Sarcouncil Journal of Applied Sciences

ISSN(Online): 2945-3437

Volume- 06| Issue- 08| 2026

Research Article **Received:** 15-07-2026 | **Accepted:** 10-08-2026 | **Published:** 21-08-2026

A Case Study on Sweater Garments: Health and Safety Heat, Noise, Dust, and Chemical Awareness Training and Its Efficiency to the Workers

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Abstract: This study evaluates occupational health and safety training among sweater garment workers in Bangladesh, focusing on dust, heat, noise, and chemical hazards. The study examines training coverage, frequency, and workers' perceptions of training effectiveness. The findings reveal that training coverage varies across different hazard areas, with heat-related training showing the greatest gap. Training frequency was also positively associated with perceived training efficiency among dust-exposed workers. The study highlights the importance of regular, practical, and hazard-specific safety training to improve workers' awareness, preparedness, and protection from occupational hazards.

Keywords: Occupational Health and Safety; Safety Training; Sweater Garments; Heat Stress; Dust Exposure; Noise Exposure; Chemical Safety; Training Effectiveness.

INTRODUCTION

Background of the Study: Bangladesh's readymade garments industry is one of the key industries of the country. It helps to generate export revenues, jobs and the country's share in the international apparel market. In 2025, Bangladesh's export of apparel was valued at approximately USD 38.82 billion, highlighting its significant economic contribution to the country's economy (Bangladesh Garment Manufacturers and Exporters Association [BGMEA], 2025). Sweater manufacturing factories are one of the essential factors of this production system. There are several stages of working in these factories, such as the winding, knitting, linking, washing, sewing, ironing, quality inspection and packing. Workers may be at risk for various occupational hazards at each stage.

The importance of occupational health and safety has taken center stage in the garment industry due to the fact that hazards in the workplace can have an impact on health, productivity and long term employment security. The International Labour Organization (ILO) places great emphasis on safe and healthy workplaces in its strategy for global occupational safety and health for the period 2024 – 2030 (International Labour Organization [ILO], 2024). For textile & apparel jobs, the protection of safety must be done based on identification of hazards, control of risks, training and participation of workers (ILO, 2024). The issue of heat stress is also becoming a concern in labour intensive occupations. Occupational heat stress can occur in workers when they are exposed to environmental heat and protective clothing that add to the body's heat load and/or when the physical tasks they perform increase the body's heat load (National Institute for Occupational Safety and Health [NIOSH], 2026).

Health risks in sweater garment factories may be different in the different work areas such as yarn and fabric handling, boiler or ironing, machine working and washing or finishing based on dust, heat, noise and chemical exposure. It is not just an administrative requirement, therefore, to provide safety training. It's a handy tool to assist workers in the detection of hazards, the use of personal protective equipment, and the action to take if a hazard is present. On-going training will also help to create a better safety culture in factories.

Problem Statement

The garment industry has made significant strides in safety, but worker protection relies on the enforcement of safety measures at the factory level. Furthermore, Better Work Bangladesh's activities with factories include assessments, as well as advisory and training, demonstrating that improving the workplace is not a one-off process, but also an ongoing engagement (Better Work, 2025). Training can be provided in many factories, but not always the same or to everyone who is exposed. Training may not take place for lengthy periods between visits to some places of work. Others might participate in the training but they all rate the usefulness as moderate.

In the present study it is focused on this practice gap in the sweater garment factories. There are stark differences in coverage of training in dust,

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DOI- https://doi.org/10.5281/zenodo.22049763

heat and noise and chemical hazard areas as evidenced in the uploaded study data. There is a significant gap in the proportion of training coverage for dust related training and a major gap in the proportion of training coverage for heat related training. Noise related training is more effective than heat training, however there is an important group of workers that is not trained. A smaller number of workers are exposed to chemicals and training issues still need to be addressed. So, it is not just training that is a problem. The underlying issue is if training is consistent, hazard specific and effective to the worker who is exposed to the hazard while in normal production activities.

Research Questions

This study addresses the following research questions:

1. What is the level of health and safety training coverage among sweater garment workers exposed to dust, heat, noise and chemical hazards?
2. How frequently do workers receive hazard specific occupational health and safety training?
3. How do workers rate the efficiency of training provided in dust, heat, noise and chemical hazard areas?
4. What is the relationship between training frequency and perceived training efficiency among dust area workers?

Objectives of the Study

The main purpose of this study is to evaluate occupational health and safety awareness training for the sweater garment workers in Bangladesh. The objectives are to understand the extent of safety training coverage for workers exposed to dust, heat, noise and chemical hazards. The study also seeks to find out the frequency of hazard specific training in the selected factories. Another goal is to assess workers' self-perception of effectiveness of their training in various hazard areas. Lastly, the correlation of training frequency and perceived training effectiveness with dust area workers is studied. The goals are meant to help illustrate the scope and usefulness of safety training in the sweater garment industry. This emphasis leads to the study being relevant to factory management, factory worker well-being and practical safety planning.

LITERATURE REVIEW

Occupational Hazards in Sweater and Garment Manufacturing

Several health and safety hazards exist in the garment and textile industry, as workers work with machines, do repetitive work, deal with dust, heat, noise and chemicals. Occupational health and safety issues continue to be a significant concern in the garment industry in Bangladesh, as workers are still exposed to the risk of illness, injury, and inadequate level of protection in factories (Haque *et al*., 2024). A national study of garment & textile workers reveals that occupational injuries are still linked with working condition and other worker related factors which necessitates the need to prevent the injuries (Tariqujjaman *et al*., 2025).

Production of sweaters involves handling yarns, winding, knitting, linking, washing, ironing, quality checks, packing etc. Such activities may lead to exposure of workers to dust caused by yarn and fabric particles. Dust exposure is significant because it may impact on the respiratory system when exposure occurs in the air in which workers inhale the dust. The experience from factories indicates that high dust exposure may cause respiratory health issues, and that a lack of protective equipment and training in the safe use of equipment is a common area of weakness in dusty work environments (Asgedom, 2023). Dust in production areas may also contain fibers, plant material, bacteria, fungi and other contaminants, making dust control important in production areas (Occupational Safety and Health Administration [OSHA], n.d.).

