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SAFEGUARDING THE FUTURE WORKFORCE: EFFECTIVE APPROACHES TO IMPROVE HEALTH AND SAFETY FOR YOUNG EMPLOYEES

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ABSTRACT

This paper presents a systematic review and meta-analysis of the existing literature on the effective approaches to improve the health and safety for young employees. Through a review of literature, this paper recognizes key factors contributing to work place accidents among young employees. It aims to evaluate work hazards; the young workers are frequently exposed to and the occupational safety and health (OSH) standard that protect young workers.

Young workers are a diverse group and are more susceptible to occupational injuries and diseases compared to adult workers. This is due to their ongoing physical, psychological, and emotional development, as well as their lack of education and job skills; lack of experience and lack of workplace safety knowledge.

International Labour Organization (ILO) standards on OSH focuses to protect these young workers. The ILO constitution focuses on the right to safe and healthy work for all workers, including both young and adult workers. The labour laws establish essential principles that promote a safe, healthy and decent working environment. This focuses on integrating occupational safety and health (OSH) into general education and vocational training programs to create a safer and healthier generation of workers.

These protocols not only reduce the risk of workplace accidents but also foster a safe, productive and sustainable workforce. This paper contributes to occupational health and safety of young workers by providing actionable recommendations for employers, policymakers and training institutions

Keywords- OHS, Young Workers, Workplace Accidents, International Labour Organization (ILO) Standards, Vulnerable Employees, Safety Education and Training

Introduction

In accordance with the most recent estimates provided by the International Labour Organization (ILO), it is reported that 2.78 million workers perish annually as a result of occupational accidents and work-related diseases.³⁸¹ Of these fatalities, 2.4 million (representing 86.3% of the total) are attributed to work-related diseases, whereas more than 380,000 (or 13.7%) are a consequence of occupational accidents. Furthermore, it is noted

that the incidence of non-fatal occupational injuries is disproportionately high, with such injuries occurring approximately one thousand times more frequently than fatal occupational injuries. Non-fatal injuries are estimated to impact 374 million workers each year, many of which result in significant long-term detriments to workers' earning capacities.

Young workers, in particular, face an elevated risk of sustaining workplace injuries when compared to their adult counterparts. Recent data derived from European studies reveals that non-fatal occupational injuries occur over 40% more frequently among workers aged 18 to

³⁸¹ In 1987, the Joint ILO/WHO Committee on Occupational Health suggested that the term "work-related diseases" be used to describe not only recognized occupational diseases, but also other disorders to which the work environment and performance of work contribute significantly.

24 than among older employees.³⁸² In a similar vein, data from the United States indicates that the likelihood of workers within the 15 to 24 age group experiencing a non-fatal workplace injury is approximately double the rate of workers who are aged 25 and older.³⁸³ These findings underscore the heightened vulnerability of young workers and emphasize the necessity for the implementation of targeted safety measures and appropriate training programs aimed at mitigating such risks.

It is noteworthy, however, that despite the higher rates of occupational injuries among young workers, they exhibit a lower incidence of occupational diseases when compared to older workers. This disparity, however, should not be misconstrued as an indication that young workers possess greater resistance to such diseases. On the contrary, the developing physiological and psychological states of young workers render them particularly susceptible to the detrimental effects of hazardous chemicals and other workplace agents. The reduced incidence of occupational diseases reported among young workers is more likely attributable to the delayed onset and cumulative nature of such conditions, which typically manifest only after prolonged exposure over the course of many years. Moreover, the collection of accurate data regarding occupational diseases, particularly those resulting from workplace exposure during youth, remains a complex and challenging undertaking, thereby exacerbating the difficulty in fully understanding the scope of the issue.

The economic impact of occupational accidents and diseases is significant, with the ILO estimating a loss equivalent to 3.94% of global GDP annually (ILO, 2017). The societal cost of injuries and long-term impairments among young workers is particularly severe, often exceeding that of adult workers. Early injuries can have lasting effects, limiting social

participation and rendering investments in education and training ineffective. This underscores the need to protect young workers from workplace hazards.

