



## Health consciousness among building construction workers: A survey in Mymensingh, Jamalpur and Gopalganj district in Bangladesh

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### Abstract

**Background:** Construction industries are one of the major employment sectors in the modern industrialized world. The construction workers, contributing their best efforts by taking life risk are not free from health challenges.

**Aim:** This study aimed to sketch the health consciousness of building construction workers among three districts in Bangladesh.

**Methods:** A cross sectional study was carried out among 337 male building construction workers currently working on different construction sites in Mymensingh, Jamalpur and Gopalganj district in Bangladesh. For this, data were collected by direct interview using a prefixed questionnaire during the month of July 2018 to June 2019.

**Results:** The findings suggest that 82.2% respondents had a poor level of health awareness, even they did not know their blood group. In case of sudden minor cuts or wounds 46.0%, 26.7% and 23.1% of respondents were found to use old cloth, meadow grass or arums stem sap, and antiseptics, respectively. For general illness 87.8%, while for sudden diarrhea 84.9% of the workers took over-the-counter medications from the local pharmacy. About 90.2% and 64.1% of the respondents did not use soap/detergent for washing hands before meal and after defecation, respectively. About 49.9% of the respondents were identified as chain smoker, although they have good knowledge about the harmful effects of smoking, as well as the benefits of having a balanced diet.

**Conclusion:** The construction workers found in the survey areas have severe lacking in daily hygiene practice. Adequate precautions should be taken to increase health awareness among the construction workers.

**Keywords:** public health; construction workers; drug abuse; smoking behavior

### Introduction

Workers, the heart of an industry and are the most fundamental part of the total work force in a society that leads to the ultimate collective development in all sectors worldwide (Božić *et al.*, 2017) [3]. Their contribution is the prime driver for the development of any agro-based developing nation (Bhuiyan and Haq, 2008) [2]. The economy of Bangladesh is being flourished in an unresisted pace, where each drop of sweat of workers is supplying the fuel for the journey by various means as it is experiencing a rapid urbanization and industrialization and economy at a rapid pace where large infrastructural projects and new initiatives in the energy sector play a vigorous role (United Nation, 2018).

In Bangladesh, the construction sector is one of the established, growing sectors in the world and construction labor constitutes 7.5% of the world labor force (Shah and Tiwari, 2010) [12]. Construction industry creates a large number of employment opportunities and established itself as a one of the vital industries. Excessive industrialization and recent development programs provide the scope for the construction industry to play a pivotal role in the construction of buildings, roads, bridges, and so on. In Bangladesh, GDP from construction industry increased to 539.90 million (BDT) from 2016 to 2017 (Trading Economics). Sectorial share of GDP at constant prices 2017-18(p) construction 7.53 (The Bangladesh Bureau of Statistics 2017-2018).

However, this class of workers is playing a vibrant role in the economy by taking the risk of their lives. Generally, they are struggling in order to improve their socio-economic status.

Bangladesh's total workforce is 87 million and a majority is illiterate (only 4% of workers have secondary/higher education) where're the overall quality of Bangladesh's human capital is not in satisfactory level but disappointing (The World Bank, 2016). Construction industries are one of the most dangerous field work in terms of health and safety issues are considered as a major problem for most developing countries like- India, Bangladesh, and so on. The workers from various parts of the country and was dissimilar background exposed to occupational sicknesses and health risks, psychosocial stresses, leading to serious diseases and injuries (Singh *et al.*, 2017) [13].

Construction is a very tough, especially in a manual industry, injury and illness are very common (Arndt *et al.*, 2005) [1]. In Bangladesh, the workplace and health of construction workers are not free from vulnerability. For an example, 179 workers lost their valuable lives at the construction sector in 2017 (OSHE Newsletter, 2017) [9]. In the era of globalization, construction sector has established itself as a fast-growing industry, but very little research has been conducted on the health conscious, occupational health hazards or on psychological problems among these workers especially in Asian countries. Therefore, it is a burning issue to develop more projects focusing the health and safety consciousness among these workers (Jayakrishnan *et al.*, 2013; Singh *et al.*, 2017) [6, 13]. In a study, it has been found that the female construction workers suffered from various health problems, including skin problem, urinary tract infection, backache, and constipation (Sultana *et al.*, 2014) [14].

