Assessment of National Program for Prevention and Control of Cancer, Diabetes, CVD and Stroke (NPCDCS): An observational study in rural Jaipur, Rajasthan

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ABSTRACT

Introduction: Non-communicable diseases (NCDs) are increasing in trend and associated with modifiable risk factors and subsequently reducing physical activity; hence the Government of India (GOI) has launched a National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in 2010 to curb increasing prevalence. The present study was planned for assessment of the activities conducted under NPCDCS in rural Jaipur. Methods and Material: This observational study was conducted in rural Jaipur. NPCDCS reports, status of logistics and manpower were assessed for 1 year. Field level cross-checking survey was done to assess the gap between the actual screening work done and the work reported. All staffs were assessed for the level of awareness regarding NCDs as well as NPCDCS programs. Data were entered and analysed in Microsoft excel. Result: Around 48% (6674/13917) of persons >30 years were screened during 1 year study period. Around 51.5% of the screened persons had one or more NCDs (13.5% newly screened NCDs cases and 38% were prediagnosed of NCD cases). Status reports that 10 (83.33%) out of the total 12 expected reports were sent regularly on a monthly basis. Reason for not sending reports was a sudden lockdown due to COVID-19. Conclusion: The study concludes that the implementation of NPCDCS program activities is not in synch with the health staff awareness level. IEC activities were deficient and no work was done for adoption of behavioural change and healthy lifestyle. Actual cases of hypertension were more while cases of diabetes were less than the reported cases found on cross-check survey.

Keywords: ASHA, diabetes, hypertension, NCD, NPCDCS, rural
80% of these premature deaths occur in low-middle income countries (LMICs). [8]

India has come across the triangle of burden of major diseases, that is, increasing NCDs, increasing injuries and the unfinished agenda of infectious diseases. [4] NCDs in India contributed 50% of the total deaths in 2004 and raised to 60% by 2014. Similarly, hospitalisation due to NCDs contributed for 29% of total hospitalisation in 2004 and increased to 38% by 2014. [5,6] Policies and programmes focusing on reducing the burden of these common behavioural risk factors are likely to make a considerable impact on mitigating mortality due to NCDs. [6]

The World Health Organization (WHO) in its world health assembly in May 2008 set forth an action plan of global strategy for the prevention and control of NCDs [7] and India, as WHO member, is committed to curb the increasing burden of NCDs. The Government of India (GOI) has launched an National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in 2010 with the objectives to prevent and control common NCDs by providing early diagnosis and management of common NCDs, behaviour and lifestyle changes and build capacity at various health institution levels for prevention, diagnosis and treatment of common NCDs.

Present study was planned for quantitative and qualitative assessment of the activities conducted under NPCDCS in rural Jaipur, Rajasthan. This assessment further helps to analyse gaps and reasons in implementation of program at primary level and that would be the feedback for primary care physician to improve services at grassroots level.

Methods

This descriptive observational study was conducted at the community health centre (CHC) Naila, Jaipur. This CHC is attached to the Rural Health Training Centre of the Department of Community Medicine of Tertiary Health Centre, Jaipur. For this study, ethical approval was obtained from the institute ethical committee (SMS Medical College and Hospital, Jaipur). All the eight subcentres under the CHC, Nalia, were included in the study for assessment of NPCDCS program. NPCDCS reports of 1 year (May 2019 to April 2020) from all reporting centres under the study area were collected. Status of screening tools, drugs, equipment and staff were assessed. Field level NCD screening activities were also directly observed to assess the quality of work done. One visit per subcentre was randomly executed, and totally eight such visits were made.

Field level cross-checking was done to assess the gap between actual screening work done and work reported. First eligible person of 200 (families) randomly selected houses (i.e., an approximate of 30% of total houses) were cross-checked and asked whether they were screened for NCDs in last 1 year or not. All 52 staffs, that is, 17 CHC staffs (8 doctors, 7 nursing staff, 1 lady health visitor [LHV] and 1 auxiliary nursing midwifery [ANM]) and 35 subcentre staffs (23 accredited social health activist [ASHA], 11 ANM and 1 LHV working) were assessed for the level of awareness regarding NCDs as well as NPCDCS programs. Secondary data were collected from Form-1 and Form-3A of NPCDCS program of all subcentres and CHC; outpatient department (OPD) register, NCD register, monthly schedule of screening days, and indent register. Primary data were collected using knowledge, attitude and practices (KAP) questionnaire for NCD (based on Ojo et al. [8] study 2017). In-depth interview schedule for health workers, questionnaire for cross-checking survey to assess the extent of services received by the target population under NPCDCS (based on operational guidelines for NPCDCS program), checklist for observation of NCD screening day to assess availability of manpower, instrument availability (BP instrument, glucometer, etc.), IEC banner, curtain screen, NCD register, place of screening day, number of beneficiary attended the session, etc., Data collected were then compared with the data reported to assess the gap in reporting. Data were entered and analysed in excel sheet of Microsoft. Qualitative data will be expressed in the form of percentages and proportions. Quantitative data will be expressed in the form of mean ± SD. Bar chart were prepared to depict qualitative data.

