Original Article

National Tobacco Quitline – A Comparative Study of Prevalence of Smoking and Smokeless Tobacco Use in India: A Brief One-year Report

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Abstract

Background. With an increasing prevalence rate of tobacco use in India in the last few years, Ministry of Health and Family Welfare, Government of India launched the first ever "National Tobacco Quitline Services (NTQLS)" on 30th May, 2016 at Vallabhbhai Patel Chest Institute, University of Delhi (North Campus), Delhi. This is a telephone-based tobacco cessation service, an important component of many tobacco control programmes.

Methods. NTQLS is established to help a person who wants to quit his/her habit of tobacco use. Services at NTQLS are available daily from 8 AM to 8 PM through a National toll-free number 1800-11-2356 in both English and Hindi, except on Monday. Six counsellors were present at a time both during morning and evening shift. A total of 5179 callers were registered from 30th May 2016 to 31st May 2017. The comparative analysis was done between the smokers (n=1366) and smokeless tobacco users (n=3169) those registered at NTQLS using statistical package for the social sciences (SPSS, version 22). Tobacco smokers who used smokeless tobacco (n=644) were excluded from the present study.

Results. A total of 1366 smokers and 3169 smokeless tobacco users were studied. Tobacco consumption was higher in males as compared to females in both the groups. Individuals in the age group of 25 to 64 years were found to be more prone to smokeless tobacco consumption as compared to smoking tobacco (69.5% *versus* 67.6%). Out of 1366 registered callers who smoked tobacco, the success rate of quitters was 33.9% and out of 3169 smokeless tobacco users, the success rate of quitters was 41% during the study period.

Conclusions. Results of this telephone-based counselling services at NTQLS indicate this to be helpful in motivating people to quit or stop the use of tobacco. Overall findings revealed a significant reduction in number of tobacco smokers as compared to users of smokeless tobacco at the end of one year of study period after availing NTQLS services for quitting. **[Indian J Chest Dis Allied Sci 2018;60:221-225]**

Key words. Tobacco Quitline, Smoking, Smokeless tobacco, Comparative analysis, Tobacco quitting.

Introduction

Quitlines are identified as a valuable component of any large scale tobacco control programme. These provide relevant, accessible, flexible and affordable methods of quitting tobacco. Quitlines are best known for providing behavioural counselling that help callers to develop and follow a plan to quit tobacco, alternatively these may identify certain cases that needs to be referred to local treatment programme. Reactive telephone services, such as helpline have been appraised as effective cessations aids in their own right, and are utilised as an adjuvant to pharmacotherapy and an important referral point for the physicians and other health professionals.

Quit Victoria[1] was the first tobacco quitline set-up by Australian government in 1985. After the good response of Quit Victoria, a second tobacco quitline in United Kingdom was set up by the government in 1988. Most Quitlines can be accessed through a toll-free telephone number and to have a combination

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of services including educational materials and individualised telephone-based counselling.

There are many reasons quitlines have been so widely adopted. Telephones are an efficient means of delivering evidence based counselling to large number of tobacco users. These are easy to promote with broad acceptance by the public. These also eliminate barriers to access such as lack of transportation, child care challenges and inability to pay for treatment.

In India, NTQLS, a sponsored scheme of Ministry of Health and Family Welfare, Government of India, runs under the aegis of Vallabhbhai Patel Chest Institute, University of Delhi, Delhi, was inaugurated by the Honourable Union Minister of Health and Family Welfare, Government of India, Shri Jagat Prakash Nadda on 30th May 2016. Dr Raj Kumar, Professor and Head; Department of National Centre of Respiratory Allergy, Asthma and Immunology (NCRAAI) is the Nodal Officer for the NTQLS. This quitline is a confidential, non-judgmental telephone-based tobacco cessation counselling and referral service for anyone seeking help his/her own or another person's to quit tobacco use, and can be accessed through a toll-free number 1800-11-2356 between 8 AM to 8 PM on all days, except Monday. While quitline services are already established in more than 53 countries, this is for the first time that India has also become a part of this social cause.

Methods

National Tobacco Quitline Service protocol mandates to make four proactive calls which are relapse sensitive. After receiving the reactive call, there is provision to arrange proactive calls. The first proactive call is known as pre-quit date call made by the counsellor 3-4 days before the planned quit date. The second proactive call known as quit date call, schedule on the planned quit date or 1-3 days after the planned quit date. The third proactive call, known as post quit date call is made 3-7 days after the quit date call. The fourth proactive call known as ongoing support follow up call is made about 1-3 weeks after the third proactive call. On the fourth proactive call, if the caller has abstained from tobacco use since their first proactive call, he or she is assumed to be a quitter. In case the caller says he/she has not abstained from tobacco use on any of the proactive call, then a new quit date is being set up depending upon the suitability of the caller. Post new quit date, all four proactive calls are again made by the quit line counsellors. During these calls, the callers are assessed on the basis of their tobacco use and are advised for further counselling process till the last follow-up call.

