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Original Research Article

Utilization pattern of health services for non-communicable diseases in an urban slum: a study of Turbhe stores slum in Navi Mumbai, Maharashtra, India

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ABSTRACT

Background: The growing burden of non-communicable diseases among the urban poor in the absence of affordable health care services is a big public health challenge in India. In this context, the present paper explores the utilization pattern of health services to deal with two specific non-communicable diseases (NCD) namely hypertension and diabetes.
Methods: The study was conducted in Turbhe Stores in Navi Mumbai, a slum of 5014 households. An initial listing of the households revealed that there was at least one person suffering from either hypertension, diabetes or both in 254 households. By systematic random sampling, 84 respondents suffering from diabetes and/or hypertension from last one year were selected from these 254 households. Data was collected by structured interview schedule.
Results: Three fourths of the respondents had utilised health service for their problem. About 95% sought medical care from private providers and almost all sought approached allopathic practitioner. Only half of respondents went for regular monthly follow up and almost 75 percent were found self-medication of old prescriptions for their treatment. Poor follow up and non-regular utilization of health services was mainly influenced by the individual perception of not giving importance of regular treatment and lack of attention due to asymptomatic nature of disease, followed by financial constraints.
Conclusions: Self-awareness about the disease and importance of regular treatment & follow up is found lacking in the community. Health care services were regularly utilized for these silent diseases by those who can afford it. Factors like ability to afford costly treatment, high satisfaction level from the treatment sought and proximity of health care provider were found strongly associated with higher utilization.

Keywords: Diabetes mellitus, Hypertension, Non-communicable diseases, Utilisation pattern, Urban slum

INTRODUCTION

The second half of the twentieth century witnessed major health transitions in India; the most persistent of which has been the rising burden of non-communicable diseases (NCDs).[1] Fifty three percent of the deaths in 2005 occurred due to chronic diseases with 29 percent from cardiovascular diseases, and[2] the situation was more challenging due to spread of NCD among all the communities.[2,3] Growing evidences from the studies in Haryana, Orissa and Delhi showed an increasing prevalence of hypertension and diabetes among urban slum dwellers. Increasing susceptibility of urban poor to NCD is due to high prevalence of risk factors like obesity, alcohol and tobacco consumption.[4-7] The poor and less educated were more likely to use tobacco products, consume alcohol, energy-dense and high-fat content food items, physically inactive, and tend to be overweight or obese.[8] India's urban poor population is rising quickly at the rate of 5% - 6% per annum, and treatment strategies need to be devised for this vulnerable population.*

Urban poor, who were presented with hardships of life and denied access to the most basic facilities like clean water and sanitation, may neglect the benefit of long-term treatments for NCDs that do not immediately endanger their health. The cost of treatment also limits use of health services in near absence of affordable and accessible public health infrastructure in slums.

Anderson's behavioural model of utilization was used, for determining the use of health services.[9] According to the model, physician contacts are determined by three factors: predisposing, enabling and need factors. Predisposing factors include gender, age, and social status. Enabling factors include the conditions that facilitate or inhibit the use of physician services e.g. the distance to the health centre. Need variable includes chronic diseases, disability days, new illness conditions and psychological well -being. The need variable seem to explain best the number of visits to physicians.[10,11] The utilization of health service is related to age, gender, education, religion, ethnicity, socio demographic status, and social support.[12] Other factors include medical organization and perception of symptom of disease and access to health services.

Recent studies have suggested that community characteristics in addition to individual and household idiosyncrasies and to the overall availability of health services could be important determinants of utilization.[13,14] Population based study in Tanzania showed higher utilization among hypertensive were related to older age, previous history of high blood-pressure, being overweight and non smoking.[15] Secondary data analysis showed for Indian adult's utilization for NCDs increases with higher wealth quintile and education.[16]

The above discussion highlights the emerging disease burden due to NCDs among urban poor and their problems of accessing health services to deal with this health issue. This paper attempts to understand the utilization pattern of health services by the urban poor to deal with two specific NCDs hypertension and diabetes and analyze the factors influencing the utilization pattern. In this study an effort was made to explore the type of health services utilized by urban poor of Turbhe Stores of Navi Mumbai for management of self reported hypertension and diabetes and to study the factors affecting the utilization pattern of health services during the last one year.