While many countries have invested in initiatives focused on youth employment, education, and skills development, it is crucial to integrate occupational safety and health (OSH) into these efforts. Understanding and addressing the specific safety risks faced by workers aged 15 to 24 is essential. Although workers under 18 are afforded legal protections, those aged 18 to 24 often lack equivalent safeguards despite their heightened vulnerability. This gap highlights the need to extend protections to all young workers.

The ILO remains committed to promoting decent work and safe conditions for all workers. Improving OSH standards for young workers not only creates better employment opportunities but also helps eliminate hazardous child labour. Globally, 151.6 million children are engaged in child labour, with 72.5 million in hazardous work, and nearly 24% of them are aged 15 to 17 (ILO, 2017). Addressing OSH issues for young workers can improve their health and safety and reduce child labour.

In India, where a large proportion of the population is young, ensuring the safety and well-being of young workers is particularly important. Indian labour laws, such as the Factories Act of 1948 and the Child and Adolescent Labour (Prohibition and Regulation) Act of 1986, provide protections for workers under 18. However, challenges remain in enforcing these laws, raising awareness, and extending adequate safeguards to those aged 18 to 24. Strengthening OSH standards and aligning with international commitments, such as those of the ILO, can help address these gaps and improve working conditions for India's youth.

Definition and Scope of Young Workers

The United Nations (UN) defines "youth" as individuals aged 15 to 24, a demographic that

³⁸² European Agency for Safety and Health at Work (EU-OSHA). "Young Workers — Facts and Figures." 2014.

³⁸³ Centres for Disease Control and Prevention (CDC). "Young Worker Safety and Health."

constitutes over 15% of the global labour force, encompassing approximately 541 million young workers worldwide (ILO, 2016). This stage of life often marks the critical transition from compulsory education to initial work experiences.

Young workers encounter substantial challenges during this transitional phase, particularly in securing stable, safe, and adequately compensated employment. They enter the labour market through various pathways, including:

- Students who engage in part-time work during spare hours, such as before or after school and during weekends or holidays;
- Students who participate in job experience programs, such as apprenticeships or internships;
- Young individuals who have either completed or exited compulsory education and are commencing their careers;
- Young people engaged in work for family-owned businesses, whether paid or unpaid;
- Young entrepreneurs and self-employed individuals.

It is imperative to ensure the safety, health, and fair treatment of young workers across these varied employment scenarios, as this is fundamental to their overall well-being and economic empowerment.

Ensuring the safety, health, and fair treatment of young workers across these diverse roles is essential for their overall well-being and economic empowerment. Young workers exhibit varying levels of cognitive, psychosocial, and physical development, prompting international standards to categorize them into two primary groups based on age.

- **Young Workers Above the Minimum Age of Employment but Under 18 Years:** The first group consists of workers who have surpassed the minimum age for employment but are still

under the age of 18.³⁸⁴ Although they are legally permitted to engage in certain types of work, they are still classified as "children" under international labour standards. Accordingly, they are afforded specific protections to ensure their health and safety. These protections include restrictions on the type of work they can perform, the hazards they can be exposed to, and the number of hours they can work. Such measures are designed to accommodate their rapid physical growth, lack of experience, and greater vulnerability to exploitation, thereby minimizing their risk of occupational injury or disease.

- **Young Workers Aged 18 to 24 Years:** The second group comprises individuals between the ages of 18 and 24, who are legally recognized as adults and, therefore, fall under the same employment laws that apply to all adult workers. Despite their legal adulthood, these young workers are still undergoing significant mental and physical development, making them particularly susceptible to workplace hazards. Unlike younger workers, those in this age group no longer benefit from the specific child labour protections, such as prohibitions on hazardous work or special provisions under occupational safety and health (OSH) regulations. This gap in protections may expose them to greater risks, as they are often employed in a broader range of occupations without the protective measures available to those under the age of 18. While they are legally permitted to undertake virtually any job, their ongoing vulnerability necessitates the evolution of regulatory frameworks to better address the unique risks faced by this age group.

