Occupational Health for Women: A Current Need

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Women play diverse role in our society. Often they handle two or more tasks simultaneously. They are, therefore, prone to suffer from work related diseases which are further complicated by social, psychological, and physiological issues. Roughly one out of 300 females is suffering from some occupation related diseases and about same number of new cases add on to the existing cases each year. The lack of occupational health services result in this unwarranted sickness. Here we examine interplay of different related issues and outline a strategy for an action programme.

Introduction

The proportion of employed women in the past few decades has increased phenomenally. These women are, therefore, exposed to different types of work related hazards. The working conditions of women in India are currently similar to those found in the early 19th century in industrialised countries. Large numbers of women entered the job market during industrial revolution, and were exploited as a source of cheap labour and the working conditions were riddled with grave occupational hazards1.

Reports about exposure of female subject to silica, beryllium, benzene, and vinyl chloride serve as past examples of indifference to women at the work-place. The lack of regulation for waste anesthetic gases and antineoplastic drugs to protect health care workers indicates that the indifference continues even today2.

The Finance Minister, Government of India, has decided to set up a task force for reviewing the existing laws and government schemes on the role of women in national economy, thereby accepting the input of women in various occupations and their weak position in society. Further the Government of India has also resolved to observe the year 2001 as “Women’s Empowerment year”3.

There is a growing realisation that the occupational health problems of women workers merit special attention for several interrelated reasons. The physiological, psychological, and health care needs of women are proportionately greater, as they are burdened with multiple responsibilities like: (i) Bulk of housework4, (ii) Care of young, aged, and sick; (iii) Responsibilities of home; and (iv) The work at the place of employment. Child bearing and rearing (pregnancy and lactation) gives rise to a legitimate health concern at work-place and requires safe guards specially with reference to chemically induced teratogenicity. Table 1 briefly summarises the hazards and adverse health effects in some of the occupations where women are chiefly employed.

The objective of this article is to outline the inter-face of different social, cultural, physiological, and psychological issues which have a bearing on occupation related sickness among women and to suggest an action plan for the perusal of academicians, scientists, and policy makers. This will result in an informed discussion about desirable
changes at different levels of governance that may lead to improved health and safety for the working women in India.

**Burden of Occupational Disease Among Indian Women**

Despite many studies regarding occupational health problems of women in India the exact magnitude of occupation related diseases among Indian women is not known. Recently Leigh et al. have calculated burden of occupational diseases in various countries and have reported that 100.69 million new cases of occupational injuries, and 1.85 million new cases of occupational diseases occur each year in India. Based on their values of global estimates regarding expected number of cases for different occupational diseases among women the likely number of women suffering from occupational diseases in the year 2000 AD in India has been calculated taking the population to be one billion and sex ratio to be 927 females to 1000 males. This works out to 1.65 million women having occupation related sickness. The nature and magnitude of specific occupational diseases are depicted in Table 2. As most of these disease have a chronic course and 1.85 million new cases will add on each year the problem may become stupendous in the coming decade.

**Social Issues Relating to Employed Women**

In quite a few occupations, women employees are forced to use a combination of sick leave, or leave with half pay/ without pay during maternity and only a small percentage of employers are providing any kind of child care assistance, such as creches and day-care centers. Factories Act in our country, lays down the statutory requirements but
Table 2—Probable magnitude of different occupational diseases among women

<table>
<thead>
<tr>
<th>Disease</th>
<th>Expected number of suffering women/million female world population</th>
<th>Likely number of women suffering in India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumoconioses</td>
<td>126</td>
<td>60,606</td>
</tr>
<tr>
<td>Chronic respiratory diseases</td>
<td>126,1</td>
<td>366,041</td>
</tr>
<tr>
<td>Musculoskeletal diseases</td>
<td>1,102</td>
<td>530,062</td>
</tr>
<tr>
<td>Cancer</td>
<td>21</td>
<td>10,101</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>183</td>
<td>88,023</td>
</tr>
<tr>
<td>Pesticide poisoning</td>
<td>24.4</td>
<td>11,736</td>
</tr>
<tr>
<td>Other poisonings</td>
<td>46.3</td>
<td>22,270</td>
</tr>
<tr>
<td>Skin diseases</td>
<td>1,011</td>
<td>486,291</td>
</tr>
<tr>
<td>Noise induced hearing loss</td>
<td>166</td>
<td>79,846</td>
</tr>
</tbody>
</table>

The same may not be binding in all the occupations. Such a patchwork of protection is inadequate and a uniform national legislation is definitely called for to address this problem.

