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CHALLENGES IN IMPLEMENTING COMMUNITY-BASED INTERVENTIONS FOR NON-COMMUNICABLE DISEASES: EXPERIENCES FROM TAMIL NADU MAKKALAI THEDI MARUTHUVAM (MTM) PROGRAM, 2021-22

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Abstract

BACKGROUND : Age of onset of NCDs in developing countries are lesser than developed countries. In India, half of the NCDs occur before the age of 52, suggesting that working adults are largely affected by NCDs. Many remain undiagnosed due to lack of awareness and insufficient access of health care services. Government of Tamil Nadu initiated "NCD-Makkalai Thedi Maruthuvam" (NCD-MTM) program with comprehensive package of doorstep services for ensuring continuum of care and sustainability of health care services. The interventions include screening for hypertension, diabetes, common cancers, delivery of NCD drugs, dialysis bags for CKD patients, home-based palliative care services and physiotherapy services. With one year of its implementation, we did a qualitative study to understand the challenges in its implementation. We reviewed the program documents, guidelines and review reports. We selected the stakeholders across all levels of care by purposive sampling and conducted in-depth interviews. We audio recorded, transcribed, generated codes, and did thematic analysis by free listing and pile sorting and identified seven thematic areas – Human Resources, screening of NCDs, referral linkages and follow-up, delivery of drugs, reporting system, monitoring and supervision, and IEC/BCC. Similar community-based interventions in other parts of the world have proved much more beneficial particularly involving primary health care staff compared to that of the standard care. Though the program had widely covered the target individuals, especially in drug delivery, and creating awareness, stakeholders have reported many challenges in implementation of the program. The most important areas of focus are the need of coordination among field level staff, uninterrupted supply of equipment and consumables, focus on follow-up and referral, effective reporting system, proper supervision plan and IEC/BCC strategies. Rectifying the reported challenges with appropriate solutions will make this program a successful model and will help in bringing desirable NCD outcomes.

KEYWORDS : Community-based intervention, doorstep health care services, drug delivery

INTRODUCTION

Children, adults and the elderly are all vulnerable to the risk factors contributing to NCDs, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the harmful use of alcohol[1]. Unhealthy diets and a lack of physical activity may show up in people as raised blood pressure, increased blood glucose, elevated blood lipids and obesity1. Age of onset of NCDs in developing countries are lesser than developed countries. In India, half of the NCDs occur before the age of 52, suggesting that working adults are largely affected by NCDs[2].

STEPS survey 2020 in Tamil Nadu reported prevalence of HT and DM in adult population as 33.9% and 17.6%. Many remain undiagnosed due to lack of awareness and insufficient access of health care services[3]. The initiatives towards coping with the burden of NCDs in Tamil Nadu way back to 2003, when Government of Tamil Nadu developed Health policy aimed to combat non-communicable diseases and accidents[4]. Tamil Nadu Health Systems Project (TNHSP) implemented by Health and Family Welfare Department of Tamil Nadu supported the health policy with a focussed approach towards common NCDs[5]. In 2005, World Bank approved the initiatives of TNHSP and, piloting was done on facility based opportunistic screening of two common NCDs - Hypertension and Cervical cancer, among population aged 30 years and above (30-60 years) between 2007 and 2010. Based on the experiences from the pilot, screening covering 4 NCDs – Hypertension, Diabetes, Cervical cancer and Breast cancer had been executed in phased manner covering all districts across the state till 2015.

During the year 2015, when TNHSP supported by World Bank resolved, the NCD programme across the state was sustained and taken forward under the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), by the State NCD cell under National Health Mission (NHM) in Tamil Nadu6. Subsequently, in 2017, NHM-TN took up the

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concept of NPCDCS - Population Based Screening (PBS) initially piloting in 5 districts and then upscaled to the entire State[6]. Other community-based interventions undertaken by the state includes Patient Support Group (PSG) in 2019 to improve treatment compliance of HT and DM patients.

During the COVID-19 pandemic amidst the lock down, entire world faced challenges in ensuring patients reaching health facilities for follow-up and in dispensing monthly drugs for HT and DM. To overcome this, efforts were taken to support NCD patients to be compliant by distributing their medicines at their doorsteps in few places which were found to be successful. Based on this, Government of Tamil Nadu proposed a comprehensive package of doorstep services to ensure continuum of care and health care services and named as "Makkalai Thedi Maruthuvam (MTM)". A systematic review on evidence and implications of community-based interventions on NCDs suggest, compared with standard care, community-based activities with primary health care workers have the potential to be more effective in LMICs, particularly for tobacco cessation, blood pressure and diabetes control.[7] Similarly, MTM program gained much appreciations from the demand side, but the program managers claimed that they have to overcome many barriers for the effective implementation in the field. Not much studies were available on the evaluation and experiences of PBS and doorstep delivery of drugs. So, we conducted a qualitative study to understand the challenges encountered during the implementation of the community-based intervention – NCD-Makkalai Thedi Maruthuvam (MTM) to bring in course corrections for better outputs and outcomes.

