Community engagement in prevention and control of diabetes and hypertension: utilization of non-communicable disease (NCD) corners

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Abstract

Non-communicable disease (NCD) corners at Upazila Health Complexes (UHCs) have been established to provide preventive and intervention services of common NCDs to the rural population. Although community engagement is considered an integral part of promotion of any new health program, it is largely ignored in Bangladesh. Government is scaling up NCD corners all over the country, but much about the community utilization and accessibility is unknown. This study explored the current status, scope and opportunities of community engagement to strengthen NCD corners along with their utilization and challenges operating at primary health care (PHC) level in service delivery of common NCDs like diabetes and hypertension. A mixed method study was conducted in 4 upazilas from 4 different regions of Bangladesh through exit surveys of the 1180 patients at NCD corners with a semi-structured questionnaire, 28 in-depth interviews from different stakeholders and 8 community focus group discussions. Not only sociodemographic factors like family income, education status, regional variation etc. but also individual issues like information, attitude and intention were found significant inhierarchical regression.About 18% of the respondents were found with poor satisfaction, and rest of the respondents demonstrated good satisfaction (38.1%) and fair satisfaction (43.5%). The causal model of NCD corner utilization behavior was justified through all the significant direct and indirect path relationships ($p<0.001$). Poor community mobilization, hospital-based service delivery model, lack of public trust and reliability, and leadership rolewere identified as significant issues in qualitative enquiry. Community engagement was found inadequate with limited involvement of already over-burdened health workforce and other stakeholders. Community and organizational factors should be addressed along with individual factors to improve the accessibility of NCD corners through community engagement.

Background

Non-communicable diseases (NCDs) are usually chronic diseases with long duration (1). According to the World Health Organization (WHO), four main types of NCDs are cardiovascular disease (CVD), cancer, chronic obstructive pulmonary disease (COPD) and diabetes (2,3). Each year, NCDs accounts for more than two-thirds of all deaths worldwide, known as a silent global epidemic (1-6). Like any other developing nation NCDs are also a great challenge for Bangladesh. NCDs account for 59% of total deaths in Bangladesh (7).

NCDs are silent killers and may remain undetected and untreated during earlier days of incidence. This is more prevalent in rural Bangladesh (8). Government of Bangladesh has adopted various strategies including preventive and clinical care at institutional and service delivery centres. In 2012 government introduced NCD corners at Upazila Health Complexes (UHCs) to control emergence of NCDs in rural population. NCD corners are dedicated to providing prevention and care services for common NCDs (9). However there is lack of regarding community utilization of these community based facilities.

WHO has defined community engagement as “a process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes” (10). Community engagement let the community people own the health program leading to greater success and outcome. Enabling factors for successful community engagement include governance, leadership, decision making, communication, collaboration and partnership, and resources. WHO further suggest stages of community engagement where highest engagement level is achieved with empowerment of the community. WHO also classifies 4 approaches for community engagement and provides a checklist to determine the appropriate approach to adopt for specific health program- i) community-oriented, ii) community-based, iii) community engagement, and iv)

community owned (11).

Although community engagement is considered crucial for promotion of any health program and it is considered an interim strategy in any health program in developed countries, in Bangladesh it is largely ignored. Government is planning to scale up NCD corners in primary healthcare centers (PHCs) all around the country but there is dire scarcity of ground level data regarding utilization and challenges of these corners along with community engagement. Community engagement has been key to success of community clinics in Bangladesh which facilitated the robust expansion of the community clinics in past. This study will explore the current status of community engagement and utilization of NCD corners in prevention and control of common NCDs like diabetes and hypertension. The study will further provide light develop the community engagement strategy to determine the appropriate strategy for adopting the best approach to get better outcome. Moreover, factors of NCD corner utilization behavior were examined through the theoretical approach of Reasoned Action Approach (RAA) which states that attitudes towards the behavior and perceived norms determine people's intentions, while people's intentions predict their behaviors.

