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Original Article

Quality of Life of Permanent Workers of a Cement Factory in Bangladesh

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ABSTRACT

Cement factory workers are exposed to dust, fumes and gases that cause various health-related issues in different systems. All work-related negativities consist of a risk for one's health that affects an individual's quality of life (QOL) in the short and long run. This study aimed to evaluate the quality of life of permanent workers in a cement factory in Bangladesh. This cross-sectional study was conducted on permanent workers aged between 18 to 60 years from Lafarge Holcim Bangladesh Ltd, Chatak. The WHOQOL-BREF scale was used to assess QOL. There was a total of 131 of 150 (87.3%) cement factory workers solemnly enrolled in this study. The mean age was 30.39±6.4 years. Among all study participants, 38.3% had been working for less than 5 years, 30.5% had been working between 5 to 9 years, 27.5% for 10-14 years, and the rest 3.1% for ≥15 years. Mean general QOL score was 61.22±9.84 and the mean general health score was 72.36±10.94. Among all four domains of QOL, the socioeconomic domain (66.11±11.52) had the highest score, followed by psychological health (59.97±6.59), environmental health (57.93±7.50) and physical health (56.27±5.99). Based on this cross-sectional study, it can be concluded that the cement factory workers were largely satisfied with their quality of life.

Keywords: *Quality of life, Permanent worker, Cement factory.*

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INTRODUCTION

WHO defines QOL as the "individual's perceptions of their position in life in the context of culture and value systems in which they live and about their goals, expectations, standards and concerns"[1]. By designating quality of life, the objective of determining people's psychological, physical, material, social, and economic well-being and many more aspects by terms of condition and satisfaction is carried out. Quality of life is assessed in two ways: personal and social. While personal evaluation represents an individual's satisfaction, social evaluation stands for concepts such as an individual's inhabitance, income level and social circle[2]. Workers in cement factories have to deal with various health issues related to skin and sense organs, the digestive system (ulcer) and the respiratory system (chronic bronchitis, emphysema) due to conditions like heat, noise, dust and the climatic conditions they are exposed to in their working environments[3]. The exposure to cement dust, fumes and gases has led to impairment of breathing and a prevalence of respiratory symptoms amongst workers, culminating in a condition described as a "cement factory lung disease". The severity of the impairment of respiratory function has been shown to depend on exposure for up to seven years[4]. Another study showed that cement dust may enter into the systemic

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circulation, thereby reaching essentially all the organs of the body and affecting the different tissues, including the heart, liver, spleen, bones, muscles and hairs, and ultimately affecting their micro-structure and physiological performance[5]. All work-related negativities consist of a risk for one's health, hence affecting one's life quality in the short or long run.

Quality of life (QOL) is one of the most important organisational equipment, to improve organisational performance and reduce employee turnover, which should be applied to job satisfaction, job design and job enrichment. It is a multidimensional concept that contains physical, physiological, and social health and individual satisfaction and is widely accepted as an important endpoint in medical care. It reflects the health status and well-being of this vulnerable population. Due to the complexity of the concept, the QOL assessment usually requires multiple measures of subjective and objective criteria. Various instruments have been developed to measure the above domains, adding the subjective parameters considered necessary for a comprehensive assessment of QOL[6]. Commonly practiced primary domains include physical, psychological, social, overall life satisfaction and general perception of health status. The physical domain refers to the ability to perform daily activities that are required to maintain a healthy life. An individual's emotional well-being is described by the levels of anxiety, depression, guilt and worry expressed in the psychological domains. Social domains can be defined by the individual's ability to interact with relatives, friends, surrounding personnel as well as the community. Overall life satisfaction and general perception of health status are purely subjective feelings where individuals directly rate their perceptions from 0 (not satisfied at all) to 10 (extremely satisfied) compared between last month and life one year ago[7].

The workload sometimes hugely affects the quality of life of a worker. The workload can be understood as internal or external to the body of the worker. External workloads involve the demands of the workplace in terms of physical, toxicological, biological, and accident. The internal loads involve the physiological ones linked to the physical efforts to perform the tasks and the psychic ones involve tension, stress, imposed rhythm, collection by production, and permanent attention in the work activity[8]. Exposures to the determinants of work may confer a psychophysiological burden to a greater or lesser extent that needs to be understood, as well as the impacts on the lives of workers.

In Bangladesh, a good number of people are working in the cement industry and they contribute a certain level of valuable time to their companies. In there, they give their best effort to get an appreciation for the company's goodwill. But quality of work life is such a concept that needs a certain balance in both professional and personal life. Quality of work life is a philosophy or set of principles that holds that people are trustworthy, responsible and capable of making valuable contributions to the organization[9].

