

OCCUPATIONAL HEALTH OF WOMEN: ANALYZING PHYSICAL AND PSYCHOLOGICAL IMPACTS ON THEIR HEALTH

Dr. Rukhsana, Dr. Shagufta Nasreen, and Dr. Shazia Sharafat

ABSTRACT

Occupational health endorsed with the promotion and satisfactory level of physical; mental and social security of men and women at workplace. This paper specifically focusing on women occupational health which are involved in agricultural work, it is observed that women working environment in farms is unsafe, have double burden to look up orchids and farms and their primary responsibilities to look after household economy. The main purpose of the study to highlight the health issues both physical and psychological impact of women working in agriculture sector. Women working in agriculture selected through purposive sampling, 200 women were interviewed as a sample of the study. The study finds out that women faced various physical problems like musculoskeletal, throat sore, backache, breathing problem, allergy, skin diseases including reproductive health issues. It is suggested that empowered women agricultural workers build their capacity for safe and decent working conditions in order to deal with occupational diseases.

Keywords: *Occupational Health, Physical Hazards, Psychological Impact, Working Environment, Occupational Diseases, Sexual Harassment*

INTRODUCTION

Workplace has various ranges from home based offices to offices in buildings or can be factories and industries where people work for their employers in order to earn. However, industrialized economies' workplaces are considered an important social space rather home. In addition there are many debates on safety and security at workplaces, as developing nations have massive complaints as their labour force working in hazardous factories due to worst infrastructure which causes illness and injuries. In this regard, this paper is emphasizing on workplace environment, security and planning of health policies to secure employees. The study highlighted the issue related to occupational health of women in agricultural areas of Karachi,

Pakistan. The paper examined exposure to occupational health among women in agriculture sector. The topic is chosen after observing that women faced unsafe, violent and poor working atmosphere which increased hazard risk and affecting women's workers health. It is observed that majority of females are engaged in agricultural field works, but also witnessed gender division of labour while allocating tasks at farms.

The area of topic considered for research after acknowledging a report published by International Labour Organization (ILO) in 2010, where number of occupational diseases were observed in agricultural economy which damage bodily organs including infectious disease; respiratory diseases; multiple skin problems; musculoskeletal disorders; hair fall problems; breathing issues and cancer. The medical research investigated the major causes behind these occupational diseases in farms i.e. hazardous chemicals; pesticides, and fertilizers which are extremely precarious for human lives. However; these problems are on rise in developing nations because agriculture is the mainstay of such economies. There are multiple issues highlighted at international level in a way to overcome such problems, for providing safe and healthy workplace for farmers and peasants through bringing developmental strategies for the agricultural sector.

Women are considered main component of the development, as their contribution mainly neglected in agriculture and domestic responsibilities child, however; there are few women data available statistically who are working in the mainstream economy including in trade and wage employment. It seems like women have two jobs around the home and outside home everywhere in the world. Despite the fact, women work in private spheres never recognized because it is considered unpaid work. In south Asian region, large number of women involved with agriculture and related activities without compensation or less paid worker (ADB, 2015). Women face a number of environmental hazards by nature of their work and increased the possibility of injuries and diseases high environmental temperature summer or winter in both seasons, different types of infections etc. It is further seen that commonly women provide care to the farm animals and sometimes they become the reason of infections. In fact, in agricultural activities women have to work for without rest and they have to spend more time due to economic pressures. The multiple roles of women within home and field are contributing to depression among rural women involved in agricultural activities (Delworth et al., 1988; Gallagher & Delworth, 1993; Garkovich et al., 1995).

The researcher notified the similar problems in district Malir, Karachi, Pakistan. It is witnessed that women are working in hazardous conditions as women are not allowed to wear sleepers or shoes in the farms, during spray of pesticides no masks provided by the landowner, and they were not aware about any prevention measures and don't consider it hazardous for their health while work in agriculture land. The paper further discussed the in depth information and observation of field work and the state of women in detail.

Objectives

1. To highlight the health problems of women in agricultural labour.
2. To find out the psychological issues of women working in agriculture.
3. To explore the psychological impacts on women work tasks.

