Internship Report

Understanding Occupational Health and Safety Practices in the Automobile Sector: A study under RAISE project in Jashore, Bangladesh

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Internship Duration: 10 December 2024 -10 March 2025

Declaration

Student's Declaration

I, Anika Tasnim Meem, hereby declare that this research paper titled as "Understanding Occupational Health and Safety Practices in the Automobile Sector: A study under RAISE Project in Jashore, Bangladesh'' is an original research work undertaken by me with the supervision of RAISE Project Team, PKSF. According to my net surfing till the day, I have not found any other research work submitted previously for any degree at any other institution with the same title. The internship report is a vital part to of availing my Bachelor of Social Sciences (Hons) (Hons) degree in Health Economics from the University of Dhaka after the successful compilation of internship period at RAISE project in PKSF, Agargaon, Dhaka, Bangladesh.

Signature: ……

(Anika Tasnim Meem)

Supervisor's Declaration

This is to certify that *Anika Tasnim Meem* as a student of the Institute of Health Economics under the University of Dhaka has prepared and accomplished her internship report on ***"Understanding Occupational Health and Safety Practices in the Automobile Sector: A study under RAISE project in Jashore, Bangladesh''*** for the fulfillment of the requirements of the degree of Bachelor of Social Sciences (Hons) in Health Economics under my supervision. To the best of my knowledge this is an original report and she has not submitted this report elsewhere for any degree.

……..	……..
(Dilip Kumar Chakravorty)	(Golam Gilane)
General Manager (Programme)	Manager (Programme)
Project Coordinator	Deputy Project Coordinator
RAISE Project, PKSF	RAISE Project, PKSF

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Acknowledgement

I express my gratitude to the Institute of Health Economics, University of Dhaka, for mandating a three-month internship from 10 December, 2024 till to 10 March, 2025 to fulfill the requirements for my bachelor's degree in health economics. This experience has underscored the essential value of actual exposure in this domain. I express my gratitude to Dr. Syed Abdul Hamid, Professor at the Institute of Health Economics, University of Dhaka, and Ashraful Kibria, Lecturer at the same institute, for delivering an extensive training on the internship process and research methodology, as well as for facilitating my internship at PKSF, a prestigious organization in Bangladesh. This internship has been important in connecting theoretical concepts with practical implementations, greatly enhancing my academic experience.

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I extend my appreciation to Dilip Kumar Chakravorty (General Manager (Programme) and Project Coordinator, RAISE Project) and Golam Gilane (Manager (Programme) and Deputy Project Coordinator, RAISE Project at PKSF). Their unwavering support and direction were crucial in developing a thorough and growth-focused learning experience throughout my internship. They acted as my internship supervisors, providing invaluable assistance throughout the experience.

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Lastly, I am grateful to everyone who contributed to making this unique internship possible. My time at the PKSF was characterized by optimism and enthusiasm. It has greatly enhanced my professional development and opportunities. The acquired insights will certainly be utilized in my future undertakings.

Anika Tasnim Meem, Intern

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Preface

This study, conducted under the auspices of the Palli Karma-Sahayak Foundation (PKSF), reflects the valuable experience gained during my internship from December 10, 2024 till to March 10, 2025. Throughout this internship, supervised by Dilip Kumar Chakravorty, General Manager (Programme) and Project Coordinator, RAISE Project, I delved into the multifaceted realm of the Recovery and Advancement of Informal Sector Employment (RAISE) Project, focusing specifically on the Occupational Health and Safety (OHS) practices in the informal automobile sector.

Embarking on this intellectual voyage, I sought to assess the knowledge, attitudes, and practices of occupational health and safety among workers in the informal automobile industry in Jashore, Bangladesh. The research aimed to explore the level of safety awareness among workers, identify existing workplace risks, and evaluate their adherence to safety measures. This trajectory commenced with the strategic formulation of a title encapsulating the core theme of the investigation.

Envisioning a comprehensive evaluation, the initial phase involved crafting a preliminary questionnaire, setting the stage for a field exploration in Jashore Sadar Upazila, Jashore. The study was conducted in collaboration with three partner organizations (POs) under the RAISE project, Ad-Din Welfare Centre, Jagorani Chakra Foundation (JCF), and Shishu Niloy Foundation where trained automobile workers participated in the survey. Direct interactions with workers, attached apprentices, mastercrafts person, coupled with field observations, were instrumental in refining the research approach and ensuring a nuanced understanding of workplace conditions and safety measures. This trajectory commenced with the strategic formulation of a title encapsulating the core theme of the investigation.

Refined and validated, the finalized questionnaire paved the way for immersive data collection from 39 trained workers in the informal automobile sector. Rigorous data analysis ensued, seeking to unravel the existing gaps in occupational safety knowledge and practices while identifying potential areas for improvement.

The findings of this study offer crucial insights into the occupational risks and safety behaviors within the informal automobile sector, highlighting the need for policy interventions and targeted training programs to enhance worker well-being.

Acronyms

ILO- International Labour Organization

JCF- Jagoroni Chakra Foundation

MCP- Master Craftsperson

NEET- Not in Education, Employment or Training

OHS-Occupational Health and Safety

PKSF- Palli Karma-Sahayak Foundation PO- Partner Organization

PPE- Personal Protective Equipment

RAISE- Recovery and Advancement of Informal Sector Employment (RAISE)

SNF- Shishu Niloy Foundations

WHO- World Health Organization

Introduction

Occupational health focuses on keeping workers healthy and safe by spotting and avoiding work-related risks (Mengesha et al., 2023). It prioritizes workers' health related to their job and work-life balance while encouraging healthy habits for both physical and mental wellness. A safe and healthy workplace improves each worker's health.

In the 21st century, the World Health Organization considers the workplace to be an important area for health promotion. Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards (World Health Organization, n.d.). The International Labour Organization (ILO) estimates that each year, over 300 million non-fatal accidents and over 2 million fatalities are caused by work-related accidents and diseases. Every day, more than 6000 are killed and over 800,000 peoples are injured (Mengesha et al., 2023).

The automobile industry in Bangladesh is largely dominated by informal workshops and small-scale enterprises which is a representation of the informal sector. Workers in this field face many health and safety risks, such as harmful chemicals, loud noises, bad air quality, and unsafe working conditions. They often do not have enough information about safety measures.

Recovery and Advancement of Informal Sector Employment (RAISE)

Palli Karma-Sahayak Foundation (PKSF) undertook the ‘Recovery and Advancement of Informal Sector Employment (RAISE)’ project in February 2022 jointly financed by the World Bank and PKSF. The RAISE project is trying to facilitate employability and increase productivity of informal sector, and provide financial assistance to 175,000 low-income youths, micro-entrepreneurs and COVID-19 affected micro-entrepreneurs in urban and peri-urban

areas across the country. PKSF is implementing the project through its 70 Partner Organizations (POs).

Apprenticeship Program

The Recovery and Advancement of Informal Sector Employment (RAISE) Project, initiated by Palli Karma-Sahayak Foundation (PKSF), aims to enhance employment opportunities for youth in Bangladesh's informal sector through structured skill development programs. One of its core components is the apprenticeship program, designed to train and empower young workers by providing hands-on experience in 26 specific trades. The target is to provide hands-on technical training to 35,000 youth under 7,000 Master Craftsperson (MCPs) within 2026. 'Ustad-shagred' system is a centuries old system of transferring skills from generation to generation and is mutually beneficial for both ustads (masters) and shagreds (apprentices). Under this project, youth from low-income households are matched with skilled and experienced MCP selected by the Partner Organizatiosn (POs) according to the eligibility and selection criteria to host an apprentice. The target group of apprentices are young people, aged from 15 to 35 who fulfils the NEET criteria. The apprentice receives on-the-job training under the MCP and also receives Life-skills Development training from a skilled trainer in order to develop his/her capacity to ensure sustainable wage employment. The training period is typically for 6 months. Upon completion of training, apprentices are considered graduated. Overall, the aim is to engage youth from low-income households in sustainable employment through apprenticeship program. (Palli Karma-Sahayak Foundation, n.d.).

