

## Original Article

# Assessing health workers' capacity for the prevention and control of noncommunicable diseases in Haroli health block of district Una in Himachal Pradesh, India: A mixed methods approach

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### ABSTRACT

**Background:** Noncommunicable diseases (NCDs) account for 60% of the total deaths in India. The National Program for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) is operational in selected districts of India since 2009-2010. Health workers (HWs) are the key stakeholders in the implementation of NPCDCS at community level. Keeping in view the dismal progress of the program implementation in existing districts, it is evident to assess the capacities of the HWs before rolling out the program in new districts.

**Methodology:** This cross-sectional study was conducted in 2015 on all the existing 69 HWs of Haroli Health Block of district Una in Himachal Pradesh. The district is still not covered under NPCDCS. The study tools consisted of self-administered questionnaire, observational findings, and focused group discussions.

**Results:** The HWs capacities for the prevention and control of NCDs are about 26% less than the baseline required as per their perception (mean 3.69, standard deviation [SD]  $\pm 0.26$ ). Supportive supervision, trainings, workload, and management information system are the key factors affecting the capacity. Observational finding shows a gap of 39% in their skills (mean 1.83 SD  $\pm 0.06$ ). The health promotional skills and follow-up practices are improving with the working experience of HWs.

**Conclusions:** The capacity of HWs for the prevention and control of NCDs in the selected health block in a district is poor and must be assessed before rolling out NPCDCS in a new district. Special focus shall be given to supportive supervision, training, and management information system.

**Key Words:** Capacity assessment, health workers, noncommunicable diseases

### Introduction

India is undergoing an epidemiological transition. The proportional mortality by noncommunicable diseases (NCDs) in India is 72% (including 12% due to injuries).<sup>[1]</sup> Cause-specific mortality data indicate that cardiovascular diseases are the most frequent cause of NCDs deaths followed by chronic respiratory diseases, cancers, and diabetes in India.<sup>[2]</sup> The Government of India has started a comprehensive program called - National Program

for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) from the year 2010 onward in selected 100 different districts.<sup>[3]</sup> The program will be expanded in all (>600) districts of India in a phased manner. The main objectives of NPCDCS are to prevent and control common NCDs through behavior

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and lifestyle changes, to provide early diagnosis and management of common NCDs, to build capacity at various levels of health care for prevention, diagnosis, and treatment of common NCDs, to train human resource within the public health setup to cope with the increasing burden of NCDs, and to develop capacity for palliative and rehabilitative care. The NPCDCS is operational in three different districts, namely, Chamba, Kinnour, and Lahol and Spiti of Himachal Pradesh. In spite of the well-designed operational guidelines and provisions of adequate funds, the implementation of NPCDCS is dismal. Health workers (HWs) are the key stakeholders for the implementation of NPCDCS at community level. They are appointed at subcenter level and each subcenter ideally should have one female and one male HW. A subcenter caters a population of about 3000–5000.<sup>[4]</sup> The HWs maintain a huge record of health profile including vital events such as births and deaths. As new health programs are frequently added or existing is modified, it is becoming difficult for them to keep the pace with the newer technologies and extra workload. Hence, it becomes evident to assess the capacity of HWs before rolling out the NPCDCS in a new district so that the remedial measures can be taken in advance to achieve the desired outcomes.

## Methodology

This cross-sectional study was conducted in Haroli Health block of district Una in Himachal Pradesh in 2015. The block having a population of 169,559 is a semi-hilly area bordering the state of Punjab. There were 1 civil hospital, 6 Community/Primary Health Centres (CHC/PHC) with a total of 10 doctors, and 42 subcenters with 69 HWs in the block during the study period. All HWs working in the block were included in the study. The study tools were self-administered questionnaire, observational checklist, and focused group discussions (FGDs). Capacity relates to ability of individuals, organization, and system to perform, so the questionnaire has been developed keeping in view the capacity determinants at HWs level.<sup>[5]</sup> The HWs performance abilities are determined by individual and environmental factors.<sup>[6]</sup> The capacity of the HWs has been assessed based on their perception using Likert scale ranging from 1 as lowest to 5 as highest score. The score of 1 represents very poor and 5 as very good. The score of 5 as very good is the baseline required as per the HWs perception. Questionnaires were pretested on 10 HWs working in various health centers in Chandigarh area. The observational checklist has been prepared to assess the existing skills and training needs of the HWs as required under NPCDCS.<sup>[3]</sup> The score for observational