Research Questions

1. Does the workplace safe for women in agricultural sector? This point is very critical issue of this study as it is being known as family occupation, so is there any type of incident of sexual harassment in agricultural field experienced by women or not; and evaluating that is there any law available in Pakistan or not for women who faced harassment?
2. The study also exploring the occupation health impacts on women in farms, as in fields there are no such preventive measures taken to avoid germs and chemicals which could have adverse effects on women physical health.

LITERATURE REVIEW

According to the Economic Survey of Pakistan, 43.7 percent of labour engaged in the agriculture sector. As agriculture is the mainstay of the economy, it is playing potential role and considered productive in growth of the economy (Pakistan Economic Survey, 2017-18). Globally, agriculture is the second largest source of employment in the world. Agriculture is the field where women work and employed more in many developing countries, a most important share of agricultural workers are women, especially in Africa and Asia (Tricia et. al., 2020). After green revolution, agribusiness likewise includes a wide scope of various sorts of apparatus, creatures, plants and items, working in both indoor and outside conditions under broadly fluctuating geographic and climatic conditions. In several developing communities labour-intensive farming is more common while in developed countries agricultural enterprises are highly mechanized and work on large scale (Ayesha & Raza, 2018; ILO, 1998).

According to Food and Agricultural Organization (FAO, 2011), women constitute about eight percent of population in the agricultural labour force in the world, 20% in Latin America while 50% in the East and remaining found in Southeastern Asia and Sub-Saharan Africa. In East and Southeast Asia, women are substantially contributing as worker in agriculture sector, which is higher than the average in sub-Saharan Africa. (ILO, 2017; FAO, 2002 & 2011).

It is also observed that with the passage of time technology and modification in working ways through transformation has reduced and limited the human capital in agricultural activities. Due the reason employment is shifted to industries and manufacturing units. According to LFSP in agricultural unit reduced to 38.5% in 2017-2018 (male 30.4% and women 67.2%) from 42.3 in 2014-2015, (male 33.1% and women 72.7%) then employment shifted to other sectors as Industry consuming about 22.6 percent; the growing service sector increased to 35.1 percent because the sector has capacity to provide unskilled; semi-skilled or highly skilled jobs (LFSP, 2018).

However, further strengthening of agricultural sector would yield raw material and generate more consumption of human resource. This not only helps to generate employment but could be proven fruitful in creating foreign exchange in the country. In this regard, we need to invest in value addition sector, as to furnish product locally and make them ready for exports. Whereas, natural calamities for example droughts and floods are also declining agricultural capacities so, there must be environmental protection policies in the region to avoid such incidence of natural disasters.

Occupational Health of Women

Occupational health attributed with the promotion and satisfactory level of physical; mental and social security of men and women at workplace. It is also mentioned in ILO rules that both the genders should have regular checkups for TB, typhoid, hepatitis, malaria, and other disease in a way to provide regular immunisations of such diseases to the affected persons. In addition, it is necessary to deliver environmental sanitation to the employees which includes smooth water supply, proper food, toilet, clean and tidy atmosphere, space and lightning, proper ventilation and prevention from all kind of hazards faced by employees including men and women. However, this paper specifically focusing on women occupational health which are involved in agricultural work, it is observed that women working environment in farms is unsafe, have double burden to look up orchids and farms and their primary

responsibilities to look after household economy. According to the ILO, 2011 estimates, about 2/3rd of daily working hours served by women in paid and unpaid work within household and outside home and the work is invisible and unrecognized. The ILO explored that the agriculture sector is one of the most hazardous to health globally. There are many risks associated to health in agriculture sector such as wide-ranging use of chemical and organic products, difficult working positions and lengthy hours, use of hazardous agricultural tools and machinery and exposure to varying degree of weather as well (ILO, 2011).

Agricultural activities affected women's health especially reproductive health and resulting into increased morbidity and mortality. Many indicators show that agriculture and related activities or pesticides are harmful for human body and immune system. Health become as a serious restraint to agricultural production in future for both gender and particularly women. In modern crop production introduced pesticides and fertilizers as an essential part, while pesticides are being sprayed Women in the field continue to work in the field and as a result, women may face numerous reproductive health issues.

