

## ORIGINAL ARTICLE

# Frequency of Occupational Health Problems among Farmers of Swat, Peshawar and Kohat Districts Khyber Pakhtunkhwa Pakistan

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## ABSTRACT

**Background:** Agriculture is one of the most dangerous occupations, with high incidence and prevalence of occupational health problems; and farmers are exposed to a too many occupational hazards.

**Objective:** This study was conducted to assess the frequency of occupational health problems among the local farmers of Swat, Peshawar and Kohat Districts Khyber Pakhtunkhwa Pakistan

**Methodology:** After ethical approval; a cross sectional study was conducted among the selected districts of Khyber Pakhtunkhwa; Pakistan. Total of n=325 farmers were assessed regarding the occupational health problems. The farmers were selected through convenience sampling technique, based on 95% confidence interval, with 5% precision. A structured open ended questionnaire was used in which farmers were asked regarding the occupational health problems. SPSS version 26.0 was used for data entry and analysis. Finally the result was presented in form of tables.

**Results:** Results showed that 32% were literate; 51.38% had monthly income less than 30000/ PKR; 39.08% had farming for more than 10 years; and 68% were not following personnel protective equipments. Moreover, 38.77% had asthma/COPD; 44.62% had disturbed sleep; 26.77% had hearing loss; 42.15% had eye redness and discharge problems; 64.92% had body ache/ and backache; and 26.77% had history of injuries and falls.

**Conclusions:** It was concluded that farmers revealed a huge list of medical health problems. Moreover, health problems showed relationship with age, educational level, working experience, and compliance of personnel protective equipments and thus occupational education and occupational training strategies were needed to reduce health impacts among farmers.

**Keywords:** Food Contamination, Knowledge, Attitude, Practice, Food Handlers, Kohat.

## INTRODUCTION

Agriculture is one of the most difficult and risky professions in the world, since farmers face a variety of work-related issues [1]. Occupational diseases and possible exposures are a significant public health concern [2]. Occupational infection is a human disease induced by work-related exposure to microbial pathogens. According to a study conducted by Chung et al., 2010; occupational infections are the third biggest cause of occupational disease [3]

Farmers are exposed to a variety of dangerous biological, physical, and chemical elements. Asthma, allergic rhinitis, infectious illnesses, and cancer are all caused by bio-aerosols [4]. Insecticides, herbicides, and other pesticides are frequently employed to increase yields, but their inappropriate use might have negative consequences. Furthermore, 37.2% and 21.6% of farmers had eye and skin disorders, respectively [5]. The greatest concerns to farmers' health are chemical, physical, and biological hazards, as well as occupational injuries [6]. Agricultural workers are exposed to over 25 million cases of minor pesticide exposure each year [7]. Moreover, in a study conducted by Nguyen et al., 2018; revealed that multiple chemical exposures dramatically increase the risk of respiratory illnesses, cancer, and DNA damage [8].

Skin infections are one of the most serious issues that farmers confront, according to the National Institute for Occupational Safety and Health [9]. The most prevalent routes of pesticide toxicity include dermal contact, inhalation, and ingestion. Irritation, burning, itching, blurring of vision, and watering of eyes are all common pesticide side effects [5]. Moreover, contact dermatitis, urticaria, dry skin, nail dystrophy, and skin cancer are also dermatological issues [10] [5] [11]. Dermatophytes are responsible for athlete's foot (Tinea pedis) and toe nail infection (onychomycosis) [12].

Occupational diseases are caused by repetitive tasks and difficult working environment [13]. Farmers are subjected to temperature extremes, resulting in heat stroke. Furthermore, working in a hot and humid environment, old age, high labor intensity, long work hours, and farmers' recurrent awkward posture are all risk factors for MSD development [1]. Furthermore, under

exceptionally hot outdoor working circumstances, farmers are at a high danger of heatstroke [5] [14].

Asthma and COPD are becoming more common over the world. Due to its high incidence and significant social and economic cost, occupational asthma is one of the most serious public health issues. Work is responsible for about 25% of adult-onset asthma. Occupational pollution has been linked to a variety of lung and respiratory disorders [15]. COPD morbidity and mortality rates are increasing [16] [17]. Furthermore, among the group of farmers, the risk of occupational noise exposure and its repercussions, has high frequency of hearing loss [18] [19].

Farming is associated with an increased risk of anxiety and depression [20] [21]. Furthermore, heavy gear, a noisy atmosphere, as well as time and financial constraints, make farmers vulnerable to mental health issues [22].

