



Women Reproductive Health and Occupational Safety: A Literature Review

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Abstract

Female safety and their reproductive health at workplace has been a great challenge for organizations all over the world. Addressing pregnancy-related health issues in the workplace is important in order to formulate appropriate strategies to promote and protect maternal and infant health. As there has been a lot of study and surveys about occupational reproductive hazards but a large number of possible risks still require further analysis and some need modifications. This review will mainly focus on the ill effects of various factors on the pregnant women at workplace.

Keywords

Occupational safety; Women reproductive health; Fertility; Fecundability; Caesarean delivery; Abortion; Stress; Hazard; Risk assessment

Introduction

Leaving apart some developed countries, in most countries women do household work which includes cleaning the house, caring for other family members: children, the sick and the elderly, preparing food, teaching young kids, etc. [1].

The two most common issues faced by women at workplace are occupational hazards and reproductive health hazards.

What are occupational hazards and women reproductive hazards?

Occupational hazards deal with the adversity and injury or accident prone physical nature of workplace. However, women reproductive hazards deals with factors that affect sexual health and pregnancy related issues of women. Hazards may be occurring due to chemical, physical or biological exposures. Reproductive hazards may occur due to lead (chemical), bending (physical) and certain viruses (biological) [2].

Many occupational diseases and disorders are chronic, which means that they take long years of exposure to develop. It is very difficult to identify such hazards as they are not seen in day to day life and cannot be analyzed very easily.

To encourage the required research and to improve the reproductive hazard exposure assessment and management, the

National Institute for Occupational Safety and Health (NIOSH) has formed a National Occupational Research Agenda Team, to communicate and partnering among reproductive toxicologists, clinicians and epidemiologists [3].

In the year 2001, NIOSH had expanded its research program to address the occupational safety and health needs of working women [4].

Occupational Factors Affecting Fertility, Fecundability and Reproductive Function of Women

Physical adversities

Occupational health risks are not just a matter of women's safety. Risks need to be completely understood, and dealt with, in the context of a gender-specific analysis of occupational health. Women are reported to be at much lower risk of occupational injuries and accidents than men, this is the main reason for the neglect of women's occupational health issues.

Women working in extreme conditions like heavy lifting, frequent bending, high noise, extreme temperatures, prolonged standing, and also women exposed to other factors like shift work and inflexible schedules had higher odds of cesarean delivery and abortion [5,6].

Women working in nuclear power plants or at a production facility that has high exposure to radiations are evident to the risk of exposure to non-ionizing and ionizing radiation, with the highest levels of exposure associated with spontaneous abortion, fetal growth restriction, mental retardation, and cancer. Non-ionizing radiation includes electromagnetic waves, microwave, ultrasound, radiofrequency and there are no major risks associated with exposure to non-ionizing radiation. Consequently, ultrasonography is safe to perform during pregnancy. Ionizing radiation includes particles and electromagnetic radiation (i.e. gamma rays, x-rays). In utero exposure to ionizing radiation can be carcinogenic, teratogenic, or mutagenic. The risks associated with ionizing radiation exposure are extremely critical upon period of fetal development and level of exposure, with the greatest risk occurring between two to seven weeks after conception i.e. during organogenesis and in the early fetal period i.e. eight to fifteen weeks after conception [7,8].

Chemical exposures

Exposure of harmful chemicals to the women working in factories, power plants, manufacturing units increase grave concerns over their safety at the workplace and also their reproductive health. Working in the presence of harmful components like lead, carbon monoxide, nitrogen dioxide, methane for long duration are linked to fetal death, functional alterations, and anatomical malformations [2,7,9].

Stillbirth has also been found to be more common among women who work in metal, electrical, chemical industries, and women exposed to low levels of pesticides and germicides [10]. Exposures to solvents used in chemical industries, even three months before conception, can be associated with SGA risk (Short for Gestation Age risk) [7].

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Industries which process jute, coir and cashew nuts, or involve rubber, tea and cotton as well as textile industries, expose women to toxic chemicals and physical stress. Women working in local cigarette factories are exposed to tobacco dust and susceptible to problems that include respiratory problems like tuberculosis and asthma, as well as other allergies, backache, and rheumatic problems [11]. Poor sanitation, inadequate and contaminated water supply, and garbage disposal problems along with the above-mentioned safety issues at the workplace make them even more vulnerable to occupational risks.