findings ranges from a minimum of 1 to a maximum of 3. The score of 1 represents poor and 3 as very good. Three FGDs have been used to collect qualitative data to further explore and validate the findings. All the HWs were included in the FGDs due to their special request. The HWs were gathered in predefined groups at block headquarters at Haroli. The survey questionnaires were explained in detail and then filled by each HW independently. The observations have been recorded individually on each HW. The supervisors were kept away during interaction to ensure freedom for expression of HWs. Data were entered in excel sheets and analyzed using SPSS version 16 (Inc., 233 south wacker drive, 11<sup>th</sup> floor, Chicago) software. The results were considered significant at 95% confidence interval. To analyze the quantitative data, linear and multivariate regression test was applied. The qualitative analysis of the FGDs has been done by translating the audio/video recordings into English. The transcript was verified thoroughly with adequate Hindi translation knowledge. The findings of all the three FGDs were summarized and triangulated with the HWs perceptions and observational findings. Ethical clearance has been taken from the Institute's Ethical Committee, PGIMER, Chandigarh. The permission of the concerned district health administration and consent of individual participants have also been obtained before the commencement of the study.

## Results

All 69 HWs have been included in the study; however, 15 posts are lying vacant in the health block. Table 1 explains the sociodemographic profile of the HWs. The analysis shows that average distance of the subcenter is 6.68 km (standard deviation [SD]  $\pm 4.54$ ) from the residence of the HWs. The average time to reach at the subcenter from residence is 24.23 (SD  $\pm 17.66$ ) minutes and the average population served by each subcenter is 3473 (SD  $\pm 1217.95$ ). The mean score of the HWs' capacities based on their perception is 3.69 (SD  $\pm 0.26$ ). The health system support is 68.6% and the community support is 79.2% [Table 2]. It was found that the male HWs' capacities (mean 3.56, SD  $\pm 0.42$ ) are higher than the females (mean 3.43, SD  $\pm 0.28$ ) and the capacities of the HWs belonging to the current block area (3.54, SD  $\pm 0.41$ ) were higher than the workers not belonging to the current block area (mean 3.43, SD  $\pm 0.25$ ). However, the difference was not statistically significant ( $P \leq 0.05$ ). As shown in Table 3, self-motivation, job satisfaction, social responsibilities, rewards and recognition have statistical significant association with supportive supervision ( $P < 0.05$ ). Job

satisfaction also shows a significant association with trainings. Self-efficacy and community participation have statistical significant association with management information system and workload, respectively.

The observational findings are based on the skills required under NPCDCS at HWs level. Nearly, 99% of the HWs are not able to measure blood sugar and 98% of the female HWs are not able to do the breast examination for cancer screening. The mean of the observational findings is highest, i.e., 2.42 (SD ± 0.40) for measuring blood pressure and lowest, i.e., 1.32 (SD ± 0.37) for cancer screening [Table 4]. The overall mean of observational findings is 1.83 (SD ± 0.06). The relationship between the socioeconomic variables and observational findings shows that the health promotional and follow-up practices improve with the length of service of HWs, but the difference is not statistically significant ( $P < 0.05$ ). More information about the HWs capacities and associated factors was collected through three FGDs with topic guide. The common questions were thrown to the groups and the audio-video recording of the discussion

was done. The questions were asked both in Hindi and English and the discussion points were listed in Hindi and later translated into English. The common findings of all the three FGDs as stated by the HWs are as follows - “We do not find adequate time to complete existing work because in addition to the work at subcenter and field, we have to rush to the CHC/PHC 6–7 days in a month for submitting reports and trainings or meetings. Major problems of the population are communicable diseases, but many cases of common NCDs such as hypertension, diabetes, asthma, and cancers are prevalent in the subcenter area. We have limited space in the subcenter building, so it becomes very difficult to manage the gatherings, especially on any vaccination or health promotion days. Authorities do ask for reports so frequently and immediately, but we do not have quick resources to respond. If we are adequately trained, we can contribute for reducing the NCDs risk factors through Information-Education-Communication and Behavior Change Communication. Anyone whosoever comes for supervision only finds the faults and goes back. The supervision should be supportive.”