Quality of life and quality of working life are measured according to domains of subjective and objective feelings. Satisfaction or dissatisfaction in one domain may not affect another domain but collectively influence the overall quality of life. However, dissatisfaction of a worker with poor working life quality influencesthe worker's personal, family and social health[10]. In Bangladesh, though the number of cement companies is increasing, employee satisfaction is still a major concern for the quality of work life. In consort with that, cement industry workers' satisfaction can be hampered by their private life also. However, the quality of work life is directly influenced by job satisfaction, the external environment and personal life. There should have been a proper level of balance in work life and total life space. So, the primary objective of this study was to evaluate the quality of life of a permanent cement factory worker.

MATERIAL AND METHODS

This cross-sectional study was carried out from January 2019 to December 2019 to assess the quality of life of a cement factory workers (Lafarge Holcim Bangladesh Ltd, Chatak, Sunamgonj), situated in the northeast corner of Bangladesh. All the permanent non-management cement factory workers were the target population. Non-management workers include field workers, those working on the floor for operating equipment or handling raw materials. Among 150 non-management workers, 131 workers were taken as a sample purposively. The workers aged 18 to 60 years and working in cement factories for at least one year were included in this study. All the non-management workers were male. A face-to-face interview was conducted with the solemnly interested workers using a validated questionnaire. The questionnaire was used in this study to assess the socio-demographic characteristics, work-related characteristics and a WHOQOL-BREF scale for quality of life among cement factory workers. The socio-demographic part of the questionnaire includes questions regarding age, gender, religion, marital status, family member, individual income, and monthly income. The work-related part of the questionnaire includes questions regarding duration of work (year), hours of work per day, overtime, working section of the worker, break time and time for using the washroom.

WHOQOL-BREF scale is a 26-item questionnaire intended to yield a global measure of the quality of life-based questions about the quality of life, health, or

other areas of life that have been experienced in the last four weeks. The use of a consumer self-report measure is a desirable method of assessment because it is a genuine attempt on the part of the researcher to collect information on the study participant's current condition. WHOQOL-BREF is possible to derive four domain scores. Two items are examined separately: questions 1 and 2. There are 26 questions like "During the last four weeks, how would you rate quality of life? Or during the last four weeks, how satisfied are you with your health? There are 5 options to choose from which are- very poor, poor, neither poor nor good, good, and very good which are scored as 1, 2, 3, 4, 5, respectively. There is reverse 3 negatively phrased items, recorded questions 3, 4, 26 (1=5) (2=4) (3=3) (4=2) (5=1). This transformed negatively framed questions into positively framed questions. All 4 domains' raw scores convert to a 0-100 scale. Here 0 means lowest score where 100 means highest score.

Collected data was checked-rechecked, edited, coded and recorded for quality management. Data was analysed with IBM SPSS (Statistical Package for Social Science) Version 25. Qualitative data were presented as frequency and percentage, and quantitative data were as mean and standard deviation.

Ethical clearance was taken from the ethical committee of the Institutional Review Board of the National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka-1212, Bangladesh. Participation in this study was completely on a voluntary basis. Before the enrolment informed consent was taken from each participant.

RESULTS

The cross-sectional study was conducted to assess the quality of life among cement factory workers. There was a total of 131 of 150 (87.3%) non-management cement factory workers solemnly enrolled in this study. The mean age was 30.39±6.4 years, which ranged from 18 to 60 years. All the studied population were male and married. Among the respondents, the majority of them were Muslim (87%), 12.2% were Hindu and 0.8% were Christian (table-I). About 54.2% (71) had completed primary education, 22.1% (29) had finished secondary and a few 10.7% (14) had completed a higher secondary level of education. Unfortunately, 13% (17) had not received any formal schooling (figure-1). Among all study participants, 38.3% had been working for less than 5 years, 30.5% working between 5 to 9 years and 27.5% for 10-14 years. About 3.1% of respondents were work

Table-I: *Socio-demographic characteristics, n=131.*

Parameters	Number	Percentage
Age (years)		
<35	104	79.4
≥35	27	20.6
Mean age	30.39±6.4	
Religion		
Muslim	114	87
Hindu	16	12.2
Christian	1	0.8