Female-intensive occupations are often plagued by requirements that contribute to specific health problems. Clerical and assembly jobs are repetitive and monotonous tasks, with unvaried job requirements, daily wage system and often oppressive monitoring. Occupations like nursing, teaching and social service demand responsibilities related to welfare which are in sharp contrast to role expectations and grass root reality. Jobs with competitive requirements have their own hazards, 83 per cent of women respondents in such jobs compared to 53 per cent of men, reported that they always or often felt that they had to perform the best whatever they did. In physically demanding and risky situations, women may feel pressurized to attempt unsafe work as a way of proving their abilities and establishing credibility with their male counterparts. Nurses and maids working in psychiatric hospitals have to deal with violent patients in their day-to-day work. Social service workers are often victimized by frustrated clients. Adequate security systems and sufficient staff can solve the issues of personal security.

Sexual harassment at workplace affects 36 to 88 per cent of working women in both traditional and non-traditional jobs.

Sexual harassment includes any untoward verbal or physical advance, ranging from sexual comments, pressure for sexual favours accompanied by outright or subtle job threats and even physical assault. Besides loss of opportunity for career advancement, this is associated with psychological trauma and stress. Only 25 per cent of women reporting unwanted sexual advances seek medical or psychological help. Recently, guidelines have been issued by the Supreme Court prohibiting sexual harassment at work place.

**Physical and Ergonomic Issues**

Ferro-luzi have studied women from India, Ethiopia and Benin for energy stress in marginally nourished women and reported that body mass index (BMI) of underprivileged Indian women was 18.1 which was low and many of those women could be labeled as chronic energy deficient. The basal metabolic rate (BMR) values among Indian women were barely 65 per cent of that observed in women from other two countries. The low BMI and BMR raises question as regards to physical activity and ergonomic issues which have not been adequately addressed till date.

Although ergonomic concerns are not gender specific, women are particularly at risk because most tools, work stations, and personal protective equipments are designed to fit “the average male”. Machine designs suitable to men are, as a rule, not suited to women. Carpal Tunnel Syndrome (CTS), a disabling hand disorder resulting from nerve compression inside the wrist is associated with repetitive, hand-intensive jobs like garment making, cash reg-
ister operations and video display terminal (VDT) jobs where women are chiefly employed. More than 25 per cent of 600 VDT operators were diagnosed with CTS or pre-CTS because of repetitive motion as a result of working at improperly located computer key-boards. Fatigue, headache, visual disturbances, backstrain and other musculoskeletal disorders are because of poorly designed work stations, equipments and improper lighting which have also been reported by VDT users. Rao et al. have reported that 72.4 per cent of females suffered from asthenopia as compared to only 33.8 per cent of male VDT users. They attributed this to higher prevalence of anaemia detected among female subjects. Assembly lines, work benches, chairs, tools, etc. in the case of women operators have to be designed as per their anthropometric needs. Ill fitting personal protective equipments are common and often result in increased exposure to work-place hazards with adverse affects on the health of working women.

Reproductive Hazards Vis-a-Vis Occupational Exposure

Occupational Safety Health Administration has regulated only four agents: (i) ionizing radiations, (ii) lead, (iii) dibromochloropropane, and (iv) ethylene oxide on the basis of their potential to cause reproductive dysfunction. Both paternal and maternal exposures have been implicated in the adverse pregnancy outcomes. These are broadly infertility, spontaneous abortions, premature delivery, low birth - less weight babies and congenital anomalies. The factors responsible for these may be of physical, chemical or biological nature. A positive relationship between delivery of premature children and occupational fatigue was reported in jobs that involved standing for 3 to 4 h a day working at tasks requiring little attention and working in a humid and noisy environment. Studies indicate that exposure to 85 dB or higher levels of noise and shift work, especially rotating schedules, may have an independent and negative effect on birth weight and length of gestation. Exposure to noise and shift work has also been reported to cause menstrual disturbances and infertility.

Toxoplasma-rubella-cytomegalovirus (TORCH) infections acquired during pregnancy may result in congenital abnormalities in the neonates. School teachers and day-care personnel have an increased risk of exposure to varicella, human parvo virus, and mumps. Physicians, nurses, and other health care personnel are susceptible to hepatitis B and HIV infections which may adversely effect pregnancy out-comes in females.

