



Assessment of Knowledge, Attitude and Practices Regarding Occupational Safety Among Onshore Oil Rig Workers in District Karak, KPK, Pakistan

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Abstract: An occupational hazard is something unpleasant that you may suffer or experience as a result of doing your job or hobby. Occupational Safety and Health Administration (OSHA) requires that employers protect their workplace hazards. Depending on the danger or workplace setting, OSHA recommends the use of manufacturing or work practice control to handle or reduce hazards to the maximum possible extent. Personal protective equipment usually referred to as “PPE”, is equipment worn to minimize exposure to a variety of hazards. Although the number of accidents and work-related issues have been debated for a long time, This study was conducted to assess the major risks that rig workers in Pakistan are exposed to. To determine the overall occupational safety, knowledge, attitude and practices regarding work related safety among onshore oil rig workers. To determine the association of knowledge and attitude with practices of PPE and Occupational safety. A cross sectional study was conducted on onshore oil rig workers. A total of 404 workers were selected. Data was collected using a structured questionnaire. Data analysis was done by using SPSS 20.0. Chi-square test was used to investigate association between independent and dependant variables. Overall good occupational safety was reported by 55.4% workers. Good knowledge about occupational safety was reported by 62.6% of the workers, 53.5% of the workers showed good attitudes and 56.2% of the workers reported good practices. It was found out that good practices of workers were significantly associated with good attitudes and good knowledge. While knowledge, attitude and practices of the workers were also significantly associated with occupational safety. The study concluded that knowledge, attitude and practices of workers affect the occupational safety. Conducting Training programs and providing motivation for good occupational safety practices can minimize the occupational hazards and can improve the health and safety standards of the workers.

Keywords: Knowledge, Attitude, Practices, Occupational Safety, Occupational Hazards, Personal Protective Equipment (PPE)

1. Introduction

“An occupational hazard is something unpleasant that you may suffer or experience as a result of doing your job or hobby” [1]. Hazards subsist in every place of work in many unusual forms; pointed edges, falling objects, flying sparks, chemicals, sound (Noise) and numerous other potentially hazardous

situations. The Occupational Safety and Health Administration (OSHA) requires that employers protect their workplace hazards that can cause damage [2]. Personal protective equipment usually referred to as “PPE”, is equipment worn to minimize exposure to a variety of hazards. PPE contain such items as gloves, foot and eye protection, protective hearing devices (ear plugs, muffs) hard hats, respirators and full body suits [3]. Living and working conditions of offshore workers are an

important factor for their productivity as well as for safety and work satisfaction. In the years 2005–2009, the occupational fatality rate of the oil and gas extraction industry was 2.5 times higher than the construction industry and 7 times higher than general industry [4]. Rig is the abbreviation of Revolving In Ground (RIG). There are two types of oil rig onshore and offshore oil rig, the activity of extracting oil from under the sea bed is called offshore drilling while onshore drilling is the practice of extracting oil from under the surface of earth away from the ocean [5]. Workplace hazards continue to exact a large charge on society in terms of morbidity, mortality, financial and social costs, which provide justification for the ongoing national commitment to the protection of the health of the workforce [6]. In Pakistan limited data is available on occupational safety. The present study aims to determine the different factors (Good knowledge, appropriate attitude and appropriate protective practices) regarding work related safety among onshore oil rig. Determine the association of knowledge and attitude with practices of PPE and Occupational safety. Determine overall occupational safety on Rigs

2. Material and Methods

The study design was cross sectional. Study was performed in the OGDCL Well Nashpa 6 Chinese rig CCDC 27 Nashpa Fields of district Karak, KPK, Pakistan. Study duration was 7 months (from July 2015 to January 2016). Sample size calculated for this study was 384, rounded to 404 with 5% non response rate using Open Epi Software. Multi-stage random sampling technique was used. The study site included a total of 6 oil rigs, out of these 6 oil rigs; 3 rigs were selected randomly by using the lottery method. For the selection of individuals, duty lists were obtained from the selected rigs. Individuals were then selected randomly from the duty lists using a random number table. Inclusion criteria consist of Drilling Department and Registered workers of OGDCL (Permanent & Temporary). Exclusion criteria consist of Civil Department, Production Department and Daily wages (Hired for specific task, local workers). Likert scale was used to measure the attitude of workers for personal protective equipments and occupational safety. Data was collected by using a pre tested Structured Questionnaire.