Factors Threatening the Health and Safety of Young Workers

Young workers constitute a heterogeneous cohort, wherein a multiplicity of determinants governs the spectrum of occupational hazards and diseases to which they are exposed. These

³⁸⁴ ILO. "Convention No. 138 on Minimum Age for Admission to Employment" and "Convention No. 182 on the Worst Forms of Child Labour."

hazards are primarily shaped by the intersection of their developmental stages—physical, psychosocial, and emotional—as well as the extent of their educational attainment, vocational expertise, and cumulative work experience. While the individual characteristics of young workers undeniably influence their susceptibility to risks pertaining to occupational health and safety (OHS), it is imperative to recognize the workplace environment as an equally pivotal determinant. The organizational culture of a workplace plays a critical role, either by discouraging young workers from reporting OHS concerns or, conversely, by cultivating a conducive environment for open dialogue, thereby fostering enhanced safety outcomes.³⁸⁵

A salient issue affecting young workers is their limited awareness of both their entitlements as employees and their obligations as emerging employers, which consequently undermines their capacity to assertively advocate for improved working conditions. This deficiency in awareness, coupled with a propensity for underreporting OHS hazards, renders young workers disproportionately vulnerable to precarious and hazardous situations.³⁸⁶ In addition, their comparative lack of bargaining leverage, vis-à-vis more seasoned colleagues, frequently compels them to accept roles that entail exposure to dangerous tasks, substandard working conditions, or precarious employment arrangements.

The potential for such adverse outcomes is markedly heightened when young workers are employed within high-risk industries, wherein the prevalence of hazardous working conditions is endemic. Given their relative inexperience and the heightened likelihood of exploitation, the probability of sustaining occupational injuries or diseases among young workers is exacerbated. Accordingly, the mitigation of these risks necessitates a dual approach: an integrated strategy of comprehensive

education and training, alongside the cultivation of a workplace culture that prioritizes the health, safety, and overall well-being of young workers.

Work Hazards to Which Young Workers are Frequently Exposed

The terms "hazard" and "risk," although often used interchangeably, have distinct and specific meanings in the context of workplace safety. A hazard refers to any agent, condition, or activity that has the potential to cause harm, such as dust, chemicals, noise, unguarded machinery, manual handling tasks, or extended and irregular working hours. In contrast, a risk is the likelihood of a hazardous event occurring and the severity of the harm that may result, including any long-term consequences. For instance, machine operators who regularly work with unguarded machinery face an elevated risk of experiencing serious or even fatal injuries. Similarly, workers who frequently handle heavy or awkwardly shaped objects are at heightened risk of developing musculoskeletal disorders, such as chronic back pain.

In order to prevent harm in the workplace, it is critical to systematically identify hazards, assess associated risks, and implement appropriate risk control measures through a robust Occupational Safety and Health (OSH) management system. The initial step in this process is hazard identification, which requires active collaboration between employers and employees to recognize hazardous agents and situations that may pose risks to worker health and safety. Additionally, it is vital to identify the workers who are most exposed to particular hazards.³⁸⁷

When developing an OSH management system, it is essential to consider the unique vulnerabilities of young workers. Hazard identification must account for the interaction

³⁸⁵ European Agency for Safety and Health at Work (EU-OSHA). "Young Workers and Workplace Culture: Challenges and Best Practices."

³⁸⁶ National Institute for Occupational Safety and Health (NIOSH). "Barriers to Reporting Workplace Injuries: The Case of Young Workers."

³⁸⁷ According to the ILO Guidelines on Occupational Safety and Health Management Systems (known as ILO OSH 2001), preventive and protective measures should be implemented in the following order of priority: (i) eliminate the hazard; (ii) control the risk at source (through the use of engineering controls or organizational measures); (iii) minimize the risk by designing safe work systems (including administrative measures taken for risk control); and (iv) where residual risks cannot be controlled by collective measures, the employer should provide appropriate personal protective equipment (PPE) at no cost and take measures to ensure its use and maintenance.