Results

Around 48% (6674/13917) of persons >30 years were screened during 1 year study period. Proportion of male (3262, 49%) and female (3412, 51%) screened were almost equal. Number of people screened increased from 590 to 1226, from May to September 2019. Thereafter, it decreased drastically till February 2020. Screening activities were totally stopped during February and March 2020 because of COVID-19 pandemic lock down [Figure 1]. Around 51.5% of screened person had one or more NCDs (13.5% newly screened NCDs cases and 38% were prediagnosed NCD cases). Around 66% of male screened had NCDs, 28.44% were newly detected cases and 37.09% were follow-up cases during study period. Out of total female target population screened, more than one fourth (28.22%) was newly suspected cases and 38.45% were old follow-up cases.

Majority of the cases of diabetes 82% (582/711), 85% (813/965) of hypertensive case referred to higher centre from subcentre, number of referred cases is less as cases diagnosed at CHC were managed at CHC level itself. All new screened cases were initiated on treatment and 93.24% cases of diabetes and 92.43% of hypertension were on continuous treatment for at least 90 days [Table 1] and out of total cases (new and follow up) of diabetes, 62 (6.74%) were also suspected for co-presence of tuberculosis along with diabetes [Table 2]. Proportion of co-presence of tuberculosis in diabetic patient is 8.49% in male which is almost double than female (4.91%) and overall proportion is 6.74%.

Status of reports submitted to district NCD cell from CHC (CHC Form-3A under NPCDCS) and subcenter to CHC (Form-1) is
observed that 10 (83.33%) out of total 12 expected reports sent regularly on monthly basis. Reason for not sending two monthly reports (March and April 2020) was sudden lockdown due to COVID19; all types of OPD and routine field activities were stopped except emergency.

On cross-checking survey, it has been found that there were 53.35% of hypertensive, that is, little higher than (45.10%) that to be reported under NPCDCS and there were 17.5% cases of diabetes which is almost half (38.27%) of the reported cases under NPCDCS. There were 6% of suspected oral cancer and 12.28% of suspected breast cancer cases found on cross-checking, however, none was reported under NPCDCS. [Table 1].

Majority (89.47%) of health workers have gone for door-door survey once in last 2 years under NPCDCS activities. Only one third (31.57%) of health workers had empty Form-1 (sub centre) for NPCDCS reporting available at subcentre and none of them had referral slip. Majority peripheral health workers (90%) referred, suspected NCD cases detected through screening to higher centre for starting treatment [Table 2]. Almost two third (63.15%) of health workers had empty Form-1 (sub centre) for NPCDCS. None of nursing staff know about number of NPCDCS. None of the single subcentre was getting regular supply of IEC. Availability of drugs for hypertension and diabetes was regular and adequate at all subcentre throughout the study period. Opportunistic screening was done at all subcentres but no mass media campaign was organised by the higher authorities during the whole of study period. It was also observed that all ANMs conducted screening day on mother and child nutrition (MCHN) days. They stated that it is feasible for people as well as for health care workers too. Screening day was conducted once a month at subcentre also by all ANM.

Only five supervisory visits have been done in last 1 year to any subcentre and no visit to school to promote healthy activities under NPCDCS program by any of doctor posted at CHC. Number of NCD cases referred to higher centre by CHC was zero in study area, because basic cases can easily be treated at CHC and only complicated cases usually prefer to bypass CHC due to feasibility of 20 min drive to tertiary health care centre.

All health workers (doctors and nursing staff) were aware of all NCDs under NPCDCS and are well-aware regarding common behavioural risk factors of NCDs. Only two nursing staff (28.57%) and all doctors knew the beneficiary group of NPCDCS. None of nursing staff know about number of diseases covered under program. Only one nursing staff and two doctors (25%) know about timing of monthly reporting. All agreed that NCDs are getting common among the Indian population and health promotion can reduce NCD. And NCDs create more financial loss than communicable disease and it was an important health issue that should be taken care of in your communities. However, only 80% talk to community members about NCDs risk factors.

Discussion

Total 6674, that is, 48% of total eligible population of study area were screened as per reports submitted in our study. Out of them 51.13% were female and 48.87% were male. Much lower (25%) coverage of target population was observed by a study conducted in Gujarat in 2013 by Jasani et al.[9] In present study number of people screened increased from May 2019 to September 2020.

