A community-based study on health seeking behaviour among NCD patients in rural and urban Tamil Nadu – A convergent mixed method study

Kirubakaran S, Dharshnee Sudhan, Hariharan Kovur, Prasananjali Appanabhotla, Arun Murugan

Department of Community Medicine, Government Medical College, Omandurar, Chennai, Tamil Nadu, India

ABSTRACT

This study focusses on the health seeking behaviour of NCD patients which entails regularity of health care facility visitations and adherence to lifestyle modifications. **Aims:** To analyse the hospital visitations and lifestyle modifications of NCD patients. To do a comparative study about the health seeking behaviour among NCD patients in Rural and Urban areas. To explore the various difficulties that patients face with regards to Lifestyle modifications. **Settings and Design:** It is a convergent type mixed-methods design, undertaken in the field practicing areas of RHTCs and UPHCs of Government Medical College, Omandurar Government Estate. **Methods and Material:** The data was collected by means of Free listing, Focussed Group Discussions, Key Informant Interviews and Structured Questionnaires from patients diagnosed with one or more non-communicable diseases. Statistical analysis used: Smith's S value Manual Content Analysis Bivariate analysis. Results: The health seeking behaviour of NCD patients is influenced by lesser crowding and shorter distance to travel, reduced waiting time, focused attention from and familiarity with the healthcare provider, community health, systematic dispensing of medications and regularised testing. Rural population have a higher positively inclined health seeking behaviour than urban population. **Conclusions:** The health seeking behaviour of patients with NCDs seem to be on the positive trend and is influenced by the locality of the respondents.

Keywords: Adherence, focussed group discussions, free listing, health seeking behaviour, key informant interviews, lifestyle modifications, mixed method study, non-communicable diseases, regularity

Introduction

"Non-communicable disease" is a term designated to a group of conditions that result in long-term health consequences and often create a need for long-term treatment and care.[1]

Various studies have warned that an increase in factors such as life-style changes and unhealthy diets[2-7] will lead to the increased prevalence of NCDs (non-communicable diseases) in the coming years.[8-11]

Health seeking behaviour has been defined as any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy.[12]

In this study, we aim to explore into the health seeking behaviour of NCD patients in rural and urban Tamil Nadu by defining the regularity of visitations to health care facilities and the extent of awareness and adherence to lifestyles modifications as components of health seeking behaviour. We hope that the analysis of health seeking behavior of NCD patients in turn can provide general

Address for correspondence: Dr. Kirubakaran S, Department of Community Medicine, Government Medical College, Omandurar, Chennai, Tamil Nadu - 600 002, India. E-mail: kirubasam01@gmail.com

How to cite this article: Kirubakaran S, Sudhan D, Kovur H, Appanabhotla P, Murugan A. A community-based study on health seeking behaviour among NCD patients in rural and urban Tamil Nadu – A convergent mixed method study. J Family Med Prim Care 2024;13:3702-8.

primary care providers and family physicians a further understanding regarding the same which can influence their method of practice.

Objectives

- To analyse the health seeking behaviour, viz-a-viz, hospital visitations and lifestyle modifications of NCD patients
- To do a comparative study about the health seeking behaviour among NCD patients in rural and urban areas.
- To explore the various difficulties that patients face with regard to lifestyle modifications.

Materials and Methods

Study design

It is a convergent type mixed-methods design[13] with qualitative [free listing, FGDs (focus group discussion), KII (key informant interviews)] and quantitative (survey) methods.

Study area and setting

The present study has been undertaken in the field practising areas of RHTCs (Rural Health Training Centers) and UPHCs (Urban Health Training Centers) of Government Medical College, Omandurar Government Estate.

Study population

The patients diagnosed with non-communicable diseases and under treatment in private or government or AYUSH setups.

Study duration

2–4 months.