Materials and Methods

A concurrent parallel mixed method study was conducted to explore the current situation regarding the utilization and community engagement of NCD corners operating under national NCD control program. The study was conducted in 4 upazilas through exit surveys of the 1180 patients at NCD corners with a semi-structured questionnaire, 28 in-depth interviews from different stakeholders and 8 community focus group discussions. Multi-stage sampling technique was used for random selection of respondents. Pretested questionnaire had six parts. Part 1 included socio-demographic characteristics and other background information of respondents using age, sex, income, education, number of family members etc. Part 2 included 7 items regarding information about NCD corner and preventive knowledge on hypertension and diabetes. Part 3 was constructed to assess attitude using 6 items. Social influence or motivation was described by 7 items in part 4. Intention to healthy practices was assessed in part 5 using 5 items. Part 6 was used to describe behavior regarding NCD corner utilization. Likert scale was used from part 3 to part 6 and dichotomous type was used only in part 2. Positive and negative questions were included in the scales to get more valid results. Cronbach's Alpha (α) for the scales used in the questionnaire wasaround 0.80 in each case. Hierarchical regression model was used to determine the significant predictors in practice regarding NCD corner utilization. Finally, a casual model was formed combining the determinants based on the theory of RAAto describe theirpath relationships using maximum likelihood estimation (MLE) through Analysis of Moment Structures (AMOS). The first block included attitude and motivation, and the second block of the causal model was for intention. Practice or behavior was in third block as the final outcome. Both qualitative and quantitative data were analyzed separately and later triangulated for better outcome. Prior to conduct the study ethical clearance was taken from the ethical review committee of Dhaka Medical College.

Results

Majority of the respondents were between 40-50 years old and rest were almost equally distributed below and above the age range. More than half (57.9%) of them were male and more than 90% of the respondents were Muslim. Just below 40% of the respondents had a monthly family of BDT 10,000 and below, about 35% of them had a monthly family income between BDT 10,001 and 20,000 and rest among them had higher family income. About 1/3rd of the respondents had primary education and a similar

fraction was educated up to secondary school certificate (SSC) level, and around17% of the respondents were educated up to higher secondary education and above. **(Table 1)**

Table 1: Distribution of background factors (n=1180)

Socio -demographic characteristics	Percentage (%)
Age of respondents (years)	
≤40	21.6
41-50	55.8
≥51	22.6
Gender	
Male	57.9
Female	42.1
Religion	
Islam	91.9
Hindu	8.1
Monthly family income	
≤10000	38.7
10001 -20000	35.9
>20000	25.4
Educational level of respondents	
Illiterate	15.5
Primary	33.8
Junior School Certificate	33.6
Secondary School Certificate and above	17.1

Mean score of health practice was 8.4 (SD±2.2) with minimum score of 4 and maximum of 12. Average information score was 5.2 (SD±2.1) with minimum score of 2 and maximum of 7. Mean score of attitude was 18.7 (SD±4.1) with minimum score of 12 and maximum of 30. Average score of motivation was 20.6 (SD±3.2) with minimum score of 10 and maximum of 30. Average score of intention was 15.3 (SD±4.3) with minimum score of 10 and maximum score of 25. **(Table 2).**

Table 2. Distribution of practice and its determinants

Variables	$\bar{x}$ ±SD	Min -Max
Practice	8.4(2.2)	4-12
Information	5.2(2.1)	2-7
Attitude	18.8(4.1)	12-30
Motivation	20.6(3.2)	10-30
Intention	15.3(4.3)	10-25

In the first model of hierarchical multiple regression background issues like age, monthly family income, educational level and regional variation showed significancepredicting practice regarding NCD corner utilization. In the second model all the predictors of first model persisted as significant predictorsexcept age. Knowledge, attitudeand intention in the second model were also significant to predict the outcome ($p<0.001$).

