of education and smoking behavior (p-value-0.006).

The above table-7, we can observe that there was a strong association observed with level of education and smoking behavior (p-value 0.006)

Table-8: Comparison of employment and smoking tobacco

| Employment | Smoking | | Total | Chi-square value |
|------------|---------|-----|-------|------------------|
| | Tobacco | Yes | | |
| | Yes | No | | |
| Employed | 19 | 10 | 29 | 0.002 |
| Unemployed | 44 | 86 | 130 | |
| Total | 63 | 96 | 159 | |

Table-8 shows the comparison between the employment status and the habit of smoking. It shows a strong association between employment status and smoking behavior.

The above table-8 shows that there was a strong association between employment status and smoking. (p-value 0.002),

6. DISCUSSION

In spite of years of prevention and intervention efforts, tobacco use remains a leading contributor to morbidity and mortality. This study examined the association between transgender and use of various tobacco products. Moreover, significant disparities in smoking prevalence and related risk also remain same. Tobacco use among transgender is associated with multi-factorial etiology. While this has not

been extensively studied in the world, also it has received very little attention in developing countries like India. Therefore, the current analysis explored association among socio demographic factors and tobacco use in transgender population. Tobacco is used in a variety of forms in India. In the current scenario, cigarette was the most commonly used tobacco form 11. In our view, very few participants reported honestly to the question on which forms of tobacco used by them. Causes for smoking may

include both psychological and environmental risk factors. We are unable to notice variations in smoking initiation and intention to quit between male to female and female to male (FTM) transgender individuals over time because this is a cross-sectional study. Transitioning, on the other hand, is a continuous process that might take months, years, or even a lifetime. A systematic review also found the similar results regarding tobacco/nicotine outcomes, cigarette use was the most frequently studied outcome (60%). In this study there was no association with gender and tobacco practice. Many studies supports to our findings as gender identity were generally not associated with cigarette or other tobacco use.^{12,13} We found that age was not correlated with the practice of smoking and many studies also found that age was not associated with cigarette use.¹⁴ Regarding education level and smoking there was a significant association observed in this study similarly most studies found that having more education was associated with a decreased likelihood of cigarette use.¹⁵⁻¹⁷ A study by Hiscock et al found similar results regarding higher tobacco use and low educational attainment.¹⁸

Employment is playing a major role in the habit of smoking. In this study we found, Unemployed are having less smoking habit than the employed. (p value 0.002). The stress caused by the harassment in their workplace might trigger them to smoke.¹⁹ The current study findings add to the relatively sparse literature by providing evidence on the unique profiles in transgender use of tobacco products. The tobacco industry has been advertising alternative tobacco products to tempt a new generation of young consumers as cigarette consumption among adults has dropped in recent years. We have no data on average consumption patterns, lifetime use patterns, use of other tobacco products, the effects of antitobacco advertising, tobacco attitudes, exposure to smoking bans at home or work, rates of cessation, the mean number of quit attempts, the methods used to quit, or the characteristics and correlates of quitting 23 LGBT Tobacco and Alcohol Disparities 569 of quitting. A study by Mathivadani et al shows that about 45% of transgender participants are not interested in controlling smoking and 61.5% of the participants did not care about the health warnings printed in the cigarette packets. 69.4% of the participants were not aware of the oral health problems associated with smoking 20. Including the cultural references and specifically the impact of tobacco consumption on the LGBT community had made the psychoeducational content of the cessation program more meaningful. The cessation classes conducted in LGBT identified spaces and using LGBT facilitators strengthened the responsiveness of the intervention 21. Employer sponsored cessation program can reach a large group of work force 22. Cessation program which had offered incentives to quit such as providing free Nicotine Replacement Therapy (NRT) were successful 23,24. Some employer combines monetary benefits with cessation

II. REFERENCES

1. Veale JF, Watson RJ, Peter T, Saewyc EM. Mental health disparities among canadian transgender youth. *J Adolesc Heal*. 2017;60(1):44-49.
2. Coulter RWS, Bersamin M, Russell ST, Mair C. The effects of gender- and sexuality-based harassment on lesbian, gay, bisexual, and transgender substance use disparities. *J Adolesc Heal*. 2018;62(6):688-700.

counseling 25,26. These valid points has to be included in the planning of the cessation programs to increase the expected outcome from this stigmatized group of population. At the least gathering these basic statistics would be an important beginning step in resolving these problems.

