

Review Article

Technology driven integration of occupational health services into primary healthcare settings

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ABSTRACT

India, a growing economy has population exceeding 1.21 billion. Of this more than 65.5% people belong to the working age group. Total workers have doubled during 1981-2011, an increase in both organized and unorganized sectors. India contributes 1/5th of non-fatal injuries, half of fatal injuries, 1/5th of occupational diseases. Early identification and appropriate management of occupational morbidities is very much possible at primary healthcare settings. The deficit of Factory Medical Officers in India is approximately 60% and hence factory workers are likely to seek primary healthcare settings for their ill-health. But doctors are neither sensitized nor trained even to suspect occupation as a cause. Thus, integration of occupational health services into primary healthcare is the need of the hour. Technology may be adopted to train not only medical officers but nurses, auxiliary nurse midwives and other healthcare workers to identify and manage occupational health problems in a comprehensive manner.

Keywords: Occupational health services, Primary healthcare settings, Technology, Integration

INTRODUCTION

India, a growing economy and world's largest democracy, has population exceeding 1.21 billion.^{1,2} Of this more than 65.5% of people belong to the working age group (15 to 64 years).¹ The decline in Dependency ratio from 752 in 2001 to 652 in 2011 to 522 in 2015 also points the same.^{1,3}

The major occupation of the Indian population is agriculture and allied activities. Cultivators (31.7%) and agricultural labourers (26.5%) both constituted 58.2 percent of total workforce in 2001 which is reduced to 54.60 percent in 2011. The decrease in cultivators is larger than increase in agricultural labourers. The household industries sector accounts for very small percentage (around 4%) both in 2001 and 2011 in India. The other categories of economic activities gave employment to 37.6 percent of workers in 2001 and 41.6 percent of workers in 2011.⁴

The index of industrial production (IIP) with base 2011-12 for the month of October 2018 stands at 132.4, which is 8.1 percent higher as compared to the level in the month of October 2017.⁵ The manufacturing sectors account for the majority share and is the backbone of the rising industrial growth numbers.

Industrial growth has thus resulted in increased employment opportunities thereby inflating the size of the workforce engaged in both organized and unorganized sectors, though the traditional occupations like agriculture and mining still continue to employ a significant proportion of working population.⁶

GROWTH OF WORKFORCE

The overall rate of growth in workforce is 1.8% between 2001 and 2011 and it is observed to be marginally higher than that of the population growth rate during the same period (1.64%). Also, rate of growth in workforce has

always been higher than that of population growth during the last three decades which hints at increase in work participation rate (WPR).⁷

The number of total workers in the country has almost doubled in 30 years period from 1981 to 2011. Corresponding increase in rural workers and urban workers is 77 percent and 182 percent respectively.⁸ The number of estimated employed persons in 2011-2012 on usual status basis were 47.41 crore, of which 82.7% of workforce (39.14 crore persons) was in unorganized sector or the informal economy, mainly agriculture and services.⁹

HEALTH AND SAFETY IN THE WORKPLACE

The classic approach to ensuring health and safety in the workplace has depended mainly on the enactment of legislation and inspection of workplaces to ensure compliance with health and safety standards. While this approach has been effective in controlling many specific occupational hazards since the Industrial revolution, it has not been very effective in the past several decades, particularly in developing countries, for several reasons.²

The development of private enterprise, resulting in a proliferation of small and medium sized workplaces, has meant that in many instances production occurs in the workers own homes where there can be serious health hazards, including harmful dust, chemicals, noise and heat. Inspection of such workplaces is largely impossible in view of the large numbers and wide distribution.¹⁰

The organized sector is regulated through the available laws of the land for worker's health and welfare while the unorganized sector is not included in the purview of any of these laws thereby are devoid of the facilities of health and welfare.⁶

OCCUPATIONAL INJURIES AND DISEASES

Globally, there are 100 million occupational injuries causing 0.1 million deaths according to WHO. It is also estimated that in India contributes 17 million occupational non-fatal injuries (17% of the world) and 45,000 fatal injuries (45% of total deaths that occur due to occupational injuries in the world). Out of 11 million cases of occupational diseases in the world 1.9 million cases (17%) are contributed by India and out of 0.7 million deaths in the world 0.12 million (17%) are contributed by India.¹¹

The World Health Organization (WHO) estimates occupational health risks as the 10th leading cause of morbidity and mortality and accounts for 1.7% of DALYs lost worldwide. As per WHO report, occupational risk factors globally account for a number of morbid conditions which include 37% back pain, 16% adult onset hearing loss, 12% chronic obstructive lung disease, 11% asthma, 10% injuries, 9% cancer, and 2% leukaemia,

child sex abuse thereby increasing the risk of a range of mental disorders in adult life, including depression, anxiety disorders, drug or alcohol abuse, and suicide. Early identification and initiation of appropriate management of majority of these morbidities is very much possible at primary healthcare settings.¹²

LACK OF OCCUPATIONAL HEALTH SPECIALISTS

The data available on number of occupational specialists in the country is scarce. A study by Sharma et al. in 2012 shows that there were 254,951 working registered industrial factories with 11.16 million workers (total workforce is 26.92 million) taken care by 6953 FMOs and 2308 SOs. An additional of 9775 Factory Medical Officers (FMOs) and 3311 Safety Officers (SOs) were required making a total 16,728 FMOs and 5619 SOs for the current ratio of employment. The estimated deficit was 58% for FMOs and 59% for SOs.⁶

These underserved factory workers are thus forced to seek primary healthcare settings for their ill health.

