



KNOWLEDGE, ATTITUDE, PERCEPTION AND HEALTH-SEEKING BEHAVIOUR REGARDING OCCUPATIONAL-RISK OF CEMENT-DUST EXPOSURE AMONG LAFARGE WORKERS IN EWEKORO OGUN STATE, NIGERIA

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ABSTRACT: *Introduction:* Inadequate knowledge, negative attitude, poor perception, and poor health seeking-behaviour on the part of the workers are some of the problems resulting in health issues that are associated with occupational hazards. Hence, this study investigated the knowledge, attitude, perception and health-seeking behaviour regarding occupational risk of cement dust exposure among Lafarge workers in Ewekoro LGA, Ogun State, Nigeria. **Methodology:** A multistage probability sampling method was adopted to select the workers working in Lafarge company in Ewekoro, Ogun State. **Result:** Most (151; 62.9%) of the workers had high knowledge regarding cement dust exposure. Most (170; 70.8%) of the workers had negative attitudinal disposition towards cement dust exposure. Most (163; 67.9%) of the workers had poor perception towards cement dust exposure. Most (173; 72.1%) of the respondents had poor health seeking behavior regarding cement dust. **Conclusion:** In the study, it was established that most of the factory workers had good knowledge regarding occupational risk exposure to cement dust. Despite this satisfactory knowledge, a majority of the workers showed a negative attitude towards occupational risk exposure to cement dust. The workers were also found to have poor perception. Negative attitude and poor perception towards risk of cement dust exposure contributed to the workers' inadequate health seeking behavior.

KEYWORDS: Knowledge, Attitude, Perception, Health-seeking behaviour, Cement-Dust, Exposure, Occupational-Risk.



INTRODUCTION

The increase in health problems associated with occupational hazards in the work place environment is a major global health issue (World Health Organisation, 2015). Different hazards within industries have been reported to pose risk of adverse health outcomes for workers, hence the need for public health interventions to address the issue (World Health Organisation, 2015). Exposure to cement dust in industries is one of the hazards associated with pneumoconiosis which is linked with poor work performance and reduced quality of life for workers (Qi *et al.*, 2021). Consequently, this study will be exploring the knowledge, attitude and perception of workers towards the occupational and health risk of exposure to cement dust. However, this study will not examine the health parameters associated with pneumoconiosis but will focus on how knowledge, attitude, perception and practice of the workers exposed to cement dust can predict or correlate with adverse health outcomes.

Morbidity and mortality have always been significantly influenced by environmental and occupational pollution. Due to inadequate quality control documentation and a practical solution to this enormous problem, the incidence of occupational sickness is continuously rising around the world, especially in emerging nations. Different types of diseases are caused by the smoke and dust that particular businesses emit. The risk of developing chronic obstructive lung disorders is correlated with the unclean exposure to the smoke and dust. Since these substances are the main causes of mortality and morbidity, cement workers may also be exposed to a wide range of occupational dangers in this environment (Biswas *et al.*, 2021; Biswas *et al.*, 2022).

Occupational hazards know no boundaries as they affect both male and female genders in all climates (Biswas *et al.*, 2021; Biswas *et al.*, 2022). However, the level, type and degree of hazard exposure appear to differ for both sexes or genders. The types of occupational hazards that men and women are most likely to be exposed to include psychological, psychosocial, biological and chemical hazards. In the scoping and systematic reviews of Rai *et al.* (2021), Biswas *et al.* (2021) and Biswas *et al.* (2022), it was revealed that within the same work environment, men are most likely to be exposed to noise, vibration, medical and solar radiations, falls/other mechanical and chemical hazards than their female counterparts. The female gender was most likely to be exposed to less hazardous chemicals but more likely to experience more harassment than men. According to Biswas *et al.* (2021), an understanding of these differences in occupational hazard exposures is key toward planning an effective strategy or strategies aimed at work injury and illness prevention.

These differences in the exposure levels and types can be loosely explained by the fact that more males and females are employed in a typical cement production factory. In an earlier survey on the role of personality type and gender differences in compliance with safety conducted by Ucho and Gbande (2012), it was revealed that out of a total of 193 employees, 156 were males while 37 were females. Furthermore, they showed that the few women are most likely to work in offices or operations sections than in the production units. This stratification of the workforce within a typical cement factory will further influence the types of hazard or occupation health issues they are likely to be exposed to. This position established by Ucho and Gbande (2012) corroborates the positions of Rai *et al.* (2021), Biswas *et al.* (2021) and Biswas *et al.* (2022). Emetere also agreed with the positions of Rai *et al.* (2021), Biswas *et al.* (2021) and Biswas *et al.* (2022); however, they warned that all employees and those living within the production vicinities are exposed to main pollutants such as radioactive dust,



nitrogen oxides, hydrogen chloride, hydrogen fluoride, sulphur dioxide, organic compounds, dioxins, carbon monoxide, furans and ammonia that are all known to cause diseases and health challenges in the short to long terms.