7. CONCLUSION

This study showed that around 40% of them were using tobacco, but 60% of them had the habit of alcohol intake. Among the smokers, 21% of them use cigarettes and 18% use bidi. There was no significant difference observed while comparing the type of transgender and tobacco usage with the type of transgender and alcohol usage. There is no significant association between age group and tobacco practice or age group and alcohol practice among the transgender population. We discovered a strong relationship between education level and smoking behavior, as well as employment status and smoking. The repeated discrimination and oppression of transgender by society has traumatised them psychologically, and a majority of them are affected by Post-Traumatic Stress Disorder (PTSD). They are under the wrong impression that tobacco use would relieve their stress temporarily. To prevent the morbidity and mortality associated with tobacco abuse, tobacco use in any form must be prohibited in this marginalized and stigmatized group of the population. research needs an increased sample size to assess the quantity of cigarette intake. The data from this study can be used as a preliminary report to inform best and promising practices for tobacco control and prevention for the transgender population. Further research is needed to appreciate the causes of differences in tobacco use prevalence among this population.

8. ACKNOWLEDGEMENT

The author thank the participants for their active participation

9. AUTHORS CONTRIBUTION STATEMENT

Dr.Manikandan Shanmugam the principal investigator conceptualized the study , carried out the research study and drafted the manuscript. Prof. Kurinchi Kumaran Navaneethakrishnan the research supervisor guided this study. Prof.Bhaskar Venkatachalam and Prof. Rajasigamani Kandasamy discussed the methodoly and result. Dr.Krishna Prasanth Baalann contributed in analyzing the data.

10. CONFLICT OF INTEREST

Conflict of interest declared none

3. Brook DW, Brook JS, Zhang C, Whiteman M, Cohen P, Finch SJ. Developmental trajectories of cigarette smoking from adolescence to the early thirties: Personality and behavioral risk factors. *Nicotine Tob Res*. 2008;10(8):1283-1291
4. Gamarel KE, Mereish EH, Manning D, Iwamoto M, Operario D, Nemoto T. Minority stress, smoking

patterns, and cessation attempts: findings from a community-sample of transgender women in the San Francisco Bay Area Nicotine Tob Res.2016;18(3):306–313

