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ORIGINAL ARTICLE

TOBACCO CESSATION OUTCOMES IN THOOTHUKUDI DISTRICT: A DESCRIPTIVE STUDY FROM 2024–2025

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ABSTRACT

INTRODUCTION : Tobacco use is a leading cause of preventable mortality, responsible for more than 1.35 million deaths annually in India. Tamil Nadu reports a prevalence of 10.2% among adults, with smokeless tobacco contributing significantly to oral cancers. This study assessed quit rates and cessation outcomes among tobacco users attending the Tobacco Cessation Centre (TCC) in Thoothukudi.

METHODS : A descriptive cross-sectional study was conducted between April 2024 and March 2025 using secondary data from TCC records. A total of 57 individuals were analyzed. Demographic factors, Fagerstrom dependence scores, treatment modalities, and quit status were assessed. Carbon monoxide (CO) levels were used to verify abstinence.

RESULTS: The overall quit rate was 43.8%. The mean age of participants was 46 years, with 95% males. Most participants (84%) used only behavioural interventions, while 16% received both behavioural therapy and nicotine replacement therapy. Mean Fagerstrom scores were 4.3, and mean CO levels decreased from 18.7 ppm at baseline to 2.5 ppm at follow-up. Family-reported abstinence confirmed 37.5% sustained quitting.

CONCLUSION: Tobacco cessation services at the district level demonstrated effectiveness, particularly through behavioural interventions. Sustained abstinence was feasible with continuous follow-up and CO monitoring. Strengthened counselling, NRT accessibility, and community engagement are critical to improving quit rates.

INTRODUCTION

Tobacco use remains one of the most significant public health challenges worldwide. It is associated with more than eight million deaths globally each year, including 1.35 million deaths annually in India.[1]

The country faces a dual burden of both smoked and smokeless tobacco products, which contribute to cancers, cardiovascular diseases, chronic respiratory illnesses, and metabolic disorders. Smokeless tobacco alone accounts for nearly 40% of India's oral cancer burden, while smoking leads to chronic obstructive pulmonary disease (COPD), ischemic heart disease, and stroke. Quitting tobacco is associated with immediate and long-term health benefits, reducing the risk of cardiovascular disease within one year and the risk of oral and lung cancers over time.[2]

In Tamil Nadu, 10.2% of adults use tobacco according to GATS-2 (2016–17).[3] Thoothukudi district, with its industrial and coastal population, presents unique challenges for cessation programs due to socio-economic vulnerabilities, patterns of smokeless tobacco use, and occupational stressors. District-level Tobacco Cessation Centres (TCCs) provide essential support through counselling, behavioural therapy, and nicotine replacement therapy (NRT). This study was designed to evaluate the effectiveness of the Thoothukudi TCC, describe the demographic characteristics of its clients, and assess the outcomes of cessation interventions from 2024 to 2025.

METHODS

A descriptive cross-sectional study was conducted at the Tobacco Cessation Centre (TCC) of Thoothukudi Medical College and Hospital from April 2024 to March 2025. Out of 4000 total registrations in TCC, 57 individuals who registered at the TCC and opted for quitting tobacco during the study period were included.

There were no exclusion criteria, and all registrants were considered. Data were extracted from the Quitters Line List maintained at the TCC. Variables included demographic details (age, sex, education, occupation), duration of tobacco use, nicotine dependence based on the Fagerstrom score and classifying as low moderate and high dependance, treatment modalities (behavioural counselling and/or NRT), quit status (self-reported and family-reported), and carbon monoxide (CO) levels at baseline, 3 months, and follow-up in July 2025.

Descriptive statistics were applied. Categorical variables were expressed as frequencies and percentages, and continuous variables as means. Tables and bar diagrams were constructed to summarize results.

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RESULTS

A total of 57 individuals were registered for tobacco cessation at the TCC during the study period. Out of 57 participants, 25 (43.8%) successfully quit tobacco use, while 32 (56.2%) did not. Quitters had a mean age of 48 years compared to 46 among non-quitters, with an average tobacco use duration of 24 and 26 years respectively.

Among the quitters, 56% belonged to the age group 20- 45 years, 32% belonged to age less than 20 years. 92 % of them were male and 2%were female. Educational status 40% were illiterate/primary educated as shown in Table 1.

Table 1: Sociodemographic profile of quitters attending TCC, 2024-2025

Variables	Category	n	%
Age Group	<20	8	32
	20–45	14	56
	46–60	2	8
	>60	1	4
Gender	Male	23	92
	Female	2	8
Qualification	Illiterate / Primary	10	40
	High school	8	32
	Secondary	3	12
	Graduate	4	16

Quit status reported by family indicated 37.5% abstinence, while quit status as reported by the individuals were 44.6%.

