

# Barriers and facilitators of noncommunicable disease (NCD) prevention in Kerala: A qualitative study

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## ABSTRACT

**Context:** The burden of noncommunicable diseases (NCD) is increasing at an alarming rate, contributing to about 23% of the mortality in the rural and 30% of the total mortality in the urban population in India. Even with high health literacy in Kerala, the state has higher rates of NCD risk factors and lower diabetes and hypertension control rates. **Aims:** The objectives were to qualitatively assess the facilitators and barriers of NCD prevention from the patients' and health care providers' perspectives and assess the perceptions of healthy lifestyle behaviors among NCD risk persons and patients. **Settings and Design:** This was a qualitative study conducted in Thrissur district, Kerala, India. **Methods and Material:** Qualitative study was conducted using the grounded theory approach. A total of nine in-depth interviews and ten focus group discussions were conducted among health care providers and NCD risk persons and patients. The audio-recorded data were transcribed, coded, and thematically analyzed. **Statistical Analysis:** The data were transcribed and analyzed using the Framework approach to qualitative data analysis. **Results:** The main themes identified were healthy lifestyle behaviors, facilitators, and barriers to NCD prevention. The main facilitators for NCD prevention were NCD screening, the national program for NCD, health education sessions, and yoga classes in school. Lack of time, laziness, unavailability of space for exercise, and safety issues were identified as barriers to physical activity. **Conclusions:** People are aware of the facilitators and barriers of NCD prevention. Availability of a favorable environment and behavior change is needed to combat the silent epidemic of NCDs.

**Keywords:** Barriers, facilitators, NCD prevention, qualitative study

## Introduction

The world's health care needs are changing drastically due to significant population and demographic impact. Noncommunicable diseases (NCDs), including diabetes, cancer, cardiovascular diseases, and chronic respiratory illnesses, account

for an estimated 41.1 million deaths (73.5%). Effective health policies and population-based interventions could have prevented 83.9% of these deaths.<sup>[1]</sup> The burden of NCD poses an alarming threat to developing countries and is a leading cause of mortality in India.<sup>[2]</sup> The socioeconomic transition in India due to rapid urbanization, industrialization, and globalization have influenced the health risk behavior, leading to the increasing burden of obesity, hypertension, diabetes, and dyslipidemia.<sup>[3]</sup> Primary care facilities play a vital role in preventing and controlling NCDs. Still, the current private and public primary care facilities in India are not adequately prepared to carry the burden of NCDs.<sup>[4]</sup> The current COVID-19 global crisis also profoundly affected the

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management of NCDs.<sup>[5]</sup> Identifying the barriers and facilitators of NCD prevention is necessary to guide and strengthen the primary care facilities and adequately manage the NCDs.

The NCDs share key modifiable behavioral risk factors like tobacco use, unhealthy diet, lack of physical activity, and harmful use of alcohol, resulting in the development of risk factors like obesity, increased blood pressure, increased cholesterol, and ultimately disease.<sup>[6]</sup> The World Health Organization (WHO) has agreed on a set of global voluntary targets linked to the Global Monitoring Framework to prevent and control NCDs by 2025, along with targets to reduce premature mortality from the main four NCDs by 25%.<sup>[7]</sup> In 2015, the 2030 UN agenda for Sustainable Development recognizes the importance of addressing NCD issues and targets to reduce the number of premature deaths from NCDs to one-third by 2030.<sup>[8]</sup> The key to controlling the global epidemic of NCD is by preventing primarily the risk factors based on community-wide comprehensive programs. Few of the risk factors are common to all the NCDs, thus preventing those results in the prevention of bulk of NCDs.

To collect, analyze, and monitor trends for risk factors of NCDs, the “STEPwise Approach to NCD Risk Factor Surveillance (STEPS)” approach has been recommended within and across countries by the WHO.<sup>[9]</sup> Very few studies have qualitatively assessed the barriers to NCD prevention.<sup>[10,11]</sup> Therefore, the present study was undertaken to determine the facilitators and barriers of NCD prevention from the patients’ and health care providers’ perspectives and assess the perceptions of healthy lifestyle behaviors among NCD risk persons and patients.

