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Participatory Intervention promoting Health and Safety aspects among Women Construction Workers in Coimbatore City

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ABSTRACT

Health is multifactorial and helps people to live well, work well, and enjoy themselves. It is influenced by both internal and external factors of society in which people live; perhaps the hazardous work, working conditions, and environment manifest themselves in injuries to the human body. In extreme cases this also results in death or severe disability. There are 1.7 crore workers engaged in building and other construction works in India. Women workers in this arena are one of the most vulnerable segments of the unorganized sector. This large workforce handle tasks that range from carrying heavy loads to performing repetitive tasks placing them at high risk of serious injury. Science of Ergonomics as its primary goal tries to find a "best fit" between the worker and the job conditions. It tries to come up with solutions that ensure worker's safety, comfort, and productivity. Hence recommendations point to organizing Ergonomic Preventive programmes to maintain a safe and healthy working environment. Adapting the work to the capabilities of women workers in the light of their state of physical and mental health, for example by reducing women's workload and promoting appropriate technology in safe working environment to reduce health impairment are the major inputs for success. Use of personal protective equipment by construction workers must be made mandatory for ensuring efficiency, health and safety. A safety culture needs to be developed as an integral part of the work culture. All welfare measures must be taken care of. With this in view ergonomic intervention programmes were given to women construction workers, which not only helped to generate awareness but also motivated incorporation of such practices in their lifestyle. This article highlights such salient features.

Keywords — Health and safety, women Construction workers, Ergonomics, Personal protective Equipments, Intervention programme.

1. INTRODUCTION

Health is multifactorial and helps people to live well, work well, and enjoy themselves [14]. It is influenced by both internal and external factors of society in which people live; perhaps the hazardous work, working conditions, and environment manifest themselves in injuries to the human body. In extreme cases this also results in death or severe disability. Safe work promotes an integrated multi-disciplinary approach, which takes into account the physical, mental and social well - being of men and women workers [16]. Construction industry is one of the stable growing industries world over, including India. It is basically a labor-intensive industry. It employs a considerable proportion of population. There are 1.7 crore workers engaged in building and other construction works in India [15]. Women workers in this arena are one of the most vulnerable segments of the unorganized

sector. This large workforce handle tasks that range from carrying heavy loads to performing repetitive tasks placing them at high risk of serious injury.

On the construction worksite, ergonomic principles are being used to help adapt the job to fit the person, rather than force the person to fit the job. Redesigning the job to fit the worker can reduce stress and eliminate many potential injuries and disorders associated with the overuse of muscles, bad posture, and repetitive motions [17].

There is a need to focus on women's occupational safety and health protecting their well-being through occupational health services and establishing Preventive programmes to maintain safe and healthy working environments. The concept of maximum weight that can be manually handled by women and the design of personal protective equipment are needed to be revised in the context of current technical knowledge and socio-medical trends. Intra-sex variations need to be taken into account.

Science of Ergonomics as its primary goal tries to find a "best fit" between the worker and the job conditions. It tries to come up with solutions that ensure workers safety, comfort, and productivity. Hence recommendations point to organizing Ergonomic Preventive programmes to help maintain a safe and healthy working environment. Adapting the work to the capabilities of women workers in the light of their state of physical and mental health, for example by reducing women's workload and promoting appropriate technology in safe working environment to reduce health impairment are the major inputs for success. Use of personal protective equipment by construction workers must be made mandatory for ensuring efficiency, health and safety. A safety culture needs to be developed as an integral part of the work culture [15], [18]. All welfare measures must be taken care of.

2. WOMEN CONSTRUCTION WORKERS

Construction is one of the few industries where people can work their way to the top from the bottom level [4]. But women in India are denied promotional opportunities in the construction sector. In the absence of mechanization of work, many backbreaking and energy sapping jobs are assigned to women workers who are treated no better than draught animals, so to say. It is no exaggeration that the job of a woman worker is more strenuous in the construction sector than in other manufacturing industries. In recent times, heavy machinery is replacing women workers in large construction sites [13], yet the continued availability of cheap labor forces, builders and contractors to seek women laborers. Their work is naturally regarded as unskilled, and they are given no opportunity to acquire skills. Men, on the other hand, learn and up-grade construction skills while working. They start as unskilled workers and move up to work as masons and then become supervisors and some even become contractors (employers). The male dominated construction sector does not encourage women to become masons [1].

Contrarily women construction workers start as unskilled helpers and remain unskilled throughout their life and as a result are victims of gender discrimination [19], they are in the informal sector with no regular salary or benefits - they are mostly unorganized, isolated and living in extreme poverty.