Objective

This study aims to look closely at health and safety in the automobile industry. It will try to assess-

The level of knowledge, attitude and practices of occupational health and safety among workers in the automobile industry trained under RAISE project.

Literature review

A substantial portion of Bangladesh's economy comprises the informal sector. This sector holds a massive portion of the employment for the citizens of Bangladesh. Even though it is important for the economy, it is often characterised by poor working conditions, lack of proper regulations, and little access to health and safety services. Workers within the informal economy were also often exposed to occupational dangers such as toxic chemicals, unsafe machines, and ergonomic hazards leading to occupational injuries and illnesses (Afolabi, 2020).

The informal sector often lacks proper safety and health standards, which leads to poor working conditions that can result in deaths and damage to property. This situation negatively affects the well-being and health of workers and also reduces overall national productivity. A randomised trial in Bangladesh showed that targeted enterprise training programs had a significant positive effect on workplace health and safety in the informal sector (G²LM|LIC, 2023) showing that targeted interventions to improve OHS can lead to better outcomes in the informal sector. Research shows that small businesses can be dangerous for health and safety in growing countries such as Nigeria. This often happens because OHS policies and services are not implemented well (Afolabi 2020). Bangladesh also faces similar challenges where inadequate workplace conditions and limited welfare facilities worsen risks for informal workers (The Financial Express, 2022).

The automobile industry presents various occupational health and safety risks, which are intensified by its physically demanding work conditions. Automobile repair shops frequently present a high-risk environment where employees encounter numerous hazards, including machinery-related injuries, exposure to toxic chemicals, and risks associated with manual handling.

Risk Assessment in the Automobile Industry

A critical concern in the automobile industry is identifying and managing occupational hazards. The importance of hazard identification and classification is critical in occupational health and safety risk assessments in automobile workshops. It is essential to use organised methods to evaluate risks, like probability analysis, to determine how likely each hazard is to happen and what its possible effects could be. This information helps create safety management systems that keep workers safe. The National Institute for Occupational Safety and Health (NIOSH) outlines a hierarchy of controls to mitigate workplace hazards, prioritizing elimination and substitution, followed by engineering controls, administrative controls, and, as a last resort, personal protective equipment (PPE) (NIOSH, 2024). A plan aimed at mitigating possible hazards at multiple levels is essential for guaranteeing worker safety.

Safety Management Practices

Safety management is crucial for mitigating risks in vehicle workshops. In a study, researchers investigated safety management strategies within the automobile sector and discovered that worker satisfaction with safety measures correlates with improved safety outcomes. Work sites where employees are happy and feel safe have fewer accidents and a clearer grasp of safety rules (IJCRT, 2021). It highlights that a good safety culture must include leadership to help improve the health and safety of workers.

The research indicated that managerial choices, including investments in superior equipment and tools, noticeably diminished the likelihood of workplace accidents. Certain research shows that involvement in safety programs and training sessions enhances participants' awareness of the dangers related to their work actions (IJCRT, 2021).

Worker Risks and Protective Solutions

The physically demanding tasks in the automobile sector increase workers' susceptibility to musculoskeletal problems. Çetin (2021) conducted a research on car repair shop workers, revealing that hand and finger injuries were the most prevalent. It frequently resulted from machinery, tools, and inappropriate handling of vehicle components. This necessitates protective measures, including personal protective equipment (PPE) such as gloves and safety footwear, to prevent injuries.

The report additionally advocates for consistent safety training and the implementation of standard operating procedures that outline better techniques for managing operational equipment and substances. Çetin (2021) recommends making workplaces more comfortable by providing adjustable workstations and giving advice on proper lifting methods. This can help lower the risk of musculoskeletal problems.

The 2019 National Profile on OHS in Bangladesh noted that while there are regulatory frameworks like the Bangladesh Labour Act 2006 (and its amendments), enforcement and implementation remain limited, particularly in the informal economy. It reported a severe shortage of trained inspectors and poor workplace monitoring mechanisms, which leads to underreporting of accidents and low adherence to safety protocols (DIFE, 2019). The report also emphasized that most workplaces lacked basic OHS facilities, such as fire extinguishers and first-aid kits, and few workers received proper safety training, which resonates with the findings in the current study.

Building on that, the 2021 National Workplan on OHS (2021–2030) laid out a structured and strategic vision for improving OHS nationwide. This includes the formulation of a national OSH policy, strengthening DIFE’s institutional capacity, ensuring the inclusion of informal sectors in safety frameworks, and raising awareness through training and community-based

programs (MoLE, 2021). It underscores the need for integrating OHS training into all vocational skill development programs, particularly for informal sector workers.

Methodology:

Study design and setting

An upazilla-based cross-sectional study was conducted from January to March of 2025. It was specifically done in Jashore Sadar upzilla, located in southwestern Bangladesh. It was chosen due to comparative higher concentration of automobile sector workers who have received training under the RAISE project. Participants were trained under 3 partner organizations (Pos) associated with the RAISE project, Ad-din Welfare Centre, Jagoroni Chakra Foundation (JCF) and Shishu Niloy Foundations (SNF). These Pos had directly participated in aiding the survey.

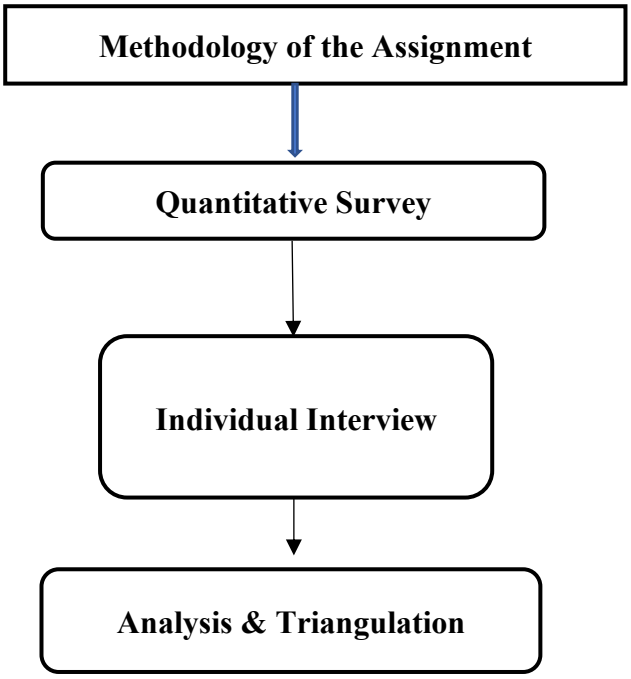

Figure: Methodology of the study

Study Population

The study population consisted of all trained workers in automobile sector by the RAISE project in Jashore Sadar upazilla who filled the inclusion criteria.

Inclusion criteria

All workers who are right now in training or have completed the 6 months training in motorcycle servicing and driving cum automechanics under the 3 POs and were present at the POs under which they were trained on the scheduled date were included in the study.

Exclusion criteria

Workers who failed to reach their attached POs were excluded. They were not contacted via cell phones to survey.

