

An Exploratory Research Comparing Oral Health, Pattern of Substance Abuse and Nicotine Dependence among LGBT, Female Sex Workers and Heterogenders

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ABSTRACT

Aim: Lesbian, gay, bisexual, transgender, and queer (LGBTQ), female sex workers (FSW), and heterogenders are those unconventional groups of the society who are identified with major unacceptance. Thus, the present study is conducted to assess and compare the oral health status, substance abuse pattern and nicotine dependence using Fagerstrom nicotine dependence scale (FNDS) among the LGBTQ, FSW, and heterogender in a defined location of Gautam Buddha Nagar, district in West U.P.

Materials and methods: The present exploratory research included three study groups, the LGBTQ, FSW, and heterogenders (HG) residing in the same habitat. Purposive snowball sampling was conducted for the accessibility of the unapproachable population in the defined geographical location at Gautam Buddha Nagar, district in West Uttar Pradesh. The data collection of a total of 177 participants was done using a pre-validated, pretested proforma consisting of three different parts including WHO oral health assessment form for adults, 2013, questionnaire regarding pattern of substance abuse and FNDS. Data were recorded and statistically analyzed using SPSS.

Results: Prevalence of oral health disorders including dental caries, periodontal disease as well as oral mucosal lesions were more commonly found among the LGBTQ participants followed by FSW and the differences were found to be statistically significant. In context of altered habits, 100% of the participants in the present study were reported with smokeless tobacco habits whereas majority of the FSW were reported with a habit of smoking tobacco.

Conclusion: In addition to belonging to ethnic and sexual minority, and having minimal or low education status, and low socioeconomic status, the present study groups are reported to have suboptimal access to quality healthcare and are further reported with high level of substance abuse as well as nicotine dependence.

Clinical significance: The present study is an attempt to provide base line data for further research and provide data to the policy makers so as to increase the healthcare access to the present groups.

Keywords: Bisexual, Female sex workers, Gay, Lesbian, Nicotine dependence, Oral health status, Substance abuse, Transgender and queer.

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INTRODUCTION

The word Lesbian, gay, bisexual, transgender, and queer (LGBTQ) denotes Lesbian, Gay, Bisexual, Transgender and Queer members of our society. In India, especially in major cities, there has been an increase in tolerance and acceptance of LGBTQ community during the past 10 years.¹ However, the majority of LGBTQ individuals in India continue to live a secret life because of concern for prejudice from their relatives who may view homosexuality as shameful. Rural places continue to practice discrimination and LGBTQ community frequently experience forced opposite sex unions and family neglects. People who identify as LGBTQ just have sexual preferences that are different from the perceived norm. Lesbian, gay, bisexual, transgender, and queer are one of India's most unremembered and oppressed communities. Reasons being lack of acceptability by their family and peers as a result of social pressure and cultural norms; inadequate means of subsistence, education, and healthcare. Unfair employment practices with lack of access to an economy and standard of living are other pressuring issues pertaining to their poor recognition in societies at large.²

The LGBTQ population is highly prone to tobacco and substance abuse and susceptible to high nicotine dependency. Varied reasons like emotional trauma, rise in sadness, challenging experiences due to culminating pressure of secrecy, prospect of exclusion or domestic abuse force this section of community

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toward the above-mentioned practices. A pessimistic outlook and a lack of understanding of its negative implications by the society further intensifies their urge to fall prey to heavy nicotine dependence.³

Female sex workers (FSW) is another marginalized section of society which faces lots of social stigma. Female sex workers are forced into prostitution due to poverty, poor socioeconomic status, poor educational background, and in view to earn a living, they fall into prostitution.⁴ These FSW often face oppression at various levels of healthcare settings in terms of denial of treatment, breach of confidentiality or suboptimal care in terms of treating them disrespectfully. Conditions of poor socioeconomic status, low educational and occupational status gravitates them toward nicotine dependence in any form.