Unfortunately, in this system, women workers do not have an opportunity to receive any type of skills training which has left them stagnant without any chance of promotion or upgrade of any sort in their job. Mistaken notion that women are incapable of doing heavy or rough work leaves women workers loose out miserably. This type of attitude has left them at the bottom of the rung of skills in the industry with no avenues of promotion or higher wages. They usually belong to poor socioeconomic strata and thus lack the basic amenities. Above all also construction projects or sites where these workers are employed are unorganized in nature. These sites are often not guided by the legislations made for the health and welfare of the workers. Standards laid down for women labourers under the Factories Act, like handling limits rarely seems to apply. All norms remain negotiable in the industry and labourers and their organizations normally

2.1 Characteristics of women construction workers in Coimbatore city

A micro level study of 500 construction workers conducted in Coimbatore city revealed the following:

- Workers mostly comprised of landless labourers moving to cities in search of works, where they were exploited by contractors.
- Workers were exploited because they were socially backward, unorganized, uninformed, and poor. Work was characterized by its casual nature, temporary relationship between employers and employees, lack of basic amenities

and inadequacy of welfare facilities. The extent of unionization in the construction industry being very low due to migratory and seasonal nature of workers and scattered location of work sites, added to their plight.

- They lived in huts or under canvas, where no sanitary facilities and crèche facilities are available. Children of all ages were brought along with them to the worksites.
- Workers were found to be unorganized and incapable to bargain on the issue of welfare and social protection even state [17].
- Workers were exposed to scorching heat, rain, cold, dust, molten materials etc. A good 40 per cent were exposed to the risks of workplace accidents and occupation problems about which they were reluctant to talk about. The workers were also exposed to host of substances, which have potential to cause serious health disorders like asbestosis, and other occupational diseases of the respiratory system and digestive system.
- Social protection was virtually non-existent due to lack of stable nexus between employee and employers and irregular duration of work. Wages in the industry were at large a minimum or at a sub-minimum level. Women and children were paid wages at comparatively low rates than what men were paid. The study revealed the women to be assigned only unskilled jobs for which they were paid ₹.120/- to 150/- a day till 2011 (revised to ₹.250/- in 2012 in Coimbatore City), while men were paid ₹.300/ to ₹.350 per day. 'Gender Discrimination' in terms of tasks entrusted and wages given was highly distinct. Similarly system of invisible bondage exists and was found to extend from one generation to the next child labour.

3. HEALTH AND SAFETY

Safety and health are the concern of all people at the workplace. A worker should return home in the same condition as he or she came to work, says [10]. Women workers face many workplace health and safety hazards. There are hazardous chemicals as well as a variety of physical and biological agents (such as radiation and bacteria) used in many workplaces which expose women workers to health and safety hazards. Additionally, there are many work situations (such as work which is highly stressful, or shift work) which may have negative effects on the health of female workers, including their reproductive health. There are a number of other health and safety issues which are particularly relevant for women workers. Issues of security, rights for maternity leave, and the weight of a load to be transported manually beyond their physical capacity are three more important areas of concern for many women workers as they can seriously endanger their health and safety.

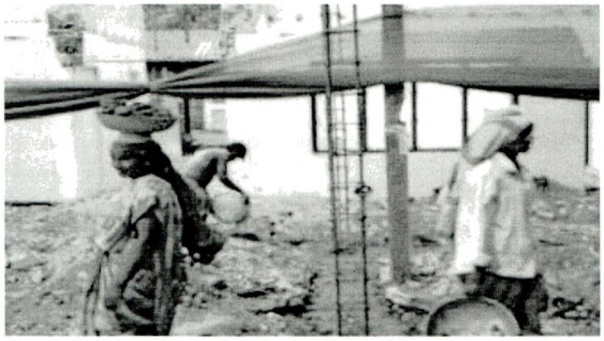

Figure1: Worker's moving heavy loads

Figure 2: Worker's showing the Distance Traversed

Adequate provisions should exist to guarantee that women workers do not have to do so.

Study conducted in Coimbatore city had shown a good number (91%) of workers complained of pain in different body parts. The main complaints concerned low back pain (80%), neck pain (88%) and shoulder pain (89%). The causes are the awkward postures adopted by workers and the heavy workload. Other health complaints involving gynaecological problems (56%), skin diseases (25%) and respiratory problems (32%) were also found. In addition to physical workload and awkward postures, the female labourers were exposed to dust, intense heat of the sun, biological pathogens, etc. The labour contractors had not provided any protective devices, nor had taken any responsibility for injuries or health problems at the worksite. Most of the workers worked barefoot. They used no protective devices against heat, dust, etc.