Sampling Frame

The sample size for this survey is calculated by using following formula:

$$n_0 = \frac{z^2 pq}{d^2}$$

where,

n_0 = Desired sample size

Z = Standard normal deviate usually set as 1.96 which corresponds to the 95% confidence interval

p= Proportion in the target population estimated to have particular characteristic and here it takes to be 0.50 such that $p + q = 1$

d = Desire precision (here desire precision is to be considered as 7% i.e. 0.07)

Putting those values in above formula we get,

$n_0 = \frac{z^2 pq}{d^2} = \frac{(1.96)^2 \times 0.50 \times 0.50}{(0.07)^2}$ =196

Since the number of trained workers in Jashore sadar was 49, which is known and finite, the final sample size determination using the following finite population correction factor:

$$n = \frac{n_0 N}{n_0 + (N-1)}$$

Here, n_0 = 196 & N = 49

$$n = \frac{196 \times 49}{196 + (11580 - 1)} = 39.36 \approx 36$$

A total of 39 respondents were surveyed from 3 partner organizations.

Data collection and Analysis:

Before deploying the data collection team in the field, dynamic data entry from by using KoboToolbox was developed. After data collection, necessary measures such as data coding, random checking and minor editing were accomplished. Data analysis was done by using Stata/SE 14.1 program.

Operational Definition:

Knowledge toward safety precaution: Participants were asked to answer questions on safety precautions under three section; occupational health and safety related signs and symbols, possible risk factors and required PPEs relevant to their profession. Each section had separate scores. That is ach of the 4 OHS related symbols had a score of 1. Correct recognition of 2 out of 4 signs scored 2 out of 4. Similar method was applied on the other sections which contained 7 risk factors for everyone and 5 and 2 PPEs for workers in the motorcycle servicing and driving sector respectively. The questionnaire was set after proper literature review and considering the sociodemographic status of the workers.

The threshold for good knowledge was **60%** or above, **40-59%** as moderate and below **40%** as poor knowledge. Participants were graded knowledgeable if they scored 60% or above.

Safety practice: Those workers who scored a practice score of 60% and above were considered as having "good safety practice," while those who scored less than 60% were considered as having "poor safety practice". Required PPEs were ideally selected for a safe working

condition after research and observation. For grading safety score, the participants were asked what and how many PPEs they use.

Sickness/Injuries: Means all hazard-related events that have been referred to as accidents, mishaps, occupational illnesses.

Graduates: Workers who have completed the 6 months apprentice training under the apprenticeship program of RAISE program.

Apprentice: Workers who are currently receiving the training and have not completed 6 months.

Results and Analysis:

Socio-demographic characteristics of the workers:

This study reveals that the automobile industry is predominantly comprised of young male individuals.

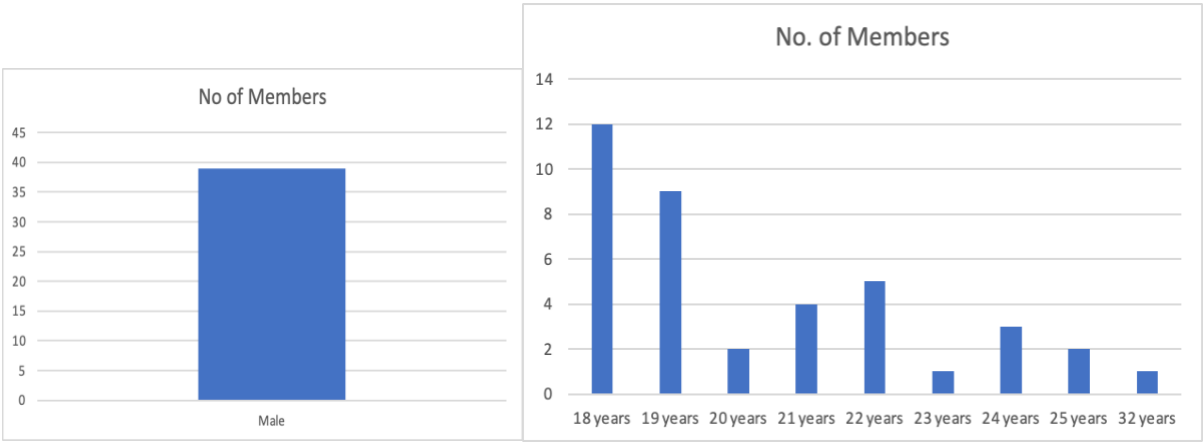

Fig-2: Age and Sex Distribution

As illustrated in Figure 1, all 39 participants in the study are male, with an average age of 20 years, ranging from 18 to 32 years. Understanding the age and sex distribution of the workforce is essential for gaining insights into the study's context and findings.

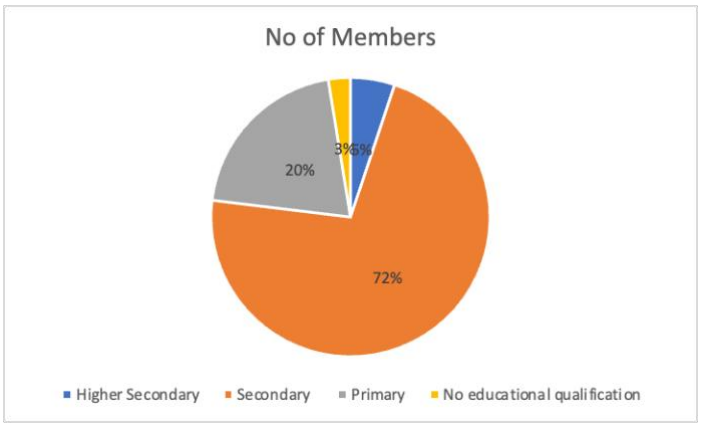

Fig-3: Educational qualification of respondents

More than 70% of the surveyed individuals have not crossed the secondary level where most of them have passed 8th grade. 20% participants studied upto 5th grade and a very few of them have experienced education at higher secondary level. The degree of education is crucial in interpreting whether institutionalization affects their understanding of occupational health and safety.

All 39 respondents have experienced formal training on basic safety practices required to offer services in the automobile sector under the RAISE project. 26 of them have already completed their 6 months training period while the rest 13 are apprentices, that is, they are currently getting trained.

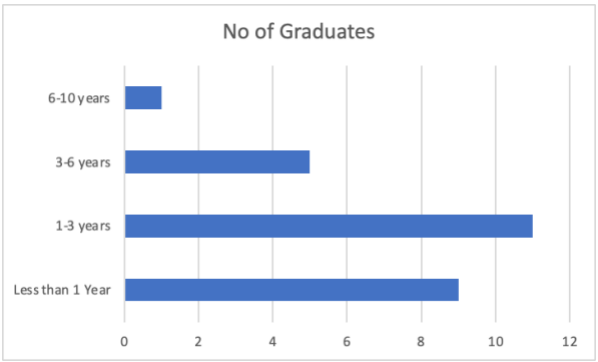

Fig 4: Working Experience of Graduates

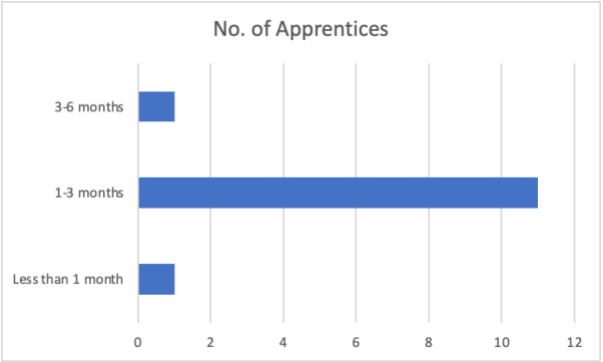

Fig 5: Completed training months by Apprentices

Figure-3 depicts that around 45% responding graduates are working in the sector for less than 3 years while 35% of them are fairly new to the program with a working experience of a number of months. Figure-2 reveals the completed training months of various apprentices who have participated in the survey. Around 90% of these apprentices have just started or completed half of their 6 months training program. Despite formal trainings, work experiences should highly affect the respondents' knowledge, attitude and pratices in occupational health and safety. Thus, these demographics may help us to find a comparative analysis.