between the worker, the specific task, working conditions, organizational factors, and the broader work environment. While standard exposure limits are effective for adult workers, this approach becomes more complex when applied to young workers, especially adolescents, due to their ongoing physical and psychological development. This makes it challenging to accurately define the thresholds their bodies and minds can safely tolerate. Furthermore, the limited understanding of how specific work-related hazards affect young workers' health and well-being complicates the establishment of appropriate safety limits. A well-structured and comprehensive OSH management system ensures a safer working environment for all employees, while incorporating additional safeguards for those at increased risk due to age, experience, or other factors. This approach helps mitigate potential harm and fosters a culture of safety that is inclusive and protective of vulnerable workers. Workplaces are rife with various types of hazards, each presenting distinct risks to the safety and health of workers. For young workers, these risks are often amplified due to their heightened vulnerability and specific risk factors. These hazards can be broadly classified into two primary categories: physical hazards and psychosocial hazards, both of which are particularly perilous for young workers.

Safety hazards refer to conditions or situations that have the potential to cause immediate injury or harm to workers if proper safety measures are not implemented. These hazards encompass a wide range of risks, including, but not limited to, working at heights, operating dangerous machinery or tools, exposure to moving vehicles, working in trenches, walking on slippery surfaces, or handling flammable materials. For young workers, the vulnerability to such safety hazards is heightened due to several critical factors, including limited work experience, a lack of comprehensive skills training, inadequate safety instructions, and insufficient supervision.

These factors significantly hinder young workers' ability to identify potential risks or to recognize when safety protocols should be followed, thereby increasing their susceptibility to accidents and injuries. The combination of inexperience and insufficient guidance makes it more difficult for young workers to assess hazards effectively, particularly in dynamic or high-risk environments. Moreover, young workers may not yet have the practical knowledge to respond to dangerous situations in an appropriate or timely manner, further amplifying the potential for harm.

Therefore, it is essential for employers to provide targeted safety training, clear and accessible safety instructions, and strong supervision to ensure young workers are equipped with the necessary skills and awareness to navigate and mitigate safety hazards effectively. By addressing these vulnerabilities, employers can reduce the risk of injury and foster a safer working environment for young workers.

Physical hazards refer to the exposure to harmful physical agents that pose a risk to health. These hazards encompass a range of environmental factors, including but not limited to noise, vibration, extreme temperatures (both heat and cold), lighting, and radiation. For instance, exposure to ultraviolet (UV) radiation—whether from natural sources such as sunlight or from activities like welding—can significantly increase the risk of developing skin cancer, particularly in individuals who are exposed at an early age, such as young workers. Furthermore, young workers are particularly susceptible to noise-induced hearing loss. The noise exposure limits established for adults do not provide sufficient protection for young workers, who are often employed in environments with elevated noise levels, such as in the hospitality, manufacturing, and construction industries.

Biological hazards refer to the exposure to harmful microorganisms, including bacteria, viruses, parasites, as well as dangerous animals, insects, and plants. These hazards have the potential to cause a variety of

diseases, including skin infections, respiratory conditions, and gastrointestinal disorders. Young workers in sectors such as agriculture, food processing, healthcare, and waste management are particularly vulnerable to these risks. For example, agricultural workers may come into contact with animals that can transmit diseases, while those employed in food processing or the restaurant industry may handle food contaminated with harmful bacteria. Healthcare workers may be exposed to infectious bodily fluids, and workers in waste management may encounter hazardous waste, all of which heighten the risk of illness due to biological hazards.

Chemical hazards refer to the presence of gases, dust, fumes, vapours, and liquids that pose a risk to human health. These hazardous substances are prevalent in a variety of workplaces across numerous industries, including the use of pesticides and fertilizers in agriculture, paints and solvents in manufacturing, asbestos and welding fumes in construction, and cleaning agents in the service sector. The adverse effects of chemical exposure are contingent upon the concentration and duration of exposure, as well as individual factors such as age and gender. Young workers are especially susceptible to the harmful effects of chemical hazards, as early exposure may lead to long-term health consequences, particularly concerning their reproductive systems and hormonal balance.