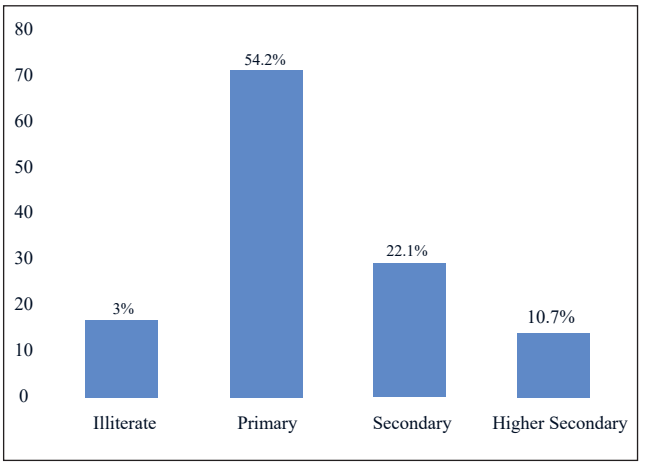

Figure-I: *Educational characteristics of the participants, n=131.*

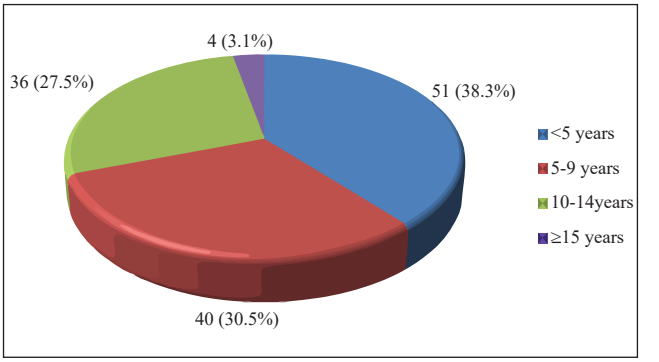

Figure-2: *Distribution of participants according to duration of job, n=131*

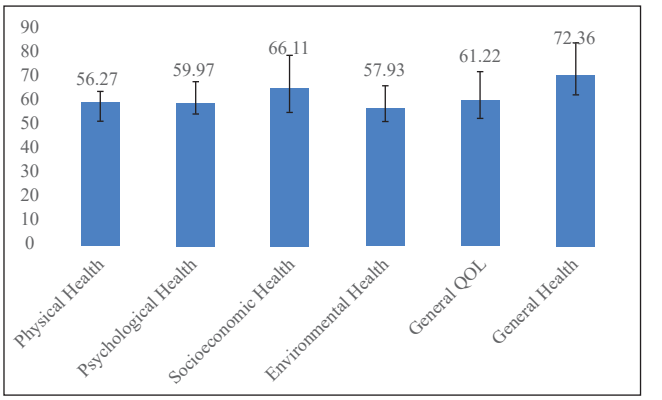

Figure-3: *General QOL, general health and WHO-QOL-BREF domains mean scores of study participants.*

for 15 years or more (figure-2).

Among all the domain scores, domain 3 (socioeconomic health status) had the highest mean score of 66.11±11.52, while domain 1 (physical health status) recorded the lowest mean score of 56.27±5.99. The mean scores for domain 2 (psychological health status), domain 4 (environmental health status), general QOL, and general health were 59.97±6.59, 57.93±7.50, 61.22±9.84, and 72.36±10.94, respectively (figure-3).

DISCUSSION

This study was designed to explore the quality of life among cement factory workers. A cross-sectional study was carried out from January 2019 to December 2019 in Lafarge Holcim Bangladesh Ltd, Chatak. A total of 131 participants of Cement Factory workers were taken. Among them, all study participants were male and married.

The age of the study participants was 18 to 60 years and the mean age was 30.39±6.4 years. Among the study participants, most of them were Muslim (87%). More than half of the study participants (54.2%) had completed primary education. There were 38.3% of the participants working for less than 5 years, 30.5% for 5-9 years, 27.5% for 10-14 years and the rest 3.1% of respondents were working for 15 years or more than 15 years.

In current study showed WHOQOL-BREF scores of QOL in the four domains, overall QOL and general health. Comparing the four domains of the study participants, the social health domain was the highest with a mean score of 66.11±11.52 while the physical health domain was the lowest with a mean score of 56.27±5.99. The mean scores of general QOL and general health were 61.22±9.84 and 72.36±10.94, respectively.

Several studies evaluated the QOL of employees in different fields, such as construction workers[11-13], ceramic production workers[14], coal mine workers[15,16], brick field workers[17], street vendors[18,19], fertilizer factory workers[20], and textile dyeing factories[21]. Before that, Demirbag et al.[3] evaluated the QOL of workers in a cement factory in Turkey. Among the evaluated parameters, physical function, mental health, social function, and general health perception were found similar to this study. They found the mean scores of physical health, mental health, general health perception and socioeconomic health dimension were 87.42±17.63, 64.90±18.53, 57.04±15.38, and 66.84±20.59, respectively, where as in the current study, physical health, mental health, general health perception and socioeconomic health dimension were 56.27±5.99, 59.97±6.59, 72.36±10.94, and 66.11±11.52, respectively. These findings highlight variations in QOL parameters across different occupational settings, underscoring the influence of work environment and job nature on employees' overall well-being.

CONCLUSIONS

This study evaluated the quality of life of non-management workers at Lafarge Holcim Bangladesh Ltd., Chatak, revealing variations across QOL domains. Socio-economic health score was highest, while physical health score was lowest, highlighting physical health issues as a key concern. General QOL and health perception were satisfactory. Ensuring a balance between work and personal life is crucial to enhancing overall well-being and job satisfaction among cement factory workers.

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