Types of calls attended by the counsellors included: (i) inbound calls (reactive calls), an inbound call is one that the client initiates; and (ii) outbound calls (proactive calls), an outbound call is one initiated by an agent to the client for further follow-up. Outbound calls are further divided into four sub-types, *i.e.*, follow-up proactive calls, interacted voice response (IVR) registered call backs, outbound answered calls and outbound calls not responding (Table 1).

In order to advertise toll-free number, various modes of advertisement have been used, such as newspapers and regional newspapers, television, radio and social media. The sample size for the present study was 4535 (1366 smokers, 3169 smokeless tobacco users). Presently at NTQLS, the counselling sessions are being provided in English and Hindi languages only. The questionnaire which consists of demographic details of the caller; like name, age, gender, occupation, education, address etc, and severity of tobacco use, expense and income of the callers are filled in English by the counsellors. The details stores at the server and kept confidential.

The Prochaska and DiClemente's Stages[2,3] of Change model describes how people modify a problem behaviour or acquire a positive behaviour. The stages are instrument to assess the readiness to quit tobacco in tobacco cessation practices[4] which are pre-contemplation, contemplation, preparation, action, maintenance (Table 2). This model ascertains the motivation and readiness to quit.

Table 1. Telephone call process at NTQLS

Number of Calls	Type of Call	Description of Call
Call 1	Reactive call	Call made by tobacco user
Call 2	Proactive call 1: Pre-quit date call	Pre-quit date call made by counsellor 3-4 days before the planned quit date
Call 3	Proactive call 2: Quit date call	Quit date call made by counsellor on the planned quit date or 1-3 days after the planned quit date
Call 4	Proactive call 3: Post quit date call	Quit date follow up call made by counsellor 3-7 days after the planned quit
Call 5	Proactive call 4: Ongoing support follow up call	Ongoing support call made by the counsellor about 1-3 weeks after the quit date, follow up call

Statistical Analysis

The tools used in this study were database analysis, reviews of telephone-based counselling sessions, analysis and follow-up of registered callers. Data were analysed through statistical package for the social sciences (SPSS, version 22.0). Student t-test was used for all variables of both groups (smoking and smokeless tobacco users).

Results

In the present study, smokeless tobacco was found favourite type of tobacco use among the tobacco users. Out of 4535 registered tobacco users, 3169 (69.9%) were smokeless tobacco users whereas 1366 (30.1%) were smokers. For quitting smoking, 1353 (99%) male and 13 (1%) female tobacco users were registered, whereas for smokeless tobacco, 3075 (97%) male and 94 (3%) female tobacco users were registered (Table 3). Individuals in the age-group of 25-64 years were more frequently using smokeless tobacco as compared with smoking tobacco (69.5% *versus* 67.6%; p=0.019) (Table 3). Unmarried persons were more frequently using smoking tobacco as compared to smokeless tobacco (48% *versus* 38.2%) (Table 3).

Table 2. Stages of readiness to quit

Stages	Description
Pre-contemplation	Unaware or unwilling to change. Not thinking of quitting in the next six months
Contemplation	Ambivalent, but thinking about quitting within six months
Preparation	Getting ready to stop within the next 30 days. Have set stop smoking date. Have made a 24-hour quit attempt in the last 12 months
Action	Have quit smoking within past six months and are actively applying cessation skills
Maintenance	Quit for more than six months. Integrating smoke-free living into their routine

The number of tobacco users who were employed in private sector was high in using either smoking or smokeless tobacco than people who were employed in different public sector units (Table 3). It was observed that 42% of smokers and 30% of smokeless tobacco users were graduate, whereas 1.5% smokers and 2.2% smokeless tobacco users were illiterate (Table 3).

It was also observed that 6% of smokers and 1% of smokeless tobacco users spent more than ₹5000 on tobacco while 68% of smokers and 42% of smokeless tobacco users spent at least ₹500 on their tobacco use (Table 3). In the present study, 98% of the smoking and smokeless tobacco users were provided with behavioural counselling only, rest were referred to the nearest tobacco cessation centers as well as behavioural counselling for further management (Table 3). Of the 1366 registered smokers, 463 (33.9%) had successfully quit the tobacco smoking; and 1299 (41%) of the 3169 registered smokeless tobacco users, successfully quit tobacco chewing habit (Table 3).

Khaini was the most used smokeless tobacco product among callers at NTQLS whereas cigarette was the commonest for smoking tobacco.