METHODS

STUDY SETTING : Doorstep services under the MTM program are being implemented since August 2021 across Tamil Nadu for ensuring continuum of care and sustainability of health care services. The first is Population Based Screening (PBS) for those aged 18 years and above covering 10 common conditions - hypertension, diabetes, oral cancer, cervical cancer, breast cancer, Tuberculosis, Leprosy, Chronic Kidney Diseases, COPD and Mental Health. The screening is done by Women Health Volunteers (WHVs) who are identified from the community through Self Help Group network under another department, Tamil Nadu Women Development Corporation (TNCDW) and their works are recognised by paying them incentives based on fixed performance indicators. Second is doorstep delivery of antihypertensive and antidiabetic drugs by the WHVs to registered patients aged 45 years and above and to non-ambulatory patients. The drugs for each patient should be packed at the facility by the PHC team - Pharmacist and MTM staff nurse, sealed and sent to HSCs for distribution by the WHVs with the appropriate details of the patients. The drugs are given for two months and on third month, patients should visit the facility for assessing their control status, doctors' opinion and any titration of drugs required.

Third service is the home-based palliative care services by Palliative Care Nurse for patients with chronic debilitating illness who have difficulty in visiting health facilities. The fourth service is the home-based physiotherapy services by Physiotherapists for elderly, home-bound patients and those with restricted mobility. The fifth is the delivery of peritoneal dialysis bags to chronic kidney diseases patients under Continuous Ambulatory Peritoneal Dialysis (CAPD) by the Palliative Care nurse. The treating team at medical colleges should make an indent, subject to the patient load and requirements for each patient and it should be delivered at block level by the supplier from where it reaches the patient through the palliative care nurse.

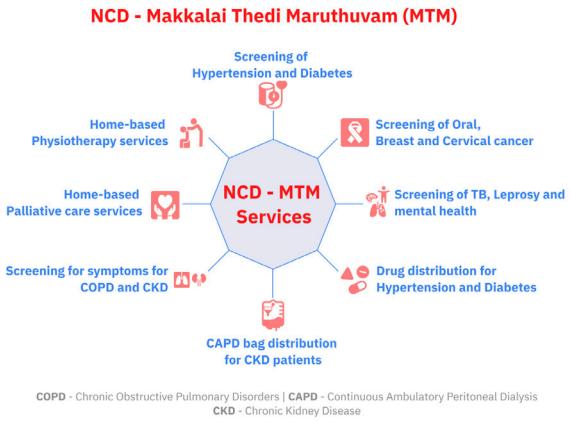

Figure 1 : Home based services under "Makkalai Thedi Maruthuvam" – community-based intervention for NCDs across Tamil Nadu, since August 2021

WHVs involved in PBS and drug delivery are engaged at the rate of one per Health Sub-centre with a population norm of 5000, and are provided with an incentive of Rs.4500/- per month based on performances and includes an allotment for their mobility support. The BP apparatus, Glucometer, and checklist for assessing risk factors and registers are provided and carried in a branded bag. NHM is responsible for procuring and supplying of equipment and logistics for the home-based screening. WHVs have an advanced tour program before every month for both screening and drug distribution. The Palliative care nurse and Physiotherapist are a team and are engaged as one team for one block and

are provided with a mobile outreach vehicle and they a share common tour program. The human resources involved were given training before the initiation of the program implementation. Existing field staff at block level and Primary Health Centre (PHC) team supports and supervises the program activities.

STUDY DESIGN AND STUDY POPULATION : We conducted a qualitative study in the month of October, 2022. We included stakeholders implementing the program at all levels. We reviewed all the program documents – protocol, implementation guidelines, daily and monthly reports. We collected the minutes of review meetings conducted periodically at PHC level by the MOs, by Deputy Directors of Health Services (DDHS) at districts and by the State program officials at state level.

SAMPLING METHOD : We selected 25 Women Health Volunteers (WHVs), 15 Mid-Level Health Provider (MLHPs), 5 Pharmacists, 10 MTM Nurses, 10 PHC Medical Officers (MOs), and 5 Block Medical Officers (BMOs), 10 District Program Officers for NCDs (DPO-NCD), and 10 DDHS at district level by purposive sampling, and 5 Officials from the State Directorate office and 5 Officials from National Health Mission (NHM) involved in NCD program and conducted in depth interviews.

