

Identifying the Risk Involvement in Poultry Activities through OSHA Scale

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Abstract: Poultry workers who spend most of the time in buildings and therefore experience the greatest amount of exposure while performing various activities is at greatest risk. They do the work which is very labor and hand intensive. This results in musculoskeletal disorders related to injuries and illnesses such as back injury, shoulder and arm injuries, disorders of wrist and back lower extremity. This is mainly due to lack of awareness of the basic principles, poor working condition and reluctance to change existing and traditional work methods and tools. Besides this awkward posture, the work place and psychological factors are also important aspects for workers health and safety. Therefore, the study was undertaken to find out the occupational risks faced by the workers engaged in organized poultry farm. For the present study 60 workers from the two poultry farm i.e. Institutional Poultry Farm and NGO Poultry Farm, Nagla were taken. Research design used was descriptive cum experimental. Purposive sampling was used and the data was gathered by interview method.

Key words: Poultry workers, musculoskeletal disorders, Ergonomic evaluation, Risk Assessment

I. INTRODUCTION

Poultry work involves considerable degree of manual efforts which are associated with body movements. If such movements are minimized by adopting motion economy and proper working postures, it would reduce fatigue to a considerable extent. "OSHA defines ergonomics as "the science of fitting the job to the worker, and when there is a mismatch between the physical job requirements of the job and physical capacity of the worker, work related musculoskeletal disorders (WMSDs) can result. Workers who must repeat the same motion throughout their work day, who must do their work in an awkward position, who use a great deal of force to their perform their jobs, who must repeatedly lift heavy objects or who feel a combination of these risks factors are most likely to develop work related musculoskeletal disorders (WMSDs)"

The Occupational Health and Safety Act of 1970 (OSH Act) clearly states that the general duty of all employers is to provide their employees with a work place free from recognized serious hazards. This includes the prevention and control of these hazards. The incidents and severity of musculoskeletal disorders and other work place injuries and illnesses in the industry demand that effective programs be implemented to protect workers from these hazards. The goal of any health and safety program is to prevent hazards and illnesses by removing their cause. For

ergonomic hazards, this goal is achieved through taking steps to eliminate or materially reduce worker exposure to conditions related to musculoskeletal disorders, related injuries and illnesses. Because of the huge population of India, any slight ergonomic improvement at the individual level would yield very significant qualitative effect in total, especially in unorganized sectors such as agriculture and poultry where an application of ergonomics is much less common than in organized sectors. This is mainly due to lack of awareness of the basic principles, poor working conditions, and reluctance to change existing and traditional work methods and tools. Despite of so much of mechanization, musculoskeletal disorders and injuries are still a major cause of loss in work. Musculoskeletal disorders include a variety of injuries and disorders of wrist, arms, shoulders, neck and back as well as the lower extremities.

According to **Bureau of Labor Statistics (BLS), 1982** nearly 20 percent of all injuries and illnesses in the work place and nearly 25 percent of the annual worker's compensation payment are attributed to back injuries. The science of ergonomic seeks to adapt the job and work place to the workers by designing tasks and tools that are within the worker's capabilities and limitations. A more recent report by the National Safety Council indicated that over exertion is the most common cause of occupational injury, accounting for 31 percent of all injuries. So it is clear that a tremendous number of workers are routinely exposed to physical hazard and many of them develop one or more serious work related musculoskeletal disorders during their working life time. Prevalence of these has increased dramatically in developing countries and it is expected to be much worse due to inadequate safety system, lack of awareness, lack of training of occupational safety and health and lack of ergonomic standards and epidemiological studies.