These women working in fields are faced with various health hazards related to back bone, nutrition, skin allergies and problems of reproductive health. Specifically, pregnant and breast feeding women have to face the dangerous after-effects of spraying pesticides. Pakistani women working in agriculture and fishing have reported skin allergies and diseases (FAO, 2015; CDC, 2017).

Women working in agriculture or related field are exposed to unsafe environment like high temperature in winter or summer in both, which reasons serious health issues. They work without shoes and did not care their feet, many women have wound and nail falling problems. Mostly agricultural areas are very far from residential areas and women and men work together; they go early in the morning, come back after many hours but they do not have basic necessities even bathroom is not available over there and they use open area. Safety and hygiene situation is very inappropriate for women because men easily use open area as toilet but women suffer n this condition.

The environment incorporates both physical and communal environment and women face a number of environmental hazards due to the nature of their work. Dangerous in the geophysical environment increased the possibility of injuries and diseases high environmental temperature summer or winter in both seasons, different types of infections etc. Commonly women care for

animals and animals have been recognized as cause of injury or infection. Social cultural factors that the main reason for injuries including cultural norms regarding the division of labour in agricultural activities long hours of work without rest and increased hours of exposure to potential injury producing agents due to economic pressures. The multiple roles of women within home and field are contributing to depression in rural and farm women (Delworth et al., 1988; Gallagher & Delworth, 1993; Garkovich et al., 1995).

Agenda 21 stated clearly for sustainable agricultural development, smaller dependency on pesticides through a variety of steps which would reduce exposures, including enhanced reliance on integrated pest management. In agricultural production women are exposed to pesticides as well as differential patterns of pesticide use between women and men, and unique health impacts on women's health. In women increase information about uses of pesticides, increases understanding of impacts on their health. Pesticides affected not only women's health but also effect on children through feeding. Other family members are impacted by illnesses due to pesticide exposure because women are also often the ones responsible for cooking and caring them (Sustainable Development Agenda 21).

Physical Health

Agricultural women worker has a higher level of occupational dangers. In Malaysia, an estimated 30,000 women sprayers of pesticide and on an average of 262 days per year frequently highly toxic like parquat. Although women do not directly apply the pesticides but they work without any safety and kept their children in a toxic atmosphere. Most of women agricultural worker do not know what type of chemicals dangerous for their own health and children. Farmer particularly women agricultural worker's access to information is much require (Caterbow & Hausmann, 2016).

The work-related incidents are extremely high in Pakistan since a huge number of labourers are normally faced to dangers at work place. Unfortunately data is not available on working incidents or diseases, for the reason that majority cases are not reported to the labour department and the legislation on occupational health and safety is not good in Pakistan. Workers, especially women and children, are at risk because they usually work informally and do not have access to basic health and safety protection as they do not know with occupational health laws (Tariq, 2001).

The use of pesticides and artificial fertilizers to increase agricultural profits is on the rise, with companies making these products telling farmers

that they are less harmful to the environment and human health. During the cotton-picking season, several female workers contracted a variety of diseases and deaths were reported in the southern Punjab and Sindh provinces due to pesticide harming. The general health of agricultural workers has worst regardless made high progress in medicine during the last two decades; pesticides additionally debilitate the invulnerable framework, making labourers more defenceless to illnesses like cancer, gastrointestinal contaminations and tuberculosis. (Tariq, 2001).

Abbas (2015) noted occupational injuries are very higher in agriculture sector including forestry and fishing as compared to industrial field. He further highlighted the facts that male workers at higher risk of occupational injuries than female workers, but the actual numbers of female workers is much higher than reported cases in Pakistan (Abbas, 2015).

Dr. Dalvie find out the facts during the study in South Africa, those women working and living on farms consequently absorbed a lot of pesticides, leading to high levels of cholinesterase while they have also found neurological symptoms, asthma and skin symptoms (Dalvie, 2010).