37 out of 39 respondents are involved in motorcycle servicing while the rest are involved in driving. The apprentices are not professionally earning currently. Therefore figure- 6 reveals the income level of the 26 employed graduates.

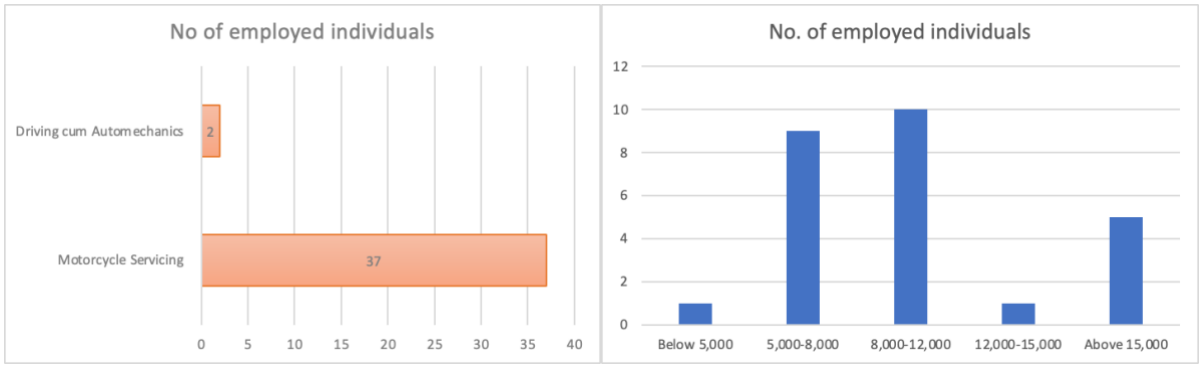

Fig-6: Employed sector and income levels of respondents

Around 40% employed individuals are earning around 8,000-12,000 BDT followed by 35% of them earning only 5,000-8,000 BDT. Around 20% respondents are earning above 15,000 since they are generating profits from their own motorcycle servicing business or are engaged in driving. The income levels indicate a lot towards their standard of living and a helps a bit to understand their health seeking behaviours followed by workplace related sickness or injuries.

Workers' knowledge with regard to safety Precautions

In order to assess participants' knowledge on the safety practices required for their profession, they were asked some basic questions. That is, if they know about the term Personal Protective Equipment (PPE), which PPEs are exclusive for their job, what risks are common. They were also asked to identify various OHS signs that is required to understand labels.

Variables (n=39)	Frequency
Knowledge on the term PPE	
Yes	9
No	30
Knowledge on required PPE	
Masks	34
Gloves	34
Protective Glasses	7
Protective Shoes	19
Earplugs	0
Seat Belt	2
Total number of PPEs mentioned	
3-5	18
2	15
<2	6
Knowledge on job associated risks	
Heavy Lifting	8
Electrical Accidents	7
Fire Accidents	21
Dust	25

Toxic Fumes	21
Cuts and Burns	9
Chemicals	11
Total number of risks recognized	
4-6	12
2-3	16
<2	11
Identification of OHS signs	
Flammable sign	31
Danger sign	19
High voltage sign	14
Explosive sign	8
Total numbers of signs identified	
3 or more	14
1/2	17
<1	8

N.B: 60-80%- Good Knowledge, 40-59%- Moderate Knowledge, <40%- Poor Knowledge

Table-1: Responses in the knowledge section

Detailed result on workers' knowledge with regard to occupational health and safety have been presented in Table. We have fixed a threshold for knowledge, that is 60% or above as good knowledge, 40-59% as moderate and below 40% as poor knowledge.

The majority of the workers were not familiar with the term PPE, however majority were aware of the components when explained. Familiarity with the term was mostly observed among the apprentices which might be the effect of being in the training at present. Around half of the

respondents, 46% have good knowledge on the required PPEs and around 15% had poor knowledge. Almost all workers knew the necessity of gloves mask and around 50% has recognized the importance of protecticve glasses while around 20% mentioned protective shoes. Nobody mentioned earplugs as a preventative measure for hearing loss.

While assessing the knowledge on risks associated with their profession, only 30% respondents had good knowledge. Dust was the most commonly mentioned risk. Toxic fumes and fire accidents was mentioned too. Around 20% respondents has mentioned the risk of heavy lifting, cuts, burns and electrical accidents.

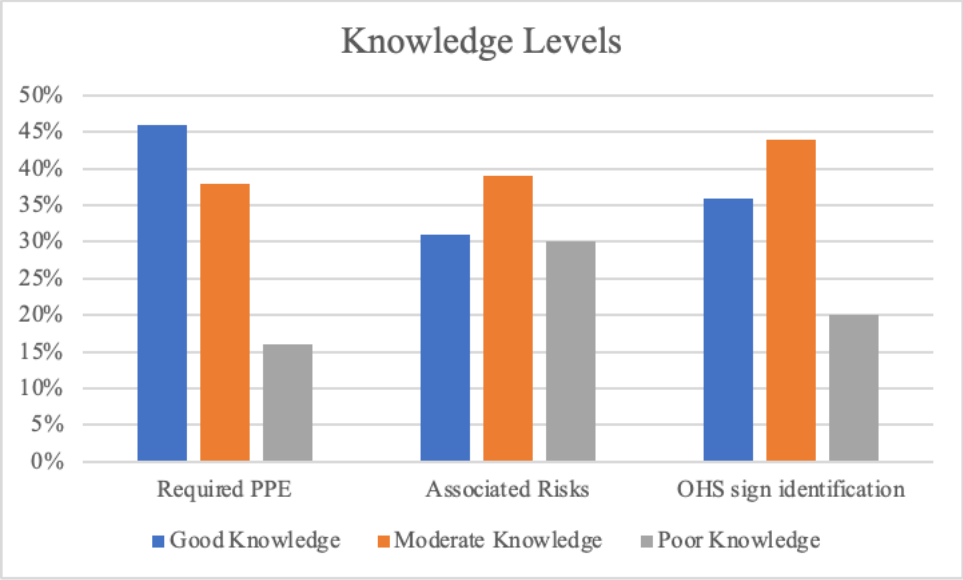

Fig-7: Knowledge level on safety precautions

Practice of safety precautions:

Variables	Frequency
Use of PPE	
Yes	32
No	7
PPE types	

Gloves	25
Mask	30
Protective Glass	2
Protective Shoes	9
Earplugs	0
Seat belt	1
Work related sickness/injury in the last 6 months	
Yes	9
No	30
Type of sickness/injury	
Cuts	5
Muscular/bone problems	1
Some other accidents	3
Received supervisors' financial help for treatment	9

Table-2: Responses in the practice section

82% of the respondents use at least one PPE. The most used PPE is gloves and mask while none of the workers use earplugs.