Occupational health problems are common among farmers and are more prevalent in an agricultural and developing country like Pakistan. Moreover, all the important determinants affecting health of farmers are present and thus this cross sectional study was conducted to estimate the frequency of occupational health problems among farmers and to identify the important factors affecting farmers health in the selected districts of Khyber Pakhtunkhwa Pakistan; with an aim to reduce occupational health problems among farmers and to suggest the concerned sectors to formulate strategies to reduce the adverse health problems among the farmers.

## MATERIALS AND METHODS

After ethical approval; a descriptive cross sectional study was conducted among the selected districts of Swat, Kohat, & Peshawar; Khyber Pakhtunkhwa; Pakistan. Total of n=325 farmers were selected through convenience sampling technique; based upon on 95% confidence interval, with 5% precision for a cross sectional study. A structured open ended questionnaire was used in which farmers were assessed regarding the occupational health problems. The structured questionnaire has information regarding demographics of farmers. Moreover, it contained information regarding the different systems along with the signs and symptoms of occupational health problems of nervous system,

gastrointestinal system, musculo-skeleton system, ENT, Eye, Skin, Nail, Urinary system and miscellaneous health problems among the farmers. SPSS version 26.0 was used for data entry and analysis. Finally the result was presented in form of tables.

### RESULTS AND DISCUSSIONS

Table 1: Demographics of Farmers N=325 of Swat, Peshawar and Kohat Districts Khyber Pakhtunkhwa Pakistan

Variable	Response	f	%
Age of Farmers (Years)	20-35	62	19.08
	35-50	187	57.54
	50 & above	76	23.38
Educational Status	Literate	104	32.00
	Illiterate	221	68.00
Monthly Income PKR	< 30000	167	51.38
	30000-50000	124	38.15
	> 50000	34	10.46
Marital Status of Farmers	Married	201	61.85
	Unmarried	124	38.15
Land nature used for farming	Owner	93	28.62
	Rented	232	71.38
Duration of Farming	1-5 Years	53	16.31
	5-10 years	145	44.62
	> 10 Years	127	39.08
Any Type of Addiction	Tobacco	197	60.62
	Snuff	231	71.08
	Others	85	26.15
Working Hours Per Day	< 5	45	13.85
	5-10	209	64.31
	> 10	71	21.85
Use Protective Equipment During Working Hours	Yes	104	32.00
	No	221	68.00
Applying pesticides/ Chemicals in farms	Yes	280	86.15
	No	45	13.85

Table 2: Frequency of Occupational health Problems of Farmers N=325 of Swat, Peshawar and Kohat Districts Khyber Pakhtunkhwa Pakistan

Sr. No	Health Problems	Presenting Complaints	Frequency	%
1	Respiratory System Problems	Allergy	211	64.92
		Dry cough, Cough with sputum/ Blood	97	29.85
		Asthma, COPD	126	38.77
2	Cardio Vascular System Problems	Palpitation, Hypertension	76	23.38
		Syncope, Unconsciousness	157	48.31
3	Central Nervous System Problems	Headache	86	26.46
		Stress/ Anxiety	123	37.85
		Disturbed Sleep	145	44.62
4	Gastro Intestinal Tract Problems	GORD/ Gastric Discomfort	105	32.31
		Vomiting, Constipation, Anorexia	73	22.46
		Dysentary, Diarrhea, Loose Motions	105	32.31
5	ENT Problems	Hearing Loss	87	26.77
		Ear Block, Ear Discharge, Ear Pain	104	32.00
		Tinnitus	17	5.23
		Nasal blockage, Rhinitis/Rhinnorhea	52	16.00
		Sinositis	33	10.15
6	Eye Problems	Common Cold	74	22.77
		Dimness of Vision	41	12.62
		Photophobia, Eyes Strain	152	46.77
7	Foot/ Skin & Nail Problems	Eye Redness, Watering, Discharge	137	42.15
		Contact Dermatitis, Skin allergy.	174	53.54
		Foot Problems	84	25.85
8	Urinary system	Nail Problems	61	18.77
		Dysuria/Burning	32	9.85

	problems	Micturation		
9	Musculo-Skeleton Problems	Colored urine	57	17.54
		Renal/ Kidney stones	10	3.08
		Bodyache, Backache	211	64.92
		Lower Limbs, Hip & Knee Joint Pain	114	35.08
		Upper Limbs/Shoulder Pain	157	48.31
10	Miscellaneous Health Problems	Dog bite	14	4.31
		Hepatitis, Fever	49	15.08
		Cancer	5	1.54
		Heat Stroke, Heat Exhaustion	27	8.31
		Injuries, Falls	87	26.77
		Disability, Deformity Due to Farming	12	3.69

### DISCUSSIONS

In our study, 32% of farmers were literate whereas in study of Lamichhane-2021, the literacy rate was 87%. In study of Lamichhane-2019, and Nordgren-2018; the compliance of personnel protective equipments was 9%; and was less as compared to our study findings, which revealed 32% [7] [16].