Dey et al (2013) found similar evidence in their study conducted in India in 2013, Most of the farmers were suffering from chronic diseases and the factors of spraying pesticides include excessive sweating, excessive sweating, dry / sore throat, blurred vision, dry / throat, blurred vision, and nausea were prominent among the farmers.

Harley (2009) observed Women affected by pesticides at work or at home take longer to get pregnant without a connection to pesticides. , Women who worked in agriculture or lived near 200 feet from farm in their home took significantly longer to get pregnant than those who had not used these pesticides (Harley, 2009).

Rother and Chitra explore that sometimes farmers did not use pesticides directly, but they came and start work in field within 24 hours. Mostly they did not care personal protection like gloves, mask and other protective things. They affected and felt burning or itching in eyes, too much sweating, dizziness, sore throat muscles weakness and muscles cramps (Chitra, 2006; Rother, 2008).

Economic Evidence published a report on Health at work, 2016 disclosed that the workplace and work execution contribute considerably to the circumstances also either on the grounds that the condition is deteriorating or

the work situation endure longer and the reason faced work related issues like wounds or issues of muscles, nerves, ligaments, joints, ligament, and spinal plates, etc. (Economic Evidence Report 2016).

Psychological Health

According to The World Trade Organization, in all over the world best quality products will be available without interruptions if provide healthier, harmless and environmental friendly workplaces (Anwar et al., 2013). Women have higher psychosocial risk where there are male fellows, clients or male supervisors (EU, 2008). They higher levels of harassment, annoying sexual attention, harassment and sexual violence and humiliating behaviour as well.

Harassment and sexually inappropriate behaviour at work instant effects on women's work and psychological health. In general, the result of harassment affected women physical and mental conditions including: lack of motivation, decrease self-esteem, lack of confidence, anxiety, depression and other physical and psychological disorders may also contribute to the increase of musculoskeletal problems. Women, who work in agriculture, hotels, restaurants and transport, as well as in the manufacturing sector, may be more affected for these categories (EU, 2016).

In both developing and industrialized countries, agriculture is one of the three most efficient sectors of human activity alongside mining and construction. In the agriculture sector women's work as farmer and wage worker is therefore not without some serious health repercussions (ILO, 2000). Harassment and sexual violence is common among agricultural workers either developing or developed countries it's all over the world. Thousands of women agricultural workers face these situation and bear in regular basis but they did not raise their voice. Male and female work together in the field because much agricultural work done outside in the field. The risk factor of harassment more increases for women because mostly supervisor are male (Henry & Adams, 2018).

Mental health foundation discovered association with psychosocial work stressors and common mental health problems, demand high performance at work, less or no participation in decision making, much efforts and low rewards mostly resulted in stress and psychological health problems (Mental Health Foundation, 2015).

The EU reported mental health issues, especially stress and depression

leading cause of absenteeism and early retirement. Mental Health Foundation (2007), observed that due to the role and status of women in contemporary society unprotected to different components that may expand the general danger of poor psychological wellness. Due to the growing number of women in the workforce, more attention needs to be paid to risk factors that affect the health and safety of women workers. Occupational safety and health protection policies have targeted “high-risk” sectors such as industry, agriculture and construction; however, these policies have had little effect on the female working population as a whole (MEF, 2007).

METHODOLOGY

The current study is an exploratory type based on descriptive research and total 200 women related to agro-activities were interviewed, with application of purposive sampling, the area was selected inhabitant with the population of same profession. Pertinent information for the current study has been gathered from essential and auxiliary sources.

The optional information was gathered from both distributed and unpublished sources. The data were collected and obtained from census books, journals, reports, official records. The required primary information was collected for the study from women labourers working in the agriculture sector. Since the majority of the women labourers were illiterate, it was decided to elicit the requisite information through interview method. For this purpose, a well-planned structured interview schedule was made.

RESULTS AND DISCUSSION

Safe and healthy work place is very important and necessary for the workers in every field of work because more or less they spend half of the time on work place and it is called occupational health. In rural areas, usually first aid treatment is used at home after occupational injuries or diseases because access to adequate medical care is more difficult than in urban areas.