Majority of Indian studies catering to LGBTQ community have mostly pondered on either prevalence of smoking or non-smokers domain of tobacco use. Researchers have not gone beyond and conducted analysis of mixed tobacco use along with detailed pattern of substance abuse. Inclusion of FSW and cross comparison among LGBTQ, FSW and heterogenders (HG) were merely considered as an inclusion in any form of Indian published literature.^{2,5-7} In our current research, an attempt was made to include LGBTQ, FSW, and HG (specifically those who are closely working with LGBTQ and FSW), and study pattern of substance abuse, extent of nicotine dependence and prevailing oral health status since these communities are all prone to various social stigmas and social unacceptability.

To the best of our knowledge, majority of the studies conducted among the LGBTQ community were based either on their oral health status or tobacco dependence. However, no studies in the Indian published literature, to our knowledge, has considered and compared the above-stated factors, among the three groups. Hence, in this investigation, an attempt was made to include LGBTQ, FSW, and heterogenders (specifically those who are closely working with LGBTQ and FSW) to assess their oral health status, substance abuse pattern, and the extent of nicotine.

MATERIALS AND METHODS

The present investigation was an exploratory research conducted among the cohorts of lesbian, gay, bisexual, transgender, and queer (LGBTQ), FSW and male heterogenders of G.B. Nagar, District.

Lesbian, gay, bisexual, transgender and queer, FSW, and heterogender working with them share a common isolated habitat and a secret living. Thus, approaching them for a survey was possible only through purposive snowball sampling. Respective setting was identified by their gurus along with the local NGOs where major proportion of LGBTQ, FSW, and heterogender was contacted. The G.B. Nagar district was divided into four blocks: Bistrakh, Dankaur, Dadri, and Jewar. NGOs/CBO specifically working with LGBTQ/FSW were approached from each blocks for data collection. Darpan portal of Niti Ayog provided us the information about the detail work and domains of all the NGOs and CBO (community-based organizations) working in these blocks for the welfare of LGBTQ and FSW.

Purposive snowball sampling was done for accessibility of the unapproachable population. The sample size estimation was done by using G Power software (version 3.0). A minimum total sample size of 177 was found to be sufficient for an alpha of 0.05, power of 0.9999743 and 0.25 as effect size.

After obtaining Institutional Ethical Clearance (SU/SMS&R/76-A/2023/162) of School of Medical Sciences Research and Hospital, the pilot study was carried out among 33 participants comprising 21 LGBTQ, 10 FSW, and 2 heterogender individuals who were not the part of main investigation. Based on the inputs of pilot

study, necessary changes were implemented in the questionnaire. Pilot study results were excluded from the main analysis and our study was conducted for a period of 6 months from March 2023 till August 2023.

Inclusion Criteria

- LGBTQ, FSW, and heterogender aged ≥ 18 years.
- Willing to give consent.
- Heterogenders residing in the same community setting.

Exclusion Criteria

- Heterogenders of other community setting.
- Patient not willing to give written informed consent.

Pre-tested and pre-validated, close-ended structured proforma in English language was developed to cater information from study participants on gender identity, educational status, geographical location, and occupational status, substance abuse including both smoking and chewing forms. Fagerstrom nicotine dependence scale (FNDS) was used to analyze physical dependence both for smoking and smokeless tobacco use (SLT) smokeless tobacco products. The WHO Oral Health Assessment form for adults 2013 was used for recording information pertaining to oral health.

The proforma consisted of three different sections.

1. First section comprised clinical examination using WHO Oral Health Assessment form (2013) Adults. The form has following domains: Dentition status, periodontal status that include community periodontal index (CPI) modified and loss of attachment, enamel fluorosis, dental erosion, traumatic dental injuries, oral mucosal lesions, denture status, and intervention urgency.
2. Second section was catering substance abuse history and their patterns. It consisted of 11 questions regarding the age of initiation, duration of the habit, frequency per day, and the form of the intake. The section was divided into two parts, the chewing habits and the other forms.
3. Third section analyzed nicotine dependence using FND scale among smokers and smokeless tobacco users. It consisted six questions analyzing the dependency of the participant on the habit. Each question was scored according to the participant's answers which were summed up to get the final score determining their nicotine dependence. The questionnaire was closed ended and it took 15–20 minutes for recording per participant by the investigators.

