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Knowledge, Exposure and Perception

of Pharmaceutical Industrial Factory Workers about Occupational Hazards

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ABSTRACT

Background: The personnel in pharmaceutical industries daily experience occupational hazards and most studies have been on the product rather than the staff. The objective of the study was to assess the knowledge, exposure and perception of factory workers to occupational hazards.

Methods: One hundred factory workers in randomly selected pharmaceutical industries in Ogun State, Nigeria were interviewed using a pre-tested semi-structured questionnaire after obtaining their informed consent. Sixty-eight of the respondents work in production section, thirteen in the store, five in engineering, four in the laboratory and ten are security staff.

Results: The results showed that the age range of the respondents were between 21-51 years, majority (70%) were males while 30% were females. The length of service was from six months to ten years and majority of them (48%) had secondary school education. They were generally aware about pharmaceutical industrial hazards but their source of information was mainly (51%) through friends and colleagues while only 17% were aware through their company management. The ranking of occupational hazards experienced by the factory workers was: major wounds >burns >chest infections >chest pains. The respondents did not perceive occupational hazard as grave, for instance majority of them adduced that neatness of their factories could prevent dangers, dust generated can do no harm to them and nasal masks can choke hence preferable not to use them. Some of the workers were cynical about divulging hazards experienced due to fear of retrenchment, while some were worried about lack of compensation for colleagues who had experienced hazards which had incapacitated them.

Conclusion: The knowledge-base of factory workers about occupational hazards is weak since it comes mainly through friends and colleagues, their exposure to these hazards is high yet the outcome is underestimated and preventive measures are underplayed. Pharmaceutical industrial stakeholders need to boost the knowledge-base through training of these set of personnel on occupational hazards.

Keywords: Knowledge, Exposure, Perception, Factory workers, Occupational hazards.

INTRODUCTION

Occupational hazard is a danger or illness that is a risk for people doing a particular job. For example hearing loss is an occupational hazard for deep-water divers. It is a working condition that can lead to illness or death. In Nigeria, The International Institute of Risk and Safety Management reports that about 50 million Nigerians are at risk in the work place and 200 workplace fatalities occur daily. In a study conducted among quarry workers by Aliyu and Shehu in 2006[1], most (68.9 %) of the workers had injuries/cuts from stones and 52.3 % experienced respiratory symptoms in form of nasal discharge. Another report[2] showed that 85.3 % of respondents in an occupational hazard study among welders in Kaduna had experienced one or more work-related accidents in the preceding year.

According to WHO[3], human suffering related to work is unacceptable as a matter of social justice. In addition, appreciable financial losses result from the burden of occupational and work related diseases on national health and social security systems, as well as from their negative influence on production and quality of products. It is crucial therefore to intensify researches that reveal knowledge and exposure of workers to hazards in their occupation for the purpose of advising stakeholders and designing of future intervention studies. Factory workers in the Pharmaceutical industries are regularly affected by the active

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ingredients and or excipients they work with, the dust generated from powdered materials also have their own effect in addition to machines and working conditions. Many studies have been done on occupational hazards in the informal segment in contrast to the organized sector possibly due to their subjection to appropriate scrutiny by regulatory bodies. The purpose of this study was to determine the knowledge, exposure and perception of factory workers to occupational hazards in the pharmaceutical industries.

METHODS

The study was conducted in Ogun State located in the south-western zone of Nigeria. Two local government areas (Ado-Odo/Ota and Ijebu North) in the state were selected based on the presence of most pharmaceutical industries compared with other Local Government Areas (LGAs) in the state. Eighty (80%) per cent of the industries utilized were from Ado-Odo/Ota where most of the pharmaceutical industries in the state are situated. Ten industries were randomly selected and one hundred factory workers were interviewed using a pre-tested semi-structured questionnaire after securing their informed consent. Sixty-eight per cent of the respondents work in production section, thirteen in the store, five in engineering, four in the laboratory and ten are security staff.

RESULTS

The socio-demographic characteristics of the respondents are shown in Table 1. The results showed that the age range of the respondents were between 21-51 years and 87 % of them were between age 21-40 years, majority (70 %) were males while 30 % were females. The length of service was from six months to ten years and most of them (48 %) had secondary school education. The educational status of the respondents showed that they were majorly in the unskilled labour group although 12 % of them were graduates.