As previously mentioned, employment in Pakistan is dominated by rural workers, as most people engaged in agriculture as their main occupation. A study on household found that rural areas have higher annual injury rate as compared to urban area (Mock et al., 2005).

ILO noticed that in rural areas health care unites are not completely prepared when contrasted with metropolitan regions, since urban communities are liked for resources distribution in most of the cases. Usually, health care system neglected in rural areas due to development gapes of infrastructure among

rustic and metropolitan territories (ILO, 1999). Women’s role in agriculture is not new, as women have been working alongside men for centuries. As Pakistan is an agricultural country and its population is mostly connected to agricultural and majority of women connected with agricultural activities in Pakistan. They perform all work in the fields except using pesticides because it considers male work in Pakistan.

Table 1: Distribution of respondents according to spraying of pesticides

| Who sprayed pesticides | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Male spray pesticides | 200 | 100% |
| Women spray pesticides | 0 | 0 |
| Total | 200 | 100% |
| Start work spraying of pesticides | | |
| After one day | 122 | 61% |
| After two days | 66 | 33% |
| Same day | 12 | 6% |
| Total | 200 | 100% |

According to the data, 100% respondents are men who spray pesticides, as women are not allowed to do this type of work, besides most of the women also considered this to be a man’s work. Women’s health is seriously affected as it involves mostly stoop labor like picking vegetables and fruits, thinning, digging, and weeding, which requires working in the same position for long periods. All of the respondents said that only men sprayed pesticides on the crops in the fields and the women did not used pesticides. The primary data shows 61% respondents start work after one day they started spraying pesticides, 33% after two days and 06% on the first day of work. Women do not spray pesticides but they start working on the same day, one or two days after the spraying. Respondents said that they started to work during the spraying for money while some stated that they could not refuse to work as they did not have the right to choose. Although many studies show that if women did not use pesticides but they work in the field very soon after sprayed, they effected. Most of women or other workers do not use protective method after spray and these dangerous chemicals infected their health.

Table 2: Self-protection during or after pesticide spraying

| | | |
|-------|------------|-------------|
| Yes | 165 | 82.5 % |
| No | 35 | 17.5% |
| Total | 200 | 100% |

| | | |
|---------------------------------------|------------|-------------|
| Method of protection | | |
| Use gloves | 0 | 0 |
| Mask / properly covering face & hands | 165 | 100% |
| Shoes and socks | 0 | 0 |
| Total | 165 | 100% |

Data shows that of the 82% respondents, women covered their faces with scarfs while the men covered their noses with a small piece of cloth. This is the only type of protection during or after pesticides spraying for both the genders. Although it's very harmful for health but they do not know how they protect themselves and how detrimental it is for their health. There are 17.5% respondents did not take any kind of precaution during or after pesticides spraying. Pesticide spraying without any protection is very harm full for the health for both male and female, but the women more effected more than men especially during pregnancy.

Table 3: Pesticide/ fertilizer effects on health

| | | |
|---|-----|--------|
| Yes | 145 | 72.5% |
| No | 55 | 27.5% |
| Total | 200 | 100% |
| If yes than types of effects | | |
| Headache | 62 | 42.7% |
| Disorder during menstrual periods | 10 | 6.8% |
| Complication in pregnancy /miscarriages | 08 | 5.5% |
| Skin diseases / allergy | 46 | 31.7% |
| Breathing problems | 19 | 13.10% |
| Total | 145 | 100% |

The above table shows that 72.5% respondents affected by pesticides and fertilizer, while 27.5% respondents did not affected. According to the primary data 42.7% respondents got headaches, 6.8% had disorder during their menstrual periods, 1.7% had skin diseases, 13.10% had breathing problems while 5.5% faced complication during pregnancy, which sometimes its resulted in a miscarriage. A majority 65% of the respondents have negative effects on their health from farm work. About 44.6% complained of backaches, 16.9% had headache while 11.5% suffered from eye infections.