Sample size and sampling

A representative sample size of 328 was selected by stratified random sampling. This sample size was calculated considering the prevalence of low treatment adherence at 30% with 95% confidence limits and a 7.5% precision, a design effect of 2, and a non-responsive rate of 10% calculated using Epi Info (version 6.04d), developed by Centre of Disease Control, Atlanta, USA, and the WHO (World Health Organisation).[14-19]

Inclusion criteria

All patients who are above the age of 18 years, diagnosed with at least one non-communicable disease.

Exclusion criteria

- Newly diagnosed
- Patients refusing to participate.

Qualitative research

Since our knowledge about the perception of NCDs among patients and the reasons for health seeking preference, if present, is limited, free listing was undertaken with random patients in the community. Based on the free listing outcome, semi-structured

Figure 1: Qualitative research format

questionnaires for FGDs – perspective of patients and KIIs – the perspective of health care providers about the health seeking behaviour of NCD patients was framed [Figure 1]. The number of FGDs was decided by saturation point, that is, where it stopped yielding any new information. The grounded theory approach was used to determine the same.[12] FGD sessions were facilitated by a trained facilitator in the locality at a time and place convenient to the participants. Informed consent was obtained from each participant before an FGD. The discussion was audio-recorded and transcribed as *verbatim* using software Express Scribe (version-5.01). If participants refused for audio recording, a note taker was asked to take the notes. Apart from FGDs, KIIs were also conducted among healthcare providers. Informed consent was obtained from each participant before each KII was conducted. The interview was audio-recorded and transcribed as *verbatim* using software Express Scribe (version-5.01). If the participant refused for audio recording, a note taker was asked to take the notes.

Development of a questionnaire for quantitative study

The findings of free listing, FGDs, and KIIs were used for developing a locally relevant questionnaire for the quantitative study. The questionnaire comprises questions about the socio-demographics details of the participants, relevant information on clinical history and diagnosis of one or more non-communicable diseases, relevant family history, the participants' habits of smoking, alcohol consumption, physical activity and diet, visitations to health care centres, upholding necessary health care measures like regular medications, and lifestyle modification.

Data collection

After obtaining informed consent, the pre-designed and pre-tested questionnaire was administered to collect quantitative data.

The qualitative data were collected by focussing on the reason and pattern behind the health seeking behaviour of the patients and the various factors affecting the preferences and aversion for the same. Three sets of 7–10 respondents (male and female)

were randomly chosen from the study centre for FGDs. All respondents were patients satisfying the inclusion and exclusion criteria. Each FGD lasted for at least 45 minutes. Alternatively, 5 KIIs were conducted with health care workers [doctor, staff nurse, pharmacist, lab technician, WHV (woman health volunteer)] as respondents to better understand the system of health care delivery for patients with NCDs and to provide their perceived point of view regarding the process of health care seeking behaviour among the patients. Each interview lasted for 30–45 minutes. At the ending, all participants were debriefed individually on the recorded information to ensure validation from the participants.

Analysis and Results

Analysis of qualitative data

The free listing of factors influencing the regularity of hospital visitation of patients with non-communicable diseases was manually coded by the principal investigator. Analysis was done for calculating Smith's S value using Anthropac software (4.98.1/x) (Analytic Technologies, Lexington, KY, USA). Smith's S (Smith's saliency score) refers to the importance, representativeness, or prominence of items to individuals or to the group and is measured in three ways: word frequency across lists, word rank within lists, and a combination of these two.

Manual content analysis of qualitative data (FGD, KII) was done. Initially, the interviews were transcribed in verbatim fashion and subsequently translated into English. At this step, all authors independently read the interviews and familiarised themselves with the information and contexts. In the next step, a textual level analysis was done and it included both the inductive and deductive codes derived from the transcripts. Later, similar codes were merged together to form the categories; then the related categories were grouped into themes. Content analysis was done by two researchers to increase the trustworthiness of the results. Any discrepancy between the two was resolved by mutual discussion. Text lines written in Italic font in the results signifies direct quotation from the participants.

Results of qualitative data

The free listing results [Table 1] predominantly show that the health seeking behaviour of NCD patients is largely influenced by lesser crowding and a shorter distance to travel, reduced waiting time, focussed attention from, and familiarity with the healthcare provider.