Another major hazard in the garment factories is heat. Poorly ventilated production floors, poorly ventilated generator sections, boiler rooms, and ironing areas can contribute to an increased heat stress. Occupational heat stress occurs when occupational activity, heat in the environment, clothing and personal protective equipment (PPE) cause body temperature to increase (National Institute for Occupational Safety and Health [NIOSH], 2026). This risk takes special relevance for workers that perform manual work for long durations. Heat stress can decrease comfort, attention and productivity. It can also lead to a risk of getting sick if it is not properly trained and rested (NIOSH, 2026).

In manufacturing environments where certain machines are used for extended periods of time, noise is often present. Exposure to noise in the workplace at levels 85 dB or higher may pose a

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risk of permanent loss of hearing with prolonged exposure (NIOSH, 2024). Noise also can decrease communication and warning awareness. Washing, cleaning, dyeing, finishing and maintenance activities are another area of concern, as a result of chemical exposure. Hazard identification, safe storage, worker training, air exchange and protective equipment are all important aspects of textile and clothing safety guidelines (International Labour Organization [ILO], 2022).

Role of Safety Training in Occupational Health Protection

Training is the foundation of workplace prevention and a key component of occupational health and safety training. Training enables workers to learn about hazards prior to accidents and/or illnesses. It also facilitates safe practices, proper use of personal protective equipment, an emergency response, and reporting of unsafe conditions. The more training is tied to work tasks, the more useful it will be. The importance of information, instruction, training and worker participation (ILO, 2022) are highlighted in safety guidance for textile and clothing workplaces.

Training is necessary because many employees might know about a hazard, but not be aware of the long-term health effects of the hazard. Dust can be seen in the knitting area, but may not be associated by the worker with respiratory symptoms. Early signs of heat stress may not be apparent to the worker in a heat exposed area, who is feeling tired or dizzy. The training can fill the void with information about symptoms, risk factors, reporting systems and action steps. Research in the field of occupational safety training reveals that educational interventions can enhance the workers' knowledge and skills regarding safety (Barati Jozan *et al*., 2023). Training should be simple, repetitive, relevant and to each hazard area.

Training Frequency and Training Effectiveness

Typical workplaces involving high risk are not going to be taught once and forgotten. Instruction may be forgotten, new workers may come and go or work conditions may vary. Repeated training to reinforce safe practices and to maintain hazard awareness. Digital and face to face training can be both supportive for the occupational health and safety if it is available and worker specific in content (Barati Jozan *et al*., 2023). Other occupational safety intervention research has also demonstrated that, besides written rules, planning, implementation, monitoring and evaluation are all essential for the success of interventions (Vitrano *et al*., 2024). The training program can be in writing but without delivery or understanding it's of no value.

Research Gap

The Bangladesh ready made garment industry has been the subject of an increasing number of studies that have examined its occupational health and safety issues and concerns, such as illness, injury, compliance and factory level safety practices (Haque *et al*., 2024; Kamal & Tarzid, 2024; Tariqujjaman *et al*., 2025). But there is little attention on training coverage, training frequency and training efficiency rate of workers in the context of hazard specific training in sweater garment factories. Dust, heat, noise and chemical hazards do not have the same effect on workers. They also need to be trained with different training messages. This research aims to fill that void by investigating the distribution of training in the four hazard areas and workers' perceptions of the effectiveness of the training.

METHODOLOGY

Study Design

A cross sectional case study design was used to explore the occupational health and safety awareness training of sweater garment workers in Bangladesh. Four workplace hazard areas were the focus of the study such as dust, heat, noise and chemical exposure. The main method used was a quantitative approach, as it was used to measure training coverage, training frequency and worker rated training efficiency. Some qualitative data was gathered in the field through interactions and observations to gain insight into the work environment.

Study Area

The study is carried out in the four main Industrial Zones of Garments in Bangladesh. The study is carried in four main Industrial Zones of Garments in Bangladesh. Gazipur, Savar, Narayanganj and Chattogram were such areas. The above locations are chosen because of the large number of export oriented sweater factories are concentrated there. The identified areas are also varied production conditions in the garment manufacturing sector. This allowed the study to account for some variation in the work environment, worker exposure, and safety training practice in the factories.

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Sample Size and Sampling Technique
A Cluster Based Probabilistic Sampling Strategy was used. The factories were grouped together as clusters due to the fact that employees were found in various industrial areas and factory environments. The entire 15 export-oriented sweater factories were studied. A total of 30 people were sampled from each factory, using simple random sampling. This gave a total sample of 450 workers.

The minimum sample size was determined to be 384 respondents at 95 percent confidence level and a five percent margin of error. The sample of 450 workers was larger than the required sample size. This increased the trustworthiness of the descriptive outcomes and enabled the study to investigate the training patterns of relevant worker groups with regard to hazard specific training.

Respondent Selection
The respondents were chosen from various functional departments of the sweater garment production. These were the departments of warehouse, winding, knitting, linking, washing, sewing, ironing, quality control, packing, boiler operation and generator operation. These departments have been selected as it is because they are the different stages of the production of the Sweater. They also expose you to varying amounts of dust, heat, noise and chemicals. The participation of workers from these sections contributed to expanding the knowledge of health and safety training in the workplace throughout the production process.

Data Collection Tools and Procedure
The main data collection instrument was structured closed ended questionnaire. The survey was given to the workers and asked for information regarding whether they had received training and the frequency of their training as well as how efficient they found their training. The questionnaire was directed towards hazard specific training with respect to dust, heat, noise and chemical exposure.

Qualitative data were also gathered to compliment the survey data. Workers' experience, factory context and workplace safety practices were explored through focus group discussions, in depth interviews and ethnographic observation. Additional data has been collected by interviewing factory related residents and local people. Secondary data was collected from literature, textbooks, websites and journal sources.

Data was collected from the selected factories of Gazipur, Savar, Narayanganj and Chattogram, physically. Fieldwork took place during the period April 2024 to March 2025.

Data Analysis
The data collected were analyzed descriptively. The number and proportion of workers who were trained in each hazard area were presented as frequencies and percentages. The central tendency and variation of training related responses was described by the use of mean, median and standard deviation.

Analyses were run separately for workers who indicated dust, heat, noise or chemical exposure as a concern in the workplace. This was significant as not all workers were exposed to the same hazards. If no hazard was identified by the worker, they were considered missing for that particular analysis. The correlation between the training frequency and training efficiency of dust area workers was investigated using Pearson correlation analysis.

Ethical Considerations
Participation in the study was voluntary. The names of the workers and factories were not disclosed. There was no personal information reported. The study was limited to workplace training patterns and worker experience and work health and safety.

