Short Communication

Task Sharing for Managing Common Noncommunicable Disease in a Nurse Led Noncommunicable Diseases Clinic in Peri-Urban Community of Chandigarh

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Abstract

Background: Nurse led noncommunicable diseases (NCD) clinic may address the significant shortage of human resource for health for managing common NCDs. The objective of this study is to assess the feasibility and effectiveness of nurse-led NCD clinic for identification, prevention, and management of common NCDs. **Materials and Methods:** A quasi experimental study was conducted at a Public Health Dispensary in periurban community of Northern India. Situational analysis and stakeholders' interview were done based on which the clinic was setup and run over a period of 2 months by registered nurses and nursing students to offer screening, health education and appropriate referral. The primary outcome of study was proportion of population screened, prevalence of common NCDs, risk factors modification, medication adherence, and patient satisfaction. **Results:** It was feasible to run a nurse led clinic in terms of availability of space, equipment to run the clinic and human resource. A total of 455 individuals aged ≥30 years were enrolled using the total enumeration sampling technique. There was a significant increase in screening rates from 0.29% to 3.7% in nurse-led NCD clinic. There was significant mean change in systolic blood pressure (18.75 ± 6.92 mm Hg), diastolic blood pressure (4.4 ± 3.71 mm Hg), random blood sugar (33.36 ± 38.49 mg/dl) Body Mass Index, and waist circumference ($P < 0.01$) among the population screened. Medication adherence significantly increased from 7.8% to 76.4% ($P < 0.01$) after 2 months of nurse-led NCD clinic. **Conclusion:** Task sharing for managing common NCDs in nurse-led NCD clinic was feasible and effective in increasing screening rates, medication adherence, and risk factors modification among studied population.

Keywords: Noncommunicable diseases, nurse-led clinic, population-based screening, risk factors, task sharing, task shifting

Introduction

Task sharing intervention with nurses is an important strategy to prevent and control common noncommunicable diseases (NCDs). Increasing burden of NCDs in developing countries like India having a low doctor to patient ratio and a high caseload of other diseases had led to increase in the demand for human resource for health (HRH).[1,2] Utilization of nurses to take up the responsibility for primary and secondary prevention of NCDs can contribute toward addressing the scarcity of human resource in health settings for managing NCDs.[3-5] It can be one of the cost-effective solution to use the available human resources efficiently to provide better access to care.[6,7] Evidences on nurse led interventions strongly support the involvement of nurses in NCDs prevention and control. However, not much of the work has been done in this area.[8-10] Thus, the study was conducted to assess the feasibility and effectiveness of nurse led clinic in identification, prevention, and management of common NCDs in a peri-urban community of Chandigarh.

Methods

A quasi experimental study was conducted at Public health Dispensary sector-25 Chandigarh, India covering the

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population of 23,000. Situational analysis and stakeholders interview were done before setting up the clinic by using in-depth topic interview guide. Nurses were trained for the period of 6–8 h by the nurse supervisors. The nurse-led NCD clinic was setup in a separate room and run over a period of 2 months (November – December 2020) by registered nurse and nursing students. Community sensitization was done by involving community leaders, ASHA's, and Anganwadi workers. The frequency of the clinic was 6 days in a week from 9:00 am to 1:00 pm. Individuals aged ≥30 years were enrolled in clinic. The primary outcome of the study was proportion of population screened, prevalence of common NCDs, risk factors modification, and medication adherence. Interview schedule was used to collect sociodemographic details and clinical profile of patients. Hypertension was assessed (aneroid sphygmomanometer) and interpreted as per (Joint National Committee-VII) criteria.[11] Diabetes mellitus screening was done by assessing random blood glucose level (glucometer).[12] Screening for common cancers included oral cancer and breast cancer. For oral cancer screening oral visual examination was done to assess the presence of any precancerous lesions in the oral cavity. Screening for breast cancer was done by performing clinical breast examination and interpreted as per the NPCDCS guidelines.[12] Cardiovascular diseases risk prediction for individuals aged ≥40 years was done using WHO/ISH risk prediction chart without cholesterol for SEAR D region.[13] Medication adherence (adherence to refill and medication scale) was assessed for already diagnosed cases of hypertension and diabetes mellitus.[14] After screening patients were referred to medical officer for prescription if required. Education and counseling for risk factors modification (government of India IEC material)[15] by using colored pamphlets, flash cards, sharing the video and pdf to study participants having android phone Follow-up for patients was done after 4 weeks to assess the medication adherence and risk factors modification.