FGD and KII

The outcomes that were observed with respect to the health seeking behaviour of NCDs patients are mentioned in Figure 2.

The results of the FGDs and the KIIs (with respect to health seeking behaviour) are discussed under three categories: (i) factors influencing health seeking, (ii) perks of treatment, and (iii) improvements suggested.

Category 1: Factors influencing health seeking

1.1.   Sub-category: Time consumed
Respondents reported that their health seeking behaviour was *greatly influenced by the amount of time consumed in the hospital.* Since the patients feel that increased waiting time often leads to frustration and improper communication with the health care providers, it plays a major role in the 'want' of visiting hospitals.

1.2.   Sub-category: One roof
When the health care setup is within a block or a group of rooms, it makes it easier for the patients to move among different sections, that is, pharmacy, lab, registry, and OPD (outpatient department), and thus, the *strain of accessing resources* is limited.

1.3.   Sub-category: Community health
Similar to the patient–health care professional relationship, for a group of patients usually visiting the same health care setup for the same problem, a *community bond* is formed, and this also creates a sense of *familiarity and comfort*, which supports better health seeking behaviour.

| Table 1: Results of Free Listing			
Factors and situations influencing regularity of seeking health care	**Frequency (%)**	**Average Rank**	**Salience**
Less crowded	50.0	1.25	0.469
Less distance to health care centre	37.5	2.33	0.229
Waiting time is reduced	37.5	1.00	0.375
All issues are addressed properly	25.0	2.50	0.146
Easier to procure relevant medications	25.0	2.00	0.188
Attended earlier	25.0	3.00	0.125
Feeling of belonging to a community with other regular patients	25.0	3.50	0.094
Approachability of health care providers	25.0	4.00	0.063
Home visitation for immobile patients	25.0	3.50	0.094
Focussed attention from a health care provider	25.0	3.00	0.125
Familiarity with health care provider	12.5	3.00	0.063
Cheaper investigations	12.5	2.00	0.094
Travel expenses reduced	12.5	3.00	0.063
Records of previous visits maintained	12.5	1.00	0.125
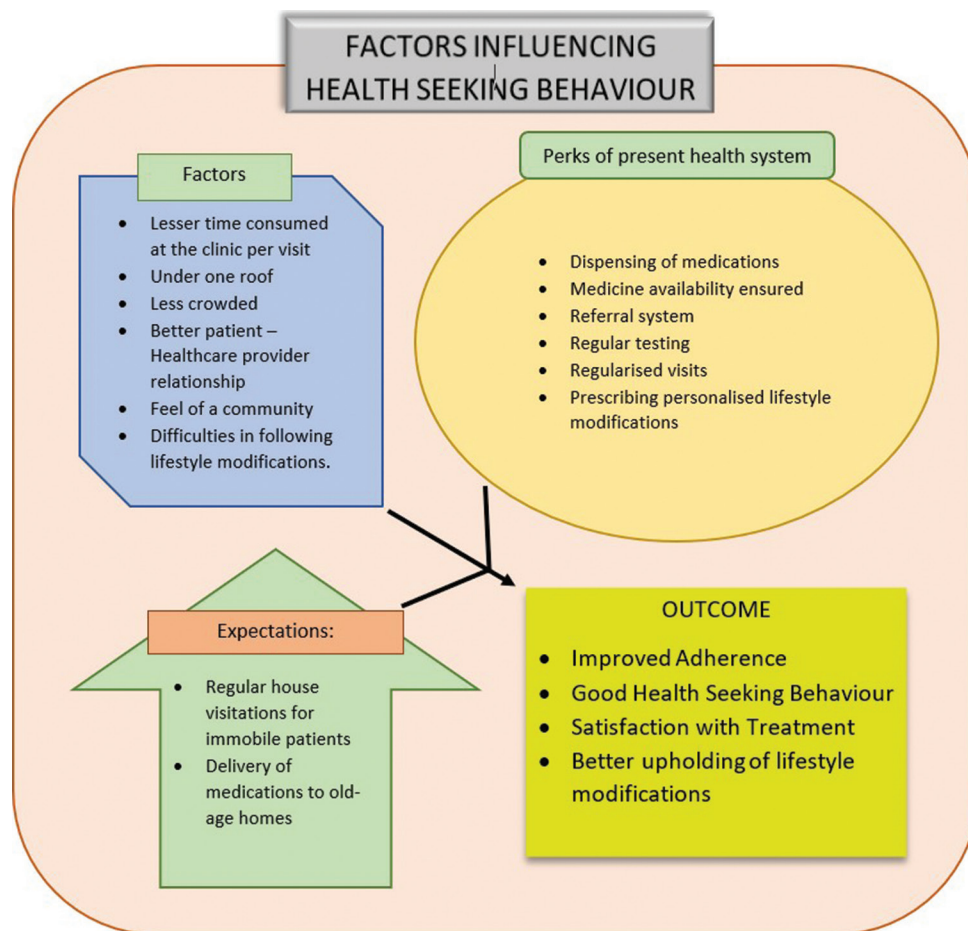
Figure 2: Manual content analysis of FGDs and KIIs – Factors influencing health seeking behaviour