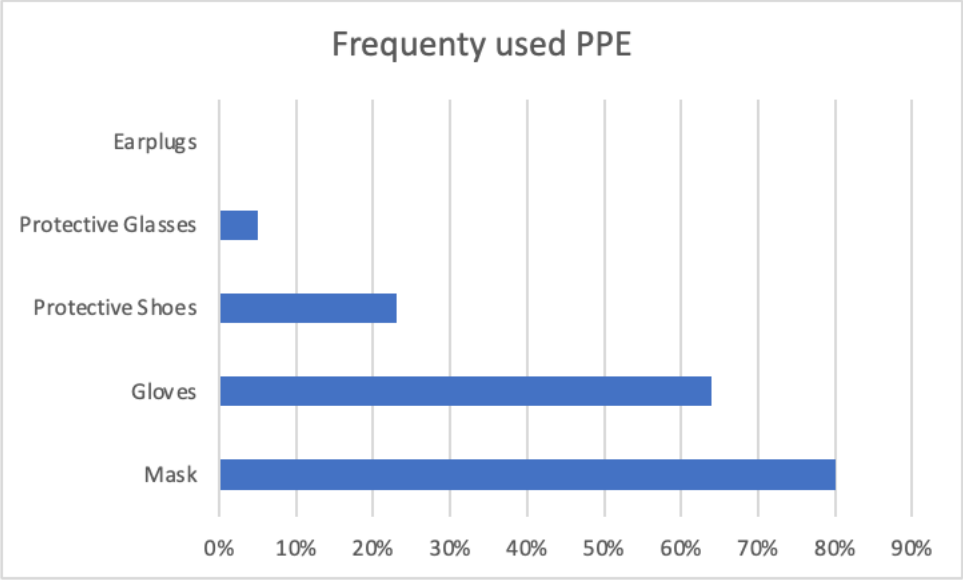

Fig-8: Prevalence of various PPEs in practice

Sickness/Injuries: In the previous 6 months, 9 factory workers suffered work-related injuries or accidents. Cuts were the most frequent work-related injuries or accidents faced the workers. 3 participants had their finger tips servered during working on motorcycle chains. Falling objects, hand tools, and machines, motorcycle accidents were the next common causes of injuries or accidents faced. 2 of them have faces fatal bike accidents while testing them. They mentioned that they were not using helmets since it was a test run for servicing. In every case, workers have shown satisfaction in their supervisors in cases of work related injuries. All 9 of them have receieved financial compensations for treatments which we thought was rare in the informal sector.

Self reported safety signs posted and availability of general safety conditions at the worksite of the workers among motorcycle servicing and driving in Jashore, Bangladesh:

Variables	Frequency
Safety signs posted at work	
Availability of occupational health and safety related poster provided by RAISE, PKSF	33
Availability of general safety conditions	
First Aid Kit	35
Safe Drinking Water	38
Toilet facilities	30
Has Fire Extinguisher at workplace	16
Regular check of instruments	38
Informing supervisor about unsafe working conditions	38
Receives supervisors' helps in such situations	38

Table-3: Responses in the 'workplace safety factors' section

90%, 97%, 77% workers have first aid kits, safe drinking water and toilet facilities at their workplace respectively. But only around 40% workers have fire extinguishers.

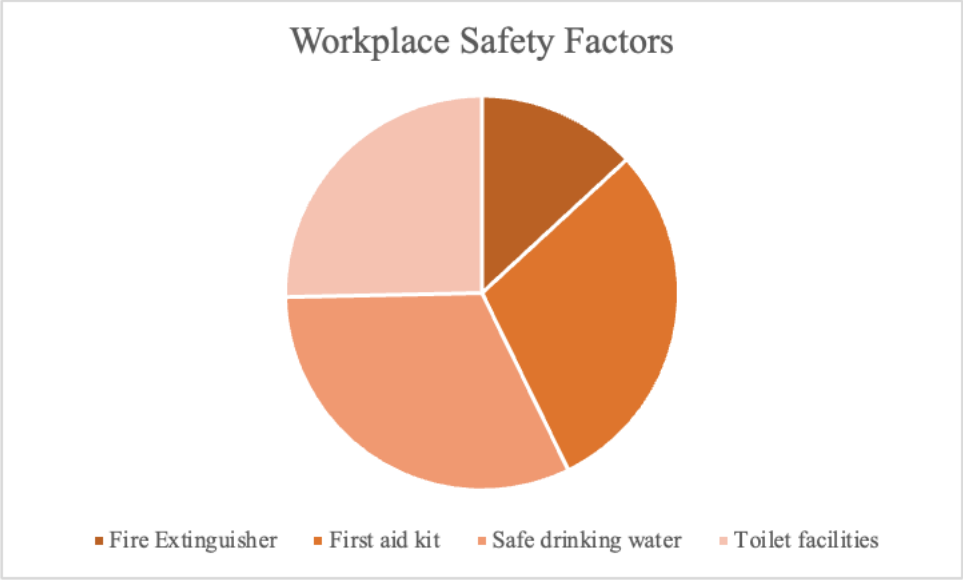

Fig-9: Availability of workplace safety equipment

Almost all the workers are aware of their right to report unsafe working conditions and said that they receive helps from employees everytime such situations is reported.

Comparative findings of knowledge and practices among graduates and apprentices:

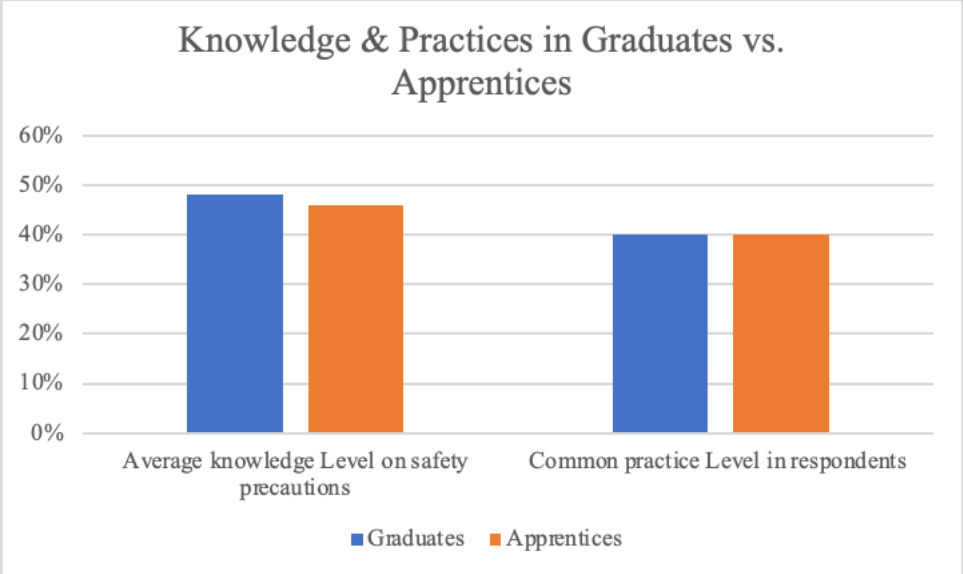

Fig-10: Comparative knowledge level

The knowledge on safety precautions and practice level is reportedly similar among apprentices and graduates. The knowledge level is 46% and 48% in apprentices respectively. The most common practice level is coincidentally similar in both cases, 40%.