RESULTS

The empirical findings on occupational health and safety awareness training of the sweater garment workers were presented in this section. The analysis has been done based on the data of 450 workers in 15 export oriented sweater factories of Gazipur, Savar, Narayanganj and Chattogram. The results are reported by hazard area as workers did not experience the same exposure in every department. For this reason, the valid cases can be different from dust to heat, noise to chemical related analysis.

Overall Training Coverage across Hazard Areas
The largest number of valid responses were obtained for the dust related workplace concern, with 303 valid responses. 116 workers reported Heat related concern and 130 workers reported Noise related concern. Of the 20 workers, only 20 reported chemical related concern. The other responses were considered to be missing for that section of the hazard since that section was not checked as a concern by the other workers.

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The proportion of the areas covered by training was not the same in all hazard areas. Dust related training was most widely covered with 249 out of 303 (82%) valid respondents reporting that they had received training. This accounts for 82.2 per cent of dust area workers. Comparatively about 74.6 percent of workers (97 out of 130) were covered in noise related training. Training in heat related training was the least covered. Sixty workers received heat related training, and 56 workers did not. This equated to training coverage for workers who are exposed to heat of 51.7 percent. The frequency and rating results of chemical related training for 20 exposed workers were analyzed. One worker said that he had received no chemical safety training. This pattern is the first sign of the presence of hazard specific training practice and can vary considerably between hazard types.

Table 1: Hazard specific valid responses and training coverage among sweater garment workers

Hazard area	Valid responses	Missing or concerned not	Training received	No training
Dust	303	147	249, 82.2%	54, 17.8%
Heat	116	334	60, 51.7%	56, 48.3%
Noise	130	320	97, 74.6%	33, 25.4%
Chemical	20	430	19, 95.0%	1, 5.0%

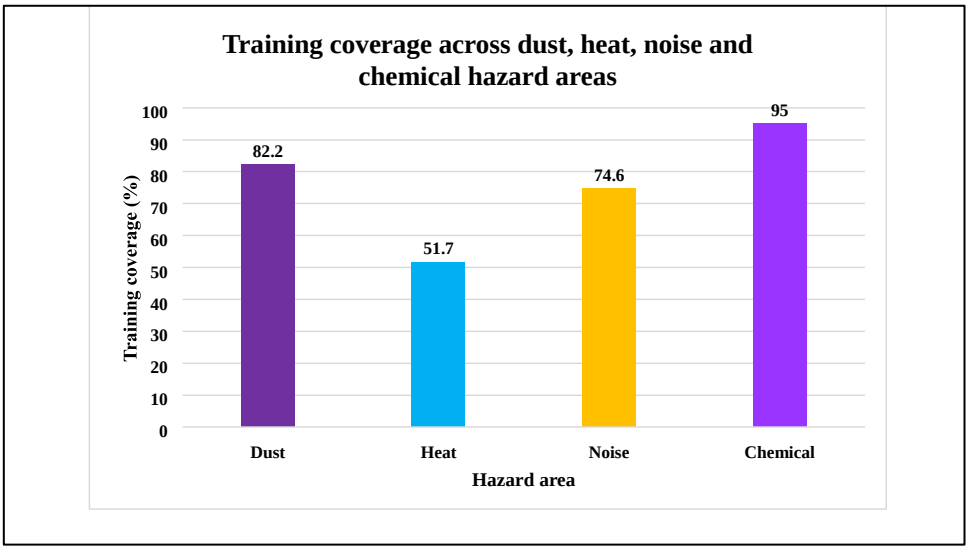

Figure 1: Training coverage across dust, heat, noise and chemical hazard areas.

Dust Related Training Results

The results for dust related indicate good training coverage. Among the 303 valid respondents, 249 workers reported that they had been trained about the health effects of dust and 54 workers reported not being trained in the health effects of dust. The average score was 1.18, the median score was 1.00 and the standard deviation of the scores was 0.38. It is observed from this pattern that all the dust exposed workers were found to be trained.

The majority of workers in dust areas were trained on a periodic basis as opposed to frequent training. Of the 303 respondents who answered the questions, 54 workers reported no training. Thirty workers reported having received training each month, with 20 workers reporting training every two months. The most frequent training was for the largest groups, every 3 to 4 months or every 5 to 6 months. In particular, 97 workers were trained every three to four months, and 102 were trained every five to six months. These two groups accounted for 65.7 percent of the valid dust area responses.

The same was true for the training efficiency rating. The highest number of workers (134) gave it a good rating. This was 44.2 percent of the valid responses. Fewer than 1/3 (6) workers were very satisfied with the training, and 18 workers were satisfied it was excellent. Only 7.9 per cent was rated excellent and very good. Meanwhile, 53 of the workers gave a "fair" rating of the training and 38 gave a "poor" rating. This indicates that a third, or 30.0 percent of the valid respondents rated the quality of the service as fair or poor. The results indicate that dust training has been effective among the majority of workers but high quality ratings were confined.

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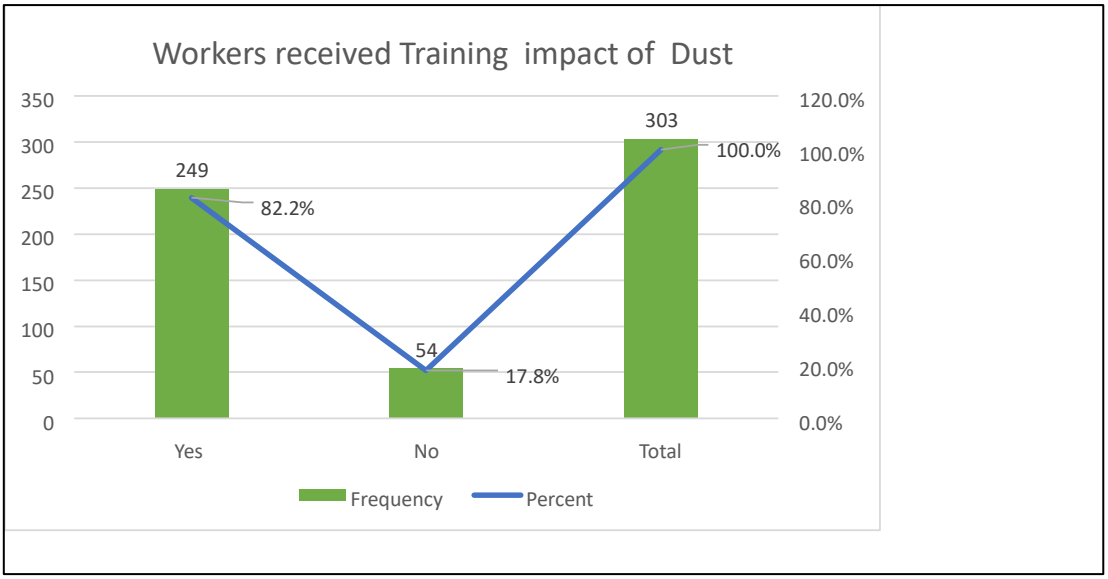