Discussion

This is the first study from India to compare the smokeless tobacco users and smokers in any Quitline tobacco cessation programme. Our observations that 33.9% of the smokers and 41% of smokeless tobacco users registered at NTQLS successfully quit tobacco use suggest that the programme is effective. In a study done by the Swedish National Tobacco Quitline,[5] there was a 30% point prevalence abstinence at 12-month follow-up and the effectiveness of the Swedish National Tobacco Quitline has continuously improved over time, from below 30% to almost 40% in point prevalence among clients responding to the 12-month follow-up.[1] Similar results were also found in a research done by Cancer Control Research Institute, Cancer Council Victoria in 2004, for Quit Victoria Quitline.[2] It was found that, of the total sample recruited (n=441), an intention-to-treat analysis indicated that, of those who smoked at their initial call (n=320), 30% (n=95) had quit smoking by the 3-week follow-up.[2] New Zealand Quitline[3] also showed almost similar results in a 2012 longitudinal study which found that 36% of respondents had quit smoking at four-weeks, and 24% had quit smoking at six-months. The effectiveness of nicotine replacement therapy (NRT) for smoking cessation has been well established[4,5] but Quitline at VPCI (NTQLS) does not offer any medication, hence quitting was successful without any pharmacological treatment. Frequent reactive calls indicates that the people were motivated to quit tobacco. Various studies suggest that the social influence factors contribute in tobacco quitting.[6] In our this study it has also been seen among the quitters, as the number of quitters were influenced by their social association. It is also noted that the number of married tobacco users were higher among the quitters in both groups. The result highlights the

Table 3. Comparison between smoking tobacco users and smokeless tobacco users (30th May 2016 – 31st May 2017)

Variables	Smoking Tobacco Users (n=1366)		Smokless Tobacco Users (n=3169)		p-value
	No.	(%)	No.	(%)	
Gender					
Male	1353	(99.1)	3075	(97.0)	0.000
Female	13	(1.0)	94	(3.0)	0.000
Age (in years)					
<14	4	(0.3)	15	(0.5)	0.388
15-24	400	(29.3)	895	(28.2)	0.477
25-64	923	(67.6)	2203	(69.5)	0.194
65 and above	39	(2.8)	56	(1.8)	0.019
Marital Status					
Married	704	(51.5)	1949	(61.5)	0.000
Unmarried	656	(48.0)	1212	(38.2)	0.000
Divorced/Widowed	6	(0.4)	8	(0.3)	0.298
Education					
Illiterate	20	(1.5)	69	(2.2)	0.112
1^{st} – 10^{th} Class	263	(19.3)	840	(26.5)	0.000
11^{th} – 12^{th} Class	236	(17.3)	895	(28.2)	0.000
Diploma after 12^{th}	26	(1.9)	69	(2.2)	0.555
Graduation	578	(42.3)	941	(29.7)	0.000
Post-Graduation	140	(10.3)	248	(7.8)	0.007
Professional degree	103	(7.5)	107	(3.4)	0.000
Occupation					
Private sector	595	(43.6)	1137	(35.9)	0.000
Self employed	326	(23.9)	978	(30.9)	0.000
Government sector	85	(6.2)	193	(6.1)	0.865
Student	286	(20.9)	634	(20.0)	0.475
Unemployed	34	(2.5)	173	(5.5)	0.000
Retired	40	(2.9)	54	(1.7)	0.008
Expense per month on tobacco (in ₹)					
<500	430	(31.5)	1824	(57.6)	0.000
500 - 1000	236	(17.3)	635	(20.0)	0.030
1000 – 5000	616	(45.1)	671	(21.2)	0.000
5000 and above	84	(6.2)	39	(1.2)	0.000
Types of smokeless tobacco (SLT)					
Gutkha	–		1309	(41.3)	–
Khaini	–		1363	(43.0)	–
Mawa	–		28	(0.9)	–
Pan	–		45	(1.4)	–
Pan masala	–		281	(8.9)	–
Snuff	–		2	(0.1)	–
Tobacco paste	–		136	(4.3)	–
Others	–		5	(0.2)	–
Types of smoking tobacco					
Bidi	351	(25.6)	–		–
Cigarette	1004	(73.7)	–		–
Hookah/ Cigar/others	11	(0.8)	–		–
Intervention					
Behavioural counselling	1345	(98.5)	3118	(98.4)	0.859
Behavioral counselling and referral to TCC	21	(1.5)	51	(1.6)	0.859
Progress report					
Total registered callers	1366	(30.1)	3169	(69.9)	
No. of quitters	463	(33.9)	1299	(41.0)	0.000