Women's health is seriously affected as it involves mostly stoop labor like picking vegetables and fruits, thinning, digging, and weeding, which requires working in specific pose and for extended periods. All of the respondents said

that only men sprayed pesticides on the crops in the fields and the women start working after one or two days. In fact, pesticide affects the health of both men and women and many national and international research results have proved this. The current study focuses on women and on the bases of its data 42.7% women had headaches, 6.8% had disorder during their menstrual periods, 1.7% had skin diseases, 13.10% had breathing problems while 5.5% faced complication during pregnancy. Today in all modern agricultural farms more and more pesticides, chemical and fertilizes are being used to increase production which are dangerous for humans. It's not only the effects on external body but also the harm done to the reproductive health of human.

These women work in fields faced various health issues related to back bone, nutrition, skin allergies and problems of reproductive health. Specifically, pregnant and breast feeding women have to face the dangerous after-effects of spraying pesticides. This fact is also highlighted in the 2013, study of Choudhury et al in India, this openness to pesticides can cause a number of medical issues related to health like diabetes, hypertension, ophthalmic disorders and chronic asthma (Choudhury et al., 2013).

In 2016, Alexandra and Hausmann disclosed in report 'Women and Chemicals the impact of hazardous chemicals on women' that female is more vulnerable to pesticides than men. They assimilate pesticides through their skin more effectively than men and long period usages of pesticides can build the risk of reproductive disorders, damaging immune system and numerous pesticides associated with breast cancer (Alexandra & Hausmann, 2016).

Women work consider less physically and mentally. It is unbeatable that women are over burden due to domestic and organizational work either paid or unpaid. Occupational health not only work place physical hazards but also includes mental health. Women affected mentally more than physical diseases. Harassment and sexual violence are a serious and widespread issue in work place, more affected women performance and ability. Agriculture consider women field, safe work place and they work without any restrictions. But they are face harassment although they did not accept because still it is a stigma and assumed women accountable for this.

A constructive step has been taken recently to protect the health of agricultural and fishery workers, as the Registrar's Office registered the first agricultural and fishery workers trade union "Sindh Agriculture and Fishing Workers Union" in Karachi, Pakistan (ILO, 2015).

Table 4: Distribution of respondents according to if they faced harassment at the work place

| Face Harassment at Work Place | Frequency | Percentage |
|-------------------------------|-----------|------------|
| Yes | 64 | 32% |
| No | 136 | 68% |
| Total | 200 | 100 |
| Did you tell anyone | | |
| Family | 16 | 25% |
| Police | 0 | 0% |
| Supervisor | 22 | 34.4% |
| Friend | 26 | 40.6% |
| Total | 64 | 100% |
| Why you did not inform anyone | | |
| Fear | 36 | 26.4% |
| Influential person | 17 | 12.5% |
| Reputation | 34 | 25% |
| Fear of family | 49 | 36.1% |
| Total | 136 | 100% |

Collected primary data shows that 68% respondents said they did not face harassment at work place, while only 32% respondents said they faced harassment. Mostly girls and women do not complain they are harassed at work place. They suffer severe situation continuously to their male colleagues or supervisor. If any women courage and complained, other female colleagues, relatives, neighbors even though family members blamed themselves. According to 36.1% respondents do not tell their families because they feared that the families may blame them for it, 26.4% did not tell because they were afraid, while 25% did not tell anyone because it reflects on their character and if anyone finds out about it, they criticize their behavior. Mostly people blame the women even when they are innocent while no one blames the men even if they are guilty. Women especially the girls rarely complained of sexual harassment at workplace to their families because they were afraid it may result; in a pressure to leaving their jobs.

The issue of occupational protection for both men and women who work in different sectors faced work related accidents but women faced physical and mental diseases including harassment or sexual harassment. It is fact that men faced more accidents at work place as compare to women but it is also a truth that women face harassment that more dangerous and painful than physical

hazards. According to mental health foundation (2015), above three hundred diseases based on mental and psychological in all over the world (MHF, 2015). Health problems in female are common stress, depression, anxiety and musculoskeletal disorder. Women have a higher psychosocial risk, unwanted sexual consideration, threats, embarrassing behavior and sexual harassment, while men faced higher level of physical violence at work place. Harassment and sexual violence at work place direct and immediate effects on women such as depression, anger, loss of self- confidence. Physical illness and mental disorders increased occupational accidents (EU-OSHA, 2016).