Figure 2: Training received by workers in dust areas**.**

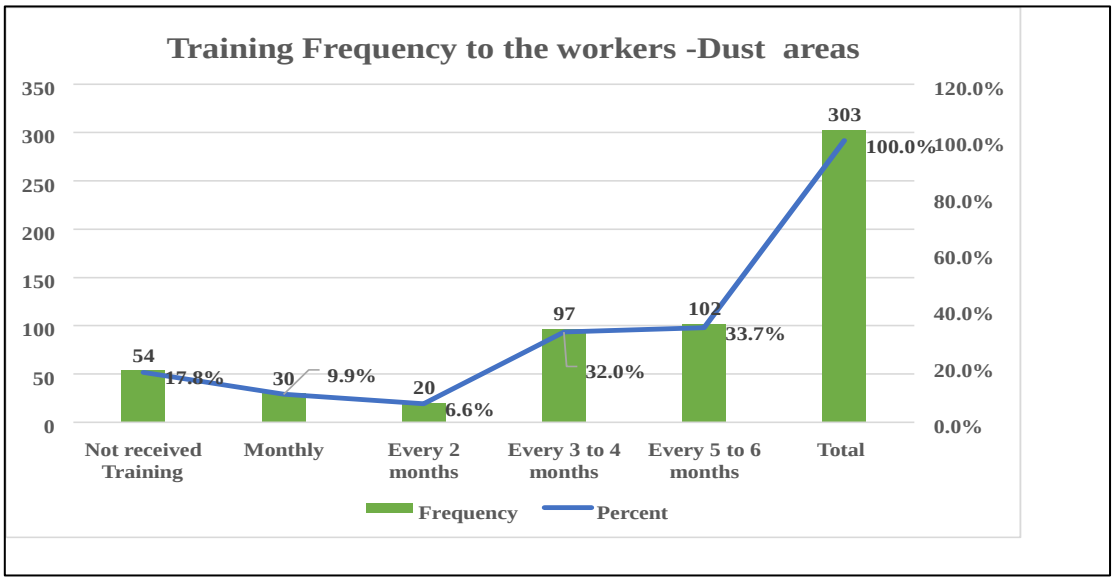

Figure 3: Training frequency among workers in dust areas**.**

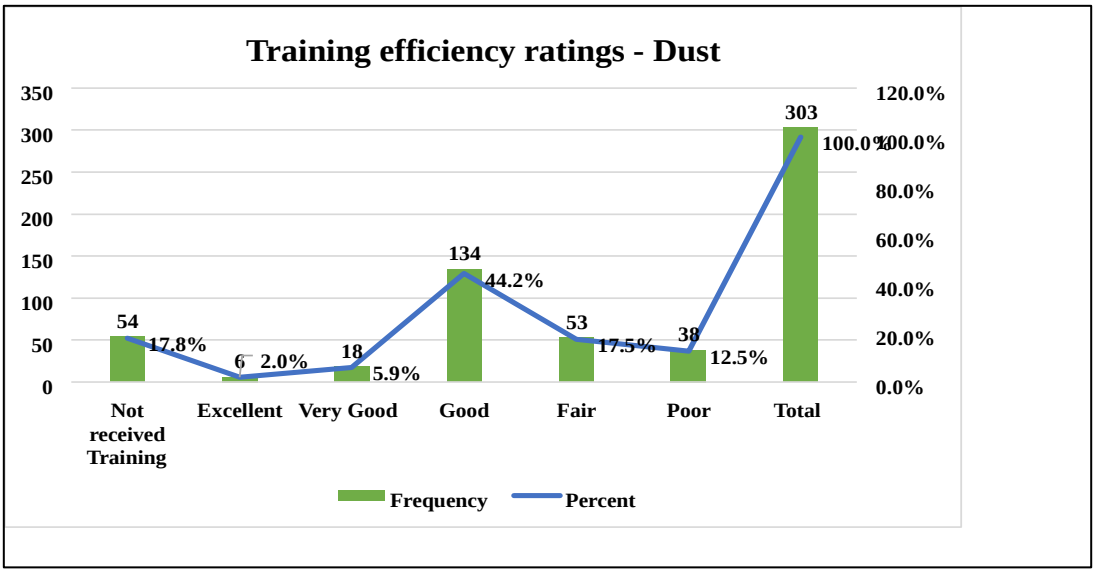

Figure 4: Training efficiency ratings among workers in dust areas.

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Heat Related Training Results

The heat related results indicate a much less successful training situation than the dust related results. Among 116 valid respondents, 60 workers reported receiving training on heat related workplace risk. This was 51.7% of those who cited heat as an issue. The 48.3 percent (56 workers) who reported that they were not trained. The mean score was 1.48, the median score was 1.00 and the standard deviation score was 0.50. There was nearly an even split between trained and untrained workers.

There is also irregular coverage of training in the frequency results. A total of 116 valid responses were obtained, of which 56 workers said they were not trained. Monthly training was provided to just 4 workers and every 2 months, 1 worker was trained. Training was provided to a larger group of 33 workers every 3-4 months. An additional 22 workers were trained every 5-6 months. These results show that regular monthly or bimonthly heat training was very limited.

The rating pattern is the same as the above, and confirms the same weakness. There were a total of 56 workers not trained. 48 of the trained workers considered the training to be good. 1/5 workers rated it very good. No excellent rating was reported, but it was reported for an exciting rating. Seven workers rated the training fair and 4 workers rated it as poor. The results indicate that practically half of all the heat exposed workers were not exposed to training coverage, and most of the trained workers rated the level of training as a moderate level.