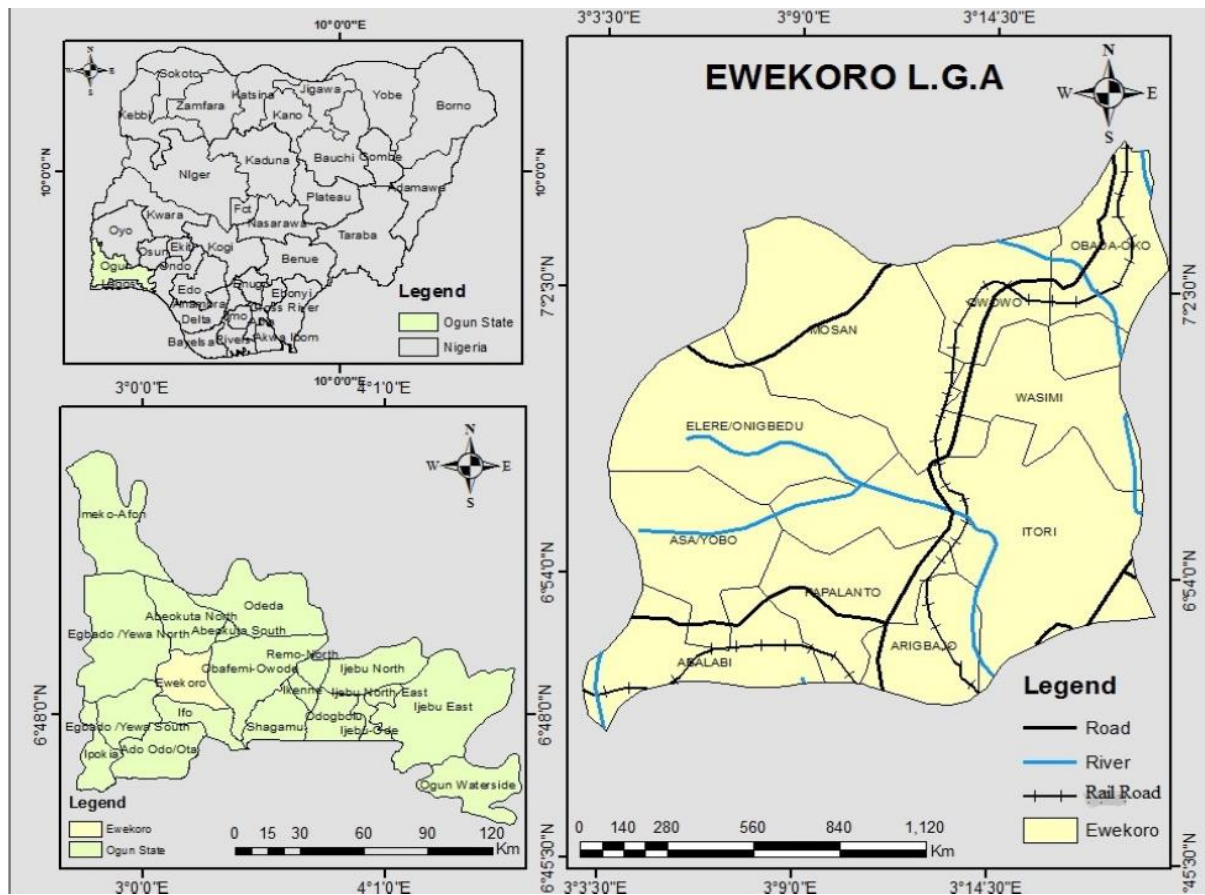
METHODOLOGY

Study Design

A cross-sectional descriptive survey will be selected because it provides an accurate account of the characteristics of the respondents, such as knowledge, attitude and perception. Descriptive surveys can be used to investigate the background of a research problem and get the required information needed to carry out further research.

Study Area

Ewekoro is one of the sites of West African Portland Cement Company (WAPCO) with large deposits of limestone. It is one of the 21 villages in the local government in Ogun State located along Sango-Ifo-Abeokuta expressway of Ogun State of Nigeria, with about 594 km² (229 Sq. mi) of land. It is approximately located between Latitudes 6°49'48" N and 7°06'16" North of the Equator and Longitudes 3°02'56"E and 3°02'1'54" East of the Greenwich Meridian with an average elevation of 120m (amsl) (Micheal , 2015). Climate in the area is humid tropical characterized by wet (April–November) and dry seasons (December–March). The vegetation around the cement plant is originally tropical rainforest type. Tall grasses and shrubs are becoming predominant owing to cement production activities. The area's wetland encourages massive plantation of sugarcane, which is a major source of income for local people.



