



## Who is to Blame? A Qualitative Exploration of Factory Accidents

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The Triangle Shirtwaist Company fire took place in New York on 25 March 1911. The fire killed 146 workers and helped fuel a movement for labor law reform (Behrens, 1983). However, the reforms were limited to the United States, as the world witnessed another tragedy thousands of miles away and more than a hundred years later. On 24 April 2013, an eight-story complex of clothing factories called Rana Plaza, near Dhaka, Bangladesh, collapsed. The tragedy killed 1,127 people, mainly young women, and injured more than 2,500 (Ansary & Barua, 2015). Since the Rana Plaza disaster, no fewer than 109 accidents have occurred. Among these, at least 35 were textile factory incidents in which 491 workers were injured, and 27 lost their lives (Salminen, 2018). In the absence of a well-functioning labor inspection system and appropriate enforcement mechanisms, decent work and life in dignity are still far from reality for most workers in the garment industry and their families. According to the ILO, occupational accidents and work-related diseases cause over 2.3 million fatalities annually, of which over 350,000 are caused by occupational accidents (ILO, 2014).

The working conditions in Bangladesh apparel factories are hazardous, with a high risk of exposure to employment injury. While poor factory safety and substandard working conditions have a long history in the garment industry, the scale of devastation from the Rana Plaza disaster shocked the world and created a public relations crisis for the industry (Donaghey & Reinecke, 2018). Major global retailers agreed on a legally binding agreement between companies and trade unions to make clothing and textile factories safe, which led to the establishment of the Accord on Fire and Building Safety in Bangladesh in 2013 (Evans, 2015). The Accord is generally seen as a positive development in ensuring that third-world garment industry workers have access to safe working conditions. The Accord was signed by more than 180 brands and led factory inspections in Bangladesh, which uncovered close to 130,000 safety violations, ranging from structural damage to unsafe fire escape routes (Evans, 2015). Even though the Accord played a vital role in reducing factory accidents in Bangladesh, factory accidents are still a reality in Bangladesh. To understand the reasons behind these factory accidents, the study analyzed newspaper articles on factory accidents in Bangladesh from 2013 to the present.

The Reason's Swiss Cheese Model (Reason, Hollnagel, & Paries, 2006) provides the theoretical foundation for this study. According to this theory, every step in a process has the potential for failure. A slice of Swiss cheese represents each layer of defense, and the possible problems or failures in that defense are represented by the holes in the cheese. There are two types of failures that can occur: active and latent. Active failures are unsafe acts that directly contribute to an accident. Latent failures are conditions that exist that may lay dormant for a period of time until they lead to an accident (Justin & Le Coze, 2020). An example of a latent failure could be the lack

of a policy describing how a given work task should be completed safely. The holes have to line up for an accident to happen – no layer of defense caught the problem. If the holes do not line up, the problem was caught, and no accident occurred.

Qualitative content analysis was used to analyze the news articles related to factory accidents in Bangladesh from 2013 to 2022, that is, the period after the Accord agreement was signed. Proquest database was used to search and collect the news articles. This study looked for articles using the keywords such as factory accident, factory fire, factory injuries, or building collapse. A total of 31 news articles were found based on the search keywords/phrases. The title of the news article, keywords, and body were analyzed according to the Reason's Swiss Cheese Model. The themes that emerged were worker fault, ineffective training, inadequate management and supervision, communication failures, poor design of plant/equipment, and uncertainties in roles and responsibilities. The most frequent cause of factory accidents was found to be inadequate management and supervision (N=14). This was followed by poor design of plants or equipment (N=8), ineffective training (N=5), worker fault (N=2), and communication failures (N=2). Almost all (28 out of 31) factory accidents were due to factory fires. Negligence and lax policies were some keywords used to describe inadequate supervision. Basic safety precautions were found to be lacking, such as the presence of industrial chemicals in residential complexes. Similarly, one news article reported, "the factory does not have any fire extinguishing equipment," highlighting the inadequate management. Issues in work culture, work environment, and human factors were the sub themes that emerged from this category.

The discrepancy between the building drawing and actual construction was reported as the reason for accidents due to poor design of plants or equipment. Inept training for managers and workers to prevent factory accidents attributed to ineffective training. Lack of skill development and unfamiliar interactions among workers and managers were the emerging sub themes. Mistakes made by workers, such as storing dyeing chemicals close to flammable chemicals, and running boiler machines more than their capacity, were found to be reasons behind factory accidents. People with multiple responsibilities, lack of knowledge of new technology, and complex systems were the reasons found behind worker fault. Constrains in interactions, lack of published chain of command, and fear of reporting accidents were the reasons found behind communication failures. It was interesting to see that the death and injury related to factory accidents have declined significantly, where the average number of deaths was found to be 7 per accident.

The results of this study show that though factory accidents continue to happen in Bangladesh, the magnitude of the accidents has declined. The in-depth analysis of the content of news articles respective to the causes of factory accidents revealed that the structural inefficiencies have been resolved and lack of electrical and fire safety are the most revealing causes of factory accidents. Furthermore, it was found that most of the accidents occurred in the subcontracting facilities and subsidiary units. This study proves that Accord did have a positive impact in providing a safe working environment. Additionally, the safety issues that plagued the clothing factories of

Bangladesh have been transmitted to the subcontracting factories. Safety inspections and oversight worked in resolving the safety issues of the factories within Accord's purview, but as the subcontractors do not fall under the binding agreement of Accord, the problems have persisted. Labor law reforms are necessary to prevent factory fires altogether in Bangladesh. Further research is recommended to use quantitative tools such as surveys to understand the reasons behind factory accidents in Bangladesh. Future research should also examine factory accidents in major apparel export countries such as India, China, and Vietnam, which will certainly strengthen this study's findings.

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