## Subjects and Methods

This qualitative study was conducted in and around Thrissur district, Kerala. Qualitative research methods like in-depth

interviews (IDI) and focus group discussions (FGD) were utilized for the process evaluation. The study was carried out during November 2018–March 2019, and before this, quantitative research was conducted during 2013–2016. NCD patients and persons with risk for NCD were included in the focus group discussions, and health care providers were included for IDIs. The themes included are depicted in Table 1. Ethical clearance was received from the institutional ethical committee.

### Methodologies for each objective are given below

#### Objective 1

To qualitatively assess the facilitators and barriers of NCD prevention from the patients’ and health care providers’ perspectives.

IDIs were conducted using an interview guide to draw the present standing of facilitators and barriers of NCD prevention among patients and health personnel (medical officers, program coordinators, etc.) within the urban area and

**Table 1: Interview guide for FGD & IDI**

FGD	IDI
What are the preventive measures for noncommunicable diseases?	What is a healthy lifestyle behavior?
What are the barriers in the prevention of Non -communicable diseases?	What is the pattern of eating fruits and vegetables?
What are the facilitators for the prevention of NCDs?	What are the reasons for the preference for a non-vegetarian diet?
What are the barriers in the treatment of NCDs in National control programs?	What is the pattern of physical activity and reasons?
What are the facilitators in programs in National control programs?	How prevalent are addictions and their reasons?

at district hospitals and various primary Health care centers in Thrissur District. These patients interviewed were the ones who were on long-term medications for various NCDs and health personnel who are in close contact with NCD patients as they are the people who are well aware of the condition on the facilitators and barriers in the NCD prevention. There were nine IDIs conducted among the patients and medical officers. An interview guide was developed before enabling data collection. All interviews were audio-taped with the participant’s written consent.

#### Analysis

The data were transcribed and analyzed using the Framework approach<sup>9</sup> for qualitative data analysis. For this, a framework was developed and applied to the transcribed interviews. Codes were identified, and the data were organized under the specific codes in the framework. The data under the different codes were abstracted. Connections between different codes were identified, and subthemes and themes were identified to explore the facilitators and barriers to NCD prevention.

#### Objective 2

To assess the perceptions of healthy lifestyle behaviors among NCD risk persons and patients.

We had conducted STEPS Survey at a selected primary health care (PHC) area in Thrissur District. House to house survey was done, and data were collected using the WHO STEPS questionnaire from 6000 households in 2016–2018. This quantitative data were utilized to find out NCD risk persons and patients. Ten FGDs were conducted using the topic guide developed before data collection. Probes were used to clarify and better understand the respondents’ views. Interviews were audio-taped with the permission of the participants. A sociogram was developed for each focus group discussion (FGD). This methodology has allowed a flexible exploration of respondents’ experiences and attitudes.

#### Analysis

Qualitative content analysis was used. The responses to questions from FGDs were manually coded. Following this, codes were compared and assembled into subcategories. Subcategories

then were grouped to form categories. The categories formed were then compared, reorganized, and merged into analytical categories, and overarching themes were drawn out of them.

## Results

Objective 1: To assess qualitatively the facilitators and barriers of NCD prevention from the perspectives of patients and health care providers.

IDIs:

We had conducted IDIs with nine health providers and patients. They were in the age group of 35–60 years, including males and females.

All health care providers and patients who participated in this interview were well aware of NCDs. The health providers opined preventive measures are early diagnosis and treatment, health education programs, diet, and exercise.

One doctor said, *“Lifestyle modification should be introduced at school, and facilities for gym and recreation should be made available at affordable cost.”*

A few of them mentioned, *“Increased water intake, avoiding carbonated drinks, restraining from overfeeding of children, vaccination and taking more vegetables in the diet and promoting kitchen garden at every home can bring down NCDs.”*

As suggested by the health care providers, facilitators are introducing free drugs, evening OPDs, and screening for NCDs under the National program. The introduction of yoga in the school syllabus and school health education programs has also been saying.