Table 1: Prevalence of common noncommunicable diseases among study participants *n*=455

Common NCDs	*n* (%)
Hypertension	
Total	154 (33.84)
Old diagnosed	74 (16.3)
Newly diagnosed	80 (17.6)
Diabetes mellitus	
Total	81 (17.8)
Old diagnosed	46 (10.1)
Newly diagnosed	35 (7.7)
Both hypertension and diabetes mellitus	
Total	62 (13.62)
Old diagnosed	20 (4.4)
Newly diagnosed	42 (9.2)
Common cancers	
Screened positive in clinical breast examination	2 (0.4)
Screened positive in oral visual examination	1 (0.2)

NCD: Noncommunicable diseases

Written informed consent was taken from all the participants. Ethical clearance was taken from Institutional Ethics Committee PGIMER, Chandigarh (Reference number NK/6013/MSc/301). Intervention was registered with CTRI (registration number CTRI/2020/06/025907).

Results

Result revealed that it was feasible to run a nurse led clinic in terms of availability of space, equipment to run the clinic, and human resource. A total of 455 patients visited the clinic. Among them, 64.6% were female. At 4 weeks' follow-up, there was a significant reduction in mean systolic and diastolic blood pressure, random blood sugar, Prevalence of hypertension and Diabetes mellitus was 33.8% and 17.8%,out of which 17.6% and 7.7% cases respectively were newly diagnosed [Table 1] body mass index, and waist circumference [Tables 2 and 3].

Medication adherence score significantly reduced from 20.33 ± 3.44-12.89 ± 1.76 indicates improved medication adherence [Table 3]. Proportion of population in better medication adherence group increased from 7.8% to 76.4%. Significant improvement was also seen in tobacco and alcohol use with quit rate of 21.7% and 16%, respectively. All the study participants were highly satisfied with the nurse led NCD clinic.

Discussion

Task sharing intervention to optimally utilize existing health care workforce can be one of the best available option in view of the current (HRH) deficit and increasing burden of NCDs.[16,17] Nurse led NCD clinic established in this context at Public health dispensary sector 25 Chandigarh. This center was chosen as it is practice area of PGIMER, Chandigarh.

Screening for common NCDs is an important element for the early detection and initiation of treatment as recommended in NPCDCS program.[12] Involvement of professional nurses in a specialized NCD clinic which was run exclusively for 6 days in a week was helpful in the coverage of large population of the area.

The total prevalence of hypertension and diabetes mellitus in the present study was 33.84% and 17.8%, respectively [Table 1]. The findings of study are consistent with other studies Ramakrishnan S *et al*.[18] In the present study, 0.4% of females were screened positive for breast cancer and 0.2% for oral cancer which is consistent with the findings of study conducted by Paul D e*t* a*l*., with 0.6% prevalence of breast cancer.[19]

Medication adherence is an important aspect of medical treatment.[20] In the present study, interventions and patient counseling regarding medication adherence were effective in improving the medication adherence has consistent results with a study conducted by Kavita *et al*.[21]

There is significant reduction in the mean values of various risk factors. The findings were consistent with a study conducted

Table 2: Effect of nurse led clinic intervention on various noncommunicable diseases risk factors among study participants