Large proportions of women are engaged in agricultural work. Exposure to agrochemicals including pesticides (insecticides, herbicides, fumigants, and fungicides) are known to be detrimental to health. Increased prevalence of spontaneous abortions have been reported in India where both the parents had long - term chronic exposure to several pesticides.

Exposure to high levels of solvents in work environment may increase the risk of spontaneous abortions. Association of spontaneous abortion seems to be most evident in subjects exposed to toluene, methylene chloride, tetrachloroethylene, petroleum ether, xylene, and formaldehyde or aliphatic hydrocarbons including paint thinners. Bihar et al. while reviewing the health hazards of waste anesthetic gases in surgical operation rooms commented that to date the exact number of persons exposed in India may be more than 150,000 - a good proportion of these are women. A policy of transferring pregnant workers exposed to levels exceeding 10 per cent of the threshold limit value to other safer jobs or sanctioning special maternity leave has been adopted in some countries. Table 3 depicts concentration limits of some chemicals vis-a-vis reproductive hazards.

Respiratory Diseases

Women’s respiratory disorders in India are linked with domestic exposure to cooking smoke. In places where biomass fuel are commonly used, similar rates for diseases such as chronic bronchitis and cor-pulmonale are found for men and women. Occurrence of the onset of cor-pulmonale is, however, at an early age in the case of women.
carcinogenic in work environment. An association between salivary gland cancer among those employed in hair dressing shops, oesophageal cancer among those employed in restaurants and bladder cancer in carpet manufacturing need further research.  

The high rate of lung cancer reported in Chinese women specially from Xuan Wei county could be attributed to the combined effects of passive smoking and poor quality of coal used as fuel.

**Occupational Health Services in India**

At present, there is no comprehensive occupational health service in India. The relevant portions of the Directive Principles of State Policy, in the Indian Constitution state that (a) “The State shall, in particular, direct its policy towards securing that the health and strength of the workers, men, women, and the tender age of children are not abused, and the citizens are not forced by economic necessity to enter avocations unsuited to their strength, (b) The State shall make provisions for securing just and human conditions of work”. The organisation of Directorate General, Factory Inspection and Advisory Services deals with questions relating to the administration of the Factories and other Acts and the rules framed, besides the training of factory inspectors, and factory medical officers.

The State Departments of Health and Labour, through the Chief Inspector of Factories and his staff are responsible for enforcing the legal standards laid down in the various Acts at the plant level. Other organisations active in the field of occupational health are Director General Mine Services, National Institute of Occupational Health (ICMR), Industrial Toxicology Research Centre (CSIR) and certain non-government organisation like Indian Association of Occupational Health, and Employees State Insurance Scheme even then the delivery of occupational health services are at best patchy. While most of the large industries have their own occupational health set up, other industries and self-employed people do not have access to specialised occupational health services of any sort.

### Table 3—Potentially harmful levels of toxicants for pregnant women*

<table>
<thead>
<tr>
<th>Agent</th>
<th>Exposure level considered harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaesthetic gases</td>
<td>Halothane 1ppm/8h, 3ppm/15 min Nitrous oxide, 100 ppm/8h Nitrous oxide, 100 ppm/8h Isoflurane, enfurane, 10ppm/8h</td>
</tr>
<tr>
<td>Inorganic lead</td>
<td>B-Pb, 0.3 μmol/l</td>
</tr>
<tr>
<td>Mercury</td>
<td>U-Hg, 50 nmol/l</td>
</tr>
<tr>
<td>Cytostatic drugs</td>
<td>Preparation of the drug solution for therapeutic administration</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>14 ppm/8h</td>
</tr>
<tr>
<td>Organic solvents</td>
<td>10 per cent of the Finnish occupational hygienic value</td>
</tr>
<tr>
<td>Carcinogens</td>
<td>Any exposure at all</td>
</tr>
<tr>
<td>Ionizing radiation</td>
<td>2 mSv on the abdominal skin (1mSv in the foetus)</td>
</tr>
</tbody>
</table>

* Ref. 24

Silicosis among women from the developing countries is usually reported in pottery industry and tends to progress more rapidly as compared to men. Many women in our country are exposed to silicious dust in agate, pottery, construction, stone quarrying and grinding industries. Further, undetected pneumoconiosis in rural women may be caused by a combination of dust from grain grinding and smoke from biomass fuel. A majority of these women do not have access to adequate medical facilities.