1.4. Sub-category: Difficulties in following life-style modifications. The respondents are facing various difficulties in the aspect of lifestyle modifications, mostly elderly people, the unemployed having a sedentary lifestyle, age-related ailments, jobs requiring frequent travel and outside food consumption, and addictions to tobacco usage and alcohol due to lack of awareness and knowledge about de-addiction and rehabilitations. These difficulties seem to be factors influencing the adherence to lifestyle modifications.

Category 2: Perks of present treatment

2.1. Sub-category: Systematic dispensing
The monthly medicines needed for the patients were either given in the clinic or given personally to the patients in their homes by the community health workers to make sure that the medications were properly continued by the patients even if they are not able to visit the clinic every month.

2.2. Sub-category: Referral system
Any other serious health issue or complaints that need special attending too are referred through proper channels so that the patients get necessary attention in an effective way. This gave the patients confidence to seek health care for any and all problems.

2.3. Sub-category: Regularised testing.
The system of regular testing acts as a milestone for some after reaching normalcy and encouragement to many others in the community to seek health care to attain good health.

Category 3: Improvements suggested:

3.1. Sub-category: House visitations
House visitations for immobile patients by health care providers were a suggested improvement. This often decides the health seeking of people dependent on it such as the physically disabled, handicapped, elderly, and morbidly obese patients. These patients tend to miss medications due to lack of feasibility of travel.

3.2. Sub-category: Appointment system
Some respondents reported that *specific days or timings for groups of patients can improve the health seeking behaviour.* This ensures that the number of patients per period of time often is not overwhelming for the health care providers and at the same time, the crowding and waiting time can also be majorly reduced.

Analysis of quantitative data

The data were entered and analysed by using SPSS 12.0.1 software (SPSS Inc., Chicago, Illinois, USA) package and C

sample program of Epi_info (version 6.04d) software package. Chi-square test was applied to proportions. Confidence interval (CI) values were adjusted for design effect, and 95% CI values were constructed around each proportion value. The Sociodemographic and clinical characteristics and prevalence and awareness of modifiable risk factors in the respondents is mentioned in Table 2 and 3 respectively.

Results of quantitative data

The analysis showed that distance of the healthcare facility from residence ($P = 0.001$), waiting time in clinics ($P = 0.000$), and waiting time for clinical investigations ($P = 0.000$) showed a significant negative correlation with regularity of hospital visits, irrespective of the health care facility and a significant positive correlation to the perceived accessibility and demeanour of the health care professionals ($P = 0.000$) [Table 4].

Further exploration was done to determine whether the locality of residence influenced the regularity of hospital visits and general adherence to prescribed lifestyle changes and was found to be significant [Table 5].