Variables		Preintervention ($n=455$)	Postintervention ($n=455$)	McNemar test (df), *P*
Systolic blood pressure				
<120 mm Hg (normal)		44 (9.67)	196 (43.0)	0.006 (9), <0.01
120-139 Hg (prehypertension)		170 (37.3)	163 (35.8)	
140-159 Hg (Stage-I hypertension)		113 (24.8)	85 (18.6)	
≥160 mmHg (Stage-II hypertension)		128 (28.1)	11 (2.4)	
Diastolic blood pressure				
<80 mm Hg (normal)		245 (53.8)	363 (79.8)	0.004 (4), <0.01
80-89 mm Hg (prehypertension)		62 (13.6)	71 (15.6)	
90-99 (Stage-I hypertension)		107 (23.5)	17 (3.73)	
≥100 (Stage-II hypertension)		41 (19.5)	4 (0.8)	
Random blood sugar				
<140 mg/dl (normal)		228 (50.1)	333 (73.18)	0.0006 (3), <0.01
140-200 mg/dl (prediabetes)		121 (26.5)	106 (23.2)	
≥200 mg/dl (diabetes)		106 (23.2)	16 (3.51)	
BMI (kg/m^2)				
<18.5 (underweight)		17 (3.73)	15 (3.2)	0.002 (1), <0.01
18.5-22.9 (normal)		113 (24.8)	149 (32.7)	
23-24.9 (overweight)		91 (20.0)	86 (18.9)	
25-29.9 (preobese)		155 (34.0)	133 (29.3)	
≥30 (obese)		79 (17.3)	72 (15.8)	
Waist circumference				
For male (cm)	For female (cm)			
<80	<90	157 (34.5)	181 (39.7)	0.001 (3), <0.01
>80	>90	298 (65.4)	274 (60.2)	
CVD risk level (n=326)				
<10%		39 (11.9)	98 (30.1)	0.002 (2), <0.01
10%-<20%		45 (13.1)	74 (22.6)	
20%-<30%		83 (25.4)	69 (21.1)	
30%-<40%		66 (20.2)	49 (15.1)	
≥40%		93 (28.8)	36 (11.1)	
Physical activity (min per week)				
<150		256 (56.2)	157 (34.5)	0.0001 (11), <0.01
>150		199 (43.7)	298 (65.4)	

BMI: Body mass index, CVD: Cardiovascular diseases

Table 3: Mean change in various parameters among study participants in nurse led noncommunicable diseases clinic

Physical parameters	Mean±SD		Mean change	Paired *t*-test (df), *P*	Cohen-d
	Preintervention	Postintervention			
Systolic blood pressure (mmHg)	148.31±18.96	129.56±12.04	18.75±6.92	23.66 (6), <0.01	1.180
Diastolic blood pressure (mm Hg)	83.54±11.11	79.14±7.40	4.4±3.71	12.89 (8), <0.01	0.466
Random blood sugar (mg/dl)	167.59±64.55	134.23±26.06	33.36±38.49	14.58 (6), <0.01	0.677
BMI (kg/m^2)	25.58±4.30	25.16±4.21	0.42±0.09	8.23 (4), <0.01	0.098
Waist circumference (cm)	86.76±7.30	85.66±7.16	1.1±0.14	14.78 (3), <0.01	0.152
Medication adherence	20.33±3.44	12.89±1.76	7.44±1.68	22.98 (12), <0.01	2.722

BMI: Body mass index, SD: Standard deviation

by Sharma *et al*. on nurse-led intervention for risk factors modifications which also suggested the significant reduction in behavioral risk factors in intervention group.[22]

The study concludes that task sharing for managing NCDs in nurse led NCD clinic is feasible and effective in increasing the screening rates, risk factors modification, and improved medication adherence. The study recommends the involvement of nurses in NCDs prevention and control. The study also had limitation that due to COVID-19 pandemic. Cervical cancer screening was not feasible.

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Conflicts of interest

There are no conflicts of interest.

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