2.1. Statistical Analysis

Descriptive statistics were generated for the demographic variables. Percentages and frequencies were reported. The data was presented in tables and graphical form. Logistic regression analysis was done to find the factors that are related with good occupational safety. The variables that gave significant results I uni-variate analysis were then evaluated for Multipole logistic regression analysis.

2.2. Ethical Approval

Ethical approval was taken from Ethical Review board of Al-Shifa trust eye hospital Rawalpindi, Pakistan. Informed consent form was distributed to all participants.

3. Results

3.1. Socio Demographic Characteristics of Respondents

A total number of 404 respondents were included in this study. The distribution of categories for age was 169 respondents (41.8%) were in age category ranging from 18–28 years, 122 (30.2%) were in age category 29–38 years, 34 respondents (8.4%) were in age category 39–48 years and 79 (19.5%) respondents were having age of 49 years and above. The education qualification of respondents shows that about 111 (27.47%) had Metric, 213 (52.7%) had Intermediated, 66 (16.33%) had a graduation degree while and 14 (3.46%) had a Master degree. Out of 404 respondents about 343 (84.9%) were married and 61 (15.1%) were unmarried. Main source of information about PPE was specified as knowledge gained by supervisors, about 310 (76.8%) respondents reported that they gained PPE information from supervisors while some other sources were personal knowledge from different sources 36 (8.9%), Training 32 (7.9%) and 26 (6.4%) responded don't know to the question. There were 16 (4%) respondents reported hazard exposure while 388 (96%) respondents said that they had no exposure to hazard.

3.2. Knowledge and Attitude of Workers About Occupational Safety

Among all participants 252 (62.6%) demonstrated good knowledge and 152 (37.6%) showed poor knowledge. Good attitude towards occupational safety was demonstrated by 216 (53.5%) while 188 (46.5%) demonstrated poor attitude.

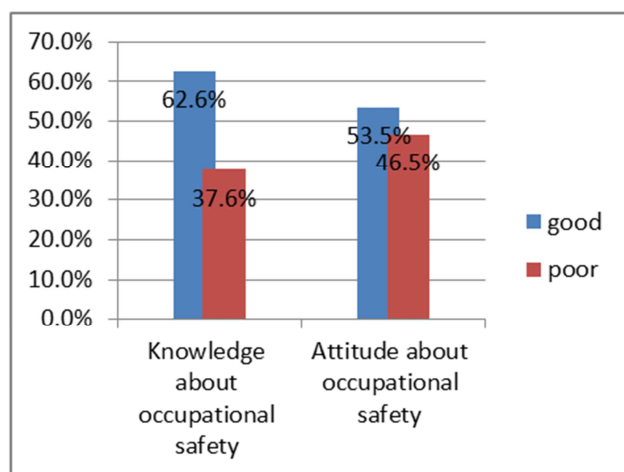


Figure 1. Knowledge and attitudes of workers about occupational safety.

3.3. Association of Knowledge Attitude and Practices with Occupational Safety

When practices score were cross tabbed with Knowledge and attitude of occupational safety the highest percentage for good practices was found in 155 (61.5%) of good knowledge while overall association between Knowledge and practice score was found statistically significant. ($\chi^2=7.700$, $df=1$, $p=0.006$) with Attitude the highest percentage of good practices was found 137 (63.4%) of good Attitude while

overall association between attitude and practice score was found statistically significant. ($\chi^2=9.878$, $df=1$, $p=0.002$). The association of Attitude and occupational safety was seen and found 183 (84.7%) good occupational safety in those who had good Attitude toward safety. Overall association between attitude and occupational safety was statistically highly

significant ($\chi^2=161.051$, $df=1$, $p=0.000$). When the occupational safety was assessed with practices it found 166 (73.1) good occupational safety in those who had good practices while overall association between occupational safety and practices found statically significant ($\chi^2=65.577$, $df=1$, $p=0.000$).

Table 1. Association of occupational safety and knowledge, attitude, practices.