Map Showing Study Area: Ewekoro LGA, Ogun State

Study Population

The study population for this study is Lafarge cement workers in Ewekoro Ogun state, Nigeria.

Sample Size

The total sample size for the study was 238 respondents obtained from the summation of the sample of workers working in the Lafarge Company at Ewekoro, Ogun State, using the formula:



$$n_o = \frac{Z^2 pq}{e^2}$$

where

n_o = sample size

e^2 = Margin of error

p = estimated proportion of the population

Z = value of statistical parameters that depends on the confidence level

$$n_o = (1.96)^2 (0.5) (0.5)$$

$$(0.05)^2$$

$$= 385$$

$$n = \frac{n_o}{1 + (n_o - 1)}$$

$$= \frac{385}{1 + (385 - 1)}$$

$$= 238$$

$$n = 385$$

$$= \frac{385}{1 + (385 - 1)}$$

$$= 238$$

$$n = 238$$

Sampling Technique

The study utilized a multistage probability sampling. The first stage will include selection of the facility that would be used for this study. The Lafarge Company is located at Ewekoro LGA of Ogun State. The company has 913 workers employed; this comprises the workers working in the offices, field workers working across the crushing, blending and packing sections of the company, and the field marketers.

Instrument for Data Collection

A self-structured 30-item questionnaire was used in data collection for this research study. The instrument is structured and designed in accordance with the conceptual framework in order to



effectively meet the objectives as well as answering the research questions. The questionnaire was divided into four (4) sections; they include: demographics characteristics, knowledge, attitude, perception and health seeking behaviour.

Validity of the Instrument

The instrument was constructed by the researcher and given to the supervisors to examine the face and content validity. The corrections and changes made were affected. Also, inputs were obtained from two experts in Public Health. The importance of all these is to ensure that the instrument measured what it was supposed to measure.

Reliability of the Instrument

To ascertain the reliability of the instrument, a pilot study was done. Thirty-eight copies of the questionnaires were administered to 38 workers in Ewekoro Local Government Area of Ogun State, which was not part of the study area. After the pilot study, the questions were fine-tuned by removing the ambiguous ones. The result of the pre-test was used to improve the quality of the questionnaire. The questionnaire's reliability was thus assessed using Cronbach alpha test and a reliability coefficient of 0.77 was obtained.

Method of Data Collection

The process of data collection is of a critical importance to the success of any research study. Without high quality data collection techniques, the accuracy of the research conclusion is easily challenged. Therefore, the data gathering procedure will involve a trained research assistant who would also read out the questionnaires in English; a letter of consent will be presented to the respondents to sign before administering the survey instrument. The purpose and contents of the questionnaire will be explained to the respondents stating the fact their identity would not be disclosed.

Data Analysis Method

The data collected were analyzed in IBM SPSS Statistics version 23 (IBM Co., Armonk, NY, USA), while Microsoft Excel (Ms Excel 2010) was used for chart drawings. Preliminary data analysis includes using descriptive technique for the construction of frequency distribution tables which were expressed as a percentage of the distribution. Graphical charts such as Pie chart and bar chart were also used to represent some of the distributions. Mean scores were calculated on scaled data.

The knowledge was classified as good knowledge and poor knowledge based on answering the questions correctly. The summary of the knowledge was obtained as an average of the knowledge scores.

In terms of attitude, a four-point Likert scale (strongly disagree, disagree, agree and strongly agree) was used to obtain information, of which points were assigned ranging from 1 for strongly disagree to 4 for strongly agree. The points were used to multiply by the frequency obtained in each item, and the mean scores were computed. In terms of perception, a four-point Likert scale (strongly disagree, disagree, agree and strongly agree) was used to obtain information, of which points were assigned, ranging from 1 for strongly disagree to 4 for



strongly agree. The points were used to multiply by the frequency obtained in each item, and the mean scores were computed.

Ethical Consideration

A copy of the research proposal and the questionnaire will be submitted to Babcock University's Health Research Ethics Committee. An informed consent will be administered to every respondent filling the questionnaire.

Confidentiality: The researcher will ensure the respondents' confidentiality. The survey instrument will not require the participants to write their names, addresses or any other important information.

Coercion: The participants will answer the questions asked in the questionnaire out of their own volition and will not be compelled to do so. They can withdraw from the exercise whenever they do not wish to continue. The importance of the participants to the study will be made clear to them, including the purpose of the research, methods, and benefits of participating, but the ultimate decision to participate will be left entirely to them to make without any pressure of any kind.

Privacy: Privacy will be ensured while the respondents fill the answers to the questionnaires.