Table 1: Status of NCDs reported under NPCDCS v/s actual on cross-checking survey

| Variable NCDs | Status of NCDs (n-200) | Cross-checking survey (%) | Reported under NPCDCS (%) |
|---------------|------------------------|---------------------------|---------------------------|
| Hypertension  |                         | 53.35                     | 45.10                     |
| Diabetes      |                         | 17.50                     | 38.27                     |
| Oral cancer suspected case | | 06.00                     | 0                         |
| Breast cancer suspected case* (n-114) | | 12.28                     | 0                         |

*Out of total female screened in survey
No mass campaign was done to increase health awareness of NCDs. No supervision format available at any subcentre. None of the subcentres have IEC for NCDs. No school or panchayat raj institutional involvement was noticed. No referral slip was available at any subcentre, only available at CHC. No supervision format available at any subcentre. None of new initiative has been incorporated in NPCDCS reporting of CHC except tuberculosis.

Reporting Status under NPCDCS program: present study observed that 83% of monthly reports from CHC as well as subcentres, that is, 10 out of 12 months were sent to their respective higher authorities on time. It was observed that reports for the months of March and April 2020 were not sent from any of the centres because of COVID-19 pandemic lockdown. However, complete (100%) timely reporting was observed by Modi et al.[10] study during a district level assessment in Gujarat, in 2019. Jasani et al.[9] also found in their study, in 2013, that timeliness and completeness of reporting was 100% at all concerned reporting units. This study observed that all the eight subcentres sent 83.33% of their expected monthly reports, while Kashyap et al.[11] (2019) observed higher (94.44%) reporting from subcentres of their study area. There was no vacant post of ANM at any subcentre in the present study which should be to reduce one of challenges faced by peripheral health worker in the field, where as Meena et al.[12] reported that over work loaded peripheral health workers faced issues to do their work efficiently.

In present study availability of materials or logistics at subcentre was not up to the mark in all subcentres. Only 63.15% of the subcentres organised screening day as per NPCDCS program guidelines and none of the subcentres have IEC for NCDs awareness. Similar to our study, Jasani et al.[9] also reported that only 30% of health care workers perform IEC activities at subcentre. Availability of medicine and instruments was adequate throughout the year at CHC and all subcentre except two. The ANM stated that sphygmanomenter is not functioning and there is inadequate supply of strips of glucometer from last 2 months. study compliance to hypertension treatment was 92.43% which is higher than Rao et al.[13] (82.2%) and Modi et al.[10] (72.16%) studies. Compliance for diabetes (93.24%) was observed in present study [Table 2] that is also higher than Rao et al.[13] (83.6%) and Modi et al. study[10] (70.05%). Laskar A et al.[12] from Delhi showed very low compliance for hypertension (47.8%). In his study compliance for hypertension in males and females were 45.8% and 48.8%, respectively. Adherence to diabetic medication was 91.5% in the current study that was higher than the Modi et al.[14] study (72%). This may be due to sampling variability. One of the reasons for the noncompliance for the chronic diseases may be due to lack of awareness about importance of anti-diabetic treatment and anti-hypertensive treatment in the community. Although NDCs are controlled by lifestyle modifications but still there is need or monitoring of treatment adherence as patient has to take treatment lifelong.

Table 2: Disease wise distribution of new suspected NCD cases at RHTC

| Type of NCD          | No. of New screened cases | No. of referred cases to higher centre | Timely referral within 7 days | Treatment initiated for new cases* | Follow up (continued T/t for min. 90 days) |
|----------------------|---------------------------|----------------------------------------|-------------------------------|-----------------------------------|------------------------------------------|
| Diabetes             | 711                       | 582 (81.85)                            | 512 (72.01)                   | 711                               | 663 (93.24)                              |
| Hypertension         | 965                       | 813 (84.24)                            | 659 (68.29)                   | 965                               | 892 (92.43)                              |
| Diabetes and hypertension | 208          | 152 (73.07)                            | 140 (67.30)                   | 208                               | 173 (83.17)                              |
| Total                | 1884                      | 1547 (82.11)                           | 1311 (69.58)                  | 1884                              | 1728 (91.71)                             |

Note: *Number of treatment initiated for new cases is more than the number of referred cases to higher centre, because maximum cases found positive at CHC, were managed at CHC itself, only cases at subcentre needed to be referred.