Poultry workers, who spend most of the time in buildings therefore, experience the greatest amount of exposure are at greatest risk. They perform different activities manually and mechanically. Besides this, poultry industry has not only been labor intensive but also a hand intensive industry. Mainly the work includes sweeping/cleaning/washing of brooder, layer and grower houses, carrying or loading, feeding and watering, collection of eggs, medication, slaughtering, defeathering, packaging, hatchery management and operation. These are very tedious jobs at their work place. All these jobs are physically demanding and involve the main risk

factors because of repetitive motion, heavy physical work load and excessive body motion which can result in high risk for back injury, neck, shoulders, arms and upper limbs. Besides this, the main risk factors can be associated with upper limb work-related musculoskeletal disorders because of repetitiveness, high frequency of action, excessive force, awkward posture, insufficient recovery times, use of vibrating tools and exposure to cold temperatures. The efficiency of any activity varies according to the type of activity and the manner in which it is performed. It may be as high as 30 per cent and as low as 3 per cent (**Grandjean, 1975**). Static muscular contractions or activities which are needed to maintain the positions of certain parts of the body demand an additional expenditure of energy and do not contribute to the measured useful effect. The efficiency of such work is, therefore, very low. Besides this, for the same amount of expenditure of energy the static work is more tiring and painful than dynamic work. A number of studies reported by **Singh (1989)** and **Sharma and Thakur (1998)** showed that there is significant relationship between the fatigue or perceived exertion or discomfort, pulse rate, respiration rate, heart rate, energy expenditure rate, posture and O₂ consumption.

The present study was planned with the following objectives:-

- To identify the risk involvement in different activities among poultry workers through OSHA scale.

II. METHODOLOGY

Two poultry farm was purposively selected for the present study namely: Instructional Poultry Farm, Nagla and NGO's Poultry Farm, Nagla, Udham Singh Nagar District, Uttarakhand. Simple random sampling without replacement was used to select the study area and workers. Sample size was determined before the data collection. For the descriptive data the sample size of 60 was selected. Descriptive data was collected personally by using the interview schedule method. All the subjects volunteered for the study. They were informed about the study. The already standard OSHA scale was used to gather the required information from all the subjects.

III. RESULTS AND DISCUSSION

Finding out the risk involved in task performances and related activities through OSHA scale.

An attempt was made to find out the risk involved in task performances and related activities through standard OSHA scale (Occupational Safety and Health Administration). A survey was conducted through inspecting problem. The potential problem was noted down with their frequency. Interior techniques were used to know about safety and health program beside the equipment and other personal protective measures.

Further the injuries and illnesses were categorized according to the survey i.e. Slips, fall, Ergo Backs, Ergo Wrists/Elbows, Ergo Shoulders. Finally the questionnaire was filled by interviewing the respondents. OSHA scale was developed to check the involvement of the risk in task performances and related activities in the poultry farm. Poultry survey of OSHA is designed to:

1. Snapshot of health and safety conditions in the farm,
2. Opportunity for subjective opinion of safety and health professional on problems leading to recordable events,
3. Tool to pinpoint which areas are problematic and allow for the selection of appropriate remedies, and
4. A reminder of various items which can cause particular types of injuries and illnesses.

This scale is divided into following categories such as :

1. Slip, trips and falls to same level
2. Struck by, struck against, caught in
3. Lock out/Tag out procedures
4. Ergonomic hazards: repetitive motion and lifting
5. Health hazards
6. Noise

Table 1 shows the slip, trips and fall injuries in the selected activities. The respondents when interviewed whether the aisle and passageway were kept clean in broiler/grower/layer houses and were they marked appropriate. Nearly more than 50 percent of the respondents said that it was sometimes kept clean and appropriate. Nearly 37 percent of the workers reported that usually able and passageway were kept clean and appropriate which showed that the cleaning of the passage was somewhat taken under consideration but not to that extent. When asked about covering the wet surfaces with non slip material approximately 47 percent said it was always covered, whereas, 32 percent said it was usually covered and 22 percent said it was sometimes covered but nobody reported that it has never covered which clearly shown that some precautions were taken under consideration. Three-fourth of the respondents said that employees are never issued or required to wear slip resistance foot wear. About 38 per cent respondents reported that holes are always in the floor, sidewalk or other walking surfaces repaired properly, covered or otherwise made safe. As many as 37 per cent respondents said that there are sometimes safe clearance for walking in aisle where motorized or mechanical handling equipment is operating and 40 per cent said that there are usually a safe clearance for walking. Nearly three-fourth of the respondents said that the spilled materials are never cleaned up immediately.