RESULTS/FINDINGS

Knowledge Regarding the Health Risks of Exposure to Cement Dust among Workers in Ewekoro, Ogun state, Nigeria

Table 1 below reveals the knowledge of the occupational risk of exposure to cement dust among workers in Ewekoro Ogun State. The result of the analysis showed that most (180; 75%) of the respondents were aware of the dangers associated with cement dust exposure. Majority (176; 73.3%) of the respondents correctly ascertained that cement dust is a grey powder which is mixed with sand and water in order to make concrete for construction. A significant proportion (170; 70.8%) of the respondents correctly stated that cement dust is very harmful and toxic to the body. More than half (130; 54.2%) of the respondents correctly reported that cement dust can lead to death. Less than half (109; 45.4%) of the respondents knew that exposure to occupational hazards such as cement dust can result in work related injuries or disease. More than a quarter (88; 36.7%) of the respondents correctly confirmed that exposure to cement dust could result in asthma, while the majority (192; 80.0%) of the respondents knew that cement dust exposure could result in lung disease. About a quarter (71; 29.6%) of the respondents correctly stated that exposure to cement dust can cause skin irritation, and most (162; 67.5%) of the respondents stated that using personal protective equipment can prevent cement dust exposure.

Similarly, corresponding to Table 2 below, the result of the analysis revealed that knowledge was measured on an 8-points rating scale, and divided into low (0–3.9) and high (4.0–8.0). The mean knowledge score obtained by the respondents was 4.63 ± 1.91 . Most (151; 62.9%) of the respondents had high knowledge regarding cement dust exposure.

**Table 1: Respondents' Knowledge Regarding Cement-Dust Exposure**

Knowledge items for consideration	Respondents N = 240	
	Frequency (F)	Percentage (%)
Are you aware of the dangers of cement-dust exposure?		
Yes	180	75.0
No	60	25.0
What is cement dust?		
Cement-dust is a grey powder which is mixed with sand and water in order to make concrete for construction.	176	73.3
Cement-dust is an agent used in mortar and concrete for mining of mineral resources.	64	26.7
Cement-dust is an agent used to produce spare parts of motorcycles.	-	-
Do you know cement-dust is very harmful and toxic to the body?		
Yes	170	70.8
No	70	29.2
Cement- dust can lead to death.		
Yes	130	54.2
No	110	45.8
Exposure to occupational hazards (e.g., cement-dust) can result in work related injuries or disease.		
Yes	109	45.4
No	131	54.6
What are the risk factors of cement dust exposure?		
Asthma	88	36.7
Cough	145	60.4
Obesity	4	1.7
Liver failure	3	1.3
What are the complications for cement-dust exposure?		
Death	27	11.3
Stomach cancer	21	8.8
Lung disease	192	80.0
Growth restriction	-	-
Exposure to cement-dust can cause the following.		
Happiness	12	5.0
Skin Irritation	71	29.6
Stress	149	62.1
Chemical burn	8	3.3
Personal protective equipment (PPE) can prevent you from cement dust exposure?		
Yes	162	67.5
No	78	32.5

**Table 2: Respondents' Categorization of Level of Knowledge of Cement Dust**

Knowledge Proportion Measured on an 8-points rating scale	Frequency (F)	Percentage (%)
Low (0-3.9)	89	37.1
High (4.0-8.0)	151	62.9
Mean \pm SD	4.63 \pm 1.91	

Attitude of The Respondents Towards Cement-Dust Exposure

As shown in Table 3 below regarding respondents' attitudinal disposition towards cement dust, the result of the analysis showed that most (158; 65.8%) of the respondents agreed that they have a responsibility to comply with safety rules and regulations at all times. Less than half (95; 39.6%) of the respondents concurred that it is most likely that they will be affected from exposure to cement dust in the factory. Less than half (96; 40.0%) of the respondents affirmed that they understood the risk of cement dust exposure and therefore they have a responsibility to wear personal protective equipment at all times. Majority (201; 83.8%) of the respondents disagreed with the notion that wearing personal protective equipment is a waste of their time.

Corresponding to Table 4 below, regarding respondents' attitudinal disposition towards cement dust exposure, the result of the analysis revealed that attitudinal disposition was measured on an 8-points rating scale and categorized into negative (0–3.9), and positive (4.0–8.0). The mean attitudinal disposition score obtained by the respondents was 2.48 \pm 1.30. Most (170; 70.8%) of the respondents had a negative attitudinal disposition towards cement dust exposure.