5. Chakrapani V, Newman PA, Shunmugam M, Logie CH, Samuel M. Syndemics of depression, alcohol use, and victimisation, and their association with HIV-related sexual risk among men who have sex with men and transgender women in India. Global public health. 2017.
6. Manikandan Shanmugam et al .The Hidden Smile- An Overview of the General and Oral Hygiene Status of Transgenders. Indian Journal of Forensic Medicine & Toxicology, July-September 2021, Vol. 15, No. 3.
7. Manikandan Shanmugam et al. Morbidity Pattern Among Transgender-An Indian Perspective. International Journal of Aquatic Science ISSN: 2008-8019 Vol 12, Issue 03, 2021.
8. Gamarel KE, Mereish EH, Manning D, Iwamoto M, Operario D, Nemoto T. Minority stress, smoking patterns, and cessation attempts: findings from a community-sample of transgender women in the San Francisco Bay Area. Nicotine Tob
9. Wierckx K, Elaut E, Declercq E, et al. Prevalence of cardiovascular disease and cancer during cross-sex hormone therapy in a large cohort of trans persons: A case-control study. Eur J Endocrinol. 2013;169(4):471-478
10. De Pedro KT, Gilreath TD, Jackson C, Esqueda MC: Substance use among transgender students in California public middle and high schools. J Sch Health 2017;87:303–309
11. Wheldon CW, Wiseman KP. Tobacco Use Among Transgender and Gender Non-conforming Adults in the United States. Tob Use Insights. 2019 May 23;12:1179173X19849419.
12. Centers for Disease Control and Prevention. Current Cigarette Smoking Among Adults—United States, 2005–2013. Morbidity and Mortality Weekly Report 2014;63(47):1108-1122
13. Eisenberg ME, Gower AL, Morris BJ, Rider GN, Shea G, Coleman E. Risk and protective factors in the lives of transgender/gender nonconforming adolescents. J Adolesc Health. 2017;61(4):521–526
14. Menino DD, Katz-Wise SL, Vitters R, Reisner SL. Associations between the length of time from transgender identity recognition to hormone initiation and smoking among transgender youth and young adults. Transgend Health. 2018;3(1):82–87.
15. Watson RJ, Veale JF, Gordon AR, Clark BA, Saewyc EM. Risk and protective factors for transgender youths' substance use. Prev Med Rep. 2019;15:100905
16. Kcomt L, Evans-Polce, RJ., Veliz PT, Boyd CJ, McCabe SE. Use of cigarettes and e-cigarettes/vaping among transgender people: results from the 2015 U.S. transgender survey. Am J Prev Med. 2020;59(4):538–547
17. Shires DA, Jaffee KD. Structural Discrimination is Associated With Smoking Status Among a National Sample of Transgender Individuals. Nicotine Tob Res. 2016 Jun;18(6):1502-8..
18. Hiscock, R, Bauld, L, Amos, A, Fidler, JA, Munafò, M. Socioeconomic status and smoking: a review. Ann N Y Acad Sci. 2012;1248:107–123..
19. Tan AS, Gazarian PK, Darwish S, Hanby E, Farnham BC, Koroma-Coker FA, Potter J, Ballout S. Smoking Protective and Risk Factors Among Transgender and Gender-Expansive Individuals (Project SPRING): Qualitative Study Using Digital Photovoice. JMIR Public Health Surveill. 2021 Oct 6;7(10):e27417.
20. Mathivadani V, Revathi Duraisamy, & Dhanraj Ganapathy. (2019). Knowledge attitude and practices of smoking habits among transgender living in Chennai city. International Journal of Research in Pharmaceutical Sciences, 10(1), 577-582.
21. Evaluation of Smoking Cessation Classes for the Lesbian, Gay, Bisexual, and Transgender Community N. Eugene Walls Hope Wisneski. Journal of Social Service Research, 37:99–111,
22. Hong Zhu, Madeleine Lee, Yue-Lin Zhuang, Anthony Gamst, and Tanya Wolfson. Interventions to increase smoking cessation at the population level: how much progress has been made in the last two decades? Tob Control. 2012 Mar; 21(2): 110–118
23. Hotta K, Kinumi K, Naito K, Kuroki K, Sakane H, Imai A, Kobayashi M, Ohnishi M, Ogura T, Miura H, Takahashi Y, Tobe K. An intensive group therapy programme for smoking cessation using nicotine patch and internet mailing supports in a university setting. Int J Clin Pract. 2007 Dec;61(12):1997-2001
24. Okechukwu CA, Krieger N, Sorensen G, Li Y, Barbeau EM. MassBuilt: effectiveness of an apprenticeship site-based smoking cessation intervention for unionized building trades workers. Cancer Causes Control. 2009 Aug;20(6):887-94.
25. Hennrikus DJ, Jeffery RW, Lando HA, Murray DM, Brelje K, Davidann B, Baxter JS, Thai D, Vessey J, Liu J. The SUCCESS project: the effect of program format and incentives on participation and cessation in worksite smoking cessation programs. Am
26. Volpp KG, Troxel AB, Pauly MV, Glick HA, Puig A, Asch DA, Galvin R, Zhu J, Wan F, DeGuzman J, Corbett E, Weiner J, Audrain-McGovern J. A randomized, controlled trial of financial incentives for smoking cessation. N Engl J Med. 2009 Feb 12;360(7):699-709.