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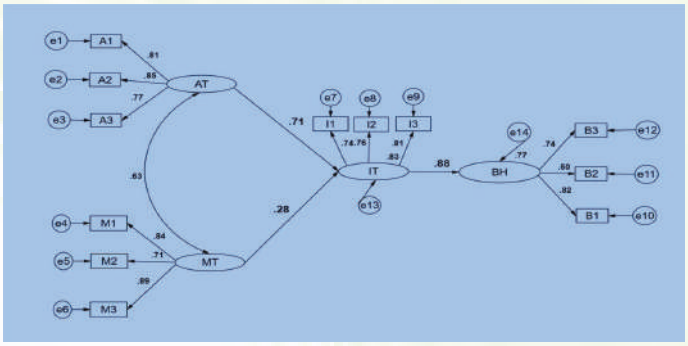
Table 2. Distribution of practice and its determinants

Variable	Model1			Model2		
	B	SE(B)	β	B	SE(B)	β
Constant	3.53	0.33		-2.96	0.59	
Age	-0.03	0.01	-.15**	-0.01	0.01	-0.05
Gender	0.08	0.12	-0.02	-0.11	0.11	-0.02
Family income	7.17×10^{-5}	0.00	0.38***	4.01×10^{-5}	0.00	0.21***
Educational status	1.95	0.17	0.35***	0.44	0.16	0.08**
Marital status	0.25	0.21	0.03	0.26	0.17	0.04
Region	-0.27	0.12	0.06*	-0.23	0.10	0.05*
Information				0.47	0.05	0.34***
Attitude				0.05	0.02	0.10**
Motivation				0.01	0.01	0.01
Intention				0.11	0.02	0.20***
R^2	0.37			0.55		
F for R^2 change	89.17***			93.34***		

Up to primary level education was the reference group and for regional effect Raiganj upazila was the reference group. Female was the reference for gender and unmarried group was the reference and young and elderly were taken together as reference group against middle age group. One star (*) for just significant ($p<0.05$), two stars (**) for highly significant ($p<0.01$) and three stars (***) for very highly significant ($p<0.001$).

The casual model was formed using three blocks combining the determinants based on RAA model. The model was reasonably good fit to describe the path relationships in the NCD corner utilization behavior. Attitude showed significant path relationships with intention (β=0.71, $p<0.001$). Motivation also showed very highly significant result (β=0.28, $p<0.001$) with intention in the causal model (Figure 1). Health behavior regarding NCD corner utilization was significantly influenced by intention (β=0.88, $p<0.001$).

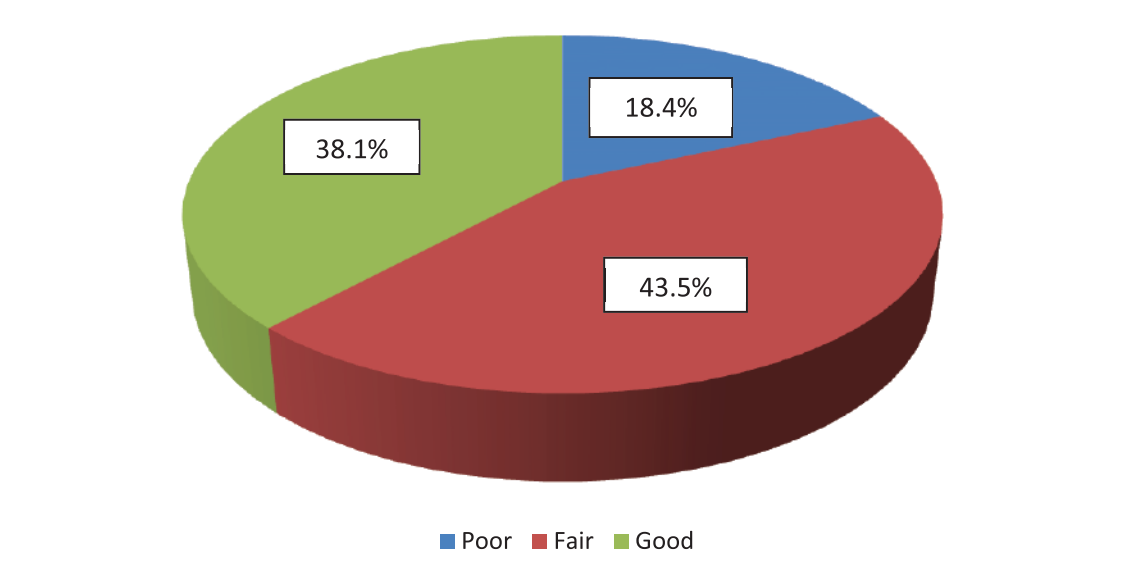
Figure1: Causal model for NCD corner utilization using reasoned action approach