Table 3: Attitude of the Respondents Towards Cement-Dust Exposure

Respondents Attitude towards cement-dust exposure	SA F (%)	A F (%)	SD F (%)	D F (%)
I have a responsibility to comply with safety rule and regulations all times	9 (3.8)	158 (65.8)	4 (1.7)	69 (28.7)
It is most-likely that I will be affected from exposure to cement-dust in the factory	2 (0.8)	95 (39.6)	5 (2.1)	138 (57.5)
I understand the risk of cement-dust exposure, therefore I have a responsibility to always wear my personal protective equipment	2 (0.8)	96 (40.0)	8 (3.3)	134 (55.8)
Wearing Personal protective equipment is waste of my time	1 (0.4)	28 (11.7)	10 (4.2)	201 (83.8)

**Table 4: Respondents' Categorization of Attitudinal Disposition towards Cement Dust**

Attitude Proportion Measured on an 8-points rating scale	Frequency (F)	Percentage (%)
Negative (0-3.9)	170	70.8
Positive (4.0-8.0)	70	29.2
Mean \pm SD	2.48 \pm 1.30	

Perception of the Respondents towards Cement-Dust Exposure

As shown in Table 5 below regarding respondents' perception towards cement, the result of the analysis showed that less than half (108; 45.0%) of the respondents affirmed that they are at risk from the dangers and effect of exposure to cement dust. Less than half (92; 38.3%) of the respondents concurred that they consider their safety and also that of their colleagues at all times. More than half (134; 55.8%) of the respondents agreed that wearing of personal protective equipment can protect them from cement dust and its dangers as well as from other occupational hazards. More than half (126; 52.5%) of the respondents affirmed that strict compliance with occupational safety rules and regulations can protect them from occupational injuries. More than half (135; 56.3%) of the respondents disagreed that cement dust exposure dangers can only affect women.

Corresponding to Table 6 below, regarding respondents' perception towards cement dust exposure. The perception of the respondents was measured on a 10-points rating scale and was categorized into poor (0–4.9), and good (5.0–10.0). The result of the analysis showed that the mean perception score was 3.48 \pm 1.89. Most (163; 67.9%) of the respondents had poor perception towards cement dust exposure.

Table 5: Perception of the Respondents towards Cement-Dust Exposure

Respondents' Perception towards cement-dust exposure	SA F (%)	A F (%)	SD F (%)	D F (%)
I am at risk from the dangers and effect of exposure to cement dust	3 (1.3)	108 (45.0)	-	129 (53.8)
I always think about my safety and that of my colleagues	2 (0.8)	92 (38.3)	2 (0.8)	144 (60.0)
Wearing of personal protective equipment can protect me from cement-dust and its dangers as well from other occupational hazards	12 (5.0)	134 (55.8)	7 (2.9)	87 (36.3)
Strict compliance with occupational safety rules and regulation can protect me from occupational injuries	8 (3.3)	126 (52.5)	12 (5.0)	94 (39.2)
Cement-dust exposure dangers can only affect women	8 (3.3)	2 (0.8)	95 (39.6)	135 (56.3)

**Table 6: Respondents' Categorization of Perception towards Cement Dust**

Perception Proportion Measured on a 10-points rating scale	Frequency (F)	Percentage (%)
Poor (0-4.9)	163	67.9
Good (5.0-10.0)	77	32.1
Mean \pm SD	3.48 \pm 1.89	

Health-Seeking Behaviours of the Respondents towards Cement-Dust Exposure

As shown in Table 7 below, regarding respondents' health seeking behaviours, the result of the analysis revealed that few (3; 1.3%) of the respondents always visit the clinic regularly for check-up. Similarly, few (2; 0.8%) of the respondents always go for a pre-employment test for lung evaluation. Correspondingly, few (1; 0.4%) of the respondents always go for regular blood checks. A few (7; 2.9%) of the respondents reduced their visit to the clinic because they always dislike the health care workers' attitude. Few 2 (0.8%) of the respondents do not always seek healthcare because they do not have time due to heavy work schedules at the factory.

Corresponding to Table 8 below, the respondents' health seeking behavior was measured on a 15 points rating scale and categorized into poor (0–7.5) and good (7.6–15). The mean health seeking behavior of the respondents was 5.20 \pm 2.67. Most (173; 72.1%) of the respondents had poor health seeking behavior regarding cement dust.

Table 7: Health-Seeking Behaviours of the Respondents towards Cement-Dust Exposure

Respondents' health seeking behaviour towards cement-dust exposure	Always F (%)	Often F (%)	Rarely F (%)	Not at all F (%)
I visit the clinic Regularly for check up	3 (1.3)	157 (65.4)	49 (20.4)	31 (12.9)
I go for pre-employment test for lung evaluation	2 (0.8)	149 (62.1)	48 (20.0)	41 (17.1)
I go for regular blood check	1 (0.4)	130 (54.2)	61 (25.4)	48 (20.0)
I dislike the attitudes of the health care workers therefore I reduce my visit and how often I seek for healthcare at the facility	7 (2.9)	15 (6.3)	59 (24.6)	159 (66.3)
I often do not seek healthcare because I do not have time due to my work schedules at the factory.	2 (0.8)	14 (5.8)	55 (22.9)	169 (70.4)

**Table 8: Respondents' Categorization of Health Seeking Behavior towards Cement Dust**

Health Seeking Proportion Measured on a 15-points rating scale	Frequency (F)	Percentage (%)
Poor (0-7.5)	173	72.1
Good (7.6-15.0)	67	27.9
Mean±SD	5.20±2.67	