Ergonomic hazards stem from activities that involve the lifting of heavy loads, performing rapid or repetitive movements, or using poorly designed machines and work processes. These conditions often compel workers to assume awkward or uncomfortable postures, leading to musculoskeletal disorders (MSDs), such as back pain, tendinitis, herniated discs, and carpal tunnel syndrome. Adolescents are particularly vulnerable to skeletal damage and impaired growth due to the fact that their bodies are still in the process of development. Furthermore, tools and equipment in many workplaces are typically designed for adult users, which

increases the risk of fatigue, injury, and MSDs among young workers.

Psychosocial hazards are associated with the design and management of work, as well as the social and organizational environment, all of which can result in psychological or physical harm. A prevalent response to psychosocial hazards is stress, which can lead to distractions, errors, or accidents within the workplace. Over time, prolonged stress may contribute to mental health issues such as burnout and depression, physical conditions like cardiovascular diseases and musculoskeletal disorders (MSDs), and negative coping behaviours, including alcohol use or smoking. These stress-related effects can significantly diminish workers' overall well-being and quality of life.

For young workers, who are still developing mentally, emotionally, and socially, exposure to these hazards can be particularly detrimental. Psychosocial hazards are generally classified into two categories:

1. **Content of work:** This includes factors such as task design, workload, work pace, and work schedules.
2. **Context of work:** This refers to the organization of work and labour relations, including organizational culture, leadership style, role clarity, career development opportunities, decision-making power, work-life balance, and interpersonal relationships, such as workplace violence and harassment.

Young workers are especially vulnerable to workplace violence, harassment, and bullying, often due to factors like the nature of the work, employment status, and limited bargaining power. Such bullying can result in mental health issues, including depression, anxiety, and decreased job satisfaction. Additionally, poor work-life balance, which is common among young workers who often accept shift work, seasonal employment, or overtime, can further contribute to stress and job dissatisfaction. A lack of clarity regarding job tasks or limited

influence over work outcomes may also lead to low motivation and job dissatisfaction.

Young Workers in Hazardous Economic Sector

Young workers often encounter limited employment opportunities due to a lack of experience, skills, and bargaining power. Consequently, they are frequently relegated to entry-level positions or undesirable jobs that are low-paying, involve long working hours, and pose significant hazards. This situation is further exacerbated by a youth unemployment rate that is approximately three times higher than that of adults. A considerable proportion of young workers are also employed in the informal economy, where they face heightened risks of occupational accidents and diseases. Employment in the informal sector typically exposes workers to greater hazards and provides little or no social protection.

Young workers are disproportionately engaged in non-standard forms of employment, such as temporary or part-time positions, which are marked by lower job stability and fewer legal protections. These roles often offer limited opportunities for training and skill development due to their short-term nature and lack of job security. Many young workers in temporary positions are not adequately informed about potential workplace hazards and risks. The transient nature of their employment often prevents them from familiarizing themselves with health and safety regulations, increasing their vulnerability to workplace accidents and long-term health issues. The informality, instability, and non-standard characteristics of these work arrangements further contribute to the heightened risks faced by young workers across various sectors.

Agriculture is a hazardous sector, particularly for young workers, with nearly 49.3% of adolescents aged 15-17 in hazardous work employed in this field. They face risks from machinery, animals, noise, and physical hazards like falls. The work often involves heavy lifting, repetitive tasks, and awkward postures, leading to musculoskeletal disorders. Additionally, young workers are exposed to

harmful substances and environmental hazards such as sun exposure and extreme temperatures.

While agricultural employment is declining in developed countries due to mechanization, it remains a major source of low-skilled labour for young workers in developing regions.

Manufacturing– The manufacturing sector remains a key source of employment for young workers, especially those entering the workforce. Despite a decline in certain regions, it still employs a significant proportion of youth, such as 9.7% in Africa and 20.7% in Eastern Europe and Central Asia. Industries like automobiles, textiles, electronics, chemicals, and food production present various risks, including exposure to hazardous chemicals, machinery, and excessive noise, as well as poor lighting and ventilation. These conditions pose significant health and safety hazards, particularly for young workers, who may be more vulnerable to these risks.

Construction: The construction sector increasingly attracts young workers, especially in developing regions like Africa, Asia, and Latin America. Although many countries prohibit child labour on construction sites, hazardous child labour persists in some areas. The sector is known for its high rates of accidents and diseases due to the dangerous nature of tasks, including the use of machinery, working at heights, and exposure to harmful substances. Factors like small firms and inexperienced workers further increase the risk of workplace injuries.

