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Original Research Article

Pattern of time utilization by multipurpose health workers male in district Sonipat, Haryana

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ABSTRACT

Background: A multipurpose health worker is the key functionary in a sub centre. They associate with the community at grass-root levels. This study explores time utilization pattern of multipurpose health workers in the multifarious domains of their activities.
Methods: A time motion study conducted among health workers (HWs) male of all subcentres of district Sonipat, Haryana. Participants self-reported their daily activities on a time measurement workbook for one month. Data were entered in Excel and analyzed using statistical package for social studies software.
Results: Time utilization patterns revealed that HWs spent nearly one third (31.5%) of their time on national vector born disease control programme. Documentation constituted nearly 16.3% of their time. Others activities include maternal and child health (7.4%), service for minor ailment (6.7%), revised national tuberculosis control programme (6.7%) and meetings (4.5%). They spent 13.9% of their time on non-productive activities. The proportion of time spent on field-based activities was 63.2% and on sub center based activities was 22.9% of the total working time. A negative correlation of field-based activities was found with age, job experience and residing in joint family.
Conclusions: The study reflects the time spent by HWs male in various domains of activities in relations to their job responsibilities and the multipurpose nature of their works. Some of the health programmes were ignored by HWs and were also found to be spending significant time on non-productive works.

Keywords: Multipurpose health workers, Time motion study, Time utilization pattern

INTRODUCTION

Primary health care is provided by primary health centres (PHCs) and their sub centres through the agency of multipurpose health workers (MPHWs) and village health guides. Besides providing primary health care, the village "health teams" bridge the cultural and communication gap between the rural people and organised health sector. India became soul to the Alma Ata declaration of 1978 and committed to attaining the goal of `health for all' by the year 2000 AD through primary health care. The primary health care system has been strengthened to make the primary health care delivery system more effective.[1] In past the community level health workers were part of vertical national health programmes. They had different designations that were programme specific, and their duties and responsibilities varied consequently. For instance, the Malaria Worker implemented the national malaria eradication programme while the auxiliary nurse midwife worked within the maternal and child health programme. All health workers visited individual households in the community to render health care services.[2] Recognizing the inconvenience to households resulting from this approach and its inherent inefficiency, the report of Kartar Singh Committee recommended that these different categories of health

workers should be integrated into general health services to form a new cadre of MPHWs all over India. In order to ensure a smooth transition of workers from unipurpose to multipurpose role, unipurpose health workers underwent additional training and were redesignated as MPHWs.[3]

MPHWs are the key functionary in a sub centre. MPHW female and male associate with the community at grass-root levels and provide the primary health care services to the community.[4] The services that a MPHW male provide under the MPHW scheme are extensive and include promotive, preventive, and curative services.[5] Their duties include activities in the subcenter from where they function and the field activities that are associated with the population or geographic areas allocated to them from time to time. Normally a MPHW male serves a population of 5000. Depending on the density of the population he can serve more population. In India there has been a systematic policy-shift towards co-opting female over male health worker at community level. Role of MPHW male has been pointedly laid out across different national health programmes.[6] But in practice there is less emphasis on recruiting MPHWs male. India requires 52% new posts of MPHWs male whereas almost 38% of sanctioned positions are vacant. Scarcity of MPHWs male has caused challenges not only in implementation of national health programmes but also increased responsibilities of MPHWs. Another impediment is the inefficient utilization of existing MPHWs male especially when focus is increasing on non-communicable diseases.[7] There are only a few studies that have assessed the work load of MPHWs and their time utilisation in India, especially in Haryana after the provision of the second ANMs and ASHAs, and the depleting male-MPHW workforce. Based on this background a study was planned with aim to study the time utilization pattern of MPHWs male of district Sonipat, Haryana.

METHODS

The present study was a descriptive type cross sectional study conducted in Sonipat district of Haryana state. The study was undertaken within a period of one year from April 2018 to March 2019. All the MPHWs male who were working at various sub centres in the district Sonipat were included in the study. The MPHWs male who were not willing to participate, who were on long leave or on any training of long duration during the study period were excluded from the study.

Study instrument

A printed daily diary was used for recording day to day activities of the health workers for one month. In order to facilitate recording of work or activities done by them each working day was divided into hours (9 to 11 AM, 11 to 1 PM, 1 to 2 PM and 2 to 4 PM) with lunch break of 30 minutes on rotation basis between 1 to 2 PM. Enough blank space was provided to record any official duty done after the duty hours.