DISCUSSION

The study explored the knowledge, attitude, perception and health-seeking behaviour regarding occupational risk of cement-dust exposure among Lafarge workers in Ewekoro, Ogun State, Nigeria based on the IMB model. The importance of cement cannot be overemphasized as it is one of the most important components used in building all over the world (Zelege et al., 2011). However, cement dust contains many minerals such as calcium oxide, silicon oxide, aluminum trioxide, ferric oxide, magnesium oxide, sand, and other impurities (Oleru, 1984). Cement dust or its constituent minerals affect the lungs causing diseases such as chronic bronchitis, asthma, lung cancer, pneumonia, and tuberculosis (Rahmani et al., 2018). Several studies had found a link between cement dust and lung problems (Strużak-Wysokińska & Bożyk, 1989; Aminian et al., 2014; Rahmani et al., 2018; Ndinwa et al., 2020). With these problems in mind, it becomes imperative to investigate the level of knowledge, attitude, perception, and health seeking behaviors of Lafarge cement factory workers so as to proffer suitable recommendations.

The current study found that most respondents were between the age range of 26–30 years. This is approximately related with the findings of Rahmani et al. (2018). The age group in this study was also similar to the study of Sah et al. (2015). However, there appears to be a sharp distinction between the current study and the study of Ndinwa et al. (2020). This disparity could be as a result of different geographical settings. The present study reported more males than females; this is evidently so because cement factory work is predominantly occupied by males due to its heavy workload situations. This supports previous findings where men dominated cement factories (Ndinwa et al., 2020; Sah et al., 2015; Ahmed & Newson-Smith, 2010). The present study revealed that the majority of the respondents had secondary education. This is consistent with Ndinwa et al.'s (2020) study. However, contrary to the present study, Sah et al. (2015) reported that the majority of their respondents had primary education. The variation in findings could be due to sampled population and the geographical area in which the study was conducted.

The present study found that most of the respondents were aware of the dangers associated with cement dust exposure. This corresponds to the findings of Ahmed and Newson-Smith (2010) in their study where they investigated knowledge and practice of workers in cement factories in the United Arab Emirates. A similar report was also observed in the findings of Aluko et al. (2016). The present study was also in line with the result of Sah et al. (2015) where all of their respondents had general knowledge about the effect of cement dust on their health. A significant number of respondents correctly defined cement dust as a grey powder which is



mixed with sand and water in order to make concrete for construction. This might be attributed to their level of education as it was revealed that the majority of the respondents had secondary education. The majority of workers had good knowledge regarding disease-causing effects of cement dust and some workers had no idea regarding the effect of cement dust. In the same way, most of the workers knew that cement dust can cause diseases like asthma, lung disease and others. These findings are similar to the findings obtained by Singh and Pandey (2011). The finding of this study is in keeping with that of Oluwafemi et al. (2017) where the majority of the respondents were found to have good knowledge of occupational hazards control. The finding of this study is also in line with that of Agbana et al. (2016) where the majority of the workers had a good knowledge of occupational health and safety practices. The finding of this study is different from that of Peter and Olasumbo (2014) where the knowledge of safety practices was found to be poor. The finding of this study is different from that of Adewale and Adhuze (2017) which showed that the majority of the respondents have poor knowledge. In contrast to the current study, Geleta et al. (2021) reported a low level of knowledge of occupational hazard. This difference found between the present study and the previous one might be due to the difference in the study area and the sample size. The findings of this study also differs from that of Vitharam et al. (2015) where poor knowledge was recorded. The present study found a significant link between knowledge and health-seeking behavior; various studies had found a direct link between knowledge and health seeking behaviors (Adeela et al., 2020; Karunamoorthi & Kumera, 2010; Girish et al., 2021; Gebregiorgis, 2016; Geleta et al., 2021).

The present study found that the respondents in the cement factory had a poor attitude and perception towards exposure to cement dust in spite of their satisfactory knowledge. This brings to mind that knowledge alone is not sufficient to bring about a positive attitude, perception or behaviour (Awuchi, 2020, Arlinghaus & Johnston, 2017). Rather, knowledge is the first step in a series of variables that triggers a behavioural change. We do not need to just inform; we need to encourage attitude adjustments. Although most of the respondents knew the risk involved with cement dust, yet the majority downplayed the risk as most of the respondents stated that they will most likely not be affected from exposure to cement dust in the factory. This corresponds to the findings of Aluko et al. (2016). Contrary to the present study, Nasab et al. (2009) found a positive attitude towards occupational health and safety. The present study was also at variance with the study conducted by Bello et al. (2021) where they reported a positive attitude and perception among their respondents towards occupational risk exposure. The present study found a significant association between attitude, perception and health seeking behaviour. This is similar to the findings of Aluko et al. (2016). The current study was also in agreement with the findings of Nwankwo et al. (2018).