CONCLUSION

Occupational health and safety for women agricultural laborers need to responds. They have many physical and psychological health problems. They work in the field without any protective clothes, shoes and optical. Women have different types of diseases such as headache, musculoskeletal, throat sore, backache, breathing problem, allergy, skin diseases and reproductive health issues, including psychological and social problems depression, anxiety, harassment, sexual harassment etc. When analysis of the causes of workplace stress, harassment and sexual harassment are often excluded from job stressors list in traditional working sectors, for women sexual harassment is a stressor in the work place and lead psychological and physical health issues. Women are unable to work for fear of sexual harassment and violence, and they are compelled to work with men.

RECOMMENDATIONS

- Empowered women agricultural workers and build their capacity for safe and decent working conditions, and to deal with occupational diseases.
- Organize occupational victims especially women and enable them to be able to represent themselves in decision-making processes that include their rights and welfare.
- To make sure to implementing work place harassment laws in agriculture sector.

REFERENCES

- Abbas, M. (2015). Trend of Occupational Injuries/Diseases in Pakistan: Index Value Analysis of Injured Employed Persons from 2001–02 to 2012–13. *Safety and health at work*, 6(3), 218-26.
- Adams, J. (1994). *The transformation of rural life: Southern Illinois, 1890-1990*. North Carolina: The University of North Carolina Press.
- Asian Development Bank. (2020). *Asian Development Bank Sustainability Report 2015: Investing for an Asia and the Pacific Free of Poverty*. Asian Development Bank.
- Awan, T. (2001). *Occupational health and safety in Pakistan, Karachi, Pakistan*. PILER.
- Ameen, A. & Raza, S. (2018). Green Revolution: A Review. *International Journal of Advances in Scientific Research* 3(12), 129. https://www.researchgate.net/publication/322423309_Green_Revolution_A_Review on 27.03.2021
- Burton, J. (2010). *WHO health workplace framework and model: background and supporting literature and practices*. Geneva: WHO.
- Caterbow, A. & Johanna, H. (2016). *Women and Chemicals, The impact of hazardous chemicals on women*. Netherlands, Women in Europe for a Common Future (WECF), 33-40.
- CDC. (2017). *One Health Zoonotic Disease Prioritization & One Health Systems Mapping and Analysis Resource Toolkit for Multisectoral Engagement*. Islamabad, Pakistan. <https://www.cdc.gov/onehealth/pdfs/Pakistan-508.pdf>
- Chitra, G. A., Muraleedharan, V. R., Swaminathan, T., & Veeraraghavan, D. (2006). Use of pesticides and its impact on health of farmers in South India. *International Journal of Occupational and Environmental Health*, 12, (3), 228-33.
- Dalvie, M. A. (2010). *Women and Farms, Health effects due to pesticide exposure amongst rural women in Western Cape*, University of Cape Town South Africa, Centre for Occupational and Environmental Health Research, 20-25.
- Delworth, U., Veach, S. D., & Grohe, L. (1988). Clinical issues with farmwomen, *Innovations in Clinical Practice*, 7, 423-432.