RESULTS

Sociodemographic Data

This research was done among 177 participants comprising of 18 heterosexual, 33 FSW, and 126 LGBTQs. When categorized according to the age group, it was found that the majority of the heterogenders 50% and FSW 72% were in the age group of 21–30 years, whereas majority of the LGBTQ participants 42.8% were reported to be in the age group of 31–40 years. Among the heterosexual and LGBTQs, half of the participants attended high school whereas FSW 51% were educated till primary school. Approximately, 88% LGBTQ participants were unskilled workers whereas among heterogenders 38% were skilled and 33% were unskilled workers. In contrast to the above, all the FSW were unemployed. A greater number of the current research participants resided at peri-urban area – 55% LGBTQs, 87% FSW, and 44% heterogenders (Table 1).

Table 1: Showing sociodemographic data of the participants

Variables	Gender			Total
	Heterosexual	FSW	LGBTQ	
Age				
18–20	0	3	27	30
21–30	9	24	36	69
31–40	6	0	54	60
41–50	0	6	3	9
51–60	3	0	6	9
Total	18	33	126	177
Education				
Illiterate	1	11	16	28
Primary school	4	17	38	59
Middle school	3	5	26	34
High school	9	0	44	53
Intermediate	1	0	2	3
Total	18	33	126	177
Occupation				
Unemployed	2	33	7	42
Unskilled worker	6	0	111	117
Skilled worker	7	0	5	12
Clerical job	3	0	3	6
Total	18	33	126	177
Location				
Periurban	8	29	61	98
Urban	6	4	54	64
Rural	4	0	11	15
Total	18	33	126	177

Oral Health Status

Comparing the oral health status among the three groups more than 70% of the teeth assessed had carious lesions and the difference was reported to be statistically significant. The LGBTQs showed highest percentage, 59% of bleeding on probing and loss of attachment (0–4 mm) was reported only among 50% of heterogenders. A total of 9 heterogenders, 6 FSW, and 51 LGBTQs reported dental erosions. A total of three heterogenders and six LGBTQ participants had dental trauma and this difference was statistically significant. A total of 100 LGBTQ subjects presented with oral mucosal lesions of which ulceration was predominant. A total of 32 FSW had leukoplakia as a major contributor among mucosal lesions (Table 2).

PATTERN OF SUBSTANCE ABUSE

- **Smokeless tobacco habit:** All participants irrespective of their identification were reported with smokeless tobacco habit. The majority (11,33,114) of the heterogenders, LGBTQ, and FSW participants, respectively, reported consuming smokeless tobacco from the age less than 15 years and majority reported continuing consumption for less than 10 years. Frequency of chewing per day was reported 1–5 per day among heterogenders whereas majority of the FSW and LGBTQ reported consumption of 6–10 packets per day with the highest usage of mixed type of tobacco. However, the difference reported in the age of the initiation of the habit, frequency of chewing per day and type of tobacco was statistically significant (Table 3).
- **Smoking habit:** In contrary to smokeless tobacco habit, majority of the study participants including LGBTQ, FSW, and heterogenders did not report any kind of smoking habit (Table 4).

Table 2: Showing oral health status among study groups

Variables	Gender			Chi-square value	p-value
	Heterosexual	FSW	LGBTQ		
Dentition status					
Missing due to caries	0	12	36	2.216	0.33
Carious	18	24	96	5.845	0.05*
Treated	0	3	6	2.089	0.35
Periodontal health					
BOP	6	9	75	13.343	0.001*
Pocket	6	6	51	5.715	0.05*
LOA					
0–4 mm	9	0	33	17.553	0.000*
6–8 mm	0	0	3	1.235	
Fluorosis					
Normal	18	33	120	1.266	0.531
Present	0	0	3		
Erosion					
No sign of erosion	9	27	75	9.432	0.151
Enamel involvement	6	6	33		
Dentine involvement	3	0	15		
Pulp involvement	0	0	3		
Dental trauma					
No sign	15	30	117	20.915	0.002*
Treated injury	0	0	3		
Enamel fracture	3	0	6		
Other damage	0	3	0		

(Contd...)