## Methodology

### Study design

This cross-sectional study was carried out among 337 male construction workers who were working in Gopalganj, Mymensingh and Jamalpur district in Bangladesh. For this, a purposive sampling was adopted, where direct responses from various construction sites and their mess were considered. The data were collected by direct interview using a pre-fixed questionnaire during the month of July 2018 to June 2019 (1 year).

### Statistical analysis

The data analysis was performed by using IBM SPSS (Statistical Package for Social Science) for windows version 24.0. For statistical analysis, *Chi-square* test was applied, considering 95% significance level.

### Results

Findings suggest that 18.4% of the workers were between the age group 15 and 20 years, while 20.2, 20.8, 21.4 and 19.3% workers fall in 21-25, 26-30, 31-40 and >40 years, respectively. Only 17.8% knew their blood group. Among all workers 28.5% were illiterate, while 39.8, 24.6, 6.2 and 0.9% had elementary, secondary, higher secondary and graduate education, respectively. 87.8% respondents were found to take over-the-counter (OTC) medications from local pharmacy, while 6.5, 0.9 and 4.7% from govt. hospital, private clinic and traditional medication center, respectively in case of sudden illness of themselves and for their family members. Among the total workers, 88.1% agreed that taking enough drinking water is essential for health, 8.6% did not agree and 3.3% were responseless.

82.5% respondents agreed to the importance of a balanced diet and its important role in the sound health and prevention of disease. Only 9.8% of respondents were found to wash their hands with soap/detergent regularly before taking meal, while 51.3% were seen to use in an irregular fashion. 38.9% workers responded 'no' towards washing hands before meal. 84.9% of respondents took OTC medications from local pharmacy in case of sudden diarrhea, while 4.2, 1.2 and 9.8% were seen to use medications from the govt. hospital, private clinic and self-medication, respectively.

The highest percentage workers (49.9%) smoked daily, 24.9% smoked occasionally and 25.2% didn't smoke at all. Table 1 shows the knowledge levels of workers about the effects of excessive use of medication on health. 66.5% of workers agreed that excessive use of the drug is harmful for health, only 3.6% didn't agree and 30.0% didn't have knowledge about this.

#### [Please insert Table 1 here]

The study also revealed that only 32.2% respondents used soap for washing hands after defecation, while 2.1, 21.7, 42.4 and 1.5% workers were seen to use detergent, soil, water and ash, respectively. It was also observed that only 8.3% workers took anthelmintic drugs in a regular interval, while 7.4% took when doctor prescribes. However, 50.4% workers were found to take anthelmintic drugs when get affected and 33.8% did not take at all. Only 23.1% respondents used antiseptics in case of minor cut or wound, while 46 and 26.7% used old cloth, and meadow grass or arums stem sap, respectively.

#### [Please insert Table 2 here]

Table 2 shows the *Chi-square* test among the variables at 95% confidence level of this study.