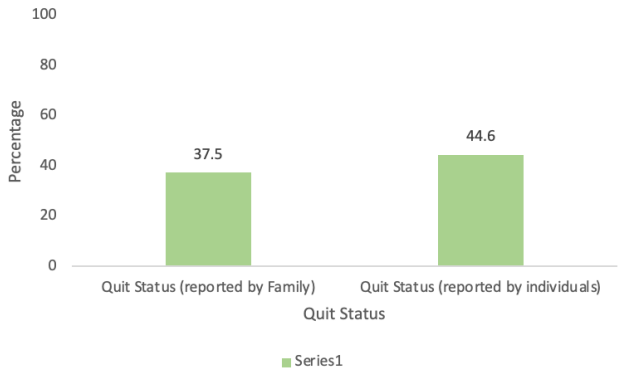


Figure1: Quit status as reported by quitters and their family in TCC, Thoothukudi, 2024-2025

Based on duration of tobacco use, the highest proportion of quitters had used tobacco for 15–25 years (26.8%), followed by 25–35 years (19.6%), and more than 35 years (10.7%) as mentioned in Table 2.

Based on Fagerstrom scores, 28% had low dependence (0–3), while 72% had moderate dependence (4–6) while no individual reported high dependence. The mean Fagerstrom score among quitters was 4.3.

Table 2: Duration of Usage of tobacco among quitter, TCC, Thoothukudi, 2024-2025

Duration of tobacco usage (years)	n	%
<5	2	3.6
5–15	1	1.8
15–25	15	26.8
25–35	11	19.6
>35	6	10.7

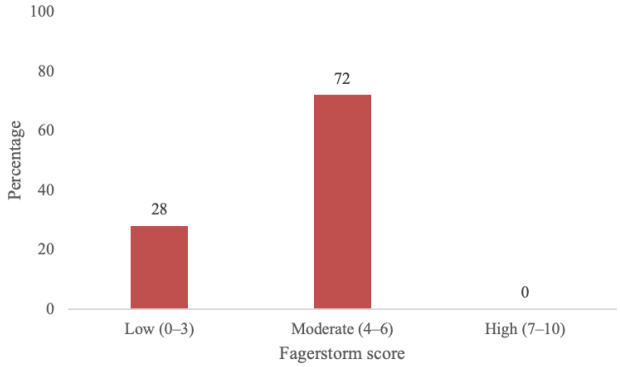
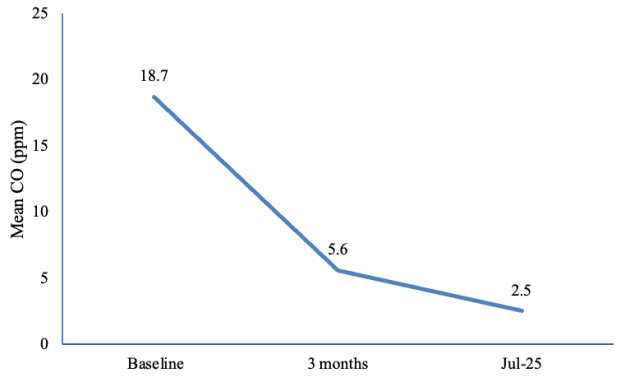


Figure2: Fagerstorm scores for nicotine dependence among quitters, TCC, 2024-2025

Of the 25 quitters, 84% relied solely on behavioural counselling, while 16% required both behavioural therapy and NRT.

Treatment Type	n	%
Behaviour Changes	21	84
Both NRT and Behaviour Changes	4	16

The mean CO level decreased from 18.7 ppm at baseline to 5.6 ppm at 3 months, and further to 2.5 ppm at follow-up in July 2025, providing objective evidence of quitting and improved lung health.



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DISCUSSION

This descriptive study highlights the effectiveness of tobacco cessation services provided at the district level. The quit rate of 43.8% compares favourably to international benchmarks where rates typically range between 25% and 40% in community-based cessation programmes. The findings reinforce the value of behavioural interventions, which were sufficient for the majority of participants, and suggest that expanding such services can yield significant public health gains.

Carbon monoxide monitoring provided a reliable biochemical validation of quitting, confirming sustained abstinence. The marked drop in CO levels from 18.7 ppm to 2.5 ppm underscores the physiological benefits of cessation. The discrepancy between self-reported and family-reported quit rates indicates possible biases in self-reporting, which is why objective monitoring is critical.

The underrepresentation of women is consistent with national data showing lower tobacco use among females, but may also point to cultural and accessibility barriers. Additionally, while some participants achieved complete abstinence, others reported reduced use rather than quitting, highlighting the need for stronger motivational and relapse-prevention support. Peer support groups, community outreach, and increased availability of pharmacological aids such as bupropion and varenicline could further improve outcomes.

Overall, this study adds to the evidence base supporting the integration of structured counselling, pharmacological support, and monitoring into tobacco cessation programs. It also demonstrates the feasibility of scaling up district-level models across Tamil Nadu and India at large.

CONCLUSION

Tobacco cessation is an urgent public health priority in India. The Thoothukudi TCC experience demonstrates that structured counselling, supported by CO monitoring, can achieve meaningful quit rates and sustained abstinence. Expanding these services to other districts, ensuring accessibility of NRT and pharmacological aids, and incorporating community engagement strategies are essential next steps. By strengthening cessation programs, India can reduce the immense burden of tobacco-related morbidity and mortality, contributing directly to national and global non-communicable disease control targets.

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