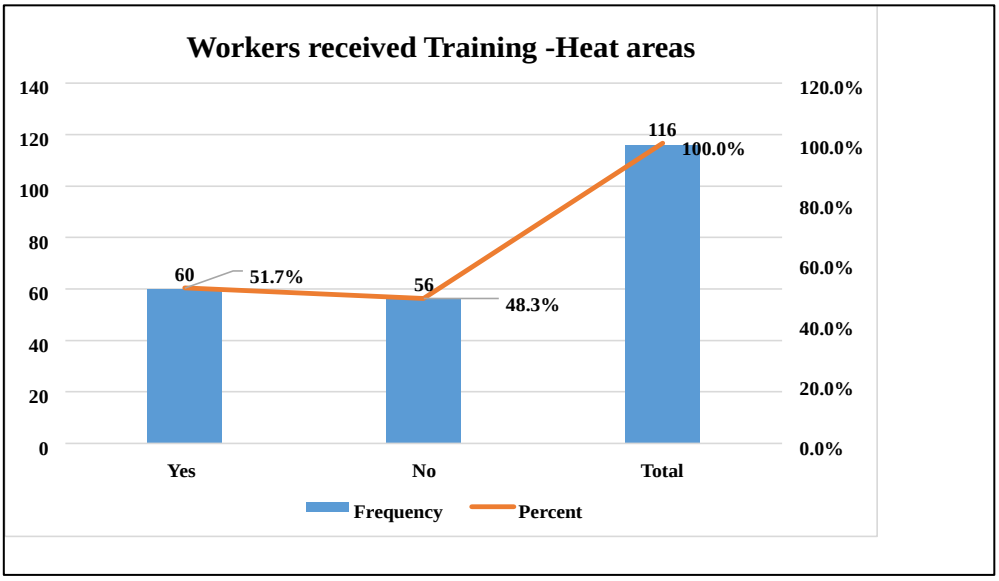

Figure 5: Distribution of workers receiving training in heat areas.

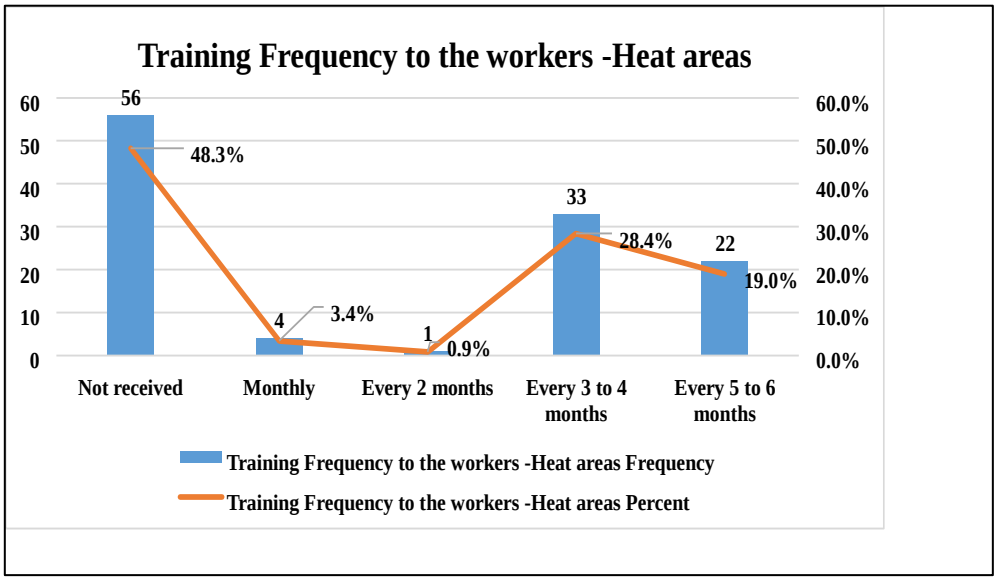

Figure 6: Training frequency among workers in heat areas**.**

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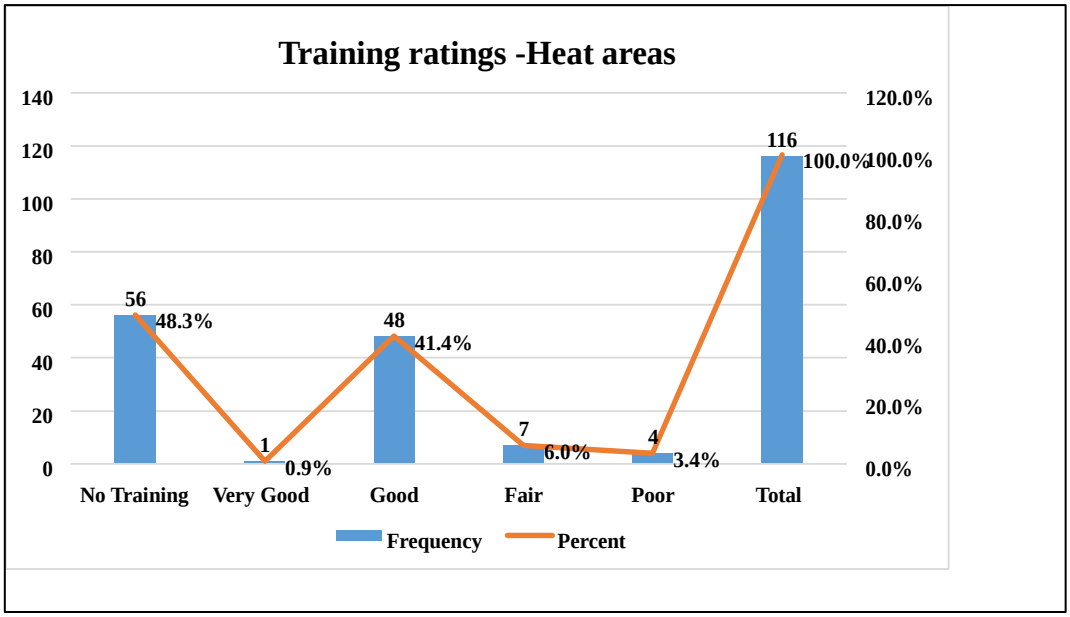

Figure 7: Training ratings among workers in heat areas.

Noise Related Training Results

Training coverage was better for noise related training than heat related or dust related training. Of the 130 valid respondents, 97 workers claimed to have been trained to reduce the health effects of noise. This represented 74.6 percent. There were 33 workers (25.4%) who were not trained. The average score was 1.25, the median score was 1.00 and the standard deviation score was 0.44.

The frequency of training varied between workers exposed to noise. The most extensive group was trained every 5-6 months. This group consisted of 45 workers (34.6 per cent of valid responses). 19 workers were trained each month and 10 workers were trained every two months. 23 other workers were trained every 3 to 4 months. There was no training for the other 33 workers. The results suggest that most workers exposed to noise had access to noise related training, although there was no uniformity in the provision of training.