Additionally, cross tabulation between locality and adherence of patients shows that participants from rural setting are more adherent to life-style modifications as compared to their urban counterparts [Table 6].

Furthermore, to corroborate the statement given by some respondents during data collection for the qualitative aspect, an analysis was done to ascertain any relationship between adherence to life-style modifications and awareness about rehabilitation facilities, nature of job, and work-related travel. However, no significant relationship was established [Table 7].

Discussion

Overall, the study has explored the health seeking behaviour of patients with non-communicable diseases in rural and urban TN. Among our study population, the respondents were majorly found to be around the age group of 51 to 60 years (37.80%). The health seeking behaviour of the patients with non-communicable diseases has been divided into two major components: hospital visitation and adherence to life-style modifications. Our analysis has shown that 85% of our study population visit hospitals at least once a month. The majority have reported that they were aware of the ill effects of the common risk factors for non-communicable disease (98.64%). In bivariate analysis, locality has emerged to be a factor influencing both regularity of hospital visitations ($r = 0.164$, $P = 0.003$) and adherence to lifestyle modifications ($r = 0.200$, $P = 0.000$) in cross tabulation shows that both these sub-components seem to be more widely followed in the rural areas than in the urban areas. Moreover, in the bivariate analysis of factors influencing regularity of hospital visitation, distance of health care facility from residence ($r = -0.181$, $P = 0.001$), accessibility ($r = 0.464$, $P = 0.000$), waiting time in clinics ($r = -0.395$, $P = 0.000$), and

Table 2: Sociodemographic and clinical characteristics

Characteristics	*n*	Percentage
Gender		
Male	185	43.6%
Female	143	56.4%
Age (years)		
31-40	18	5.48%
41-50	86	26.22%
51-60	124	37.80%
61-70	74	22.56%
71-80	25	7.62%
Socioeconomic status		
Class I	0	0
Class II	15	4.57%
Class III	76	23.18%
Class IV	237	72.25%
Education		
Graduate	60	15%
High school	85	17.6%
Middle school	76	23.1%
Primary school	58	25.9%
Illiterate	49	18.2%
Locality		
Urban	115	35.1%
Rural	213	64.9%

Table 3: Modifiable Lifestyle changes – Prevalence and Awareness

	Frequency	Awareness about the ill effects of the risk factor
No physical exercise	98 (29.87%)	325 (99%)
Smoker	81 (24.60%)	326 (99.3%)
Alcoholic	66 (20.10%)	321 (97.8%)
Consumes junk food	25 (7.60%)	322 (98.1%)
Sedentary life style	124 (37.80%)	325 (99%)

Table 4: Bivariate analysis of multiple factors affecting regularity of hospital visitation

Factor	Pearson correlation - *r*	Significance
Distance of health care facility from residence	-0.181	0.001*
Accessibility	0.464	0.000*
Waiting time in clinics	-0.395	0.000*
Waiting time for investigations	-0.402	0.000*
Preferred health care facility	0.043	0.442

*Correlation is significant at the 0.01 level (2-tailed)

Table 5: Correlation between locality of residence of participants and their health seeking behaviour

Factor	Pearson correlation - *r*	Significance
Regularity of hospital visitation	0.164	0.0031*
Adherence to prescribed modified lifestyle changes	0.200	0.000*

*Correlation is significant at the 0.01 level (2-tailed)

Table 6: Cross tabulation – locality x adherence		
	Rural	**Urban**
Adherent	194 (91.1%)	88 (76.5%)
Not adherent	19 (8.9%)	27 (31.2%)

Table 7: Relationship between adherence and perceived factors affecting it		
Factor	**Pearson correlation - r**	**Significance**
Work related travel	0.084	0.129
Awareness about rehabilitation and medication		
Alcohol	0.001	0.984
Smoking	0.032	0.568
Nature of lifestyle (sedentary/moderate/heavy)	0.043	0.440

waiting time for investigations ($r = -0.402$, $P = 0.000$) have been found to be significant, whereas as far as life-style modifications are concerned, no variable other than locality shows a significant influence.