The results in Table 2 showed that a total of 39 % of the subjects were either uncertain (14 %) or unaware (25 %) of anything called occupational hazard. The concept sounded strange to them showing possible lack of adequate training on hazards. The result is further strengthened by the sources of information on hazards presented in Table 3. Majority (51 %) of the respondents learnt about hazards from their friends and colleagues while only 16 % obtained information from their company management. It is also surprising to realize that a minority (1 %) learnt about occupational hazards from the media. The types of information gathered by the factory workers are obtainable in Table 4. There were seven key types of information reported, three were positive and it accounted for 35 % while four were negative and accounted for 65 %. The positive information include -*Hazards occur in every workplace no matter how small , washing of hands before eating or touching your body helps to prevent hazard* and *if there are protective wears , it is better to use them*. These types of information will enhance health since such can stir up the hearer to observe guidelines that reduces hazard during their work processes. The negative information however will cause more slackness for the factory workers in obeying safety rules or care less about them. Major wounds, burns, chest infection and chest pains were the major symptoms of hazard exposure reported by the respondents as shown in Figure 1.

Conclusion: The knowledge-base of factory workers about occupational hazards is weak since it comes mainly through friends and colleagues, their exposure to these hazards is high yet the outcome is underestimated and preventive measures are underplayed. Pharmaceutical industrial stakeholders need to boost the knowledge-base through training of these set of personnel on occupational hazards.

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Table 1: Demographic characteristics of respondents

Age range	%	Length of service (years)	%	Educational qualification	%	Work area	%
< 20	0	< 1	22	WASC,NECO	48	Production	68
21-30	45	1-2	50	NCE/OND	27	Laboratory	4
31-40	42	3-10	16	HND/BA/BSC	12	Store	13
41-50	12	>10	12	Others	13	Engineering/ Maintenance	5
>51	1					Security	10
Total	**100**		**100**		**100**		**100**

Table 2: Knowledge of respondents about occupational hazards

Knowledge of respondent	Frequency (%)
Knowledge of occupational hazard (Heard about it)	61
Lack of knowledge (Never heard about it)	25
Uncertain about knowledge(Not sure of hearing about it)	14
Total	**100**

Table 3: Source of information obtained by respondents

Source of information	Frequency (%)
Friends/colleagues	51
Family/neighbor	23
Company management	16
Media	1
Seminars/workshops/training	4
Other sources (personal observations, rumours etc	5
Total	**100**

Table 4: Type of information gathered by respondents

Information	Frequency (%)
Drugs are for treating ailments hence do not cause problems to handlers	27
Company owners will sack you once you begin to complain of health problems	21
If the industry has protective wears, it is better to use it	15
Someone must die of something whether workplace injury or anything else	13
Hazards occur in every workplace no matter how small	12
Washing of hands before eating or touching your body helps to prevent hazard	8
Pharmaceutical companies do not use heavy-duty equipment hence safety is assured	4
Total	**100**