UNDER RECOGNITION OF OCCUPATIONAL MORBIDITIES

"Work-related diseases" have multiple causes, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases (WHO).

Medical officers and primary healthcare providers, the point of first contact, have an important role in identifying and managing work-related diseases. But they do not recognize the work-relatedness of diseases, which may lead to more serious health problems or unnecessary (long) absenteeism from work.¹³

In the Indian context, clinicians should expect on lower fence 5% and upper fence 20% of cases to have occupational cause, depending upon where they practice.¹⁴ But the medical and paramedical staffs are neither sensitized nor trained even to suspect occupation as causative, contributory or aggravating factor in development of any occupational disease.

INTEGRATION OF OCCUPATIONAL HEALTH SERVICES INTO PRIMARY HEALTHCARE LEVEL- NEED OF THE HOUR

As solution to a problem is always to go back to the basics, integration of occupational health services into primary healthcare settings is the need of the hour. The service provided in the form of health examinations only is substantially different from the services which comprises all the preventive, promotion, curative and rehabilitation elements which are possible to implement through occupational health services.^{15,16}

Several authoritative bodies have emphasized the need for services namely, International Labour Organization (ILO) convention no. 161 on occupational health services (1985) and the WHO global strategy on occupational health for all (1996) call for the organization of services to all working people of the world.¹⁵ World Health Organisation in 2001 prepared a manual “occupational health A manual for primary healthcare workers” highlighting the importance, roles and responsibilities of primary healthcare providers in delivering occupational health services.¹⁷

The 13th Joint ILO/WHO committee on occupational health on December 2003 decided to develop a new concept basic occupational health services (BOHS) to meet the increasing global demand of occupational health services. The basic occupational health services are an essential service for protection of people’s health at work, for promotion of health, well-being and work ability, as well as for prevention of ill-health and accidents. The BOHS provide services by using scientifically sound and socially acceptable occupational health methods through primary healthcare approach.¹⁸

The task to develop the services for all working people is huge and takes several decades to be totally met. The underserved industrial sectors or sectors without services at all are particularly found in developing countries, but gaps in the coverage are also seen in the industrially developed countries particularly in agriculture, informal sector, small-scale enterprises and medium sized enterprises. In addition, migrant workers are in many countries without services as they are likely to work in the sectors, where services are not available. The access to services does not match with the real needs, i.e. the rates of injuries and diseases and the exposures of workers to various risk factors.^{15,18}

In India primary healthcare services are rendered through both public and private sectors. Public sector constitutes 156231 sub centres, 25650 PHCs and the occupational morbidities need to be addressed along with the existing public health problems like communicable, non-communicable diseases etc. through these settings.^{19,20}

TECHNOLOGY DRIVEN INTEGRATION

There is, however, also a recognized need to develop new strategies and technologies to adapt occupational health paradigms and practices to the changed structures of economies and to the new trends in the employment and demographic changes of workforce.²¹

As guided by the Declaration of Astana, the vision of Universal Health coverage (UHC) is practicable only with success of Primary Healthcare which will again be driven by various factors. Making use of a variety of technologies to improve access to healthcare, enrich health service delivery, improve the quality of service and patient safety and increase the efficiency and coordination of care is the key. Through digital and other technologies,

we will enable individuals and communities to identify their health needs, participate in the planning and delivery of services and play an active role in maintaining their own health and well-being.²²

Developing human resources for occupational health is one of the ten major areas of action under Global Strategy for achieving ‘Occupational Health for All’. Technology may be adopted to train not only medical officers but nurses, ANMs and other healthcare workers to identify and manage occupational morbidities in a comprehensive manner in primary healthcare settings.

DEBRIEFING ECHO

Extension for community health outcomes (ECHO), a model of healthcare education and mentoring, of the University of New Mexico, USA offers primary care providers from underserved areas training, advice, and support in delivering best-practice care/ evidence based services for patients with complex health conditions. It is a force multiplier de monopolizing specialized medical knowledge and expertise.²³

ECHO helps in capacity building and improves the access to specialty care for rural and underserved populations. ECHO clinics are supported by basic, widely available multipoint teleconferencing technology.

It is neither telemedicine nor teleconsultation. It is a telementoring technology that links expert interdisciplinary specialist teams at an academic ‘hub’ with primary care clinicians in local communities -the ‘spokes’ of the model. As a whole it is a distance education model.

In ECHO clinics, experts co-manage patient cases (case based learning) and share their expertise via mentoring, guidance, feedback and didactic educational lectures (bridging knowledge gap). These “learning loops” in which they co-manage diverse patients in real world situations and practice overtime creates deep knowledge, skills and self-efficacy.^{24,25}

Tele-ECHO, a tele-health technology, has the ability to bridge the gap between a tertiary academic medical centre and a community health centre or general health practitioner. This also offers an approach in the context of limited human resources in healthcare and provides a means to reach evidence-based services to unreached/untouched populations making use of existing infrastructure and manpower in-country.^{24,25}

THE WAY FORWARD

Training healthcare providers at primary healthcare settings for providing occupational health services is the need of the hour. For effective implementation it has to be done systematically countrywide.

Identifying existing occupational health institutions as centres of excellence across the country, priming these

centres to conduct contact courses to train above-mentioned healthcare providers in occupational health, establishing these centres to be ECHO “hubs”, conducting hands on training through regular weekly or fortnightly ECHO clinics by connecting these “hubs” with the healthcare providers in the “spokes” for reiteration of the training, discussing about patients having occupational morbidities. ECHO may also be used to deliver occupational health services in upcoming health and wellness centres with the help of mid-level health providers.

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