METHODS

An exploratory, cross sectional descriptive study was carried out in Turbhe Stores slum of Navi Mumbai. Population of this slum was approximately 34,000. Like any typical slum, it was a low income area with poor sanitation, hygiene and overcrowding.

Health care was provided to this slum through one government run urban health post, 9 anganwadi centers and 22 private health care providers with mix of Homeopath, Ayurveda and some other non-qualified practitioners. Slum dwellers also sought healthcare outside the slum area from Kamgar Hospital, one municipal hospital and private practitioners in Vashi 5 Km away from the slum.

Ten trained link workers of a voluntary organization working in the study area were involved in the line listing and enumerating the households in slum area. Sampling frame was prepared based on total number of self-reported cases of hypertension and diabetes mellitus from slum, they were enumerated by house listing. A total of 5014 households were enumerated in the slum of which 254 households were found to have at least one or more family member suffering from with Diabetes or Hypertension. Self reported cases of diabetes and hypertension diagnosed from past one or more year by physician were included in the study. Systematic random sampling was used to select a sample size of 80.

Random number was generated to identify the first sample household and then every third household was selected from the selected random number household. Considering the non response rate of 15 percent 9 additional households were identified with same process from the sample. Among these 80 households 4 households had 2 family members suffering from the NCD. Thus total number of cases interviewed was 84.

A pretested structured interview schedule was administered to the respondents for data collection purpose. The recall period for this was 6 months prior to the survey.

All the respondents briefed about the study and verbal informed consent was sought from each respondent. The data was analyzed in MS Excel. Chi Square test was performed to measure the association. p values of <0.05 is considered significant and the 95% CI is presented.

RESULTS

Among the total of 84 respondents 10 (12%) respondents were suffering from both hypertension and diabetes, thus the analysis includes 52 hypertensive and 42 diabetic respondents in the study.

Figure 1 shows the utilization of health care by the groups of diabetic and hypertensive respondents. Only 64% HTs reported to take regular treatment. More than 81% HTs and DMs visited private health care provider. Less than quarter of study participants use modified prescription. The statistical results of all the items are presented in Table 1.

Table 1: Socioeconomic profile of respondents.

	Hypertension		Diabetes mellitus	
	n	**%**	**n**	**%**
Sex				
Male	23	44.2	26	61.9
Female	29	55.8	16	38.1
Age				
Less than 35 years	3	5.8	5	11.9
35 to 45 years	12	23.1	7	16.7
45 to 55 years	26	50	22	52.4
55 to 65 years	10	19.2	7	16.7
More than 65 years	1	1.9	1	2.4
Marital status				
Single	3	5.8	6	14.3
Married	42	80.8	33	78.6
Widow	7	13.5	3	7.1
Education				
Illiterate	35	67.3	20	47.6
Primary school	03	5.8	07	16.7
Middle school	09	17.3	09	21.4
High school	03	05.8	04	9.52
Intermediate or post high school diploma	01	1.9	01	2.38
Graduate or post graduate	01	1.9	01	2.38
Occupation				
House Wife	23	44.2	14	33.3
Manufacture Unorganized	9	17.3	3	7.14
Service Organized	8	15.38	5	12
Service Unorganized	2	3.8	1	2.38
Small Business	4	7.7	14	33.3
Unemployed	6	11.5	3	7.14
Student	0	0	2	4.76
Family Monthly Income (in Rupees)				
Less than 5000	31	59.6	21	50
5000 to 10,000	16	30.8	13	30.9
10,000 to 15,000	3	5.8	3	7.14
15,000 to 20,000	1	1.9	2	4.76
Above 20,000	1	1.9	3	7.14

Attendance of health care

In last one year 77% hypertensive and 86% diabetic respondents utilized health care. '*High satisfaction from the treatment from private health care provider'* was common factor associated with high utilization of health care for both groups. Apart from this, '*Proximity of health care provider'* was also reported as reason for higher utilization of health care by hypertensive respondents.