Mining and Quarrying: Mining and quarrying are hazardous industries for young workers, involving heavy lifting, physical strain, toxic dust exposure, and extreme temperatures. The work can also have psychological impacts, especially in remote areas with limited support services. As a result of these risks, child labour is prohibited in mining for those under 18.

Service Sector: The service sector, including hospitality and health services, is a growing source of employment for young workers. However, it exposes them to psychosocial

hazards such as verbal abuse, bullying, and harassment. Additionally, young workers in hospitality may face physical and psychological challenges due to repetitive tasks, prolonged standing, heavy lifting, and exposure to physical violence. In health and social services, risks include workplace violence, chemical exposure, and threats from biological agents, increasing the vulnerability of young workers to infectious diseases.

Domestic Work: Domestic work, particularly in developing countries, often remains undervalued and poorly regulated. Young workers, especially girls and migrants, face long hours, physical risks, and isolation. They are particularly vulnerable to abuse due to lack of legal protections and reporting mechanisms. Many young domestic workers sacrifice education, further increasing their vulnerability to harm.

OSH Standards that Protect Young Workers

The right to safe and healthy work is a fundamental principle that applies to all workers, including both young and adult workers. The ILO Constitution (1919) established the principle that workers should be safeguarded from sickness, disease, and injury resulting from their work. This principle was reaffirmed in the Philadelphia Declaration (1944) and has been reiterated in numerous international forums over the years.³⁸⁸

The ILO's commitment to promoting decent, safe, and healthy work is evident in its development of more than 40 international labour standards focusing on Occupational Safety and Health (OSH). These standards play a crucial role in shaping national and enterprise-level OSH policies, systems, and programs, thereby guiding the global protection of workers' health and safety.

Occupational Safety and Health (OSH) Standards and India

The protection of young workers is governed by a framework of laws and regulations aimed at

safeguarding their health, safety, and overall well-being in the workplace. Key legislative provisions are found in the Child and Adolescent Labour (Prohibition and Regulation) Act, 1986, the Factories Act, 1948, and a range of supplementary rules and policies. These standards collectively seek to prevent the exploitation of young workers, ensure they receive appropriate protections, and protect them from hazardous or unsafe working environments.

The Child and Adolescent Labour (Prohibition and Regulation) Act, 1986 is a cornerstone of India's legal framework for protecting young workers. This Act prohibits the employment of children under the age of 14 in any form of hazardous work, which includes industries such as mining, construction, manufacturing of explosives, and work involving dangerous machinery. For adolescents aged 14 to 18, the Act permits employment, but restricts them to non-hazardous work environments. Specifically, it prohibits their engagement in dangerous working conditions, including exposure to toxic substances, extreme temperatures, and high-risk environments such as factories dealing with chemicals or other hazardous materials. Additionally, the Act prohibits adolescents from working at night, typically between 7 PM and 6 AM, to ensure they are not exposed to fatigue or unsafe working conditions during late hours.³⁸⁹

The Factories Act, 1948 further strengthens protections for young workers within industrial settings. This Act focuses on ensuring the safety and health of workers, including children and adolescents. It imposes strict limitations on the number of hours young workers (under 18 years of age) are permitted to work, with a maximum of 4.5 hours per day and mandatory rest breaks³⁹⁰. The Act explicitly prohibits the employment of children under the age of 14 in factories.³⁹¹ For adolescent workers, additional safety regulations are imposed, such as a ban on night shifts, to reduce the risks associated with working late at night. The Act also

³⁸⁸ The Seoul Declaration on Safety and Health at Work (2008) emphasized that the right to a safe and healthy work environment should be recognized as a fundamental human right, not merely a labour right.

³⁸⁹ Section 70 of the Factories Act, 1948

³⁹⁰ Section 71 of the Factories Act, 1948

³⁹¹ Section 67 of the Factories Act, 1948

mandates the creation of safe work environments, requiring adequate ventilation, lighting, cleanliness, and sanitation, as well as providing access to clean drinking water, restrooms, and first-aid facilities. Regular medical examinations are also required to assess whether young workers are physically fit and not at risk of work-related health issues.