**Table 1: Sociodemographic characteristics of health workers of Haroli block in district Una, Himachal Pradesh**

Characteristics	n	Percentage
HWs presently working against the sanctioned posts	69	82
Male HWs	27	39
Female HWs	42	61
Subcenters having a female and a male HWs (both)	26	61
Subcenters having female HW only	14	33
Subcenters having male HW only	2	5
HWs belonging to current subcenter area	17	25
HWs belonging to current health block area	35	51

HWs - Health workers

**Table 2: Existing levels of the health workers' capacity determinants**

Factors responsible for HWs capacity	Mean	SD
Individual factors	3.69	±0.52
Health system support	3.43	±0.42
Community support	3.96	±0.12

HWs - Health workers

**Table 3: Effect of the environmental factors on health workers' performance**

Dependent variables	Independent variables	Coefficient	SE	P	95% CI	R <sup>2</sup>
Self-motivation	Supportive supervision	0.180	0.073	0.016	0.034-0.326	0.120
Job satisfaction	Trainings	0.298	0.099	0.004	0.101-0.496	0.394
	Supportive supervision	0.197	0.066	0.004	0.065-0.329	
Social responsibilities	Supportive supervision	0.252	0.090	0.007	0.072-0.432	0.238
Self-efficacy	Management information system	-0.259	0.071	0.001	0.116-0.401	0.270
Rewards/recognitions	Supportive supervision	0.252	0.084	0.004	0.083-0.421	0.179
Community participation	Workload	0.269	0.100	0.009	0.069-0.469	0.253

SE - Standard error, CI - Confidence interval

## Discussion

Under NPCDCS, only 249,696 persons were screened for diabetes and hypertension in all the three districts of Himachal Pradesh against a target of > 1 million in 3 years. Out of which, 5.72% were found to be diabetic and 4.9% with high blood pressure.<sup>[7]</sup> The screening for cancers has not started yet. The prevalence of diabetes is almost similar to India (6.24%).<sup>[3]</sup> However, the prevalence of hypertension (4.9%) is far below than the existing studies from Himachal Pradesh (35.89%) and India (15.9%).<sup>[3,8]</sup> The low coverage of screening and lack of technical skills highlight the poor capacity of HWs. The level of performance motivation of community HWs as per their perception helps in ensuring enabling modalities to achieve desired results.<sup>[6]</sup> Poor implementation of NPCDCS has not been able to bring considerable change in the burden of NCDs so far.<sup>[9]</sup> HWs can be trained to access and manage cardiovascular risks in

**Table 4: Level of existing skills of health workers for the prevention and control of noncommunicable diseases**

Variable	Mean score	SD
Health promotion	2.10 ( $\pm 0.40$ )	$\pm 0.40$
Measuring blood sugar	1.43 ( $\pm 0.22$ )	$\pm 0.22$
Measuring blood pressure	2.42 ( $\pm 0.40$ )	$\pm 0.40$
Cancer screening	1.32 ( $\pm 0.37$ )	$\pm 0.37$
Referral	1.83 ( $\pm 0.38$ )	$\pm 0.38$
Data reporting and recording	1.90 ( $\pm 0.35$ )	$\pm 0.35$
Follow-up of patients	1.81 ( $\pm 0.35$ )	$\pm 0.35$

SD - Standard deviation

primary health-care settings.<sup>[10]</sup> However, it is very important to assess the existing capacity of the HWs and to address the gaps according to needs. The capacity assessment methodology is a step-by-step guide for conducting a capacity assessment.<sup>[11]</sup> A cross-sectional study has also been used to assess the capacity of HWs in Nigeria in 2013 for the management of childhood diarrhea and so call for immediate action to improve their knowledge and practice capacity.<sup>[12]</sup> The current study shows that the existing operational skills of HWs are 61% and similar training needs of community HWs (CHWs) for chronic diseases management in Korea in 2013 show that all CHWs met the minimum required knowledge level of 70%.<sup>[13]</sup> This study is covering all major aspects related to capacity assessment, but it could be further improved by including the community perception and the health system perspective.

## Conclusion

The long distance (6.68 km) of the residence of the HWs from the subcenter is a matter of concern as they should be staying in or nearby the subcenter. The average time of 24.23 min to reach the subcenter from residence is quite high for seeking any urgent help from HWs. Special attention needs to be given on supportive supervision, trainings, workload, and management information system, which are largely affecting the HWs capacity. The trainings need assessment will help in identification of the gaps in the levels of existing and desired skills. Pre-and post-training evaluation will further improve the outcomes of trainings under NPCDCS. This study explains the need, methods, and the solutions related to the HWs capacity for NCDs prevention and control. The capacity assessment is must before rolling out NPCDCS in new districts and can be used as operational research during implementation.

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## Conflicts of interest

There are no conflicts of interest.

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