There were 54 workers who rated noise related training as good, as indicated in the rating results. All these accounted for 41.5 percent of the valid responses. Six workers rated the training as excellent and another 6 rated it as very good. Twenty-four workers gave a fair rating and 7 workers gave a poor rating to the training. The results indicate that the most frequent answer was good rating, however, the visible group of workers reported no training or low satisfaction.

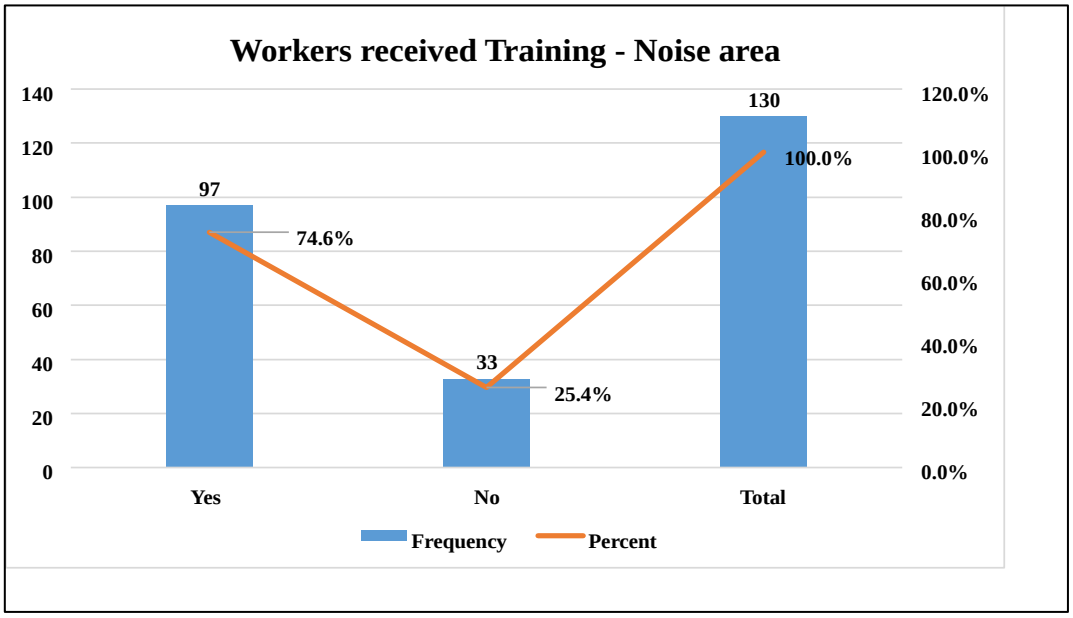

Figure 8: Workers receiving training to minimize the health impact of noise.

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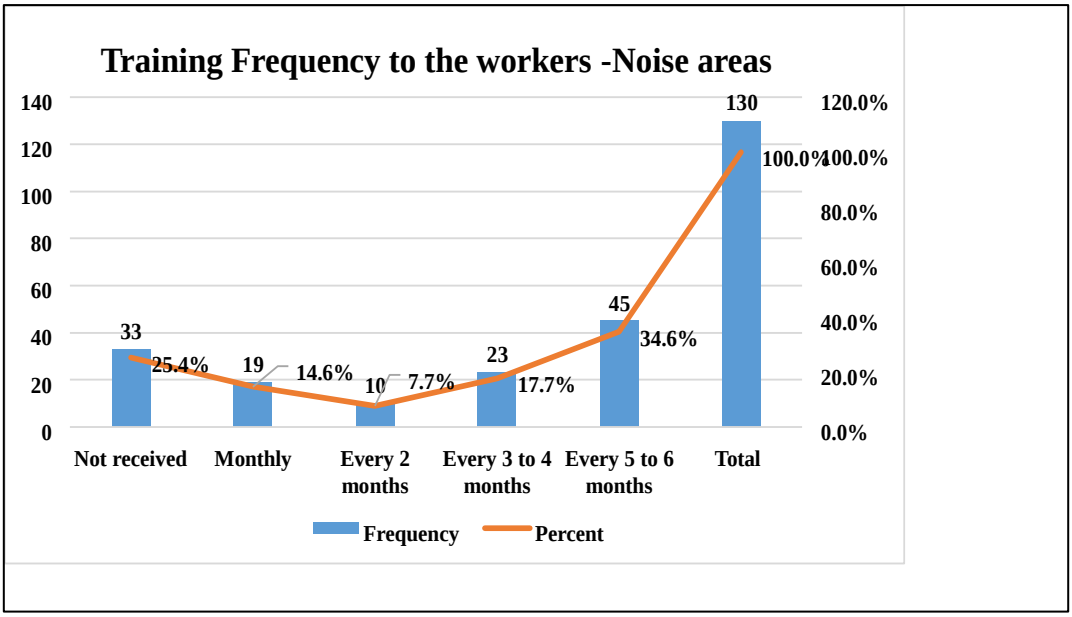