Data collection

All eligible participants were contacted personally during their monthly meetings at their community health centres (CHCs) or primary health centres (PHCs) and were explained about the details of the study. The nature and purpose of study was explained to them in the language they understood (Haryanvi dialect). Those who did not attend the monthly meeting were contacted by investigator later at their sub centres. They were ensured of the strict anonymity and confidentiality of their participation, so that they could express their views and write their work in diary. They were asked to record their daily work or activities as per the space provided in the diary whether sub centre based or out reached or community based. All the study participants were also contacted telephonically by the investigator on weekly basis and were reinforced to fill the diary regularly. The investigator also visited all the study participants in between to verify that whether the work or activities were regularly recorded in diary on daily basis or not, but never peeped into the content of the diary to maintain anonymity and confidentiality. Unanimously filled up, these diaries were taken back from study participants.

Data analysis

Data collected in diaries were coded and entered in the MS Excel spreadsheet according to the time spent on various work or activities. such as national vector born disease control programme (NVBDCP), revised national tuberculosis control programme (RNTCP), documentation, treatment of minor ailments, meetings, health education, various national programmes, supervision and trainings, maternal and child health (MCH), home visits etc. Later it was cleaned for any possible errors. Analysis was carried out using Statistical Package for Social Studies (SPSS) for Windows. Clear values for various outcomes were determined before running frequency tests. Categorical data were analysed in descriptive manner in terms percentages (%) and average.

RESULTS

After excluding MPHWs refusing to participate in the study and whose diaries were incomplete, finally data of total of 95 MPHWs were analysed. The final response rate of HWs was 83.3%.

The mean age of MPHWs was 36.8 years (26 to 51). Most of them were in age between 36 to 55 years. More than two third (70.5%) were residing in nuclear family. Around one third (34.7%) belonged to SCs and OBCs. All of them were on regular post and completed their professional training by diploma courses. Mean years of work experience were 10.8 years (1 to 36). Nearly two

third (65.2%) had 5 to 14 years of experience in their job. The mean distance of their place of posting from their residence was 9.7 kms (0.5-19). More than half (52.3%) of MPHWs were residing within 10 kms from their sub centre. Nearly half of HWs preferred personal transport to reach their sub-centre. More than half (57.8%) of HWs reached their sub centre by 9:15 AM (Table 1).

Table 1: Sociodemographic profile of MPHWs male.

Variables	N	%
Age (in years)		
<35	2	9.6
36-55	178	86.1
>55	9	4.3
Marital status		
Married	195	94.3
Widowed	11	5.3
Unmarried	1	0.4
Type of family		
Nuclear family	174	84
Joint family	33	16
Caste		
SC	27	13
OBC	18	8.7
Others	162	78.3
Job status		
Regular	107	51.6
Contractual	100	48.4
Experience (in years)		
<15	123	59.4
>15	84	40.6
Distance of place of posting		
<10 kms	110	53.2
>10 kms	97	46.8
Mode of Transport		
Personal	43	20.7
Public transport	117	56.6
No transport	47	22.7
Arrived late on duty (minutes)		
<15 minutes	140	67.6
>15 minutes	67	32.4

Time utilization pattern in our study reveals that MPHWs spent nearly one third (31.5%) of their time on NVBDCP which include both community based (active surveillance, house visits, source detection, checking domestic breeding and follow up etc.) and centre based (passive surveillance, indenting and dispatching task). It was followed by documentation activities which constituted nearly 16% of their time. They spent nearly 7% time on health education, MCH (limited to immunization only), RNTCP and service to minor ailment each. HWs spent 4.5% of their time on various meetings at CHCs or PHCs (Table 2).

Table 2: Distribution of the self-reported time spent by MPHWs male per month on various domains of their job responsibilities.