In qualitative exploration, the respondents perceived health seeking behaviour to be majorly based on hospital visitation. They attributed the same to lesser crowding and shorter distance to travel, reduced waiting time, and focussed attention from and familiarity with the healthcare provider to the regularity of the same. Moreover, specific factors such as "under one roof, community health" have found to be predominantly influencing the inclination toward hospital visitation. Respondents have also pointed out some of the perks of our current health care system in Tamil Nadu such as an elaborate referral system, dispensing of medications, and regularised testing, which also seem to influence the health seeking behaviour. A few of the respondents have included the prospect of lifestyle modifications as a feasible non-pharmaceutical behaviour with regard to health seeking and have expressed that adherence to the same has been greatly influenced by the present health care system.

In this study, adherence to lifestyle modifications was taken to be the ability of the patients to stick to recommended lifestyle changes such as quitting smoking, not consuming alcohol, maintaining healthy diet, avoiding junk food, and having an active lifestyle with adequate physical activity. Despite the awareness of the ill effects of the risk factors for non-communicable diseases being 98.64% on average, the percentage of respondents who actually ended up following the lifestyle modifications was relatively low (smoking 75.4%, alcoholic 79.10%, physical activity 35.4%, sedentary lifestyle 37.8%), except avoiding junk food, which the majority of the respondents seem to follow (92.4%).

In the qualitative data analysis, it was found that the respondents have posed various practical difficulties that they encounter with following the prescribed life-style modifications. The majority of the NCD patients being elderly people and vastly unemployed have a sedentary lifestyle. Adding to it, age-related ailments, mainly orthopaedic, prevent them from maintaining regular physical activities, predisposing them to non-communicable diseases and further increasing risk of complications. Participants working jobs requiring them to travel frequently are dependent on restaurant cooked meals and junk food, making following a balanced diet plan an ordeal. Despite widespread awareness about the ill effects of modifiable risk factors, the lack of knowledge regarding medication and rehabilitation for the same has resulted in people not availing these services, which in turn decreases the possibility of quitting tobacco and alcohol usage.

These difficulties were analysed using quantitative data with the following variables: job requiring travel ($r = 0.084$, $P = 0.129$), awareness about medical rehabilitation: alcohol ($r = 0.001$, $P = 0.984$) and smoking ($r = 0.032$, $P = 0.568$), and nature of lifestyle ($r = 0.043$, $P = 0.440$), but these variables were found to be not significant in influencing adherence to life-style modifications. This can lead to a conclusion that those aforementioned difficulties are probably individualistic and cannot be eternally validated or that despite facing these difficulties, the health seeking behaviour emerges out to be majorly satisfactory.

Conclusion

The Primary outcome of the study is that, the health seeking behaviour of NCD patients seem to be on the positive trend (Percentage of study population adhering to lifestyle modifications: 85.97 %.) conflicting with the common belief of the same, and is seen to be influenced by the locality of the respondents. Moreover, the respondents belonging to the rural areas seem to have a more positively inclined health seeking behaviour than their urban counter parts.

The secondary outcome is that, the more positively inclined health seeking behaviour of rural population seems to be largely attributed to the greater number of localised and focused health centers for NCDs. To reciprocate the same in an urban area, which are majorly covered by larger secondary and tertiary care hospitals which tend to overlook the immediately noncritical routine visits, will mean to establish more number of dedicated health care centres for Non-communicable diseases which promote the idea of community health. The take away conclusion is that, establishment of more concentrated and easier to access health care centers for non-communicable diseases in the urban areas - that understands the requirements of the population they serve, could potentially increase the health seeking in the urban population as much as the rural population and further.

Ethical consideration

The study was carried out after obtaining approval from the Research Committee and Institutional Ethics Committee. Informed consent was obtained from the individual respondents, and the ethical principles such as respect for persons, beneficence, and justice and nonmaleficence were adhered (IEC code No. 15/IEC/GOMC/2023).

Conflicts of interest

There are no conflicts of interest.

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