Knowledge & Practice based on Educational Qualification:

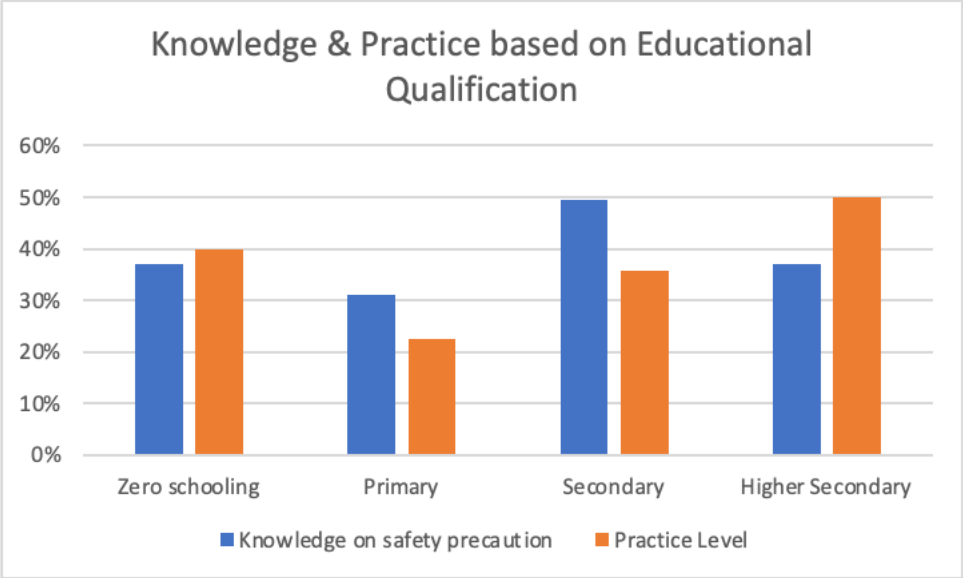

Fig-11: Knowledge & practice level based on educational qualification

We had only 1 participant with no educational qualification. His knowledge level was approximately 37% with a practice score of 40%.

8 out of the 39 respondents have stopped education after the primary grade. They had an average knowledge of 31% with a 22.5% practice level.

At the secondary level, 18 respondents had an average knowledge score of 49.58% with a corresponding 35.71% practice rate.

We also had only 2 participants who crossed the secondary level reaching higher secondary. They had a knowledge level of 37% and 50% practice score.

Personality and behavior of the workshop workers:

When personality traits were analyzed, 4 out of 39 participants smoke cigerattes on a daily basis but have claimed to not smoke in the workplaces.

Working conditons of workplaces:

The observational findings revealed that almost all the workers has OHS related posters, first aid kits, safe drinking water, toilet facilities at their workplace. 100% claimed to regularly check and clean their useable instruments before and after use. The work spaces were also claimed to be free of electrical risks. However, only 40% had fire extinguishers.

Attitudes on Occupational Health & Safety (OHS):

Variables	Frequency
Agreed to PPE use lowers risk	32
Agreed to supervisors have responsibility in ensuring OHS	38
Agreed to employees have responsibility in ensuring OHS	38,1
Agreed to buy own PPE for safety	34,5
Agreed on requirement of OHS training for everyone in automobile sector	38
Small tasks require PPE too	
Agree	15
Neutral	3
Don't agree	21

Table- 4: Responses in attitude section

The majority, 90% respondents believe that PPE lowers their everyday risks. 38 out 39 individuals are aware that both supervisors and employees are responsible for ensuring safe working environment. Surprisingly, around 90% respondents shows enthusiasm in buying own personal protective equipments for safety around 40% use PPEs even in small tasks. All of the

respondents believe that formal training on OHS has helped them and should be made more accessible to workers in their sector.

Discussion:

Demographic Dynamics:

The study showed that the sociodemographic characteristics of the workers, age, educational qualification, income level was mostly independent factors for knowledge of safety precautions.

Since 100% (39) of the participants are male, there is no ground to consider sex as a factor here. We particularly tried to establish a relationship between educational qualification and knowledge level. Although there were variations, it was found that there is no proper relationship between the two factors. The odds of being knowledgeable about safety precautions among the workers who completed at least a secondary level education (grade 6/higher) were 1.5 times higher as compared to the odds of workers who completed a primary level education or below. However, the knowledge level of workers who has reached higher secondary level is 1.35 times lower than the secondary level. This might be correlated with the fact that automobile sector is comparatively skill based sector and knowing the significance of PPE requirement, possible risks and warning signs are more dependents on experience and skills. Similar situation was faced while trying to relate it with practice scores.

All of the members have receieved a formal OHS training from the project. Despite that, there were variations in the knowledge and practices among the members while it was mostly similar in case of attitudes.

Knowledge and practices on safety precautions:

According to the current study findings, the overall knowledge level for safety precautions is around 47%. In case of practice score, 40% was the most common level.

A study conducted on the automobile workers in Makurdi, Benue State, Nigeria found that, despite having a commendable knowledge on OHS, there was a comparatively low practice level. However, in this study, we have found that workers know have good knowledge along with good practice level. Although the most common average practice level was 40%, the majority have responded as they put what they had learned into practice. 82% of the workers use at least one PPE. All of the workers wore PPE because they were aware of the benefits.

There were differences in concepts of risk factors and use of PPE among the participants. For instance, 20%(8) believed that heavy lifting is a risk and protective shoes are a requirement to prevent damages from objects falling on the feet while others believed heavy lifting is not a major part of the job, so protective shoes are not a requirement.

Most of the motorcycle service shops are beside the roads full of high traffic noice. Additionally, there are huge noises produced from motorcycle servicing, particularly from servicing the engines' exhauts. According to occupational safety assessments, engine servicing and roadside traffic both contribute to noise levels exceeding 85 dB, which can cause hearing damage with prolonged exposure (NIOSH, 2024; WHO, 2018). However, none of the respondents were able to mention earplugs as a safety precaution and doesn't feel its importance. This indicates that respondents are unaware of the possible hearing damage from servicing a motorcycle.

The alarming thing is around 18% respondents have said that there are no possible risks in their job. This portion of respondents consequently do not use any kinds of personal protective equipment during work. It was observed that more years of experience in work affects safety practices. More skilled individuals tend to consider their job as riskfree and easy. They reportedly claimed that wearing PPE, particularly gloves hinder their ease in working.

100% of the workers that have faced severe to minor injuries in workplaces have received financial assistance from their employers. They have also shown satisfaction in factors like sick leaves, assistance in risky services and ensuring workplace safety.

The 2019 National Profile on OHS in Bangladesh reported that that most workplaces lacked basic OHS facilities, such as fire extinguishers and first-aid kits, and few workers received proper safety training, which is not entirely true for the findings in the current study. Majority of the workers have first aid kits, safe drinking water and toilet facilities at their workplaces. But, the lack of fire extinguishers was noteworthy. Only around 40% had it. Fire accidents are commonly listed risk in motorcycle servicing, particularly the use of octane is pretty common in bike servicing which is highly reactive and poses high risk of severe fire complications. Besides, 4 respondents said that they smoke on a daily basis. Since the data is self-reported, there might be more smokers among the respondents. Smoking in workplace poses a great fire risk, particularly when the work includes highly reactive chemicals.

Apprentices versus Graduates:

A similar study in Ethiopia have showed that there is a visible difference in knowledge and practice level between workers who have received formal training on OHS and workers who have not received anything like that. Trained individuals are comparatively more knowledgeable and has better practice level. Here, we have tried to assess the knowledge and practice of all trained individuals and current trainees.

While trying to understand if current trainees and trained respondents differ in knowledge and practice level, there was a slight difference in the average knowledge on safety precautions; 46.15% in 48.13% in apprentices and graduates respectively. However, apprentices were more responsive in case of knowing the term PPE or the existing law of OHS in BD. 4 out of 13 apprentices knew about PPE. 5 apprentices also recognized all the OHS related symbols. On the contrary, only 5 out of 26 graduates recognized the term PPE, only 3 knew that there is a

law on OHS in BD and have recognized all the symbols. This might be the effect of being currently under training. In case of basic academic knowledges like this, there is a positive correlation with being under training currently.