Table 2: (Contd...)

Variables	Gender			Chi-square value	p-value
	Heterosexual	FSW	LGBTQ		
Oral mucosal lesions/conditions					
None	6	1	26	3.391	0.036*
Malignant tumor	2	4	3		
Leukoplakia	6	10	28		
Lichen planus	1	4	2		
Ulceration	1	7	51		
ANUG	1	2	4		
Candidiasis	1	3	7		
Abscess	0	2	4		
Others	0	0	1		
Prosthesis					
No	18	30	123	4.298	0.117
Partial	0	3	3		

*p < 0.05 are considered as statistically significant

Table 3: Comparison of smokeless tobacco intake among study groups

Gender	Age of initiation		Duration of chewing			Frequency of chewing			Type of tobacco				
	≤15 years	16-20 years	>20 years	≤10 years	11-20 years	1-5 per day	6-10 per day	>10 per day	Gutkha	Khaini	Paan tobacco betel quid	Paan masala tobacco	Mixed use
		≤15 years	16-20 years	>20 years	≤10 years	11-20 years	1-5 per day	6-10 per day			>10 per day	Paan tobacco betel quid	
Heterosexual	11	4	3	15	3	12	6	0	3	3	3	3	6
FSW	33	0	0	33	0	3	30	0	3	0	0	0	30
LGBTQ	114	12	0	114	12	15	105	6	6	6	3	3	108

Gender	About smoking			Smoking amount		Age at which started			Years smoked				Main type of tobacco	
	Never smoked	Currently smoking	Ever smoked	≤10 per day	11-20 per day	≤16 years	>16 years	Never smoked	Less than 1 year	1-10 years	11-20 years	More than 21 years	Bidi	Cigarette
				≤10 per day	11-20 per day	≤16 years	>16 years		Less than 1 year	1-10 years	11-20 years	More than 21 years		
Heterosexual	12	3	3	6	0	3	3	12	0	3	3	0	0	6
FSW	18	9	6	12	3	0	15	18	6	6	3	0	0	15
LGBTQ	90	24	12	30	6	24	12	90	12	15	6	3	3	33

Table 4: Comparison of smoking habit between the three groups

	ANOVA				
	Sum of squares	df	Mean square	F	Sig.
Chewing					
Between groups	4.251	2	2.125	14.140	0.000
Within groups	26.156	174	0.150		
Total	30.407	176			
Age of initiation					
Between groups	1.472	2	0.736	8.150	0.000
Within groups	15.714	174	0.090		
Total	17.186	176			
Duration of chewing					
Between groups	0.372	2	0.186	2.421	0.092
Within groups	13.357	174	0.077		
Total	13.729	176			

(Contd...)

Table 4: (Contd...)

	ANOVA				
	Sum of squares	df	Mean square	F	Sig.
Frequency of chewing					
Between groups	5.661	2	2.831	18.185	0.000
Within groups	27.084	174	0.156		
Total	32.746	176			
Type					
Between groups	26.142	2	13.071	9.976	0.000
Within groups	227.994	174	1.310		
Total	254.136	176			
About smoking					
Between groups	4.807	2	2.403	1.857	0.159
Within groups	225.227	174	1.294		
Total	230.034	176			

(Contd...)

Table 4: (Contd...)

	ANOVA				
	Sum of Squares	df	Mean Square	F	Sig.
Smoking amount					
Between groups	34.236	2	17.118	1.671	0.191
Within groups	1782.442	174	10.244		
Total	1816.678	176			
Years smoked					
Between groups	42.514	2	21.257	1.954	0.145
Within groups	1893.045	174	10.880		
Total	1935.559	176			
Age at which started					
Between groups	27.193	2	13.596	1.115	0.330
Within groups	2120.909	174	12.189		
Total	2148.102	176			

Assessment of Nicotine Dependence Utilizing Fagerstrom Nicotine Dependence Scale

Majority of FSW were highly dependent on smokeless tobacco in contrast with heterogenders who had minimal dependence when assessed on FNDP (Figs 1 and 2) Flowchart 1.