One program officer said: *“Noncompliance with diet and exercise, lack of proper health education, increased junk food in the diet, and use of traditional medicines are considered as the main barrier of NCD prevention.”*

One patient opined: *“Lack of medicines at a reasonable cost, reduced drug availability at the government sector and lack of awareness regarding facilities available at government sector are the reasons for NCD prevention.”*

One doctor at the urban health center said: *“Internet-based solution finding, acquiring wrong concepts from media, and spreading rumors on drug side effects have been reduced the compliance for medications.”*

Another patient said: *“Lack of playgrounds and parks in cities, better transport facilities have reduced walking and other recreational activities have been suggested as the cause for the increase in the prevalence of NCDs. Unavailability of doctors to serve in the tribal and hilly areas also contributes to the burden of NCDs.”*

Objective 2: To assess the perceptions of healthy lifestyle

behaviors among NCD risk persons and patients.

FGDs were conducted in ten different groups within the age group of 42–65 years of age in both sexes.

In FGDs, most participants knew that the lifestyle disorders were hypertension, diabetes, and dyslipidemia. Only a few of them were aware that cancer and obesity were included. Lack of awareness has not been considered the reason for the increase in NCDs.

The subthemes under healthy lifestyle behaviors were dietary changes, lack of exercise, reduced sleep, increased stress, habits, and emergence of modern technology.

Regarding dietary changes, most of them commented that there is an increase in the intake of non-vegetarian diet and reduced vegetable and fruits intake in the current population.

An elderly male said: *“One reason for reduced vegetable intake is poor food quality, which attributes to the increased use of pesticides and chemicals in cultivation. He also added the increased preference for non-vegetarian food in the community.”*

One female of 50-year-old said: *“Introduction of non-vegetarian food from early childhood at home due to the ease of cooking has also been suggested as the cause for the increase in desire towards it in the present generation.”*

When discussing exercise, most of them said that technology has improved, such as washing machines, grinders, food delivery, etc., it has reduced routine manual household chores. Most of them commented that laziness is the main reason for the deficit in exercise. A good number commented that the Lack of safe pedestrian roads, pathways, and stray dogs makes it difficult for the rural population to exercise regularly.

One elderly female said: *“Joint pains and dyspnea is the reason for reduced exercise in elderly.”*

Very few of them commented that Lack of time and shyness as reasons.

One housewife said: *“Changes in the sleep-wake pattern (sleeping late and waking up late) and excessive influence of mobile phones are the main reasons for recent behavioral changes in the younger population.”*

One of the participants said: *“Peer influence, easy availability of substances (lack of fear of legal issues and better connectivity), a new trend of enjoying life and to make easy money has increased the usage of substances especially among young.”*

Some of them commented that movies that make substance use sensational have a ubiquitous influence on teenagers and youth.

A general observation among the participants evaluated that

smoking has reduced due to increased awareness (warning testimonies of affected patients in theaters, warning cover over cigarette packs), but at the same time, alcoholism has increased due to easy availability, work stress, and dependence.

A person commented: “The benefits of alcohol as a stress reliever as well a remedy for sleep disturbances and people who abstain from smoking and alcohol are not free from diseases make people use these commodities.”

Some said genetic factors, environmental issues like pollution, and overcrowding have a major role in increasing NCD.

A few among the participants believe that the increase in the prevalence of NCDs is attributed to the side effects of drugs and doctors’ hesitancy to spend time sharing information regarding the disease. Few also criticized the higher cost of NCD medications, and the lack of sufficient supplies from the government facilities holds responsible for the recent increase in the prevalence of NCDs.

## Discussion

We found that both the health practitioners and the high-risk groups in Kerala were aware of NCDs’ increasing trend and risk factors. IDIs with health care providers enumerated that the facilitators for NCD prevention are opportunistic screening among adults, lifestyle modification, and behavioral changes among school children. The opportunistic screening helped in the early detection of risk factors like obesity, diabetes mellitus, and hypertension among adults aged more than 30 years. Utilizing every opportunity at the primary health facility to screen these three conditions could help prevent coronary artery diseases and cancer.