Figure 9: Frequency of receiving training on noise hazards

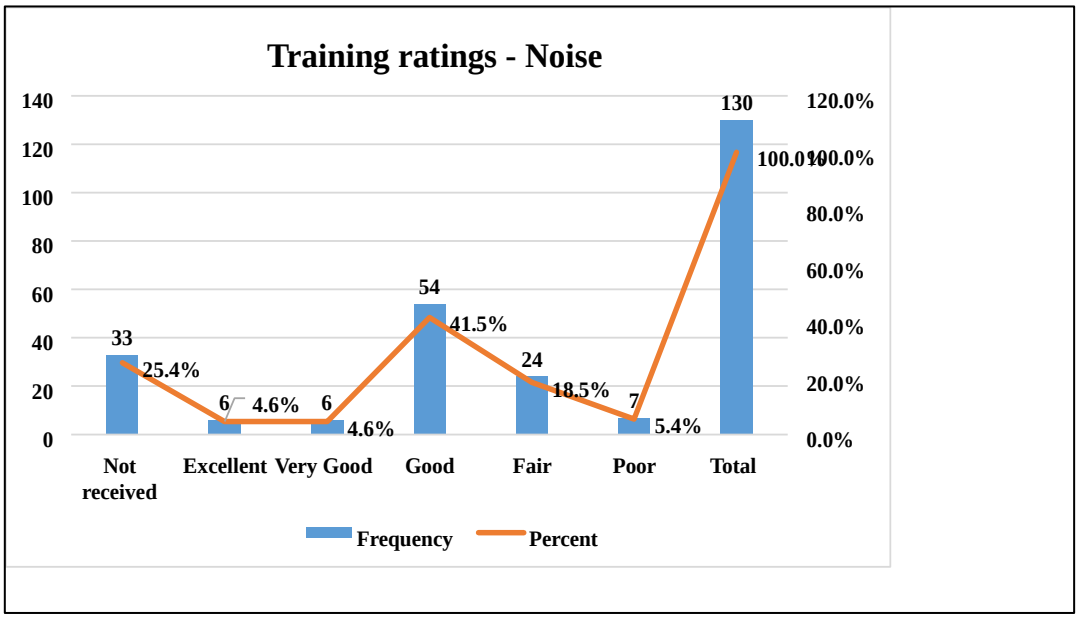

Figure 10: Training ratings among workers in noise areas.

Chemical Safety Training Results

Results for chemical were based on 20 valid answers. This was the smallest hazard specific group, therefore results are to be interpreted with caution. Among these workers, 1 worker reported not receiving chemical safety training. The monthly training was conducted with 5 workers, the three to four month training with 5 workers and the five to six month training with 9 workers. None of workers stated they were trained every 2 months.

11 workers rated the training on chemical safety as good in the rating results. This accounted for 55.0 per cent of the valid responses. 1 worker rated it very good and none rated it excellent. Four workers found the training fair and 3 workers found the training to be poor. One worker was not received/not applicable. The findings indicate that the majority of the workers who were exposed had some chemical training while limited satisfaction was achieved for those who had higher levels of chemical training.

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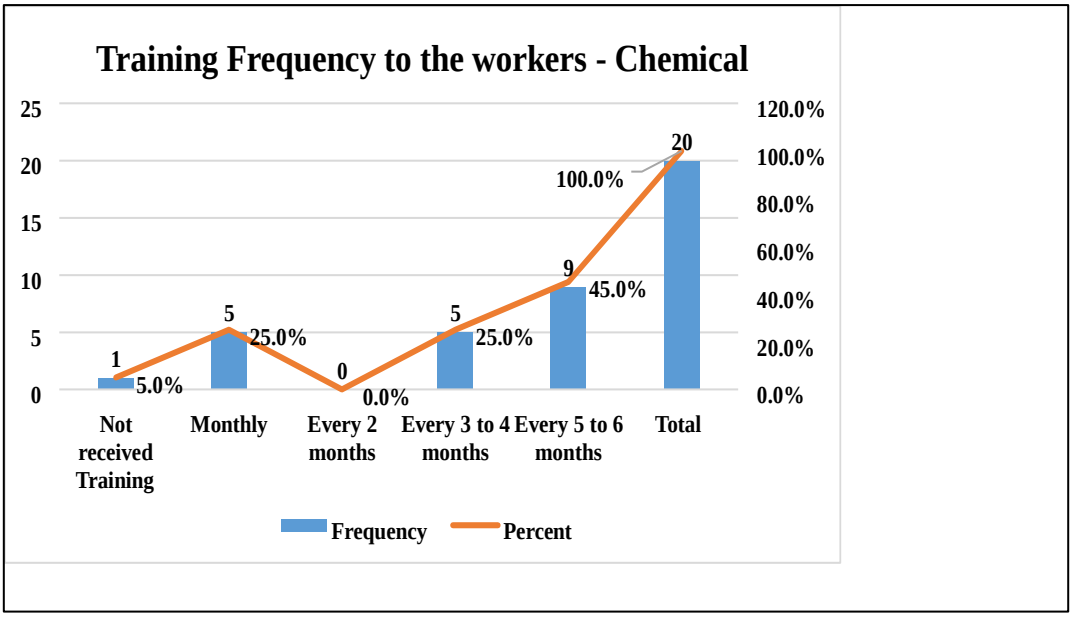

Figure 11: Frequency of chemical safety training among workers.

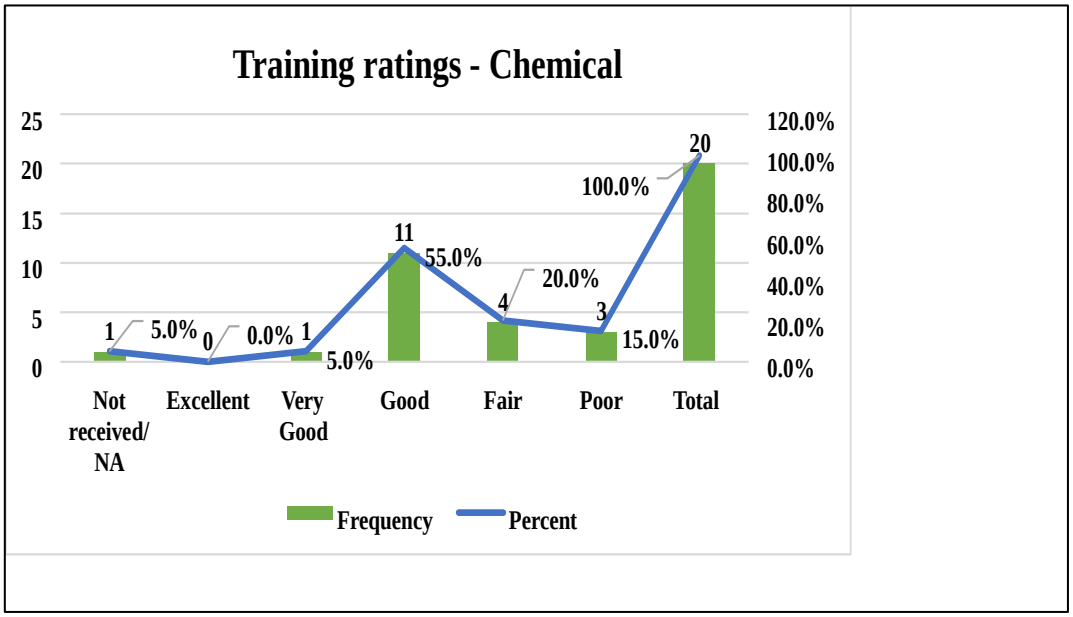

Figure 12: Chemical safety training ratings among workers.