Idea on NCD corner(A1), Idea on NCD prevention (A2), Idea on stigma related to NCD prevention(A3); Family influence (M1), Community influence (M2), Organizational influence (M3); Readiness for utilization of NCD corner (I1), Readiness for regularity (I2), Readiness for decision-making(I3); Visit of NCD corner(B1), Availability of services (B2), Intake of drugs(B3). A1, A2, A3 are indicators for attitude (AT); M1, M2, M3 are indicators for motivation (MT); I1, I2, I3 are indicators for intention (IT) and B1, B2 and B3 are indicators for behavior regarding NCD corner utilization (BH).

Satisfaction level of the respondents visiting the NCD corners were assessed with categorization into three groups: poor (≤60%), fair (61-80%) and good (>80%). About 18% of the respondents were found with poor satisfaction, and rest of the respondents demonstrated good and fair satisfaction with 38.1% and 43.5% respondents respectively in each category (Figure 2).

Figure 2. Distribution of satisfaction level



Factors of NCD corner utilization were well explained by the quantitative analysis. An in-depth scenario of organizational and community factors in access to NCD corners appeared in the qualitative enquiry-

1. Poor community mobilization initiatives- As the village people are also adopting sedentary lifestyle with advent of technology, electricity and motorized equipment, these diseases are being more prevalent. However, they believed NCDs are diseases of the rich and city dwellers. The majority of the community people were not aware about the existence of NCD corners, and the majority did not know about the full functioning of these corners.Most patients registered in NCD corners were referred from other departments of the same hospital.None of the health managers reported any involvement or consultation with the community people and community leaders on the functioning of the NCD corners.Community Health workers (CHWs) could play crucial role to promote the NCD corners in the community and make people aware of such services. Involvement of various stakeholders can increase the accessibility to NCD corners dramatically which was found missing. In one of the upazila where a NGO conducted community screening of NCDs as part of their research project and referred the patients to the respective NCD corner, highest number of registered patients and highest follow-up was reported.

IDI_UH&FPO-

"We conduct monthly meetings with community leaders. We have informed them about these NCD corners. We always invite them to use these facilities. Often they send patients to us and we give them medicines within our capacity."

Community people didn't feel like owning the public sector health facilities. They believe the health facilities are government owned facilities which are meant to provide health services to the poor people of the nation. They further didn't expect completely free treatment considering the Bangladesh a poor nation and corruption. However, they believe that community people need to be involved in functioning of the NCD corners. as these centers are meant to provide care to the poor people, they can suggest their problems and expectations.

FGD-Community

"Although it is said that free treatment is given in government hospitals, it is not completely free and there are side expenses. We don't expect too much, at least basic service is provided. But if free medicines are assured, it would be very nice for us."

2. Hospital based care delivery model- NCD corners were found limited to providing care to the NCD patients based in the hospital. However, preventive and health promotional activities had been completely ignored in all the centers. Health promotional materials within the hospitals were scarce and inadequate.

IDI_UHnFPO

"We are trying to establish the NCD corners with full potential but we lack manpower. No direction has come to us about health education activities. Right now, providing continuos care to the NCD patients without any interruption is a major challenge for us."

3. Lack of public trust and reliability- uncertainty service availability and interrupted supply of essential medicines were prevalent in all centers. Health managers reported they can't provide 1 month dose of medication during follow up visits and often they face scarcity of medicines. Due to such situation, patient retention is severely affected with loss of trust. Patients come and return empty hands losing faith on the health system. This was reported to have a major impact on patient retention.

IDI_MEDICAL OFFICER-

"We can't provide adequate amount of medicines due to interrupted supply. This makes people lack faith on our health system. They waste their transportation cost and valuable time. For few tablets people don't want to come here."

4. Leadership role- commitment and innovation from leaders' can bring great changes towards sustainable functioning of the NCD corners. In one of the UHC a separate dedicate medicine counter was opened for registered patients of NCD corners to ensure uninterrupted medicine supply and safety from the COVID situation. Even during the lockdown NCD care was provided with maintaining precautions.