## Discussion

The construction workers not only the builders of infrastructures, but also the builders of the modern industrial world (Zerguine *et al.*, 2018) [23]. In this study, we have seen that different age group people are involved in construction work. We found that workers from 15 to above 40 years old are involved in this type of work. Education is the backbone of a nation and in modern age elementary education is considered as a citizen's basic right. Construction workers are considered one of the most vulnerable health group workers (El-Shafei *et al.*, 2018) [4]. In this survey, we have seen that 28.5% of respondents are illiterate and 39.8% respondents having elementary educational status. The level of education generally affects the socioeconomic and related factors, including hygienic behavior, usage of medication, awareness of injury and diseases, sound health, and so on (Khan and Chreim, 2019; Meng *et al.*, 2019) [7, 8]. In this study, we also found that the level of knowledge about smoking behavior, balance diet, hygienic behavior, drug use, and health consciousness among this class of workers is not satisfactory. The *Chi-square* test suggests a significant association between the age or education and the secondary variables. In spite of easy access and a reasonable level of safety, OTC medicines still can negatively impact a user, especially, the nonsteroidal anti-inflammatory drugs (NSAIDs) (Taylor, 2017) [15], anti-diarrheal, anti-dysentery drugs. Our study, reports majority respondents took OTC medications from local pharmacy, which is then followed by self-medication behavior of the workers, that may predispose them to many harmful conditions, including selection of the wrong drug, inadequate dose and adverse effect such as allergic reactions. Drug especially antibiotic taking from non-registered physician may fall them in threatening condition as the excessive and inappropriate use of antibiotics solidifies increased drug resistance, which may appear as a great threat for human beings all over the world (Park, 2012) [10]. The *Chi square* test also suggests that education and perception about excess use of the drug is highly statistically significant ( $p < 0.05$ ).

Some common knowledge about health helps to maintain a healthy life. In this study it was found that among total workers, the majority was agreed with taking adequate pure drinking water and a balanced diet are essential for a sound health and prevention of disease. Maintenance of personal hygiene is necessary to keep oneself fit for the daily routine works. A level of hygienic life helps to prevent many infectious diseases and even some life-threatening illnesses (Gola *et al.*, 2017) [5]. This study reports a frustrating reality on hygienic behavior among the construction workers. As they handle cement, dust and other construction materials so they are more prone to dyspepsia, anorexia, nausea and maybe secondary effect to the liver function for this exposure to different chemicals through foods or inhalation (WHO, 2001) [21]. For exploring association, *Chi-square* test results revealed the high significances between age or education and practice of washing hands with soap/detergent before taking meal and after defecation.

Helminth parasites are highly prevalent in many low- and middle-income countries than the developed world. A number of common helminths establish themselves in the gastrointestinal tract, thus exerting counter-inflammatory

influences on the host immune system. It has been reported that helminths or their released products could offer many inflammatory and immunosuppressive diseases or disorders (Varyani *et al.*, 2017) <sup>[20]</sup>. We have seen that only a few respondents took anthelmintic medication regularly (3 months interval), while others not.

Moreover, smoking in any form (i.e., direct or indirect), is injurious to health. Among the numerous side effects, it has been reported that in children smoking causes poor birth outcomes and influences lung, cardiovascular, and brain development, placing children at increased risk of a number of adverse health outcomes later in life, such as obesity, behavioral problems, and cardiovascular disease (Peterson and Hecht, 2017) <sup>[11]</sup>. In this study, about 50% construction workers were found as chain smoker, while 25% were occasional. In a study, Wu *et al.* (2013) <sup>[22]</sup> reported that cigarette/bidi smoking accounted for about 25 and 7.6% deaths in men women, respectively in the world.

### Conclusion

Of note, the significant lacking in education, knowledge about hygiene and practicing hygiene may affect the overall health status of the workers. Adequate measures should be taken from the authorities and government to reduce the socio-economic redundancy. Beside this, the national and international NGO and the social workers can take necessary steps to increase the awareness on hygienic behavior, thereby improving the quality of livelihood and maintenance of a healthy lifestyle among this class of workers. Self-motivation and awareness are two most important tools in this case. More research is necessary on the construction workers worldwide to explore the knowledge of health awareness among the construction workers.

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### Compliance with ethical standards

**Ethical approval:** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent:** Informed consent was obtained from all individual participants included in the study.