40% was the most common practice score between both apprentices and graduates. However it was alarming that 2 graduates and 3 apprentices have a 0% practice rate. They believe that motorcycle servicing does not pos enough risks for the use of PPE. Although we have found multiple cases of getting finger tips severing during works. When getting informed about the incidents during the survey, they still believed that gloves won't help much in such incidents.

98% workers had a positive attitude towards keeping knowledge on OHS and practicing relevantly. However, this high percentage is not observed in actual self reported knowledge and practices. For instance, workers who had already said that they do not use PPE at works because their works do not pos any risks had later responded that PPE aids in lowering risks at their job. We believe that all the respondents were tending to concur with socially accepted responses.

Limitations:

Sample size:

- Small sample size:

  The study's primary limitation revolves around the restricted sample size, comprising data on only 39 participants.

- Focused on only two trades:

  Since the study is under RAISE project, we were constrained under two trades that the project covered. The automobile sector is vast but the study was only on motorcycle servicing and driving where only 2 participants were engaged in driving.

- Geographical limitations:

Due to limited resources, the study was done only in Jashore Sadar district of Bangladesh. This limited sample size might compromise the reliability of the data and differ substantially in a broader population.

Sample representation: The limited number of participants might not adequately capture the diversity and complexities inherent in a larger population, thereby potentially skewing the study's outcomes.

For instance, when we tried to show a corelationship between educational qualification and knowledge on OHS, no significant relationship was established. It might be because only 2 participants were from higher secondary level which is not enough to represent the broader population with the same traits.

Self-reporting bias: All of the participants had reported their practices themselves. Self claimed practices are not reliable and might differ significantly if the day-to-day practices were observed directly.

Data integrity: The study encountered challenges related to data integrity due to participants exhibiting a tendency to withhold critical information. That is, a few participants are working in this sector for several years and earning well but has portrated them as NEET to be considered under the program. A few MCPs have also sent their old employees to the program for loan facilities. This challenge introduced discrepancies and uncertainties in the collected data, compromising the accuracy, reliability, and completeness of the study's outcomes.

Time constraints: An inherent limitation was the constrained time-frame of three days allocated for data collection. This temporal limitation constrained the depth and breadth of the research endeavour, imposing restrictions on the comprehensive exploration of multifaceted aspects. The restricted timeline potentially curtailed the thoroughness of data collection and analysis, impacting the depth and granularity of the study's findings.

Social desirability bias: The knowledge, attitude and practice of workers were studied. In the attitude section, workers may report more socially acceptable responses than their actual day-to-day practice due to social desirability bias.

Recommendations:

Extension of the program: Despite the RAISE project's completion scheduled for 2026, field assessments indicate its significant impact on employment generation in the informal sector. A significant number of educated apprentices have established their own enterprises or secured consistent income. Expanding the program will further underscore its significance in economic development.

Expansion of target: The RAISE project aimed to train 35,000 apprentices under the guidance of 7,000 Master Craftspersons (MCPs). This objective should be expanded in the subsequent phase to encompass a larger workforce, since its effectiveness in reducing youth unemployment necessitates such an approach.

Calculating GDP contribution of trained employed apprentices: To highlight the economic impact of the program, it is essential to estimate the GDP contribution of employed apprentices. A concrete figure will provide more compelling rationale for continued funding and policy assistance.

Outreach program through social media: The outreach program through social media is still constrained in RAISE. Given that a majority of the youth in Bangladesh are highly engaged on social media, it is important to emphasize in this sector.

Including more OHS contents in training: Currently, a very small portion of the training includes OHS awareness. The training provides an OHS poster and first aid box only. More emphasis should be given on OHS, specially in sectors similar to automobile industry. A number of trained individuals believe there are no risks to this job. They should be trained on

the keen details. While short term and frequent risks are rare, long term and accidents are prevalent in the sector. Apprentices should be better educated about long-term dangers such as respiratory issues from extended dust exposure and auditory impairment due to noise pollution.

Regular Awareness Programs on OHS: Partner organizations might organize annual seminars and workshops with employed apprentices to reinforce occupational health and safety practices. This will help sustain safety awareness beyond the training period.

Stronger Monitoring and Compliance Measures:

Surprise visits by partner organizations at MCP training sites should be conducted to ensure that OHS rules are being followed properly. Regular monitoring will improve workplace safety and training quality.

Conclusion:

This study sheds light on the everyday realities of informal automobile workers in Jashore, Bangladesh, and their approach to occupational health and safety (OHS). While formal training under the RAISE project has helped improve awareness, many workers still lack a strong understanding of safety practices. Some don't see the risks in their jobs, while others find protective gear inconvenient or unnecessary. This gap between knowledge and practice highlights the need for ongoing training and reinforcement.

On a positive note, most workers feel supported by their employers when workplace injuries occur, and essential facilities like safe drinking water and first aid kits are widely available. However, fire safety measures remain inadequate, and many workers don't recognize the long-term health risks associated with exposure to dust, toxic fumes, and loud noises.

One striking observation was the difference in awareness between current apprentices and trained workers. Apprentices, who are still in the learning phase, showed better familiarity with

safety symbols and regulations. This suggests that continuous learning and refreshers on OHS could make a real difference in bridging the knowledge gap over time.

Ultimately, improving workplace safety isn't just about providing training—it's about changing mindsets. More engaging and practical OHS education, stronger workplace monitoring, and expanding the RAISE project's reach could help ensure that safety becomes a natural part of every worker's routine. Investing in these changes won't just protect workers from immediate risks but will also safeguard their long-term health and well-being.

Appendices:

Consent:

For this study, we only obtained informed verbal consent from the study subjects because the study did not involve advanced data collection procedures such as specimen collection and so on. The data was gathered solely through interviews.

Questionnaire:

সেকশন ১: আর্থসামাজিক অবস্থা সম্পর্কিত তথ্য

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
১০১	আপনার নাম			
১০২	বয়স ফোন নম্বর			
১০৩	বয়স			
১০৪	লিঙ্গ		১।নারী ২।পুরুষ	
১০৫	শিক্ষাগত যোগ্যতা		১।কোনো প্রাতিষ্ঠানিক শিক্ষা নেই ২।প্রাথমিক (৫ম শ্রেণি পর্যন্ত) ৩।মাধ্যমিক (১০ম শ্রেণি পর্যন্ত) ৪।উচ্চ মাধ্যমিক ৫।উচ্চতর শিক্ষা	
১০৬	বর্তমানে কোন ট্রেড এ কাজ করছেন?		১।মোটরসাইকেল সার্ভিসিং(ট্রেড কোড-১৭)	

			২।ড্রাইভিং-কাম অটোমেকানিক্স(ট্রেড কোড-১৮)	
১০৭	কতদিন ধরে এই ট্রেড এ কাজ করছেন?		১।১ বছরের কম ২।১-৩ বছর ৩।৩-৬ বছর ৪।৬-১০ বছর ৫।১০ বছরের উর্ধ্বে	
১০৮	দৈনিক কত ঘন্টা কাজ করেন?		১।৪ ঘন্টার কম ২।৪-৬ ঘন্টা ৩।৬-৮ ঘন্টা ৪।৮ ঘন্টার বেশি	
১০৯	মাসিক আয়ের পরিমাণ			
১১০	আপনি কি RAISE এর শিক্ষানবিশ প্রোগ্রাম এর অন্তর্ভুক্ত আছেন বা ছিলেন?		১।বর্তমানে শিক্ষানবিশ হিসেবে আছি ২।গ্র্যাজুয়েট ৩।অন্তর্ভুক্ত নেই	

সেকশন ২: পেশাগত ঝুঁকি সম্পর্কিত জ্ঞান

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
২০১	আপনি কি PPE শব্দটি সম্পর্ক জানেন?		১।হ্যা	