DATA COLLECTION AND DATA ANALYSIS : We compiled the information abstracted from the program documents to record the implementation processes of the program and reviewed the work pattern of each of the human resource involved. The interviews were focused on areas understanding the challenges in implementation of the program. Interviews were conducted by selected district and state level officials from the system. An initial orientation session was conducted on doing in-depth interviews. We audio recorded the interview with consent, transcribed, generated codes, and did thematic analysis by free listing and pile sorting.

RESULTS

The challenges reported were grouped under seven thematic areas – human resources, screening for NCDs, referral linkages and follow-up, delivery of drugs, dialysis bags, reporting, monitoring and supervision, and IEC/BCC.

Human Resources :

MTM is a government flagship program and the entire PHC team is responsible for effective implementation but it became solely dependent on the works of WHVs. WHVs are recruited through TNCDW and do not come under the administrative control of Directorate of Public Health and it was reported that WHVs cannot be held responsible for any deviations in field implementation.

Table 1: Challenges in field level implementation of "Makkalai Thedi MAruthuvam" – community-based interventions for NCDs in Tamil Nadu, 2021-22

Themes	Subthemes
Human Resources	Less and delayed payment of Incentives Lack of dedicated posts of Palliative care Nurse
Screening for NCDs	Visit timings of WHVs in working hours Poor acceptance and social issues Interrupted supply and no calibration procedure for equipment Less focus on screening for common cancers
Follow-up	No referral linkages Poor follow-up of suspected and referred Reluctance of HT, DM patients to visit facility for 3rd month follow-up
Delivery of drugs & dialysis bags	WHVs involved in drug packing WHVs travel to fetch the drug packs from PHCs Shortage of supply of dialysis bags
Reporting	Multiple reporting system Substantial amount of work time spent in reporting No linking of data across three levels of care Data duplication Data not available for follow-up and review
Monitoring and supervision	No real time monitoring using the data Lack of immediate level supervision No clarity on the guidelines issued Multiple review meetings for districts
IEC/BCC & Research	Need for IEC/BCC strategies planning and initiation Lack of funds for operational researches

WHVs reported that the incentives are very less. Also, incentives were disbursed using a complex process, wherein attendance and performance-based score were approved by PHC MO and sent to BMO. BMO compile for all PHCs in the Block and share to district office. DDHS at district level compile and send to district office of TNCDW where processed and finally direct transfer done to WHV account, causing an average delay of 15 days to 2 months. In few places, it is further delayed, when sent to approval of the District Collectors.

In addition to routine incentives, the WHVs engaged in Health & Wellness centers – Health Sub centers (HWC-HSCs), are eligible for Performance Based Incentives (PBI) under Universal Health Coverage (UHC), creating disparities among WHVs working in HWC and non-HWC HSCs. The revisioning of uniform incentives cannot be done since it is not modifiable as per Government of India norms. Another constant issue is high turnover rate of WHVs, and PHC team had to depend on TNCDW officials every time for replacement and often conducting training of the newly identified WHVs is also a challenge.

There is long term vacancy of about 79(17%) out of total 464 required Palliative care nurses. They are identified from the regular pool of nurses and trained on palliative care. Currently, there exists 25% of vacancy among the regular nurses including MTM nurses. So, attempts in filling the 17% of vacancy will cause additional burden of reallocating nurses from the regular pool.

Screening of the target individuals :

The main challenge in the screening at the doorsteps is the visit timing of the WHVs. As per the program guidelines, the WHVs should plan the screening schedule either before 9am or after 4pm and on Sundays, specific to availability of the households in their catering areas. Whereas it is not followed at many places and they visit during the day time between 9am to 5pm ending up with the non-availability of the household members. The working group are mostly remaining uncovered. Also, they have reported poor acceptance in urbanized areas and among APL population. Few WHVs reported social issues in rural areas hindering screening coverage. HSCs with more than 5000 population norms is a challenge especially in urban areas. There is also obscurity in planning the tour program of WHVs due to the vagueness in combining the drug distribution and screening plan.

BP apparatus and Glucometers used in the field show higher values and errors ending up in unnecessary referrals, public losing confidence in the skills of WHVs. Interrupted supply of consumables, frequent need for changing batteries for the equipment bring inconvenience and make WHVs fatigue, and at times they are ended up spending from their pockets.

Screening of common cancers with on early symptoms to all women aged 30 years and above, have lost focus amidst the biological screening for HT and DM and drug distribution services. Screening for TB, Leprosy, CKD, COPD and mental health are not taken up.