Domains of works or activities	Time spent (hours° minutes')	Proportion of time spent in each domain (%)
NVBDCP	49° 46'	31.5
Documentation	25° 45'	16.3
Health Education	12° 20'	7.8
MCH	11° 45'	7.4
RNTCP	10°35'	6.7
Service for minor ailment	10° 35'	6.7
Meetings	7° 08'	4.5
Water sanitation	5° 36'	3.6
Other activities	2° 30'	1.6

Out of total 66 hours 49 minutes spent on various national programmes, MPHWs spent 41 hours 6 minutes (61.5%) on NVBDCP followed by 10 hours 42 minutes (16%) on RNTCP which mainly included dispensing of drugs through DOTs, 11 hours 42 minutes (17.5%) on MCH activity (limited to Immunization activity only), 2 hours 15 minutes (3.4%) on national tobacco control programme and 1 hours 04 minutes (1.6%) on national AIDS control programme (NACP). MPHWs did not spent any time on Other national programmes like national programme for control of blindness, national programme for prevention and control of deafness, national mental health programme, national programme for prevention and control of cancer, diabetes, cardiovascular disease and stroke, national iodine deficiency disorders control programme (Table 3).

Time utilization pattern also revealed that MPHWs spent 22.9% of their time on sub centre based activities and spent 63.2% on community-based activities. They spent 13.9% of their time on non-productive activities like personal work such as having meals, tea, talking on phone sitting idle at sub-centre etc. (Table 4).

The current study revealed that MPHWs living in joint family spent more time on non-productive works and lesser time on sub-center and field-based work as compare to those living in nuclear family (p=0.001). MPHWs living in same village where sub centre is located also spent more time on Non-productive works and lesser time on sub-centre and field-based activities (p=0.001) (Table 5). We also noted negative correlation of age of MPHW (M) with field-based work (r=-0.014) and positive correlation with sub centre based and non-productive work (r=0.024). A negative correlation was found with field work of MPHW as their duration of service increased (r=-0.049). Both the correlations were not found statistically significant.

Table 3: Distribution of self-reported time spent by MPHWs male in relation to various national health programmes.

National health programmes	Average time spent (hours° minutes') in each programme	Percentage of time spent in each programme (%)
NVBDCP	41° 06'	61.5
MCH	11° 42'	17.5
RNTCP	10°42'	16.0
National tobacco control programme	2° 15'	3.4
NACP	1° 04'	1.6
National leprosy eradication programme	0° 00'	0.0
National programme for control of blindness	0° 00'	0.0
National programme for prevention and control of deafness	0° 00'	0.0
National mental health programme	0° 00'	0.0
National programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke	0° 00'	0.0
National iodine deficiency disorders control programme	0° 00'	0.0
Total	66°49'	100

Table 4: Distribution of time spent by MPHWs male in relation to sub centre based and community-based work or activities.

Activity	Time spent (Hours° Minutes')	Proportion of time (%)
Sub centre based	36° 20'	22.9
Field based work	99° 38'	63.2
Non-productive work	22° 00'	13.9

Table 5: Distribution of work according to type of family and residence in village where SC is located.

	Mean ±SD (hours)	Mean ±SD (hours)	P value
Type of work	**Joint (n=42)**	**Nuclear (n=53)**	
Sub centre-based work	36.7±2.7	39.4±3.6	0.001
Field based work	95.1±5.7	99.9±5.6	0.001
Non-productive work	28.1±6.3	20.6±4.6	0.001
Residing in village where SC located	**Yes (n=53)**	**No (n=42)**	
Sub centre-based work	36.5±2.4	38.6±3.6	0.027
Field based work	93.2±6.8	98.7±5.5	0.001
Non-productive work	30.1±7.1	22.6±5.6	0.001

DISCUSSION

Time utilization pattern reveals that nearly one third (31.5%) of their time was spent on NVBDCP which included active fever case finding by house to house survey, active blood slide of fever cases and vector control measures and sector meetings of programme. MPHWs male are supposed to do field work from 10 AM to 3 PM and return back to their SC for reporting and documentation. We observed that they did their field work daily from 10 AM to 1 PM. They returned back to their SCs much earlier than expected. Similar findings were reported by Nair et al (30%).[2] Our finding shows lower values when compared to study done by Narayanasamy et al (40%). Dwivedi et al found that the time spent on fever cases was 1.5% which is much less than our study.[8] The reason for these variations may be due to different priority of NVBDCP because of different geographical regions. Further research on effectiveness of NVBDCP activities done by health workers in the light of current disease burden is needed. In our study documentation constituted 16.3% of time spent by HWs. Documentation and report writing are almost a daily activity and usually done during the afternoon hours and each MPHWs maintains nearly 13 registers for different activities. Similar observation was made by Dwivedi et al (16%).[9] Lesser time were found in studies conducted by Shah et al and Narayanasamy et al, who found that MPHW male spent 10.8% and 9.3% of their time respectively on documentation and reporting as compared to our study.[8,10] Time spent in documentation and report writing may be more due to lesser use of information technology in Haryana.