DISCUSSION

The current research is first of its kind which has been conducted among LGBTQ; FSW and heterogenders residing in the similar habitat in a defined location of G.B. Nagar District, Uttar Pradesh. The present study included 177 study participants with 126 LGBTQ, 33 FSW, and 18 heterogenders. According to age groups, majority of LGBTQ were in the age group of 31–40 years when compared to FSW and heterogenders who were in the age group of 21–30 years. Majority of LGBTQ (34.9%) studied till high-school in contrast to FSW who studied only till primary school. The poor educational background among LGBTQ community could be ascribed to the

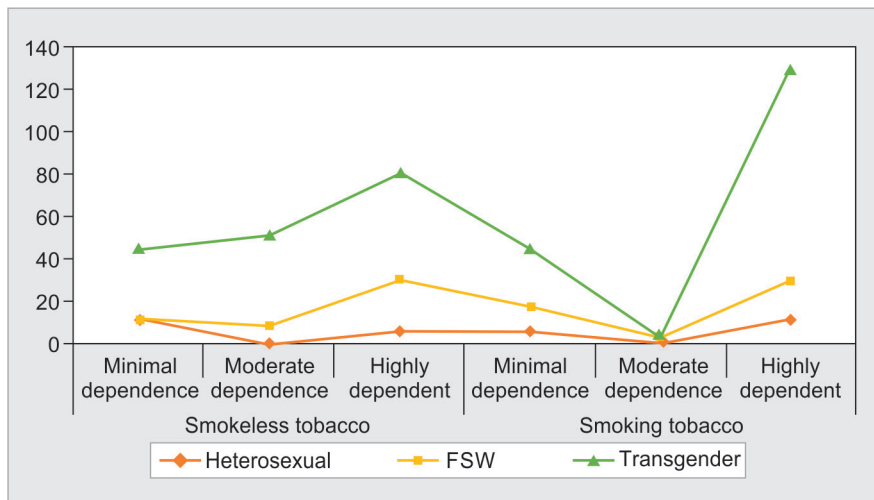


Fig. 1: Showing dependence of the three groups of participant on smokeless and smoking tobacco using Fagerstrom nicotine dependence scale (FNDP)