Referral linkages and Follow-up :

The target individuals when screened at households and referred, not all the individuals reach the facility for confirmation and many become dropouts. Referral slips were not used by WHVs resulting in uncertainty on the numbers reached and confirmed. Referral slips were not supplied in many of the facilities. No back referral mechanism available and tracing becomes difficult.

Patients receiving drugs at doorsteps demands continuous drug delivery by WHVs and showing reluctance to visit PHCs for the 3rd month follow-up which is important for assessing their control status and consultation with doctor. This remains a barrier in achieving the disease control.

Regular follow-up of HT & DM patients for complications and of screened positive individuals for cervical, breast cancer at facilities for further investigations are less focused and needs improvement.

Delivery of drugs :

Instead of PHC team transporting the drugs to HSCs, WHVs travel more than twice a week to fetch the packed drugs or sometimes directly involved even in packing the drugs. This disturbs WHVs routine plan and leads to following non-systematic way of covering villages for screening and drug delivery. Drug packs are brought back without distributing in more than half of the HSCs due to non-availability of beneficiaries during their daytime visit. Occasionally, some facilities are facing drug shortage which was informed as manageable when indenting of drugs are done consciously by PHC team considering the patient load and requirements.

Delivery of dialysis bags :

Delivery of bags at block level is not happening and often MTM team have to collect from the ware houses and deliver to the patient. Off and on, shortage in supply occurs and strong interdepartmental coordination is essential to ensure continuous supply.

Reporting :

Different modes of reporting from field to state viz paper-based reports, electronic reports in simple excel, google sheets, and web based reporting in three different portals – one developed exclusively for MTM program called MTM portal, another state Population Health Registry (PHR) portal and third is national portal. These multiple ways of reporting make all health staff stressful and substantial amount of their work time is spent on reporting. Excel and google sheets have the inherent issues of invalid entries, putting in more human resources to follow-up the entries and preparing reports from entries on daily basis for review. The program owned MTM portal is designed to collect only aggregate numbers for the services provided.

The state PHR portal allows unique ID generation for each individual and mapping them at village level. However, the line list cannot be generated at any level starting from health subcenter to state. The available reports in a dashboard are also not by institution wise and has synchronization issues reported which prevents usage of the information for review and course corrections by the institutions. Hence in addition to portal entry, separate manual reporting also collected for review purpose which again makes the staff fatigued. National portal also allows entry but reports are not generated for review purpose and thus remains less useful.
The digital reports also have no link among the three levels of care, state portal is used only at primary level and national

app used on pilot mode at secondary and tertiary level, ending up in duplication of entries and not helpful for appropriate follow-up.

Monitoring and Supervision :

The poor reporting system also had closed the opportunities of real time monitoring of the program. The entire supervision network looks broken and uncoordinated. The immediate level supervision by Village Health Nurses (VHNs) equivalent to ANM in GoI norms, had not taken off due to poor understanding of the program. The other field staff were also not much focused on the process and unaware of where to render appropriate support from their part. The guidelines were meticulously drafted but was not communicated across the levels of care and hence stakeholders up to district level were unclear. Consequently, WHVs were involved in other activities of the PHC, were not rendered suitable support and supervision, and incoordination exists among different categories of field staff. In some areas, the engagement of MLHP under UHC at the sub-center level have created insecurity among the VHNs, the female cadre at HSCs considered as the backbone of public health, again leading to incoordination. On the other hand, the program is monitored by different departments. It was reported by district officials that multiple review meetings are conducted, sometimes repeating and sometimes with conflicting updates. As per the government orders, state level monitoring should be by the Directorate of Public Health through State NCD cell at NHM.

IEC/BCC and Research :

There is an overwhelming need for planning and initiation of Information, Education and Communication (IEC) and Behaviour Change Communication (BCC) strategies for public to understand the need for early screening for NCDs including common cancers, follow-up treatment, complications of Hypertension and diabetes, and treatment compliance. Primarily, it is important to impart IEC among MTM beneficiaries on the third month follow-up visits to facilities for want of doctor's consultation and evaluating their control status of HT and DM. Skipping these follow-up visits hinders achieving control. It was opined that though directorate of Public Health implementing the program have requisite human and technical resources to undertake short operational researches to decide on appropriate course corrections, there is lack of funding to materialize it.

Amidst the above challenges, NCD-MTM have enlarged extensively and lakhs of beneficiaries are being benefitted under the program.