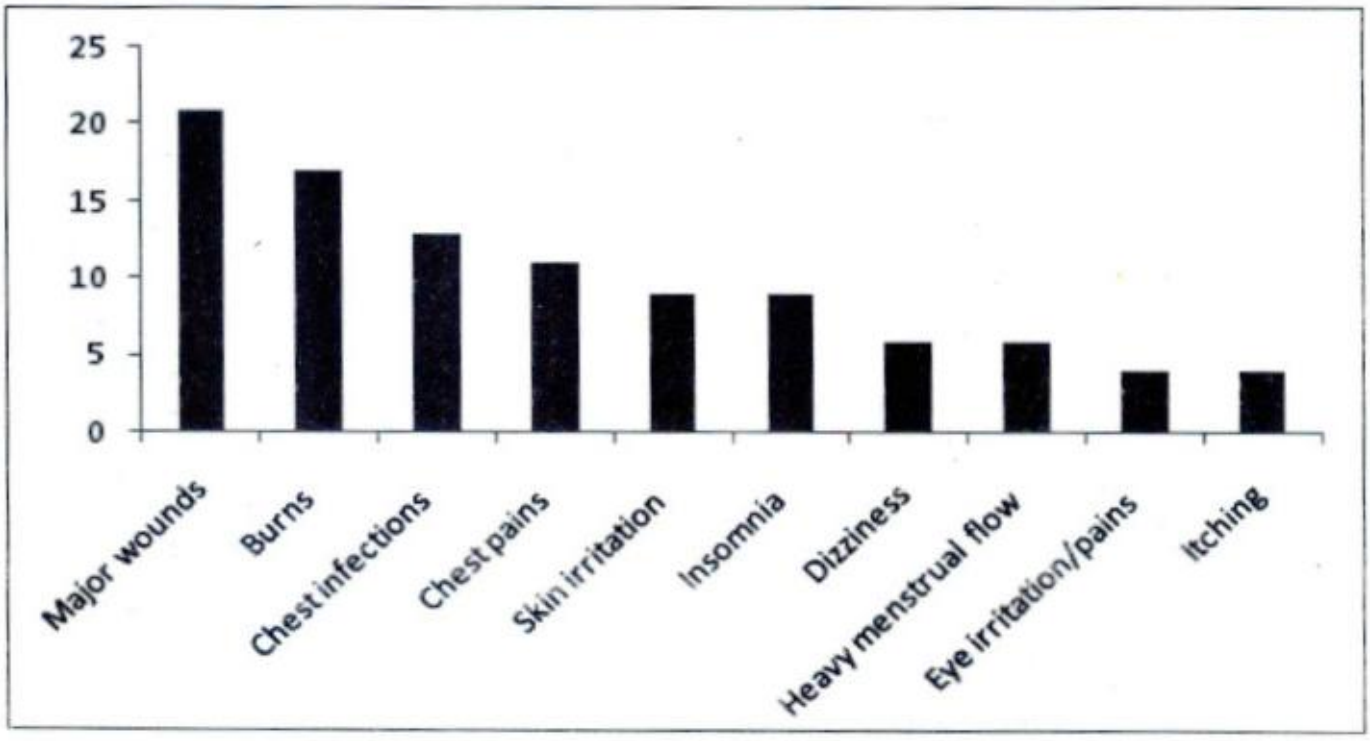

Figure 1 Exposure of respondents to hazards: Symptoms of occupational hazards experienced by respondents

Furthermore, the respondents use different solvents in the workplace such as: ethanol (23.7%), chloroform (21.6%), benzene (19.1%), methanol (18.2%), di-ethyl-ether (14.3%), unnamed (3.1%). Most of these solvents are supposed to be used with care. The study showed that only 28.6% of respondents wear gas masks when pouring these solvents for use, 26.6% pour them on production or laboratory floor without wearing masks, 20.2% pour them under a fume cupboard accompanied with masks while others pour them anywhere they feel and with or without masks. Some of the respondents however claim that gas masks for solvents were very few and work will be delayed with attendant financial consequences if they have to wait.

In checking out the available protective wears, the following were found- factory boots (25.5 %), cloaks (31.8 %), nasal masks made of fabric (14.5 %), thick rubber gloves (5.5 %), other gloves (14.3 %), gas masks (3.6 %), others (4.8 %). Employers also need to place safety above economic gains as 28.4 % of the workers reported tactic sacking of injured employees, 23.8 % reported receiving blame for carelessness when injured. The employees (42.5 %) also reported having received a few weeks off work for health recovery after injury, while others were given one month wage as compensation.

The perception of respondents on occupational hazards is presented in Table 5. Majority of them perceive hazards in their workplace as inevitable, yet they are also carried away with the environmental neatness and this makes them believe that hazard in such places will be rare. In addition, a majority claims that dust generated cannot affect them and this may be the reason why many of them do not comply with safety measures such as the use of nasal masks saying that it can choke.

Table 5: Perception of respondents on industrial hazards

Description of workers' perception	Agree (%)	Disagree (%)	Uncertain (%)	Total (%)
Industrial hazards are unavoidable	89	7	4	**100**
Nigeria has no law on workers safety and health	15	84	1	**100**
Our company is too neat for any hazard to occur therein	62	38	0	**100**
Dust generated at work can never affect me	74	16	10	**100**
The nasal masks they give us can choke somebody	69	21	10	**100**
Routine hospital checks cannot reduce any hazard	22	76	2	**100**

DISCUSSION

Occupational hazard is one of the most important public health problem that is eating into the health fabric of our local, national and global life. It therefore requires continuous attention. The age range of 21 to 40 years which was the highest for the respondents in this study is the period of great strength and hence the reliable labour force of any nation. This set of people requires adequate protective measures from occupational hazards to avoid negative health outcomes which can shorten their work life span and overall quality of life. Most of the workers were males and this could be due to the strenuous work that factory workers are involved in and males are more prone to survive the harsh conditions posed by the work determinants. However, both males and females are prone to adverse effect of workplace hazards. In addition, the length of service shows that most of them still have a long time to spend in active service and keeping hazards to the barest minimum will enhance national phenomenal growth and development as they keep working in health. Twelve per cent of the factory workers were graduates showing that the unemployment situation may have caused such highly qualified staff to opt for factory work. Low educational level of the majority calls for more training in the workplace about hazards otherwise, ignorance may make these workers neglect preventive measures.