IDI_UH&FPO-

"We established a separate medicine counter in a open place for registered patients of the NCD corner

during the COVID. We provided care with proper cautions. Open place enabled the patients maintain social distance. We provided medicine even during lockdowns but now we are helpless. We don't have medicines now. People are going back hopelessly. Here patients from neighboring upazilas used to come hearing our good service. But now our reputation is going to vain."

Discussions

Results of this mixed method assessment conducted at primary healthcare centers of Bangladesh demonstrates current status of community engagement and utilization of NCD corners as well as service availability at the centers. Although there was variability among the study places, some common themes appeared along with a common scenario. Variability described the factors influencing the phenomenon and functioning of the NCD corners at different context. This study found very poor level of community engagement with poor perception about community mobilization among the respondents. Moreover, standards and extents of services provided at the centers largely doesn't meet the community expectations.

Although a major part of effective implementation of NCD control program is improving awareness among the community people regarding risk factors and prevention of NCDs, this study found poor awareness and knowledge level regarding NCD among the people. Community perception about NCDs reflect a poor knowledge level among the respondents. This further reflects the higher burden of risk factors and increasing prevalence of hypertension and diabetes in Bangladesh (7). This study further explored the perceived natural immunity against NCDs among the community because of living in a fresh rural environment. Strong health promotion activities are required along with intervention programs to assure the effective implementation of NCD corners.

This study revealed poor information regarding NCDs among the rural population influenced their health seeking and utilization of NCD corners. This has been found similar in other nationally representative cross-sectional studies of Bangladesh where poor knowledge was evident among the general population (12). Informing the rural people about the current scenario and changing their perception about NCDs, can no doubt increase the utilization of NCD corners dramatically. Appropriate promotional activities should be tailored to promote NCD corners and make aware rural people about NCDs. A proper community engagement strategy is required to get the job done in most cost-efficient manner.

Informing people is often considered as the first level of community engagement. In rural Bangladesh community health workers (CHWs) are doing job by providing various preventive and health promotion interventions at the doorstep (13). In other Asian countries and during COVID-19 pandemic their crucial role has been observed in promoting health (14,15). CHWs provide a great opportunity here in the community engagement process to improve accessibility to NCD corners through informing people about the existence of NCD corners and screening of common diabetes and hypertension with the most cost-effective manner.

The findings of this study revealed travel restrictions and lockdown measures affected the NCD care services and NCD care seeking at various levels. Access to healthy food was reduced, along with transportation facilities to health care centers specially during the lockdown phases. WHO has reported similar findings (16). Some of the health managers reported disruption in health messaging during the

lockdowns and pandemic in general. However, adoption of alternate health messaging like telemedicine, mass media, phone calls, mobile message tunes and social media were largely ignored by the health managers and most respondents were not aware of the government telemedicine facilities.

This study found a shortage of workforce along with logistics in the NCD corners. This supports the other studies recently conducted in Bangladesh (17,18). Bangladesh needs to bring changes in structure of the health system to address the disparity in workforces. An improved modern diagnostic and care system can reduce the burden on the physicians and make use of the existing workforce more efficiently. Private-public-partnerships has already shown great positive impacts in different spheres of governance. Although Bangladesh has the potential to build functional team to provide NCD care in this resource-poor setting (17), it is high time that the country translate the potential into action. This study found, involvement of a local NGO in community screening of NCDs helped the NCD corner to register the majority NCD patients of the community within a short period and an uninterrupted service delivery assured high patient satisfaction of services among the community. NCD corners can play role in attaining Universal Health Coverage and revitalizing primary health care centers with NCD corners will ensure capacity building in health sector of Bangladesh.

Conclusion

From the findings of this study following conclusions can be reflected about functioning and scope of NCD corners under NCD control program. There are shortage of manpower and logistics in the NCD corners and through policy support and capacity building high faith and satisfaction can be attained among the community people for optimum utilization of these centers for control of NCDs. Community health workers need to be associated for promotion, provisional diagnosis and referral from community along with spreading awareness about NCDs in the community. Mass media and other platforms can be used to make the community aware about the NCD corners and NCDs in general. Policy makers should include community engagement strategies in policy making. Different community stakeholders should be involved at the specific levels of community engagement to empower the whole community at the NCD corners in general.

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