**Skin Diseases and Allergy**

A good proportion of women are engaged in jobs that involve continuous and prolonged contact with water, detergents and organic material. These women are at a risk to infectious skin diseases. Liden has reported that contact allergy to nickel is found in 15 per cent for women and 2 per cent for men. Further, 40 per cent of those with contact allergy develop eczema of hand. The problem is specially pertinent in the case of women because more women as compared to men are engaged in such jobs.

**Occupational Cancers**

Occupational exposure to tetrachloethylene used as a hair dressing agent has been identified as potentially harmful for women. An association between salivary gland cancer among those employed in hair dressing shops, oesophageal cancer among those employed in restaurants and bladder cancer in carpet manufacturing need further research.

The high rate of lung cancer reported in Chinese women specially from Xuan Wei county could be attributed to the combined effects of passive smoking and poor quality of coal used as fuel.
The medical doctors are also not well equipped to deal with occupational health problems as only a few hours of teaching time is devoted to occupational health and medicine in the under-graduate medical curriculum. Further, no medical college or post graduate institute has a chair of occupational health, though All India Institute of Public Health and Hygiene, Calcutta is running a post graduate diploma course in Industrial Health, besides a few other institutions. Lack of coordination between those dealing with safety and those dealing with health further add to the confusion. Thus issues pertaining to women in the area of occupational health as a rule get low priority.

Suggested Actions

International Labour Organisation (ILO) statistics indicate that women account for 44.5 per cent of labour force in this year, i.e., 2000 AD, which comes to roughly 828 millions economically active women in world21. The demand for paid work is escalating everywhere. Women are now entering labour force in increasing numbers either by choice or necessity, often with lower recompense and recognition. A large number of these women are employed in informal sector and home based work, they are not even protected by any legislation. In the Indian context, while legislation exists for monitoring working conditions and providing social benefits the lack of ability to understand legal text means that women do not have the information or skills needed to benefit from these laws. Further the low proportion of women in trade unions means that the women workers cannot lobby for their rights.

The nature and magnitude of occupational health problems of women workers are such that they need to be addressed urgently. Strategies for protection of health of the women workers have to be thought out, and could be on following lines:

(i) Articulation of a national policy on occupational safety and health, taking cognizance of female labour force and the three key roles of women, i.e., housewife, mother, and worker. The effect of each role on health should be critically reviewed while rectifying the potential conflicts and contraindications. The aim of the policy should be to prevent accidents, injuries, and diseases which arise or are linked with or occur during the course of work22.

(ii) ILO resolution on equal opportunity and equal treatment for men and women23 passed in 1985 should be recognised as the guiding principle for existing and future legislative action. These are: (a) Women and men should be protected from risk inherent in their employment and occupation in the light of advances in scientific and technological knowledge; (b) Measures should be taken to review all protective legislations which are applied applying to women in the light of up-to-date scientific knowledge and technological changes and to revise, or repeal such legislation, according to the national circumstances. These measures should be aimed towards improvement of the quality of life and at promoting equality in employment between men and women; (c) Efforts should be made to extend special protection to women and men for type of work known to be harmful for them, particularly from the standpoint of their social function of reproduction, and such measures should be reviewed and made up-to-date periodically in the light of advances in scientific and technological knowledge.

(iii) National statistics on occupational health must be improved. Statistics on occupational accidents, injuries, diseases, and compensation as well as sickness absence will help in the development of a national information strategy which include dissemination of complete information on occupational safety and health of working women. Such action may assist the development of national standards and guidelines regarding specific hazards faced by working women.

(iv) Occupational health has to be linked with related sectors and intersectoral collaboration is essential for its development. Specifically, there is a need to organize proper functioning and competent occupational health services for all workers taking cognizance of problems relating to women so as to ensure healthy and safe workplace. Such a service should be socially and culturally oriented to care
for the special needs and health requirements of working women, specially those in agriculture and the informal sector. Such services should be comprehensive and based on the primary health care approach, which is anchored on the principles of prevention, promotion and health protection.

On a short-term basis the medical officers posted in primary health centres need to be oriented towards occupational diseases and should be conscious to the role of occupational factors and their clinical manifestations, including therapeutic aspects in day-to-day delivery of health care.

(v) Competent occupational health and safety activities require appropriate training. Efforts should be intensified to enroll more women in institutions imparting training for health and safety at work. Women should be encouraged to participate in national and international seminars/workshops/conferences on occupational health. This platform would allow for exchange of ideas, broaden their knowledge and information, thereby creating awareness pertaining to occupational safety and health activities resulting in increased demand for occupational health services from women themselves.

References