Correlation between Training Frequency and Training Efficiency

This study also investigated the relationship between training frequency and training efficiency rating of dust area workers. Pearson correlation coefficient was 0.761, 2 tailed significance of 0.000 and 303 valid cases. The result indicates that there is a strong positive correlation between training frequency and the perceived training efficiency. The result suggests frequency of training and efficiency ratings were correlated, with those reporting more frequent training also giving more favourable efficiency ratings. The findings should be viewed as association, and not evidence of direct causality.

Table 2: Correlation between Frequency of Received Training and Training Efficiency Rating among Dust Area Workers

Variables	Statistics	Frequency of Received Training	Training Efficiency Rating
Frequency of Received Training	Pearson Correlation	1	.761[a]
	Sig. (2-tailed)		0

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	N	303	303
Training Efficiency Rating	Pearson Correlation	.761[a]	1
	Sig. (2-tailed)	0	
	N	303	303

DISCUSSION

Uneven Training Coverage across Hazard Areas

The results indicate that the training of occupational health and safety was found in the selected sweater factories but was not uniformly distributed in all the hazards. Dust area workers had the highest training coverage (82.2 per cent). Relatively strong was also training related to noise, 74.6 percent of it was covered. The lowest rate was for heat related training, with 51.7 percent of heat exposed workers being trained. This is because heat exposure has the potential to impact an individual's health and their ability to perform their tasks when high temperatures, physical exertion and recovery are limited (NIOSH, 2026). The lack of focus on heat in the coverage of low heat training indicates that perhaps the attention being paid to the risk of heat is not as high as dust and noise in factory safety planning. In-company disparity in training also results in disparities in in-company protection. Employees in one group of workers might be knowledgeable about hazards, but another group of workers might be not so knowledgeable about similar hazards which they are facing every day.

Training Frequency and Worker Preparedness

The results of the frequencies indicate that training took place on and off rather than on a regular basis. Most of those who were trained were given training every three to six months in dust areas. This was also the case in areas of noise and chemicals, where the highest number of people were trained every 5-6 months. This pattern is good to use for basic compliance, but it might not be sufficient for sections with continuous exposure. Repeated learning, clear instructions, and reinforcement of learning (both practical and verbal) are important factors in effective occupational safety training (Barati Jozan *et al*., 2023). There may be a risk of unsafe behaviors in the sweater factories due to the workers who switch their jobs, machines could run for a long period of time, and pressure of production may cause unsafe behaviors. Training should therefore not be considered as a single event. It should be a part of the normal practice in the workplace.

Worker Rated Training Efficiency

The results of the rating indicate that there is room for improvement in the quality of training. The most frequently reported good rating was for dust, noise, heat and chemical areas. Very few workers however rated the training as “Excellent” or “Very Good”. This suggests that training is being offered to many workers, but that it might not be sufficient in terms of the quality of its depth, delivery or application. A training session can be considered complete, but workers can still benefit from additional demonstration, additional visual aids, and task based examples. Information, instruction, training, supervision and worker participation are all important components of a preventive safety culture, as set out in the ILO code of practice for textiles, clothing, leather, and footwear (ILO, 2022). Not only the attendance of training, but also the understanding of the message and its applicability of the worker in training depend on the quality of the training.

Significance of Heat, Noise, Dust, and Chemical Risks

The hazard specific pattern has some significance. Handling yarn, knitting, linking and finishing work which involves dust is relevant. The ratings for dust training coverage positive, but there is still room for improvement in training content as in the case of fair and poor. Noise related training should also be addressed as exposure to noise for prolonged periods and/or at levels greater than 85 dBA can contribute to an increased risk for permanent hearing loss (NIOSH, 2024). 20 of the 75 cases were valid for chemical related results; 35 percent rated the training as fair or poor. This is important because workers in contact with any chemicals must have certain knowledge of personal protective equipment and need to know about handling, labelling, storage and ventilation of chemicals. Safety training should thus be planned and offered according to types of hazards, and not as one generic topic.

Meaning of the Correlation Result

The correlation result also contributes to the descriptive results. The training frequency was significantly and positively correlated with the training efficiency rating, $r = .761$, $p < .001$, $N = 303$, in the dust area workers. This implies that the

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more regularly workers had been trained the more positive they were about the training. This was a cross sectional study and causation cannot be proven. However, it aligns with the notion that training could increase the confidence levels of workers and their perceived usefulness if they repeat training. Similar evidence from Bangladesh reveals that garment and textile workers are still exposed to occupational injury hazards which need to be effectively prevented by improving the prevention systems (Tariqujjaman *et al*., 2025). In general, this indicates that a change in the frequency of training should be introduced from occasional training to regular training, and in practice, a change in form from theoretical training to practical training and training by hazard should be introduced in the factory.

Recommendations

The results indicate that sweater garment factories need to enhance hazard specific health and safety training rather than relying on a single training strategy for all workers. Heat related training activities should be given top priority since nearly half of the workers who indicated heat as an issue in their workplace were not provided training. Ironing and boiler/fueling and generator and other hot work areas in factories should have regular heat stress awareness sessions.

The dust and noise training coverage was relatively good, but the training needs to be improved. Practical exercises should be provided during training that demonstrate how to control dust, protect machines from noise, wear masks and ear plugs and other personal protective equipment. In high risk departments, workers should be provided with refresher training at least every three months.

Better chemical safety training, particularly of workers engaged in washing, cleaning, finishing and maintenance related activities. Safe handling, labelling, storage, ventilation and emergency response and first aid should be covered during training.

Records of training activities should be kept in each department by factory management. Attendance is not an adequate measure. Recorded feedback forms after the training and worker interviews can be used to determine if the worker understood the content or not. Supervisors should also watch to see if the training is being applied in the production process during the day.

CONCLUSION

Overall, the study indicates that the training on occupational health and safety is available in selected sweater garment factories. But the coverage and quality of training are still uneven. The coverage for dust training was higher and noise training was fairly high. The highest critical need for action was in regards to heat related training, with nearly half of the exposed workers reporting no training. Chemical training was available for most people who were involved with it. However, several workers gave it a fair or poor rating. Dust area workers very strongly agreed on one another, meaning that higher levels of regular training were associated with higher levels of efficiency perceived. Protection of workers is dependent on regular, practical and hazard specific training.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Ahmmed, S. & Saadat, A. H. M. "A Case Study on Sweater Garments: Health and Safety Heat, Noise, Dust, and Chemical Awareness Training and Its Efficiency to the Workers." *Sarcouncil Journal of Applied Sciences* 6.8 (2026): pp 24-36.

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