Definition of abbreviation: TCC=Tobacco Cessation Centre

role of telephone counselling, self-efficacy and social influence in tobacco cessation among smokers and smokeless tobacco users. Various studies[11-14] revealed that in India males are more prone to tobacco smoking and use of smokeless tobacco as compared to females. We noted this trend at Quitline also. This may be because of different societal reasons, such as household responsibilities of females. In urban areas women are also working like males and they are also taking tobacco but their number is very less. In the present study, the use of smokeless tobacco by females was higher than by males. If we talk about the age group, results of the present study indicated that people in the age group of 25 to 64 years were more prone to using any kind of tobacco, *i.e.* smoking and smokeless tobacco. We observed that individuals who are graduates were among the highest prone to tobacco use. This may be because of peer pressure, style statement during the college days, etc. From the economic point of view different expenses per month on tobacco use by an individual through the data of our study showed that ₹1000-5000 were highest expenses done by an individual on smoking tobacco. Further, our observations suggest that behavioural counselling was the highest among interventions that were given to the registered callers at NTQLS. *Khaini* was the most used smokeless tobacco product among callers at NTQLS whereas *bidi* was the most common among those smoking tobacco.

Conclusions

Some of the benefits of telephone-based counselling as observed in the present study are that it is more convenient than face-to-face sessions; the client is in control of their therapy as they have an option to choose when to call rather than waiting for an appointment. It also allows the client to remain as anonymous as they choose to be. Comparatively, it has been seen that most of the callers were seen to be more prone to use of smokeless tobacco than smoking tobacco. The smokeless tobacco users were found more successful in quitting in comparison to smokers. The enrolment for tobacco quit programmes at NTQLS can be increased by printing the toll-free number 1800112356 on tobacco packets, which could also decrease the tobacco users in future.

There are some limitations of this study. The findings are based on the data extracted from NTQLS database recorded during the counselling sessions; there was no face-to-face interaction with the tobacco users. Number of the participants of the current study was in contemplation phase at the time of registration, hence there was likelihood of progressing to the action stage with delivery of the intervention resulting in good success rate.

References

1. Anderson CM, Zhu SH. Tobacco quitlines: looking back and looking ahead. *Tob Control* 2007;16 (Suppl. 1):i81–6.
2. Prochaska JO, Velicer WF, DiClemente CC, Fava J. Measuring processes of change: applications to the cessation of smoking. *J Consult Clin Psychol* 1988;56:520–8.
3. DiClemente CC, Prochaska JO, Fairhurst SK, Velicer WF, Velasquez MM, Rossi JS. The process of smoking cessation: an analysis of precontemplation, contemplation, and preparation stages of change. *J Consult Clin Psychol* 1991;59:295–304.
4. Kumar R. *Smoking Cessation: A Guide for Physicians*; 1st edition. Delhi: Vidyanilyam Prakashan; 2014.
5. Cancer Council Victoria. Evaluation of the quitline: callers' appraisal of quitline advisors and the quit book. *Available at URL:* https://www.cancervic.org.au /research/behavioural/research-papers/abstracts_evaluation_quitline.html. Accessed on October 27, 2017.
6. Miller CL, Wakefield M, Roberts L. Uptake and effectiveness of the Australian telephone Quitline service in the context of a mass media campaign. *Tob Control* 2003;12 (Suppl. II): ii53–58.
7. Gravitas. The quit group service longitudinal client survey - six month follow-up full report. *Available at URL:* https://quit.org.nz/-/media/Images/Quitline/PDFs-and-Docs/Quitline-page/six-month-survey-full-report-final.pdf?la=en. Accessed on October 29, 2017.
8. Ebbert J, Montori VM, Erwin PJ, Stead LF. Interventions for smokeless tobacco use cessation. *Cochrane Database Syst Rev* 2 2011:CD004306.
9. Tobacco TC. A clinical practice guideline for treating tobacco use and dependence: 2008 update: a US public health service report. *Am J Prevent Med* 2008;35:158–76.
10. Mushtaq N, Boeckman LM, Beebe LA. Predictors of smokeless tobacco cessation among telephone quitline participants. *Am J Prevent Med* 2015;48:S54–60.
11. GATS. GATS India report 2016-2017. Mumbai: Tata Institute of Social Sciences (TISS) and New Delhi: Ministry of Health and Family Welfare, 2016.
12. Kumar R, Kushwah AS, Mahakud GC, Prakash S, Vijayan VK. Smoking cessation interventions and continuous abstinence rate at one year. *Indian J Chest Dis Allied Sci* 2007;49:201–08.
13. Kumar R, Goel N, Kumar S, Kushwah AS, Vijayan VK. Epidemiological profile of tobacco users at tobacco cessation centre: an Indian experience. *Indian J Chest Dis Allied Sci* 2016;58:93–97.
14. Mony PK, Rose DP, Sreedaran P, D'Souza G, Srinivasan K. Tobacco cessation outcomes in a cohort of patients attending a chest medicine outpatient clinic in Bangalore city, southern India. *Indian J Med Res* 2014;139:523–30.
15. Goel S, Tripathy JP, Singh RJ, Lal P. Smoking trends among women in India: analysis of nationally representative surveys (1993–2009). *South Asian J Cancer* 2014;3:200–2.