The reasons for not seeking health services among diabetic and hypertensive respondents were influenced by the '*Individual's perception of lack of importance of regular treatment'* (66% and 50% respectively) and '*asymptomatic nature of disease'* (50% and 44%) respectively.

Table 2: Health care utilization pattern for NCDs (HT & DM).

	HT		DM	
	n	**%**	**n**	**%**
Decision makers in family for taking treatment for NCD				
Self	48	55.17	20	1
Family Members with me	05	5.75	19	7
Family Members	87	100	3	0
Total	52	100	42	8
Mean duration of NCD	4.79 years		5.67 years	
Are you taking treatment for NCD				
Yes	40	76.9	36	85.7
No	12	23.1	6	14.3
Total	52	100	42	100
Pattern of treatment taking				
Regular	33	63.5	35	83.3
Irregular	7	13.5	1	2.4
Stopped the treatment	11	21.2	5	11.9
Never started treatment	0	0	1	2.4
Diet control	1	1.9	0	0
Total	**52**	**100**	**42**	**100**
Stream of medicine seek for treatment				
Allopath	40	97.5	35	97.2
Ayurveda	0	0	1	2.8
Diet control	1	2.5	0	0
Total	**41**	**100**	**36**	**100**
Distance of health care provider from home				
1 Km	20	48.7	15	41.6
1 to 5 Km	15	36.5	10	27.7
> 5 Km	6	14.6	11	30.5
Total	41	100	36	100
Type of health provider sought for treatment				
Specialist visit	26	63.4	26	72.2
Local doctor visit	17	41.4	12	33.3
Both	3	7.31	3	8.33
Visits to doctor in last 6 months				
1 visit	10	24.3	5	13.8
1 to 6 visits	11	26.8	13	36.1
> 6 visits	6	14.6	3	8.3
No visits	14	34.1	15	41.6
Total	41	100	36	100
Reasons for visits to the doctor				
Routine check up	16	39	21	58.3
Not well	19	46.3	7	19.4
others	31	75.6	27	75
Number of follow up in 6 month BP check up				
1 visit	4	9.75	1	2.7
1 to 6 visits	26	63.4	18	50
More than 6 visits	5	12.9	2	5.5
No visits	6	14.6	15	41.6
Number of follow up in 6 month BSL test				
1 visit	5	12.9	6	16.6
More than 1 visit (max. 6)	7	17.0	21	58.2
No Visits	28	68.1	9	25.2
Medication modification				
Continuation of medication from old prescription without modification	31	77.5	24	75
Regular modification in treatment as per doctors advice	9	22.5	12	25
Total	**40**	**100**	**36**	**100**
Purchase of total medicine in last 6 month as per prescription	34	85.0	32	88.8
Consumption of medicine in last 6 month	34	85.0	31	86.1
Number of cases got hospitalized due to NCD	12	23.0	13	30
Hospital expenditure (in rupees)				
> 10,000	4	33.3	6	46
< 10,000	8	66.6	7	54
Total monthly expenditure (In Rupees)				
>500	26	65.0	15	41.6
<500	14	35.0	21	58.3

Note: Addition of the variables is not equal to total number of participants due to choice of multiple answers.

Regularity in taking treatment

In past one year 64 percent hypertensive and 83.3 percent diabetic respondents stated to be on regular treatment. '*Higher satisfaction from the treatment*' and '*Ability to afford more than Rs 500 per month for treatment'* were reported reasons for regularity for taking treatment among both the groups. '*Increased individual autonomy in taking decision for treatment'* ensures regular treatment for hypertensive respondents. In the case of diabetics respondents higher *'Monthly household income more than Rs 5000'* and '*Higher caste'* were found to be reasons for regularity of treatment.