As regards health seeking behavior of the respondents, the current study found a poor health seeking behaviour among the factory workers. This is expected as the attitude and perception of the respondents were not satisfactory. This finding is similar to the findings of Afolabi et al. (2013) where they reported that students' attitude and perception hinders their health seeking behaviour. In agreement with the current study, El-Ghitany (2017) reported that poor perceived risk of their respondents negatively impacted their safety practices. Similar to the current study, Onyango et al. (2020), in contrast to the current findings Adei et al. (2022), found good health seeking behaviour among their respondents. The present study found a significant link between knowledge, attitude, perception and health seeking behaviour.



CONCLUSION

Most of the factory workers had a good knowledge regarding occupational risk exposure of cement dust. Despite this satisfactory knowledge, a majority of the workers showed a negative attitude towards rules and regulations of the factory. The workers were also found to have poor perception of the risk of cement dust even after showing good knowledge. Negative attitude and poor perception towards risk of cement dust exposure significantly contributed to the workers' inadequate health seeking behavior.

RECOMMENDATIONS

Based on the research findings and conclusion regarding risk exposure of cement dust, the following recommendations were made:

1. Periodic training of staff should be of top priority of Lafarge cement company; this will increase the workers' self-efficacy.
2. In regard to health behaviour change, education to increase general knowledge is rarely needed. The company needs to create a higher level of awareness of why adhering to safety precautions is personally important for individuals.

REFERENCES

- Adeela, K., Babar, T.S., Mirza, A. B. (2020) "Knowledge, Awareness, and Health-Seeking Behaviour regarding Tuberculosis in a Rural District of Khyber Pakhtunkhwa, Pakistan", *BioMedical Research International*, vol. 2020, Article ID 1850541, 6 pages, 2020. <https://doi.org/10.1155/2020/1850541>
- Adei, D., Mensah, A.A., Agyemang-Duah, W., & Aboagye-Gyasi Lewis. (2022) Factors associated with health-seeking behaviour among informal sector workers in the Kumasi metropolis of Ghana, *Cogent Public Health*, 9:1, DOI: 10.1080/27707571.2022.2103932
- Adele, P. O. & Adhuzo, O. O. (2017). Knowledge and practice of occupational hazard control among building construction workers in Lagos Metropolis, Nigeria. *International Journal of Advances in Engineering and Technology*, 10(4), 512-522.
- Afolabi, M., Daropale, V., Irinoye, A. and Adegoke, A. (2013) Health-seeking behaviour and student perception of health cares of community university community in Nigeria. *Health*, 5, 817-824. doi: 10.4236/health.2013.55108.
- Agbana, B. E., Joshua, A. D., Daikwo, M. A. & Metiboha, O. L. (2016). Knowledge of occupational hazards among Sawmill workers in Kwara State, Nigeria. *Nigerian Postgraduate Medical Journal*, 23(1), 25-32.
- Ahmed, H. O., & Newson-Smith, M. S. (2010). Knowledge and practices related to occupational hazards among cement workers in United arab emirates. *The Journal of the Egyptian Public Health Association*, 85(3-4), 149–167.
- Aluko, O.O., Adebayo, A.E., Adebisi, T.F. et al. Knowledge, attitudes and perceptions of occupational hazards and safety practices in Nigerian healthcare workers. *BMC Res Notes* 9, 71 (2016). <https://doi.org/10.1186/s13104-016-1880-2>