**Conflict of interest:** We declare that they have no conflict of interest.

### References

1. Arndt V, Rothenbacher D, Daniel U, Zschenderlein B, Schuberth S, Brenner H, *et al.* Construction work and risk of occupational disability: a ten year follow up of 14 474 male workers. *Occupat Environ Med.* 2005; 62(2005):559-566.
2. Bhuiyan AJ, Haq MN. Improving occupational safety and health in Bangladesh. *Int J Occup Environ Health.* 2008; 14(3):231-233.
3. Božić T, Meštrović T, Profozić Z, Profozić V. The role of occupational medicine in assessing work limitation: A cross-sectional study on construction workers over a five-year period in Croatia. *Work.* 2017; 58(4):439-446.
4. El-Shafei DA, Bolbol SA, Awad Allah MB, Abdelsalam AE. Exertional heat illness: knowledge and behavior among construction workers. *Environ Sci Pollut Res Int.* 2018; 25(32):32269-32276.
5. Gola M, Signorelli C, Buffoli M, Rebecchi A, Capolongo S. Local health rules and building regulations: a survey on local hygiene and building regulations in Italian municipalities. *Ann Ist Super Sanita.* 2017; 53(3):223-230.
6. Jayakrishnan T, Thomas B, Rao B, George B. Occupational health problems of construction workers in India. *Int J Med Pub Health.* 2013; 3(4):225-229.
7. Khan SM, Chreim S. Residents' perceptions of radon health risks: a qualitative study. *BMC Public Health.* 2019; 19(1):1114.
8. Meng X, Zhai H, Chan AHS. Development of Scales to Measure and Analyse the Relationship of Safety Consciousness and Safety Citizenship Behaviour of Construction Workers: An Empirical Study in China. *Int J Environ Res Public Health.* 2019, 16(8). doi: 10.3390/ijerph16081411.
9. OSHE Newsletter 1242 lost lives due to workplace accidents in, 2017, 4:12. Link: [www.oshebd.org](http://www.oshebd.org)
10. Park SH. Is Antibiotic resistance microorganism becoming a significant problem in acute cholangitis in Korea?. *Clin Endosc.* 2012; 45:111-112.
11. Peterson LA, Hecht SS. Tobacco, e-cigarettes, and child health. *Curr Opin Pediatr.* 2017; 29(2):225-230.
12. Shah KR, Tiwari RR. Occupational skin problems in construction workers. *Indian J Dermatol.* 2010; 55(4):348-351.
13. Singh LK, Pandey M, Agarwal S. Review article on health and safety knowledge and compliance on construction site. *Int Res J Engineering Technol (IRJET).* 2017; 4(6):3313-3315.
14. Sultana N, Ferdousi J, Shahidullah M. Health Problems among Women Building Construction Workers. *J Bangladesh Soc Physiol.* 2014; 9(1):31-36.
15. Taylor J. Over-the-Counter Medicines and Diabetes Care. *Can J Diabetes.* 2017; 41(6):551-557.
16. The Bangladesh Bureau of Statistics. (n.d.). Gross

- Domestic Product (GDP) of Bangladesh, 2017, \_18 (p). The Bangladesh Bureau of Statistics. Link: <http://bbs.portal.gov.bd>
17. The World Bank. Bangladesh: Ensuring Education for All Bangladeshis, 2016. Link: [www.worldbank.org](http://www.worldbank.org)
  18. Trading Economics. (n.d.). Bangladesh GDP From Construction. [tradingeconomics.com](http://tradingeconomics.com)
  19. United Nations. World Economic Situation and Prospects 2018, New York, 2018.
  20. Varyani F, Fleming JO, Maizels RM. Helminths in the gastrointestinal tract as modulators of immunity and pathology. *Am J Physiol Gastrointest Liver Physiol.* 2017; 312(6):G537-G549.
  21. WHO "Occupational Health". A manual for primary health care workers. World Health Organization, 2001, pp. 1-168.
  22. Wu F, Chen Y, Parvez F, Segers S, Argos M, *et al.* A Prospective Study of Tobacco Smoking and Mortality in Bangladesh. *PLoS One.* 2013; 8(3):e58516.
  23. Zerguine H, Tamrin SBM, Jalaludin J. Prevalence, source and severity of work-related injuries among "foreign" construction workers in a large Malaysian organisation: a cross-sectional study. *Ind Health.* 2018; 56(3):264-273.