Statement	Always		Usually		Sometimes		Never	
	F	%	F	%	F	%	F	%
Are aisles and passageways kept clear?	5	8.3	23	38.3	32	53.3	-	-
Are aisles and walkways marked as appropriate?	5	8.3	22	36.7	33	55	-	-
Are wet surfaces covered with non-slip materials?	28	46.7	19	31.7	13	21.7	-	-
Are employees issued or required to wear slip resistant footwear?	4	6.7	10	16.7	-	-	46	76.7
Are holes in the floor, sidewalk or other walking surface repaired properly covered or otherwise made safe?	23	38.3	24	40	9	15	4	6.7
Is there safe clearance for walking in aisles where motorized or mechanical handling equipment is operating?	14	23.3	24	40	22	36.7	-	-
Are materials or equipment stored in such a way that sharp projective will not interfere with the walkway?	5	8.3	24	40	-	-	31	51.7
Are spilled materials cleaned up immediately?	-	-	9	15	10	16.7	41	68.3

Table 2 shows the distribution of the respondents as per the struck in, struck by and caught in injuries. About half of the respondents reported that there is never a training program to instruct employees on safe method of machine operation but there are always adequate supervision to ensure that employees are following safe machine operating procedure. Three-fourth of the respondents said that there is never a regular program of safety inspection of machinery equipment. As many as fifty eight percent reported that the machinery and equipment are never kept clean and properly maintained. They further reported that equipment and machinery are never securely placed and anchored where necessary to prevent tipping or other movement would be prevented that could result in personal injury. Samuel (1976) and Dogra (1985) found that causes of accidents were unguarded or inadequately guarded machinery, improper ventilation, high humidity, improper dress, unsafe procedures, defective equipment and Unsafe acts of the workers. Ninety five percent

of the accidents were caused by the either unsafe mechanical or physical condition. These factors resulting in falling, sliding, drowning, immersing, burning, scolding, striking against something, inhalation and absorption of toxic materials causing poisoning. These accidents resulted into loss of life, loss of capacity to work and loss of earnings. Regarding the power shut off switch the respondents said that it was never within the reach of the operator's position. Approximately 42 percent reported that special hand tools are never used for placing or removing material. Further when enquired about cleaning of machinery the respondents said that machinery are never cleaned with compressed air. About 55 percent of the respondents said that saws or rotating knives are never used for cutting poultry that are guarded fully. More than 60 percent respondents said that hoisting equipment are available a used for lifting heavy objects.

Statement	Always		Usually		Sometimes		Never	
	F	%	F	%	F	%	F	%
Is there a training program to instruct employees on safe methods of machine operation?	14	23.3	13	21.7	5	8.3	28	46.7
Is there adequate supervision to ensure that employees are following safe machine operating procedures?	32	53.3	23	38.3	-	-	5	8.3
Is there a regular program of safety inspection of machinery and equipment?	-	-	10	16.7	5	8.3	45	75
Is all machinery and equipment kept clean and properly maintained?	2	3.3	8	13.3	15	25	35	58.3
Is equipment and machinery securely placed and anchored, when necessary to prevent tipping or other movement that could result in personal injury?	2	3.3	8	13.3	15	25	35	58.3
Is there a power shut-off switch within reach of the operator's position at each machine?	2	3.3	8	13.3	15	25	35	58.3
Are all emergency stop buttons colored red?	5	8.3	15	25	15	25	25	41.7

IV. CONCLUSION

It was found through OSHA scale that there were risks involved in the poultry farm. It was found that more than 60 percent of the respondents usually complain about dizziness, headaches, nausea, irritation, or other factors of discomfort when they are exposed to dusts (feathers and feces), vapors, gases, fumes, smoke, solvents or mists.

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