The fact that 25 % of the respondents never heard of occupational hazard is disheartening. At the onset of employment, it is expected of industries to train their employees on the basic rudiments of work, the protocols that minimize hazards and the expected actions to hazard management. It could also be that the employees themselves lack observational learning which ought to assist their level of knowledge. The sources of information for those who knew about occupational hazard further showed that the companies seem not to lay emphasis on this aspect and the employees just pick information from anywhere possible. Among the expected source of high information on this subject is the electronic and print media but the results proved otherwise. This could be due to lack of interest of the respondents in current affairs programme offered by media or it could be that this important aspect of our national life is neglected. The print or electronic media need to also rise to this challenge as well.

The reports of symptoms of ill-health obtained in this study are similar to the symptoms reported by factory paint workers in Lagos- Nigeria [4]. The heavy menstrual flow experienced by some of the female respondents has been reported as menstrual breakthrough bleeding in female workers of pharmaceutical industries [5]. The chest pains and chest infections can be grouped as respiratory sensitization which has been reported for workers exposed to penicillins and cephalosporin during formulation processes [6]. Contact reactions resulting from skin exposure have been reported in connection with pharmaceutical manufacture such as skin sensitization due to H2 receptor antagonist -ranitidine in a manufacturing operation [7]. Acute erythema multiforme-like reaction has also been reported when workers had unprotected exposure to an intermediate chemical used in the manufacture of cimetidine [8]. There have also been case reports of allergic reactions to proton pump inhibitors [9] and allergic contact dermatitis has also been infrequently reported in the handling of cytotoxic medicines such as mechlorethamine [10]. These reports are worrisome most importantly because the WHO maintained that workplace risks are almost entirely preventable [11]. All these reiterate the importance of enclosure and employee education as potential measures to effect avoidance of future cases.

The exposure of the factory workers to different solvents and usage without adequate protection is a great concern arising from this study. It is not surprising therefore that burns, irritation, dizziness, insomnia, itching etc are common occurrences among these respondents. It has been reported that noise and solvent exposures produce hearing loss and balance problems because of their synergistic effects [12]. The respondents claimed blame and tactic sacking after experiencing injury at work. This aspect of the study shows the need for insurance plans between employer and employees. However, the unemployment situation in Nigeria makes people to take on jobs without any form of insurance. The issue is more of something to eat than to improve quality of life.

The perception of the respondents on workplace hazards shows that their belief system is not in the angle of health protection. It is also a reflection of poor awareness of the dangers inherent in the handling of APIs, solvents and even exposure to dust. Dusts are solid particles ranging in size from below 1 µm up to around 100 µm, and may be or become

airborne, depending on their origin, ambient conditions and physical characteristics. Whenever airborne dust is inhaled at work, there is the risk of occupational disease. Furthermore, over-exposure to dusts causes disease, temporary or permanent disabilities and deaths. Dusts in the workplace may also cause fire and explosion [13]. The generation of dust needs to be prevented or removed from the air because dust may move with ambient air and reach even persons who are remote from the source and whose exposure is not expected. Nasal masks are protective wears against all forms of impurities that can penetrate through the nostrils. Though the use of nasal masks either against dust or gas cannot be totally convenient but the long term protection it offers is higher than the immediate discomfort.

Some of the respondents lack the knowledge of workers' rights in workplaces probably due to their low educational level. This could explain why they asserted that Nigeria has no law on workers' safety and health. Nigeria has the Labour Act which is in chapter 198 of the Laws of the Federation of Nigeria. The Law has general and specific provisions as to protection of wages, contracts of employment, terms and conditions of employment. Primarily, the Factory Act (1987) prescribes that employers should develop health and safety policies in order to protect their workers. The general provision for health in this act covers areas such as: cleanliness, overcrowding, ventilation, lighting, drainage of floors, and sanitary conveniences, while the provisions for safety includes- equipment and facilities such as transmission machinery, powered machinery, construction and maintenance of facing vessels containing dangerous liquids; hoist and lifts, chains, ropes and lifting tackles; cranes and other lifting machines, self-acting machines, etc. It is important that workers read and improve their understanding of their work environment and the measures that can elongate their life span.

CONCLUSION

The knowledge-base of the factory workers in this study is weak and it comes mainly through friends and colleagues, their exposure to hazards is high, yet they underestimate the outcome and preventive measures are underplayed. Pharmaceutical industrial stakeholders need to boost the knowledge-base through continuous training of these set of personnel on occupational hazards.

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