The workers handle cement which has constituents to produce both irritant contact dermatitis and corrosive effects

(from alkaline ingredients, such as lime) and sensitization, leading to allergic contact dermatitis (from ingredients, such as chromium) also state [11].

Occupational contact dermatoses is the most significant and frequent dermatoses among all occupational skin diseases [12]. Cement is one of the important causes of occupational disease in construction workers. Reported prevalence of allergic contact dermatitis to chromate among this population usually is more than 10 per cent [9]. The prevalence among symptomatic construction workers who were patch tested was more than 45 per cent according to a report by [2].

Study conducted in Coimbatore city among women construction workers through visits to government hospital skin specialist ward and construction sites identified the workers to have been affected in hand and trunk, since their hands come in contact with cement and when they carry on their head cement falls on their trunk.

Figure 3: Workers showing the affected hand

Figure 4: Workers showing the affected trunk

These factors prompted conduct of an ergonomics intervention programme.

3.1. Ergonomics Intervention Programme

The Ergonomics Intervention Program was organized by Department of Resource Management of Avinashilingam Institute for Home Science and Higher Education for Women University, Coimbatore in Collaboration with the Central Board of Workers Education Ministry of Labour and Employment, Government of India and Rotary Club of Coimbatore Texcity. Fifty participants from Venkittapuram and Edayarpalayam attended the programme. Ergonomic intervention programmes was given to selected women construction workers, primarily to generate awareness and help incorporate such practices in their lifestyle.

Construction is not only a physically demanding occupation, but a vital part of our nation. This large workforce handle jobs that range from performing repetitive tasks to carrying heavy loads, placing them at risks of serious injury. Workers who must often lift, stoop, kneel, twist, grip, stretch, reach overhead, or work in other awkward positions to do a job are at risk of developing work and posture – related musculoskeletal disorders and ortho problems. These problems among women workers is all the more prominent, but invisible. These include back (spinal) problems, carpal tunnel syndrome, tendinitis, rotator cuff tears, sprains and strains of various types. These problems do not surface but stay invisible as these women and their socio-economic status demand them to earn. To overcome these problems **Practical Ergonomics** can play an important role [17].

The 1st day programme include lecture on Work environment and work related hazards, Physical ergonomics and women construction workers, Talk on Healthy diets and healthy habits in daily living.

Figure 5: Interacting with participants on physical ergonomics

The program continued on the 2nd day also with an interaction of the workers and the lecture include Social security schemes (Factories Act), Application of Ergonomics in daily living, Benefit of registration and Personal protective equipment.

The program came to an end with the distribution of safety gadgets as personal protective equipment. Preventive measures to increase the awareness of ergonomic factors, and to recognize and avoid unsafe working conditions were stressed. Furthermore, workers were made, to understand why it is important to pay attention to prevention, and what might happen if this is neglected. They were made aware of the benefits of adopting good practices and work methods and follow a changed life style.

An important feature of the programme was that the Department of Workers Education had paid ₹100/- each for the participants as honorarium for attending the same. The course was also made interesting by screening of documentary films on health and hygiene, women and child welfare schemes, literacy campaign and the like by the personnel from the field publicity office (Government of India), Coimbatore Region.

3.2. Distribution of Personal Protective Gadgets

None of the samples were found to be protected with any personal protective devices in the work sites. Neither were they found to device one on their own. Hence two salient devices were thought of and distributed to the participants. During the valediction, surprise gifts of safety gadgets like head load support (personally made by the investigator) and hand gloves (donated by the Rotary club of Coimbatore Texcity) were distributed.

All the stakeholders showed active interest in disseminating knowledge to concerned target groups and hence remained in the premises for two whole days, which gave the participants further opportunities to interact and clear their doubts.

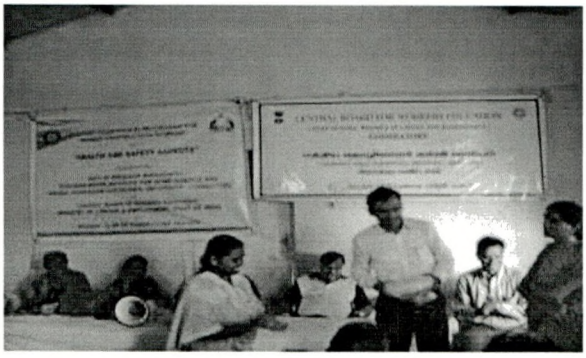

Figure 6: Distribution of safety gadgets

3.3. Response from the participant

At the end of the two day program the participants were asked to give their feedback. Responses expressed pointed out that the programmed were very useful and informative. They agreed that they have learnt many new aspects such as application of Ergonomics in daily living and in their workplace, healthy habits in daily living, healthy diets, social security scheme (Factories Act), benefits of registration to construction union and of personal protective equipment.