Type of health service provider

Treatment from private health sector was sought by 83 percent hypertensive and 81 percent diabetic respondents while public health sector was utilized by 17 percent hypertensive and 13.8 percent diabetic respondents. '*Longer distance of health care provider from home'* has found to be major factor for use of private health sector among both the groups. Since all the allopathic doctors and specialists practised far away from the slum, the respondents seemed to accept the longer distance as a

factor influencing them seeking services from private providers.

'*Dissatisfaction from current public sector treatment'* and *'Monthly expenditure less than Rs 500 on treatment'* were also affecting the choice of private health care provider for hypertensive respondents.

Visits to Doctor in last 6 month

In last 6 months 66 percent hypertensive and 59 percent diabetic respondents visited health care providers. Among them one to six visits were paid by 51 percent of hypertensive and 50 percent of diabetic respondents.

Higher number of visits to doctor by diabetic and hypertensive respondents were associated with '*Ability to spend more than Rs 500 per month on treatment'* and *'Proximity of health care provider from home'* respectively.

As per the respondents suffering from hypertension and diabetes, the reasons quoted for not visiting a doctor were '*Asymptomatic nature of disease'* (50 % and 30%), '*Financial constraint'* (41.6% and 15%) and '*Perception to consider doctor visit unimportant unless ill'* (16.6% and 20%) respectively.

Visits for blood pressure (BP) examination in last 6 months

In last six months, 73 percent hypertensive respondents visited health care provider for BP examination. Among them 63 percent visited one to six times. Regular visits for BP examination was associated with '*Ability to spend more than Rs500 on treatment per month', 'Increase family support for taking treatment', 'Higher satisfaction from current treatment' and 'Proximity of health care provider from home*'.

Visits for blood sugar level (BSL) examinations

In the last 6 months, 75 percent diabetic respondents visited health care service for BSL examination. Among them 55 percent listed one to six visits.

Old prescription users and users of regular modification in treatment

Old prescription in study was defined as the prescription given by doctor who has diagnosed or whom the respondent consulted for treatment. Among the respondents who were taking treatment some continued the same prescription for one or more years without any further consultation with any doctor. They were categorised as old prescription users. Users of regular modification include respondents regularly consult doctor for any change in medication in last 1 year.

Use of the old prescriptions was found among 78 percent hypertensive and 75 percent diabetic respondents. '*Monthly expenditure less than Rs 500 on treatment' and 'Dissatisfaction from modification of treatment'* were associated with higher use of old prescription among both groups. It can be explained as the monthly expenditure on treatment decreases more respondents opted for old prescription as it saves travelling cost and consultation fees of doctor. Apart from this 'L*onger distance of current health provider from home' and 'Monthly household income less than Rs 5000'* were found reasons for the use of old prescription among hypertensive and diabetic respondents respectively. On the whole, lower economic status seems to influence the use of older prescription.

Respondents adopting modification in their treatment were 23 percent hypertensive and 25 percent diabetic respondents. '*Decrease in monthly expenditure less than Rs 500 on treatment' and 'Dissatisfaction from treatment from old prescription'* were stated reasons for use of modification in the treatment among both groups. Additionally for diabetic respondents who had '*Monthly household income less than Rs 5000'* were adopting modification in treatments.

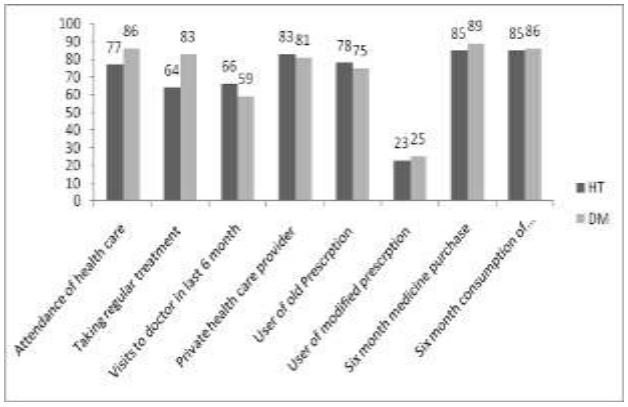

Figure 1: Proportion of health care utilization among the study participants.