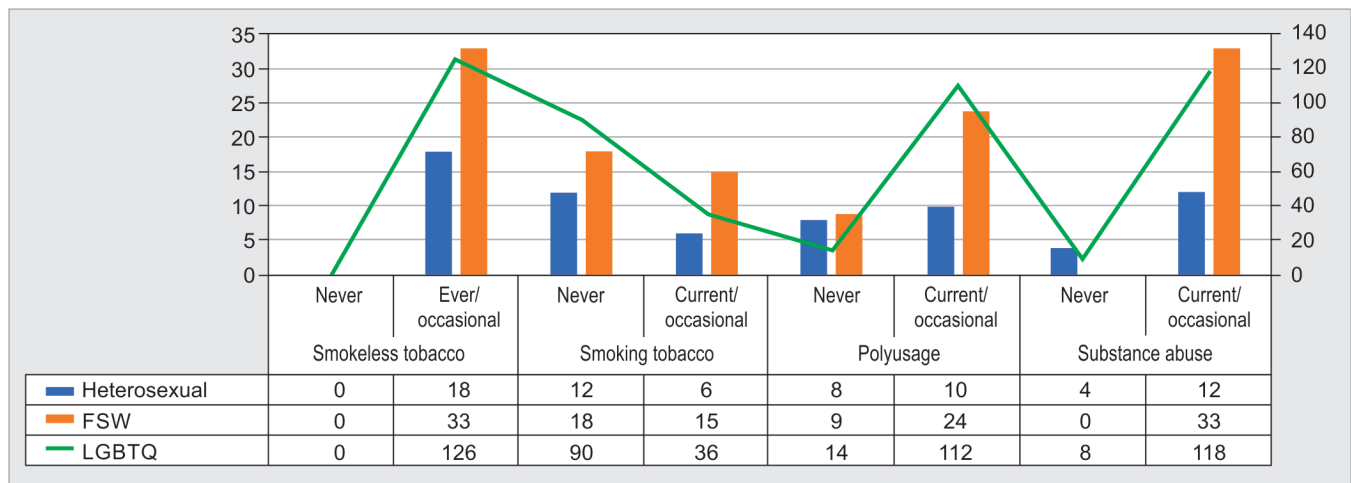
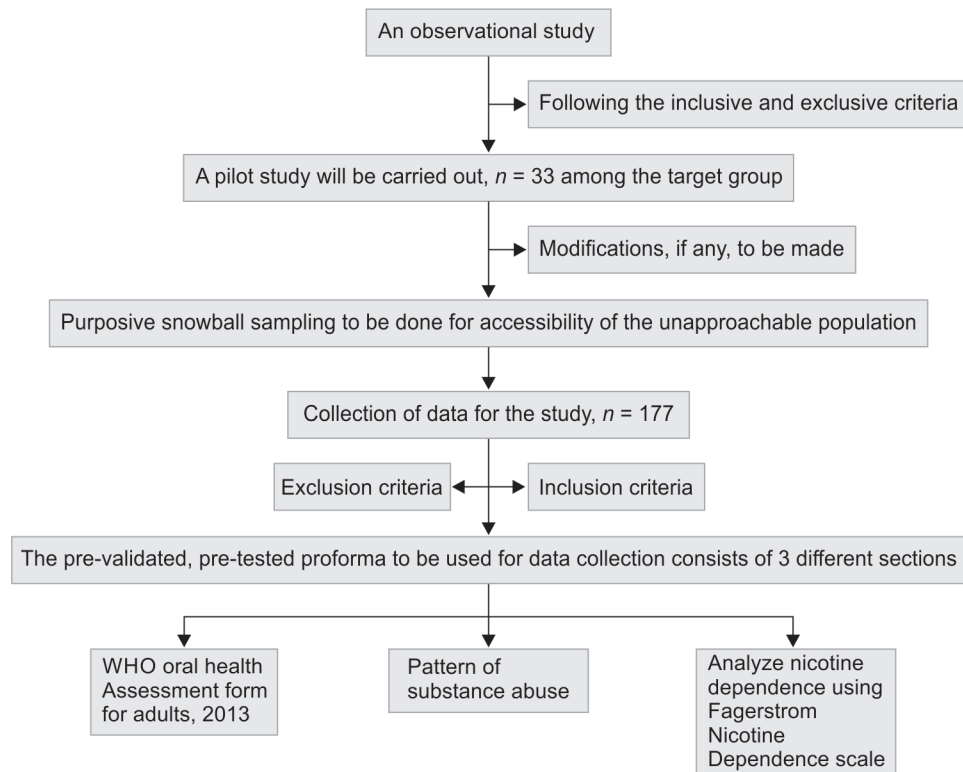


Fig. 2: Shows the pattern of altered habits among the study participants in the form of smokeless tobacco, smoking tobacco or poly usage and any kind of substance abuse

Flowchart 1: Showing flow diagram of the study



fact that despite their willingness for a good education, they needed to brave enormous inequality and differentiation in the educational sector where they are persecuted and bullied by the society ultimately leading to their drop-out in schools.^{8,9} As a consequence of deprivation of education, they choose a profession which is sub-standard and looked down by the society. Even if they manage to complete their education and find decent jobs, huge discrimination, and bias by professional colleagues at workplace forces them to give up their jobs.