Biological exposures

Exposures to biological agents is another area of concern for maternal and infant health. Women working in health care services are very likely to be exposed to work-related accidents that lead to contact with biological agents like cytomegalovirus [7]. The common ways of such exposure are more specific in nurses as they are involved with direct and indirect care of patients suffering from several diseases. It may occur while administering medication, dressing the wounds, sterilizing the surgical materials, etc.

Women working in biotechnology, research, and development labs, and working on microorganisms, bacteria, viruses, fungi, etc are also prone to some infections that may lead to serious ailments.

Women working in the meat processing and packaging industry are exposed to 'meat wrappers asthma' as well as another obvious risk of animal transmitted infections.

Skin allergies and diseases are reported in women working in the fishing industry, as well as beauticians, hairdressers.

Psychological impacts

Greater levels of anxiety are found among employed pregnant women, as opposed to unemployed pregnant women [12]. High levels of job stress have been linked to decreased birth weight and premature (preterm) delivery of a child. The literature does support that pregnancy is a source of maternal stress.

Women often have to make their place in predominantly male-dominated industries where they face a lot of challenges. In most industries, women are in the minority where they have to compete against their male counterparts and also fulfill their household responsibilities amid all the gender bias, allegations by colleagues of taking advantage of being women to move up in the hierarchy.

The concept of stress during pregnancy is also an area of public health concern. The job stress mounts up when women are in a dilemma between their social role and the personal desire of rising in the corporate ladder at the workplace. When women become pregnant, they must add the role of 'mother' to their pre-existing role of 'employee' or 'professional'. At times these roles may conflict. The integration of these two roles is one of the most significant challenges pregnant women face in the workplace.

Many women felt that they needed to work even harder to break the stereotypes among the society that pregnant women are not dedicated and competent enough to do their jobs efficiently. Many women refuse to take any special consideration or extra time off so that they are not being tagged as lazy or uncommitted [7]. Most women avoid conversations about pregnancy with co-workers and superiors until later in the pregnancy. The reason for the delay might also be because of fear of missing out on pay raises or promotions.

Discussion

Women's labour force participation rates have increased steadily, not just in Western countries but also in newly industrialized states of Asia and Africa. Male and female bodies are biologically and socially (depending upon culture and upbringing) different, so they react differently in the same health risks [1,13].

Women have many life roles to play. Mother, wife, friend, employee, caregiver, and the list goes on. The complexity of these roles is very likely to cause ups and downs throughout life. The pressure of keeping up with the expectations of all the roles becomes the prime reason of depression [1]. Pregnant women already are vulnerable due to biological changes, mood swings (because of reproductive changes, menstrual cycle) but at the workplace, they are exposed to even more depressive symptoms because of higher-level work-related burnout, lower job control and reduced support from the superiors and subordinates.

Occupational health hazards among women are at a significantly higher level in developing and underdeveloped countries because of a lack of infrastructure, inefficient regulatory bodies, and lower levels of education and awareness among the workers [1,14].

Women suffer from health issues in not just skill-based jobs but also in high-performance jobs like managers and financial officers, women are more exposed to cigarette smoking and hence significantly elevates lung cancer mortality [11].

Apart from health hazards, women are more prone to face abuse at the office, they are paid lesser than their male counterparts and in recent times as the life expectancy has increased, for women, it means that they need to earn more while they are employed so that they can take care of themselves when they are old and unemployable [1].

Conclusion

Many legislations and regulations have been made to make workplaces safer for women but their implementation has not been up to the mark. The first three months of pregnancy represents the most vulnerable period for women as many of the physical and psychological challenges occur during this period. Hence, preconception care is a strategy recommended to provide health promotion, screening, and interventions for women of reproductive age to reduce risks that could potentially affect future pregnancies.

Even the males should be given training sessions related to problems faced by women in workplaces, some basic knowledge of helping women while doing certain tasks. The supervisors, managers should also be trained so that they are not biased and are more sensitive towards women working in their supervision.

The childbearing age and pregnant women should be given training sessions regarding work and also personal health. Providing transportation to them, having trained midwives in the workplace will improve the conditions significantly.

Risk assessment of all the women of reproductive age should be done so that proper measures can be taken to reduce health risks to women during pregnancy.

Organizational that supports women and appropriately plan for pregnancy can reduce the psychological pressure on women which will equip them to have enhanced employee retention and can more effectively integrate women of childbearing years into the workforce.

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