			২।না	
২০২	এই চিহ্নগুলো দেখে বলতে পারেন কি এগুলো কি ধরনের ঝুঁকি বোঝায়? 		১।একটি ২।দুইটি ৩।তিনটি ৪।সবগুলো ৫।কোনটিই নয়	

সেকশন ২.১: মোটরসাইকেল সার্ভিসিং

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
২০৪	আপনার পেশার সম্পর্কিত ঝুঁকিপূর্ণ ব্যাপারগুলো কি?		১। রাসায়নিক পদার্থ ২। ভারী বস্তু উত্তোলন ৩। অগ্নি দুর্ঘটনা ৪। বৈদ্যুতিক ঝুঁকি ৫।অপর্যাপ্ত বায়ু চলাচল ৬। ধুলাবালি ৭। বিষাক্ত ধোয়া	
২০৫	আপনার কাজে কি ধরনের PPE প্রয়োজন?		১।গ্লাভস ২।মাস্ক ৩।সুরক্ষা চশমা ৪।কানে দেওয়ার প্লাগ	

			৫।সুরক্ষামূলক জুতা	

সেকশন ২.২: ড্রাইভিং কাম অটোমেকানিকস

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
২০৪.১	আপনার পেশার সম্পর্কিত ঝুঁকিপূর্ণ ব্যাপারগুলো কি?		১। রাসায়নিক পদার্থ ২। ভারী বস্তু উত্তোলন ৩। অগ্নি দুর্ঘটনা ৪। ধুলবালি ৫। বিষাক্ত ধোয়া ৪। দুর্ঘটনা ও সংঘর্ষ ৫। মাদক বা মদ্যপান ৬। বেপরোয়া গতি	
২০৪.২	আপনার কাজে কি ধরনের PPE প্রয়োজন?		১। সিট্ বেল্ট ২। মাস্ক	

সেকশন ৩: ব্যাক্তিগত সুরক্ষা সম্পর্কিত তথ্য:

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
৩০১	আপনার কর্মক্ষেত্রে অগ্নি নির্বাপক যন্ত্র আছে?		১।হ্যা ২।না	

			৩।জানিনা	
৩০২	আপনার কর্মক্ষেত্রে প্রাথমিক চিকিৎসা সরঞ্জাম আছে?		১।হ্যা ২।না ৩।জানিনা	
৩০৩	আপনার কর্মস্থলে কি পরিষ্কার পানীয় জল সরবরাহ করা হয়?		১।হ্যা ২।না ৩।জানিনা	
৩০৪	আপনার কর্মস্থলে কি ভালো টয়লেট ব্যাবস্থা আছে?		১।হ্যা ২।না ৩।জানিনা	
৩০৫	আপনার কর্মস্থলে কি কোনো লিখিত পেশাগত স্বাস্থ্য ও নিরাপত্তা সম্পর্কিত পোস্টার বা বই আছে?		১।হ্যা ২।না ৩।জানিনা	
৩০৬	নিয়মিত আপনার ব্যবহৃত যন্ত্রপাতি পরীক্ষা করে থাকেন কি?		১।হ্যা ২।না	
৩০৭	অনিরাপদ কর্মপরিবেশ সম্পর্কে আপনার ওস্তাদ/সুপারভাইসরকে কি জানান?		১।হ্যা ২।না	
৩০৮	এ ব্যাপারে জানালে কি ওস্তাদ/সুপারভাইজর গুরুত্ব দেন বা সাহায্য করেন?		১। হ্যা ২।না	

৩০৯	গত ৬ মাসে আপনি কাজ করার সময় অসুস্থ বা আহত হয়েছেন?		১।হ্যা ২।না	৩০৯.১, ৩০৯.২, ৩১০
৩১০	কর্মক্ষেত্রজনিত অসুস্থতার কারণে চিকিৎসা নিয়ে থাকলে,আপনার ওস্তাদ/সুপারভাইজর থেকে কোনও আর্থিক সাহায্য পেয়েছিলেন কি?		১।হ্যা ২।না	
৩১১	কাজ করার সময় কি আপনি ব্যক্তিগত সুরক্ষা সরঞ্জাম ব্যবহার করেন?		১।হ্যা ২।না	৩১১.১, ৩১১.২

সেকশন ৩.১: মোটরসাইকেল সার্ভিসিং

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
৩০৯.১	আঘাত বা অসুস্থতার ধরন		১।কাটা ছেড়া ২।পোড়া ৩।বৈদ্যুতিক শক ৪।হার ভেঙে যাওয়া বা মচকানো ৫।মাংসপেশিতে বা হাড়ের সমস্যা ৬।শ্রবণশক্তি হ্রাস	

			৭।চোখের সমস্যা ৮।শ্বাসপ্রশ্বাসজনিত সমস্যা ৯।ত্বকের জ্বালা ১০।অন্যানো কোনও দুর্ঘটনা	
৩১১.১	আপনি কাজের সময় নিচের কোন ব্যক্তিগত সুরক্ষা সরঞ্জামগুলো ব্যবহার করেন?		১।গ্লাভস ২।মাস্ক ৩।সুরক্ষা চশমা ৪।কানে দেওয়ার প্লাগ ৫।সুরক্ষামূলক জুতা	

সেকশন ৩.২: ড্রাইভিং কাম অটোমেকানিক্স

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
৩০৯.২	আঘাত বা অসুস্থতার ধরন		১।সড়ক দুর্ঘটনাজনিত আঘাত ২।কোমর/ঘাড়/হাত-পা ব্যথা ৩।শ্রবণশক্তি হ্রাস ৪।শ্বাসপ্রশ্বাসজনিত সমস্যা ৫।স্থূলতা ও পেশিজনিত সমস্যা	
৩১১.২	আপনি কাজের সময় নিচের কোন ব্যক্তিগত সুরক্ষা সরঞ্জামগুলো ব্যবহার করেন?		১। সিট্ বেল্ট ২। মাস্ক	

সেকশন ৪: পেশাগত স্বাস্থ্য ও সুরক্ষা সম্পিকত মতামত

ক্রমিক	প্রশ্ন	উত্তর	কোড	স্কিপ
৪০১	পিপিইর ব্যবহার কর্মক্ষেত্রের ঝুঁকি কমাতে পারে		১।একমত ২।নিরপেক্ষ/মতামত নেই ৩।একমত নই	
৪০২	পেশাগত সুরক্ষার নিশ্চিত করার ক্ষেত্রে নিয়োগকর্তা/মালিকের দায়িত্ব রয়েছে		১।একমত ২।নিরপেক্ষ/মতামত নেই ৩।একমত নই	
৪০৩	পেশাগত সুরক্ষার নিশ্চিত করার ক্ষেত্রে কর্মচারীদেরও দায়িত্ব রয়েছে		১।একমত ২।নিরপেক্ষ/মতামত নেই ৩।একমত নই	
৪০৪	নিজস্ব সুরক্ষার জন্য আমি সরঞ্জাম কিনতে রাজি আছি		১।একমত ২।নিরপেক্ষ/মতামত নেই ৩।একমত নই	
৪০৫	পেশাগত স্বাস্থ্য ও সুরক্ষার ওপর প্রশিক্ষণ/ট্রেনিং দেয়া উচিত		১।একমত ২।নিরপেক্ষ/মতামত নেই ৩।একমত নই	
৪০৬	ছোটখাটো কাজের জন্যও পিপিই ব্যবহার গুরুত্বপূর্ণ		১।একমত ২।নিরপেক্ষ/মতামত নেই	

			৩।একমত নই	

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