Most participants of the FDG had the same opinion regarding the increase in NCDs as unhealthy diet practices (junk food), lifestyle changes (sedentary life and lack of exercise), and an increase in substance abuse among the young generation. Earlier studies have shown a significant decline in physical activity and an increase in obesity in the Indian population, and it is attributed to the emergence of modern technology.<sup>[12,13]</sup> Excessive dependence on modern technology for cutting down manual work and entertainment should be limited. The introduction of yoga training and increased number of physical activity hours in their curriculum were other facilitators adopted as primordial prevention for controlling NCDs’ emergence of risk factors. Noncompliance with regular exercise was also a major problem. Most high-risk groups stopped everyday physical activities for several reasons like joint pain, dyspnea, safe pedestrian roads, and stray dogs. Recreational facilities such as gyms and parks have been suggested to overcome the burden of NCDs. Studies have shown that Kerala lacks good pavements and other recreational facilities, which need to be addressed.<sup>[14]</sup> Most female participants said that there is no need for physical activity since they do routine household

chores. But because of the improvement in technology, most of these household chores are done through machines, which might be the reason for an increased prevalence of overweight and obesity among them.

The convenience and availability of junk/fast foods have increased in urban and rural areas. The lack of healthy food at an affordable price and the illegal use of pesticides in fruits and vegetables made some homemakers reduce vegetable consumption. The government’s introduction of the tax on fatty food, especially on junk foods, had cut down the habit of eating out in many middle-class families, but this possesses the challenge of providing good quality healthy food at a minimal cost.<sup>[15]</sup> The promotion of kitchen gardens, and the distribution of seeds and vegetable plants for cultivation from a centralized system for promoting healthy eating habits were appreciable. Good food practices from early childhood should be encouraged among parents. Lifestyle modification among school children should give more importance to healthy eating habits. The introduction of healthy foods in school canteens and hostels would help the younger generation consume more vegetables and fruits than junk foods.

Substance abuse is showing an increasing trend among youngsters.<sup>[16,17]</sup> The primary reasons for the increased prevalence of substance abuse are peer pressure, easy availability of money, stress, and the influence of social media. Studies on behavioral risk factors for NCDs among adults in Kerala find an increase in the urgent need for adopting healthy lifestyle modifications and behavioral risk factors such as alcoholism and smoking.<sup>[18,19]</sup> The behavioral change communication among school children and young adolescents is necessary to focus more on the ill effects of substance abuse. Youngsters should be well educated regarding the psychological and legal issues and discourage substance use. At the same time, glorifying its use in movies should be controlled rather than just giving a statutory warning. Studies have shown that exposure to alcohol in movies was independently associated with underage drinking.<sup>[20]</sup> Mental health also should be prioritized, and proper psychological support should be made available to all age groups. Low resilience to stress in adolescence can increase the risk of addictive health behavior.<sup>[21]</sup>

The less knowledge about screening and primary care facilities in government health institutions was also pointed out by a few participants as the reason for the increased prevalence of NCD. Most people were unaware that cancer and obesity were also included in noncommunicable diseases. Therefore, even if people have a better awareness of NCDs, there is a need for more. Strengthening the primary care facilities, promoting awareness, encouraging authorities to implement new strategies to cope with changing trends in NCDs; at the same time, proper monitoring and management of ongoing facilities could help bring down the ever-growing NCD burden.

## Conclusion

To prevent NCDs, both the general population and health care providers, especially the primary care physicians, need to work together. The barriers for NCD prevention like non

compliance with regular physical activity and dietary modifications need to be tackled by improving health promotion. Lifestyle modification and behavior change communication among school children are the golden strategies adopted to prevent NCDs. Substance abuse among youngsters is a concern and should be under surveillance and control. Mental health needs to be given more importance in preventing NCDs, which is lacking in the NCD control program.

## Limitations

The study was conducted only in one district of Kerala. Generalization of the results to the entire state may not be possible.

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## Key messages

Health practitioners and high-risk groups for NCDs in Kerala, India, are aware of the increasing trend of NCDs and their risk factors. Facilitators for NCD prevention are opportunistic screening among adults, lifestyle modification, and behavioral changes among school children. The barriers for NCD prevention like noncompliance to regular physical activity and dietary changes need to be tackled by improving health promotion. Lifestyle modification and behavior change communication among school children are the golden strategies.

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## Conflicts of interest

There are no conflicts of interest.

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