Table 3: Gaps identified in NCDs screening activities during visit

| Gaps identified                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------|
| No supervision format available at any subcentre                                                                            |
| No referral slip was available at any subcentre, only available at CHC Naila                                               |
| Two subcentre ANM mentioned non-functional sphygmanomenter since 2 months                                                   |
| Non availability of glucometer strips at six subcentre since 2 months, they managed by borrowing it from other subcentre or CHC |
| No active intervention has been done to resolve non-functional instrument issues (stated by PHW)                         |
| No cervical cancer screening is happening in study area, despite eight medical officer posted at CHC, Naila, but none of ANM were trained for this |
| No screening day schedule has been given to medical officer in advance, 1 month, as per NPCDCS guidelines to supervise or conduct session smoothly |
| No monitoring was done by medical officer of screening day conducted by ANM at subcentre or anganwadi centre                |
| None of new initiative has been incorporated in NPCDCS reporting of CHC except tuberculosis                               |
| No mass campaign was done to increase health awareness of NCD                                                             |
| No opportunistic screening was done in any mela or at any big public event to screen more population easily                 |
| No school or panchayat raj institutional involvement was noticed                                                          |

Prevalence of NCDs in the present study is hypertension (10.60%), diabetes (14.45%) and hypertension with diabetes (9.11%) in adult population. Modi et al.[10] 2019 found little low prevalence of hypertension (9.1%) and diabetes (9.9%). In the present study compliance to hypertension treatment was 92.43% which is higher than Rao et al.[13] (82.2%) and Modi et al.[10] (72.16%) studies. Compliance for diabetes (93.24%) was observed in present study [Table 2] that is also higher than Rao et al.[13] (83.6%) and Modi et al. study[10] (70.05%). Laskar A et al.[12] from Delhi showed very low compliance for hypertension (47.8%). In his study compliance for hypertension in males and females were 45.8% and 48.8%, respectively. Adherence to diabetic medication was 91.5% in the current study that was higher than the Modi et al.[14] study (72%). This may be due to sampling variability. One of the reasons for the noncompliance for the chronic diseases may be due to lack of awareness about importance of anti-diabetic treatment and anti-hypertensive treatment in the community. Although NDCs are controlled by lifestyle modifications but still there is need or monitoring of treatment adherence as patient has to take treatment lifelong.

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Jasani et al.[9] reported that only 20%, at subcentres, and 100%, at CHC, of study area had adequate supply of them. Functional OPD, functional indoor facilities unit, basic laboratory services and referral facilities were available at CHC Naila. These finding were similar to Jasani et al.[9] and Kashyap et al.[13] studies. However, functional indoor unit facility was only 60% in Jasani et al.[9] study. Functional basic medical facility at primary level can significantly improve morbidity and mortality levels in the community.

In the present study 89.47% health workers were aware of reporting timing. Data monitoring was 100% in present study but supervision and monitoring of screening day by medical officer/LHV was not as per NPCDCS guidelines[2] [Table 4]. Similar finding were reported by others studies also.[8,9,13,15] Health workers in Chauhan et al.[9] study stated that “Anyone whosoever comes for supervision only finds the faults and goes back”. The supervision should be supportive. Furthermore, on-going supportive supervision and quality improvement approaches are critical for the effectiveness of CHWs.[16] Regular training of staffs and supportive supervision with regular adequate supply of IEC can regularise existing hurdles to achieve desirable goals. In the present study, despite training of health workers (primary care physician and nursing staff) under NPCDCS program, more than three fourth workers are unable to contribute for reducing the NCDs risk factors through IEC and behaviour change communication (BCC) and reasons were stated by them was non availability of regular supply of IEC and inability for BCC. They stated that BCC was not adequately covered under training. Similar finding was reported by other studies also.[9,13,15] Investigators observed that opportunistic screening was done on screening day at as it is difficult due the limited space of the subcentre where it is difficult to manage the gathering[17] [Table 4] and maintain social distancing as per state COVID-19 guidelines.[18]

**Conclusion**

The study concludes that the level of awareness on NCDs and NPCDCS programs is good, however, the implementation of NPCDCS program activities are not in synch with their awareness level. The reporting of NCDs does not match the factual status found on cross-checking survey. Actual cases of hypertension were more while cases of diabetes were less than reported cases. IEC activities were deficient and no work was done for behavioural change or adoption of healthy life style. Early-stage screening of common NCDs and BCC by primary care physician can contribute significantly.

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**Conflicts of interest**

There are no conflicts of interest.

**Table 4: Observations of visits of screening day**

| Observations of visits of the screening days |
|---------------------------------------------|
| NCDs screening done along with MCHN days on same day was difficult due to small space of anganwadi and load of MCHN activities |
| A range of 7-14 persons were present for NCD screening/screening day |
| Multiple tasks at same day reduce efficiency of staff at all screening day |
| NCD register was maintained but not updated in all subcenters |
| Glucometer strip was not adequate (> 30 strips) for screening day in two subcentre |
| The list of beneficiary was not available with ASHA and ANM (beneficiaries were brought by ASHA randomly), however person who accompanied mother and child were also screened for NCD |
| No supervisory visit for NCD was done by LHV or medical officer on that screening day |
| Community-based assessment checkup (CBAC) form was not available with any of ASHA; neither CBAC was done earlier |

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