Figure 7: Participant giving their feedback

The collaborative Endeavour had proved very successful in that the impact was highly positive, as the participants pledged/groomed to adopt the ergonomic suggestions in their routine activity too.

Almost two thirds of the participants expressed their appreciation for conducting the programme and the purpose for which it was organized. They expressed the contents of the programme to be very useful as they were eye-openers to many of them on health issues and ergonomic concepts and were impressed upon the lectures and documentary films

which taught them about the impending occupational health disorders that they may fall prey to if not careful in ergonomic terms. Above all they were very happy over the terms in the agenda on registration to Tamil Nadu Construction Welfare Board office, Coimbatore.

3.4 Facilitating Registration

It was clear from the survey that the workers were totally ignorant about the possibility and the benefits of registration to the Construction trade union office and therefore had not registered. They were not aware of it as a social security measure. With this in view arrangements were made to facilitate registration of the selected sample included for intervention in the construction trade union office to enable them to enjoy the benefits provided by the Government. As the ward Councillor and the President of the Tamil Nadu Construction Welfare Board of the Union office, Coimbatore were also invited as resource persons for the programme, facilitating registration of the participants in the trade union office became quite an easy task. Once they were assured of their benefits, they shed their reluctance to register under them.

Figure8: Facilitating Registration to the Construction Workers Union Office

3.5. Follow up

Working conditions and ergonomic problems are best identified and solved in co-operation with those who are mostly involved in the process [5]. Thus, an Ergonomic Intervention Programme through workers' participation, assumed to be a useful method, in combination with other macroergonomics methods, for analyzing a change process [8], [6], [7] was decided upon. The evaluation part of the programme organized was done administering the same checklist which was distributed to the participants before conducting the programme (pre evaluation). Post evaluation was done 10 months after conduct of the programme. Knowledge gained by the women construction workers through the program for each session was evaluated.

Figure 9: No Protective device before intervention

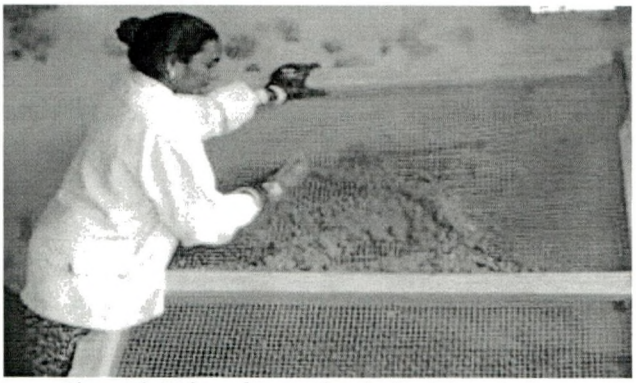

Figure10: Using of Protective device (gloves) after intervention

Hence the programme had effectively suggested ways to reduce incidence of work related musculoskeletal disorders in the samples by adopting:

- Changes in work processes
- Changes in work methods
- Healthy habits in daily living
- Simple ergonomic principles in daily living
- Use of personal protective equipments
- The benefits of registration
- Practical awareness on work related injuries and pain

3.6 Recommendations

Health and safety at work is an essential issue of working conditions for the workers. It is important to understand that there are a variety of hazards in most workplaces that can affect their health and safety of the workers. Equally important is to learn what hazardous agents and work processes are used by the worker in their workplace. Hazardous agents can get into the body by various routes of entry, and can cause local, systemic, acute and chronic health effects. Worker and Worker union can take a variety of actions toward eliminating and controlling hazards and creating a safe and healthy workplace.

All construction workers have a right to work on sites where they do not get hurt or ill through work. Worker and the main contractor on site are responsible for health and safety. They must help themselves by being awareness on their own and their workers responsibilities. Ergonomics and health promotion can prove beneficial.

3. CONCLUSIONS

When ergonomic changes are introduced into the workplace or job site, they should always be accompanied by worker training on how to work safely. Therefore this Ergonomics intervention programme was given to these women construction workers to provide insight into some social security schemes with good occupational health services. Health education was provided to practice good personal hygiene. Properly maintained and correctly used gloves are very effective means to prevent occupational skin diseases. Hence as personal protective device gloves and head gear were provided to these workers, giving emphasis on the regular use and maintenance of personal protective devices. It has been an earnest effort on a smaller group. This can be extended to larger masses with collaborative endeavours.

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