In our study, 71% LGBTQ consumed smokeless tobacco while 2% were involved in smoking. Approximately, 63.7% of LGBTQ were involved in poly usage of tobacco product and 66.6% were seen with substance abuse. Approximately, 90.4% LGBTQ started chewing tobacco \leq 15 years. This finding confirms the high usage of tobacco in young adults as demonstrated by studies conducted by Delahanty et al.,¹⁰ Schuler et al.,¹¹ and Ganz et al.¹² Poly usage of tobacco product was also very high in this study. This could be attributed to the fact that majority of LGBTQ, FSW, and heterogenders who were tobacco, poly and substance users were below \leq 15 years. This age group is more accustomed to socialization and bar culture leading to tobacco addiction at an early age.¹⁰

As per FNDS, among SLT users, 40.4% of LGBTQ were highly dependent while 33.3% of LGBTQ were moderately dependent. On the contrary, 72.7% of FSW were highly dependent on smokeless tobacco. Among smokers, 78.5% of LGBTQ were highly dependent on this habit. Rebecca and Theresa¹³ Fallin et al.,¹⁴ and Feinstein and Dyar,¹⁵ Bostwick and Dodge¹⁶ had observed that bisexual females had comparatively high nicotine dependence due to initiation of tobacco consumption at an early age leading to higher rates of nicotine dependence. Our study results also show similar findings of early initiation of tobacco use along with high nicotine dependence. Certain parameters like bi-phobia, social stigma

owing to bisexuality are few of other factors quoted in few studies as reasons of high tobacco use at an early age.¹⁶

A striking feature which we observed in the current research was that more than half of LGBTQ (88%), FSW (72.7%), and heterogenders (55%) were polyusers (i.e., using two or more than two tobacco products). This could be related to the fact that smoking in public places was a punishable act in India while presently no such prohibition was observed with SLT users. Also owing to larger and easy availability and accessibility at low cost of both smoking and smokeless tobacco forms, polyuse of tobacco was much higher as compared to either smoking/smokeless tobacco forms separately. These findings are in agreement with studies done by Sucharitha et al.⁵ and Delahanty et al.¹⁰ among LGBTQs. Ramirez-Valles and Brown,¹⁷ believed that LGBTQ identity affirmation was a significant primary predictor of nicotine dependence. The LGBTQ community who faces prideful as being LGBTQ connects in large numbers to their LGBTQ counterparts leading to better connected in their tobacco friendly LGBTQ spaces. On comparing/observing oral health status among LGBTQ, FSW, and heterogender, LGBTQ had 76.1% carious teeth; FSW had 72.7% while heterogenders had 100% carious teeth. The results indicate that all the three subgroups were highly caries prone. This similar pattern was observed in other studies of LGBTQ. Muralidharan et al.,¹⁸ and Hongal et al.¹⁹ stated that the perception of healthcare settings to treat special groups was mostly concentrated to HIV and STD's, while oral health took a back seat. This could be partly due to fact that these diseases were considered life threatening and required immediate attention as compared to oral health and partly due to the paucity of funds. On examination of periodontal health, 42.37% LGBTQ, 5.08% FSW, and 3.38%. Heterogenders had BOP. Social stigma and discrimination were also important factor that hampered these communities from seeking oral healthcare.¹⁸ Approximately, 18.4% LGBTQ and 5.08%

heterogender had shallow pockets. Out of the three sub-groups in current analysis, FSW had comparatively better oral health. This can be related to the fact that FSW are engaged in a profession which requires them to be esthetically pleasant. Poor oral health leading to halitosis would be a hindrance in their profession, thus making the FSW more considerate regarding their oral health.

Future Directions of the Study

The present study was undertaken in a defined location of G.B. Nagar district in western U.P. In order to implement an effective tobacco cessation policy among the untouched sections of society, a wider multicentric research should be conceptualized.

Limitations

As the study included the use of snowball sampling technique, the results may not be generalized. Small sample size was another limitation. The major strength of the study was the inclusion of LGBTQ along with FSW and heterogenders, all of them residing in same geographical habitat.

CONCLUSION

Apart from limitations, the study concluded that more than half of the LGBTQ, FSW, and heterogenders included in the study were polyusers. The FNDS ratings observe that 40.4% LGBTQ are highly dependent on SLT, while 78.5% LGBTQ were highly dependent on smoking. These findings indicate that an alternate method to combat the high nicotine dependence among these groups should be explored. More awareness regarding poly usage of tobacco products to be inculcated simultaneously.

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