Nearly 8% of time was spent on health education (school health and community health education) by MPHW male. Community health education was given mainly during house to house visits and during service for minor ailment at the SC and that too was limited to NVBDCP and RNTCP. Similar finding was observed by Narayanasamy et al where IEC activity constituted 9% of time by MPHWs.[8] Nair et al found that MPHWs male spent 17% of their time on health education which was more than our study.[2] The variation in this observation may be due to the reason that health education was given by MPHWs on regular basis during their field visits and that there was no separate time schedule for health education. About 7% of the time was utilized by MPHW male in MCH services. As per their beat programme MPHW male should spend 16% of total time on MCH activities. Time spent by MPHW male in present study was found lesser than prescribed. There may be many reasons for this observation. Only two third of MPHW male participated in MCH activities. The participation in MCH activities was limited to immunization.

MPHWs spent 4.5% of their time in various monthly meetings at CHCs or PHCs regarding various programmes. The meetings were held usually in the last week of month along with MPHW (F). They also had sectors meeting after every 4th beat days but those meetings were related to NVBDC programme only hence time spent on those meetings had been included under NVBDCP. Similar findings were observed by Dwivedi et al and Narayanasamy et al that MPHW male spent 4.1% and 2.5% of their time on meeting respectively with their seniors.[8,9] The results were comparable to our study.

MPHWs male spent 22.9% of their total time on sub centre based activities which is lesser than as per their beat programme. They spent 58.7% of their time on field based works or activities which is also slightly lesser than as per their beat programme. Nearly 14% of time was spent on non-productive works or idle time by MPHW male. Almost similar finding was observed by Dwivedi et al where MPHW male spent around 12% of their time on non-productive work.[9] Narayanasamy et al found that MPHW male spent 2.5% of their time on non-productive works which is quite better than our study.[8] A higher amount of time (30%) was observed to be spent on non-productive activities by Shah et al in their study on MPHW male.[10] The reason for this observation may be due to underreporting of non-productive works by MPHW male in our study.

MPHWs who were residing in joint family spent less time on sub centre based works and field-based work and spent more time on non-productive work as compare to those living in nuclear family. The results were statistically significant (p=0.001). The reason for such relationship may be their individual choice of doing work or may be more responsibility due to living in joint family. MPHWs whose residence was in the same village where Sub Centre was located were found to be performing less sub centre based and field-based work and doing more idle or non-productive work. Results were statistically significant (p=0.001). The possible reason for such results can be due to human tendency of going home early from work and coming late to work if their place of posting is near to their residence. We also noted negative correlation of age of MPHWs male with field-based work (r -0.014) and positive correlation with sub centre based and non-productive work (r=0.024). The possible reason for such correlation might be lack of interest in the sub centre and field-based activities as the age increases and the health issues may also be the reason for such outcome. They also become lethargic with increase in their age. A negative correlation was found with field work of MPHW as their duration of service increased (r=-0.049). As the experienced increased MPHW (M) spent more time on sub centre based (documentation and reporting) and non-productive work. This may be due to the reason that as the experienced increase MPHWs give more importance to documentation and report writing.

This is one of the very few studies in India among HWs male that examine time utilization patterns. However, there are few limitations to this study. Self-reporting method though low cost but has its merits and demerits. Self-reporting may lead to overreporting of activities performed and underreporting of personal work. Activities at health center level that vary during certain periods of the year (special campaigns) are likely to be missed in such self-reported based methods of short duration.

CONCLUSION

This study reflects the time spent by MPHWs male in the different domains of the activities and also helps us to understand the “multipurpose” nature of their work. However, it cannot be deduced whether the health care workers were deliberately spending more time in some activities or the job responsibilities assigned to them required so. There is no scientific study available that measured the time required to perform various tasks assign to primary health care workers. Thus, it will not be fair to blame the health care workers for the observed deviations in the time utilization pattern. Therefore, it is recommended to conduct work sample study on various tasks assigned to primary health care workers, so that there could be rational determination of time required to perform those jobs. It is also recommended to take appropriate supervisory measures to minimise the time spent on non-productive works and maximise the time spent on productive works and also to devote proportionate attention to all component of their duty. Efforts should be taken to reduce time spent on documentation and report writing by reducing data documentation and duplication of reporting through use of information technology which may provide additional time to HWs.

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