Variables	Occupational safety		χ^2 Results
	Poor (%) 180	Good (%) 224	
Knowledge	Poor knowledge	100 (65.8%)	$\chi^2=44.481$, $df=1$, $p=0.000$
	Good knowledge	80 (31.7%)	
Attitude	Poor attitude	41 (21.8%)	$\chi^2=161.051$, $df=1$, $p=0.000$
	Good attitude	183 (84.7%)	
Practices	Poor practices	58 (32.8%)	$\chi^2=65.577$, $df=1$, $p=0.000$
	Good practices	166 (73.1)	

3.4. Logistic Analyses

The results of univariate logistic analysis have show that workers who had good attitude were 8.856 times more likely to have good occupational safety than workers who had poor attitude [OR 8.856 (95% C.I=11.96-17.57)]. Workers who had permanent employment status were 2.24 times more like to have good occupational safety than workers who had a temporary employment status [OR 2.24 (95% C.I=1.437-3.498)]. Workers who had good knowledge were 4.135 times more likely to have good occupational safety than workers who had poor knowledge [OR 4.135 (95% C.I=2.697-6.339)] Workers who were married were 2.156 times more likely to have good occupational safety than workers who were unmarried [OR 2.156 (95% C.I=1.236-3.762)]. Workers who had good practices were 5.583 times more likely to have good Occupational safety than workers who had poor practices. [OR 5.583 (95% C.I=3.633-8.581)]

Table 2. Multivariate logistic analysis.

Sr No.	Variables	OR	95%CI
1	Attitude About occupational safety	Poor attitude	1
		Good attitude	16.22
2	Knowledge About occupational safety	Poor knowledge	1
		Good knowledge	14.61
3	Practices about occupational safety	Poor practices	1
		Good practices	10.67
4	Training received for PPE use	Yes	6.95
		No	1
5	Working hours	8 hours	1
		12 hours	2.56

4. Discussion

Occupation safety is an important issue to be considered due to high mortality and morbidity associated with work related environment. The World Health Organization considers the workplace priority setting for health promotion in 21st century [7]. The study showed that occupational safety is significantly associated with the knowledge, attitudes and practices. Previous studies on the topic showed that safe practices do not depend upon

knowledge and attitudebut associated with being informed with safety precautions and information provided by supervisor [8]. In this study we found out those 62.6% participants with good knowledge and 37.6% participants showed poor knowledge. Evidence exist that in Nigeria most of respondents have knowledge regarding occupational hazards and that most of knowledge related to occupational hazards is gained in school professional training, on job experience and post employment professional in service workshops [9]. In this study we found out that 91.1% of all participants were aware of PPE, 54% attended all the workshops related to occupational safety, 69.3% used safety gloves, helmets, coverall and shoes at work and 86.1% reported that they know about occupational safety. A study conducted in Raghistan reported that the use of safety measures during working hours was not adequate to prevent hazards and that thenon use of safety measures is primarily associated with nonavailability and non affordability of devices in market. The workers were not satisfied with the quality ofshoes, masks, gloves and spectacles and some issues related to PPE like irritation, sweating and bad order are also reported by workers [10].

Findings of this study showed that 59.7% people agreed that they should follow the instructions of supervisors that prevent occupational hazards reflecting positive practices. In our study 75% people reported that they have more important things to do at work time rather than following PPE. While 39.9% people disagree with some part of PPE. A study conducted in Nigeria stated that a high proportion of respondents comply with safe work practices 92.3%, got feedbacks on hazards control methods and 79.6% complied with use of PPE. [11]. Similar study conducted in Oye state reported that knowledge, attitude and compliance was found to be good in employs that are recently employed [12]. The study had some limitations. Sample of study is including only the male participants because only male are allow to work in field remote areas. This criterion made this study context specific and context bound. In this study occupational safety practices was viewed from socio-demographic, knowledge and attitude point of view. It can be accessed from other

multiple aspects.

5. Conclusion

The study concluded that knowledge, attitude and practices of workers effect the occupational safety. Conducting Training programs and providing motivation for good occupational safety practices can minimize the occupational hazards and can improve the health and safety standards of the workers

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