DISCUSSION

MTM was executed a year back and our study is the first one after the program initiation in Tamil Nadu. We did a qualitative study among the stakeholders across all levels of Primary health care starting from Health subcentre, PHC, Block, district and state. Our study had helped understanding core issues and hindrances that are affecting the implementation of the program. In the one-year implementation of the program with its comprehensive package of services, it had gained a wider recognition by the public. Similar program in underserved rural areas of Brazil with an education and medical interventions had shown improvement on the control rates of HT and DM.[8] Such community-based interventions involving the primary health care staff have proved cost effective.[9] Studied have proven the necessity and success of NCD intervention services at community by primary care health workers.[10–13]

By design, MTM implementation became solely dependent on WHVs belonging to another department. Less incentives with considerable delay in disbursement every month, and disparities based on the position of WHVs at HWC HSCs or non HWC HSCs due to PBI under UHC are demotivating the interests of WHVs.

Home-based palliative care component is dependent on Palliative care nurse which again functions on diverting nurses from the existing routine pool, questioning the sustainability of delivery of services. Working population, urban areas and areas with more than the population norms were reported to have poor screening coverage.

Calibration of the equipment used in the field and frequent changing of batteries are necessary. Drug distribution and screening schedule are not planned in accordance. Screening of common cancers needs much more focus and improvement.

There is poor follow-up of those suspected and referred for diagnosis, those confirmed on compliance of treatment, complications and control. The referral mechanism lacks linkages and no coordination in tracing the dropouts. Patients those receiving drugs at doorsteps are not aware of the importance of their third month follow-up visit to facility which is vital for achieving control. The delivery of drugs by WHVs and of CAPD bags by palliative care nurse lacks coordination and support from other field staff.

Multiple reporting system burdens the staff and prevents them from focusing on the delivery of services. The reports from different web-based portals are not available for the program managers in districts and PHCs to use for real time

monitoring and supervision and in turn affecting them in holding the program. The stakeholders at district, PHC level needs clarity on the guidelines and instructions issued so far to understand the processes of the program. Even though NCD program had been more than a decade, it is required to adopt more IEC strategies to bring awareness among the public for demand generation and no funds were allotted for the IEC activities. Small operational researches should be undertaken to realize the needs for any improvement in the program implementation. Experiences on community-based NCD interventions from developed countries have suggested similar recommendations for sustainable and effective implementation like well-planned media and communication messages, a reliable monitoring and evaluations system, and dissemination of the evaluation and experiences to have a broader impact.[14] Digital transformation of the public health sector must be accelerated to create an efficient and sustainable predict-prevent healthcare system.[15]

LIMITATIONS

Data were collected by health system personnel and so WHVs, nurses and MOs would not have revealed all the challenges faced by them.

RECOMMENDATIONS

MTM implementation is the responsibility of entire PHC team and not only WHVs. Reorientation of all WHVs and field level primary care staff along with PHC team - MOs, MTM SN, Pharmacists, Lab Technicians on the instructions and guidelines with clarity, enabling them to work as a team rendering appropriate support to each other and to execute their roles and responsibilities in delivering the MTM services.

Plan different screening strategies on outreach mode – camps by PHC team, by private hospitals empanelled under government insurance scheme, by NGOs and Welfare associations, camps at industries covering working population to improve screening coverage. Sensitize urban and ALP population on services of MTM to improve their acceptance.

A buffer stock of BP apparatus, Glucometers to be consistently maintained at district/ block level for immediate replacement of equipment with issues. Orientation of WHVs on planning screening and drug distribution based on their patient load under the guidance of the PHC MO for systematic coverage of villages.

Strategies refocussing on institutional screening of cancers, and follow-up of NCD patients for compliance and control. All districts to have an operational continuous district/ Block level training plan to train the fresh recruits and refresher training to all staff categories.

Until the development of an effective IT tool, to meet the current needs, manual forms and registers are to be supplied and consider initiating a mechanism of collating existing manual reports to improve follow-up services, to minimize dropouts for confirmation services and to improve patients' compliance to treatment. State should seriously take immediate measures to adopt an operative and effective reporting system that allows easy access in entering data and allows real-time dynamic flow of information across levels of care ensuring early interventions in management of NCDs. System should not ignore commencing efforts to design and disseminate IEC messages which improves demand generation and utilization of services provided. Funding support from National Health Mission (NHM) and Tamil Nadu Health System Reforms Project (TNHSRP) to directorate of Public Health to conduct studies on evaluating the process and output of the program and applying the results for bringing in required course corrections and to develop IEC/BCC strategies.

NCD-MTM is a first of its kind in the country and rectifying the reported challenges with appropriate solutions will make this program a successful model and will help in bringing desirable NCD outcomes.

CONFLICT OF INTEREST : Nil

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