- Aminian, O., Aslani, M., & Sadeghniai Haghighi, K. (2014). Cross-shift study of acute respiratory effects in cement production workers. *Acta medica Iranica*, 52(2), 146–152.
- Arlinghaus, K. R., & Johnston, C. A. (2017). Advocating for Behavior Change with Education. *American journal of lifestyle medicine*, 12(2), 113–116.
<https://doi.org/10.1177/1559827617745479>
- Awuchi, C. (2020). Re: Knowledge is not enough to change your behavior. Do you agree? Retrieved from: https://www.researchgate.net/post/Knowledge_is_not_enough_to_change_your_behavior_Do_you_agree/5f924eca2834c41c7908e3e5/citation/download.
- Bello, A.I., Adu, J.B., Ndaa, P.O., Odole, A.C., Iyor, F. T. & Boakye H. (2021). Appraising the Knowledge, Perception, Attitude and Practice of Occupational Health and Safety among Physiotherapists in an Under-Staffed Healthcare Settings. *Journal of Environmental and Occupational Health* E-ISSN: 2684-3269
- El-Ghitany EM (2017) Travel Health Knowledge, Attitude and Practices among Egyptian Travelers, Part1; Risk Perception, Health Seeking Behavior and Subjective Evaluation of Travel Health Services in Egypt. *Journal of community Medicine in Public Health* 1: 121. DOI: 10.29011/2577-2228.100021
- Gebregiorgis A.T. (2016). Occupational Risks and Hazards Exposure, Knowledge of Occupational Health and Safety Practice and Safety Measures among Workers of Sheba Leather Plc, Wukro, Tigray Ethiopia. *MOJ Public Health*. 4. 10.15406/mojph.2016.04.00074.
- Geleta, D. H., Alemayehu, M., Asrade, G., & Mekonnen, T. H. (2021). Low levels of knowledge and practice of occupational hazards among flower farm workers in southwest Shewa zone, Ethiopia: a cross-sectional analysis. *BMC public health*, 21(1), 232. <https://doi.org/10.1186/s12889-021-10254-5>
- Girish, D., Shyama, D., Shiferaw, G.A., Boko, L.S., Udessa, G., Takala, U. (2021) Occupational hazards and its relation with health-seeking and practicing behaviors among sanitary workers in Southern, Ethiopia, *International Journal of Africa Nursing Sciences*, Volume 15, 2021, 100339, ISSN 22141391, <https://doi.org/10.1016/j.ijans.2021.100339>. (<https://www.sciencedirect.com/science/article/pii/S2214139121000627>)
- Karunamoorthi, K. and Kumera, A. (2010) Knowledge and health seeking behavior for malaria among the local inhabitants in an endemic area of Ethiopia: implications for control. *Health*, 2, 575-581. doi: 10.4236/health.2010.26085.
- Nasab, H., Ghofranipour, F., Kazemnejad, A., Khavanin, A., & Tavakoli, R. (2009). Evaluation of Knowledge, Attitude and Behavior of Workers towards Occupational Health and Safety. *Iranian Journal of Public Health*. 38.
- Ndinwa, G. C. C., Chukumah, C. O., & Akpafun, S. A. (2020). Occupational Health Exposure and Perceived Effects of Portland Cement Dust Pollution on Cement Factory Workers. *Journal of Atmosphere*, 3(1), 1–14. <https://doi.org/10.18488/journal.94.2020.31.1.14>
- Ndinwa, G., Chukumah, C., & Akpafun, S. (2020). Occupational Health Exposure and Perceived Effects of Portland Cement Dust Pollution on Cement Factory Workers. *Journal of Atmosphere*. 3. 1-14. 10.18488/journal.94.2020.31.1.14.
- Nwankwo ONO, Mokogwu N, Agboghroma O, Ahmed FO, Mortimer K (2018) Knowledge, attitudes, and beliefs about the health hazards of biomass smoke exposure amongst commercial food vendors in Nigeria. *PLoS ONE* 13(1): e0191458. <https://doi.org/10.1371/journal.pone.0191458>



- Oleru U. G. (1984). Pulmonary function and symptoms of Nigerian workers exposed to cement dust. *Environmental research*, 33(2), 379–385. [https://doi.org/10.1016/0013-9351\(84\)90036-7](https://doi.org/10.1016/0013-9351(84)90036-7)
- Peter, O. & Olasumbo, A., (2014). Knowledge and practice of occupational hazard control among building construction workers in Lagos metropolis, Nigeria.
- Rahmani, A. H., Almatroudi, A., Babiker, A. Y., Khan, A. A., & Alsahly, M. A. (2018). Effect of Exposure to Cement Dust among the Workers: An Evaluation of Health-Related Complications. *Open access Macedonian journal of medical sciences*, 6(6), 1159–1162. <https://doi.org/10.3889/oamjms.2018.233>
- Sah, J., Shah, S., Yadav, D., Salahuddin, M., Yadav, C., Razin, M.d., Rashid, M., & Dhital, S. (2015). Knowledge and practice related to Occupational Hazards among Maruti Cement Factory workers in Mirchaiya, Siraha, Nepal. *Microbes and Health*. 4. 11-18. 10.3329/mh.v4i2.23138.
- Singh, V.S., & Pandey, D.N. (2011). Human health risk due to cement dust exposure policy brief. Climate Change and CDM Cell Rajasthan State Pollution Control Board, Jaipur, India, 2: 1–18
- Struzak-Wysokińska, M., & Bozyk, A. (1989). Stan błony śluzowej jamy ustnej u pracowników cementowni [Condition of the oral mucosa in cement plant workers]. *Wiadomosci lekarskie (Warsaw, Poland: 1960)*, 42(10), 641–644.
- Vitharam, V., Subashi, G., & Sudhira, D. (2015). Health hazards, risk and safety practices in construction sites. *Journal of Engineers*, XL VIII (3), 35-44.
- Zelege, Z. K., Moen, B. E., & Bråtveit, M. (2011). Lung function reduction and chronic respiratory symptoms among workers in the cement industry: a follow up study. *BMC pulmonary medicine*, 11, 50. <https://doi.org/10.1186/1471-2466-11-50>