Purchase and consumption of medicines in last six months

Among hypertensive respondents who were taking treatment, 85 percent were found to purchase and consume the medicines as per doctor's advice. In case of diabetic respondents 89 percent bought the medicine and among them, 86 percent consumed medicine as prescribed by doctor.

Reasons quoted by hypertensive and diabetic respondents for not buying medicine were 'Perception that as they were in good health they don't need medicine (25 % and 27%) and 'Financial *constraint* (22% and 19%) respectively.

'*Monthly expenditure on treatment less than Rs 500', and 'higher satisfaction from the treatment'* was found reasons for purchase of the prescribed medication in last six month among diabetic respondents.

DISCUSSION

Appropriate and regular treatment is one of the major strategies to control NCDs among the patients.[17] It is encouraging to find out from the study that more than 75 percent of the respondents suffering from hypertension and diabetes were utilizing health services regularly. Among them more than more than 50 percent of respondents from both groups visited either a local doctor or specialist to manage their condition with routine check-ups. However, there was also an extremely high utilization of old prescriptions as almost 75% of respondents were taking medication without further consultation with their physician for over a year. In case of NCDs it is essential to regulate treatment as per the current BP and/ BSL level.

Along with the factors responsible (infrastructure of government facilities & quality of care) for utilisation of private health care facilities, among hypertensive respondents satisfaction from the treatment was given by higher and regular utilization of health care services.[18] Proximity (distance) of health care provider ensures better utilization of health services for regular BP check-up and consultation for treatment which was also found significant factor that affect outpatient health care utilization for NCD patients in Udupi taluk in one of cross sectional study.[19] Respondents who can afford to spend more than Rs 500 on monthly treatment utilized health care services more regularly. Decrease in expenditure on treatment was associated with choice of private health care provider and use of old prescription among the respondents.

In case of diabetic respondents those who belonged to higher caste and had monthly household income more than Rs 5000 a month were observed to utilize health service regularly. Higher satisfaction from the treatment was associated with higher utilization of health care service. Dissatisfaction from the public sector treatment results in to utilization of private health sector for treatment. Capacity to spend more than Rs 500 on treatment ensures higher utilization which is in line with the findings of cross sectional study conducted by Sanghamitra Pati using WHO-SAGE of 2007 data which indicate expenditure on ≥2 NCDs is Rs. 454.1.[20] Barriers for utilization were mainly individual perception of unimportance of regular treatment and lack of attention due to asymptomatic nature of disease and followed by financial constraint.

It can be concluded that to ensure higher utilization of health care service for NCDs, it is important to have availability of affordable, good quality of health service located in proximity. Apart from this, health education of individuals about nature of disease and importance of regular check-up and treatment along with life style modifications is essential.

In order to improve the awareness and knowledge about the NCDs, study recommends health education in collaboration with the local community based organizations and doctors. It is also important to make the drugs available and diagnostic test at subsidized price in public health sector. Private laboratories, pharmacist and diagnostic laboratories can be empanelled to deliver the health care services at subsidized rates.

It seems that a very high rate of people rich and less use of health services to treat NCD's in the slum. However, the lack of use of proper medication and check-ups means that education is the main issue.

Limitations

Small sample size, Recall bias, health care providers perspective was not explored. Reliability of data is purely on the self-reporting mechanism of the study respondents, since no active screening was carried out were the limitations of the study.

CONCLUSION

Self-awareness about the disease and importance of regular treatment & follow up is found lacking in the community. Health care services were regularly utilized for these silent diseases by those who can afford it. Factors like ability to afford costly treatment, high satisfaction level from the treatment sought and proximity of health care provider were found strongly associated with higher utilization.

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