- Dey, K.R., Choudhury, P., & Dutta, B.K. (2013). Impact of Pesticide Use on The Health of Farmers: A Study in Barak Valley, Assam (India), *Journal of Environmental Chemistry and Ecotoxicology*, 5(10), 269-277.
- ERS Research & Consultancy. (2016). *Health at Work: Economic Evidence Report 2016*. Newcastle Upon Tyne: ERS Milburn house. https://www.bhf.org.uk...at.../health_at_work_economic_evidence_report_2016.pdf
- European Agency for Safety and Health at Work. (2008). Protecting workers in hotels, restaurants and catering. Luxembourg, EU.
- European Agency for Safety and Health at Work & Topic Centre Occupational Safety and Health. (2016). *New risks and trends in the safety and health of women at work: European Risk Observatory: a summary of an agency report*. Luxembourg, EU p.19). (<http://europa.eu>).
- FAO. (2000). *IFAD's Gender Strengthening Programme for East and Southern Africa – Uganda Field Diagnostic Study*. Rome, Food and Agriculture organization.
- FAO. (2011). *Women in agriculture: closing the gender gap for development*, Food and Agriculture organization of the United Nation, Rome.
- FAO. (2015). *Women in agriculture in Pakistan*, Food and Agriculture organization of the United Nation, Islamabad, Pakistan. <http://www.fao.org/3/i4330e/i4330e.pdf>
- Forastieri, V. (2000). *The ILO Programme on Safety and Health in agriculture: The challenge for the new century - providing occupational safety and health services to workers in agriculture*. Geneva: ILO.
- Gallagher, E. & Delworth, U. (1993). The third shift: Juggling employment, family, the farm. *Journal of Rural Community Psychology*, 12, 21-36.
- Garkovich, L., Bokemeier, J. L., & Foote, B. (1995). *Harvest of hope: Family farming/farming families*. Lexington, KY: The University Press of Kentucky.
- Glazebrook, T., Noll, S., & Opoku, E. (2020). Gender Matters: Climate Change, Gender Bias, and Women's Farming in the Global South and North. *Agriculture*, 10(7), 267. <https://doi.org/10.3390/agriculture10070267>

- GOP. (2014). *Highlights of the Pakistan Economic Survey 2013-14*. Ministry of Finance, p.13. http://finance.gov.pk/survey/chapters_14/Highlights_ES_2013-14.pdf
- GOP. (2018). Labour Force Survey 2017-18, Thirty-fourth issue. Ministry of Statistics Pakistan Bureau of Statistics, Government of Pakistan. https://www.pbs.gov.pk/sites/default/files//Labour%20Force/publications/lfs2017_18/Annual%20Report%20of%20LFS%202017-18.pdf
- Government of Pakistan. (2010). *Labour Policy 2010*. <https://www.ilo.org/dyn/travail/docs/995/GovernmentofPakistanLabourPolicy2010.pdf>
- Harley, K. (2009). Working with pesticides impacts women's fertility. *Journal of Occupational and Environmental Medicine*, 50 (12), 335-1342.
- Henry, C., & Adams, J. (2018). Spotlight on sexual violence and harassment in commercial agriculture: Lower and middle income countries, research department. *Working paper 31*. ILO, p.1
- Hina, I. (2012). *Occupational Health and Safety in Pakistan, social views: first Pakistani social news publishing web site*. <https://socialviews.wordpress.com/2012/07/01/occupational-health-and-safety-in-pakistan-by-hina-irfan/>
- ILO. (1998). *Safety and health in forestry work*. Geneva: ILO.p.04.
- ILO. (2010). *ILO list of occupational diseases (revised 2010), safe work*, Geneva: ILO.pp.5-7.
- ILO. (2011). *Safety and health in agriculture, ILO code of practice*. Geneva: International labour organization. p.5.
- ILO. (2014). Safety and health at work: A vision for sustainable prevention. XX World Congress on Safety and Health At Work, 2014, Global Forum for Prevention. Germany, Frankfurt. (p.01)., Geneva: International Labour Office. <https://goo.gl/RxXHhU>
- ILO. (2015). *First agriculture and fishing workers' trade union in Pakistan registered in Karachi*. Geneva: ILO. http://www.ilo.org/islamabad/info/public/pr/WCMS_339519/lang-en/index.htm
- ILO. (2017). Safety and health at work. Geneva: International Labour Organization. <https://www.ilo.org/global/topics/safety-and-health-at-work/lang--de/index.htm>

ILSU. (2016). *Occupational safety & health: legal framework & statistical trend analysis (2010-2015)*, Pakistan, international labour standards Units, Ministry of Overseas Pakistanis & human resource development. p.33.

Mental Health Foundation. (2015). *Fundamental facts about mental health*. United Kingdom: MHF. 17.

United Nations Sustainable Development. (1992). *United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992 AGENDA 21*. <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>