According to our study findings; the respiratory, cardiovascular, gastrointestinal and musculo-skeleton systems revealed health problems among the studied agricultural farmers; and such findings were supported and confirmed by international studies of Kang et al., 2021; Guillien et al., 2018; Lee et al., 2010; and Lamichhane et al., 2019 [1] [7] [20] [10].

According to our study, 38.77% of farmers reported asthma and COPD whereas in studies of Nishida & Yatera, 2022, & Tiotiu et al., 2020; revealed 25% and 7% respectively [15] [19]. Moreover, in study of Stoleski-2019 the asthma showed prevalence of 13.5% among the farmers [17]. In our study, headache and anxiety showed frequency of 26.46% and 37.85%; whereas, in study of Lamichhane-2019 the headache showed 58.8% of prevalence among the farmers [7].

In our study, nausea and vomiting prevalence was 22.46%, whereas in study of Lamichhane-2019, 15.6% of farmers reported nausea and vomiting [7]. Moreover, in study of Ehlers-2008; 20-80% of hearing loss was observed among the different studies selected for systematic review and meta-analysis; whereas in our study the hearing loss showed frequency of 26.77% [23]. Furthermore, in study of More et al., 2021; eyes strain, photophobia, and blurred vision revealed 37.2% of prevalence among farmers whereas in our study the prevalence was 46.77% [5].

In our study, dermatitis & skin allergy was found in 53.54%; foot problems in 25.85% and nail problems in 18.77% of farmers; whereas in international research studies of More et al., 2021; Lamichhane et al., 2019, and Zorba et al., 2013; revealed 21.6%, 19.6%, and 7% respectively among the farmers [5] [7] [9]. Moreover, in study of Sujoso-2020; the dermatitis showed prevalence of 23.22% among the studied farmers [11]. Furthermore, our study reported 28.85% of foot problems and 18.77% of nail problems among the farmers and such findings were confirmed and supported by international study of Shalal et al., 2022, showing 28.45% of foot problems, and 10.72% of nail problems among farmers [12]. Thus our study findings confirmed and supported the international study findings of Shalal et al., 2022.

In an international study of Nuraydin et al., 2018; reported that nearly 50% of agricultural farmers had experienced low back, shoulder, and upper extremity disorders [14]; as was supported and found in our study, which showed 64.92% of low backache, 35.08% of lower limbs, hip and knee joint pain, and 48.31% of upper limb and shoulder pain among the farmers. Low back pain and osteoarthritis of the hip and knee are the most important occupational illness of occupational workers, and in study of Lee et al., 2010; reported 45.95% of low back pain among the agricultural workers due to poor ergonomic working conditions, long working

days, and heavy workloads; as were reported and supported by our study results showing 35.08% of low back pain prevalence among farmers [10].

Our study reported less frequency of cancers (1.54%), heat stroke (8.31%), injuries and accidents (26.77%), and hepatitis (15.08%) prevalence among the agricultural farmers. Moreover, occupational health problems of physical hazards, chemical hazards, biological hazards; injuries and accidents were also reported in international studies of Yazd-2019; Sujoso-2020; and Lamichhane-2019 [11] [7] [22]. Our study revealed cardio-vascular problems among the farmers as was found in studies of Kang et al., 2021; Sujoso et al., 2020; and Guillien et al., 2018 [1] [11] [20].

## CONCLUSION

From our study, it was concluded that farmers had common occupational health problems prevalent in the agricultural sector, and revealed a huge list of health problems. Moreover, farmers were exposed to chemical, physical, and biological risks along with occupational accidents and injuries. Therefore, informative and control strategies were needed to prevent occupational health problems among farmers and to communicate to the concerned departments regarding planning and implementation of rules and regulations related to occupational health of farmers with an aim to reduce and prevent occupational health problems among farmers.

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