The Factories Rules, 1950, issued under the Factories Act, 1948, provide specific guidelines regarding the employment of young workers. These rules mandate that young workers undergo medical examinations at the time of employment and at regular intervals during their employment to ensure they are not suffering from work-related injuries or illnesses.³⁹² Additionally, employers must provide appropriate safety training to young workers, particularly regarding the use of dangerous machinery, handling hazardous substances, and emergency protocols. Furthermore, these rules stipulate that young workers must be supervised when performing potentially dangerous tasks.

The National Policy on Safety, Health, and Environment at the Workplace, introduced by the government, further bolsters protections for young workers. This policy promotes a culture of workplace safety and encourages employers to provide safety programs tailored to young workers. It highlights the need for education on workplace hazards, legal rights, and safety measures, particularly in workplaces involving machinery, chemicals, or dangerous working conditions.

Several states in India have enacted additional laws and welfare schemes to enhance the protection of young workers, often implementing more stringent regulations concerning working hours, permissible tasks, and safety measures. For example, states like Maharashtra and Tamil Nadu have developed their own labour laws and welfare programs that exceed the minimum requirements outlined in national laws, providing greater protection for young workers, particularly in

industries like textiles, construction, and agriculture.

Despite these legal safeguards, enforcement remains a significant challenge. Young workers, particularly in informal sectors like agriculture, still face hazardous conditions, and many laws are inadequately enforced. To address this, the government has implemented labour inspection systems, awareness campaigns, and incentive programs for compliant companies. Violations of child labour laws can result in severe penalties, including fines and imprisonment for employers found to be employing children or adolescents in hazardous conditions.

India's legal framework for protecting young workers is extensive and aims to safeguard their physical and mental well-being. By regulating working hours, prohibiting dangerous work, and promoting workplace safety, these laws aim to create safer work environments for young people. However, effective enforcement, continuous monitoring, and increased awareness are essential to ensure that these protections are fully realized and that young workers are not exposed to exploitation or unsafe working conditions.

Challenges in Implementing OSH Standards for Young Workers

Implementing Occupational Safety and Health (OSH) standards for young workers in India faces several significant challenges, despite the presence of relevant laws and regulations. These challenges include issues with enforcement, informal employment, economic pressures, cultural attitudes, and the lack of awareness.

- **Weak Enforcement**- One of the most prominent challenges is the weak enforcement of existing laws. Although India has established legal frameworks like the Child and Adolescent Labour (Prohibition and Regulation) Act and the Factories Act, enforcement remains inconsistent, especially in the informal sectors. Young workers are often employed in sectors like agriculture, domestic work, and small-scale manufacturing, where labour inspections are

³⁹² Section 69 of the Factories Act, 1948

either sparse or non-existent. Without regular inspections and oversight, many employers do not comply with safety standards, leaving young workers vulnerable to unsafe working conditions.

- **Prevalence of Informal Employment-** A large proportion of young workers in India are employed in the informal economy, where they often do not have formal contracts or official documentation. This informal employment makes it difficult for labour authorities to track young workers or ensure that they are working in safe conditions. Informal work environments, such as family-run businesses or small-scale industries, often operate with minimal regulation, further putting young workers at risk of exploitation and hazardous working conditions.

- **Economic Pressures and Poverty-** Economic necessity is another significant factor that exacerbates the challenges of implementing OSH standards for young workers. Many families in India, particularly in low-income or rural areas, rely on the income generated by their children. As a result, young workers are often compelled to accept unsafe work in hazardous conditions to help support their families. Employers may take advantage of these economic pressures by offering lower wages to young workers, knowing that they will not demand the same safety protections as adults. Despite legal prohibitions, these economic realities force many children and adolescents into dangerous environments.

- **Lack of Awareness-** Both employers and young workers often lack awareness about the potential dangers of hazardous work and the rights afforded to young workers under the law. Employers in small businesses, particularly in rural areas, may not be fully informed about the safety regulations related to young workers. Similarly, young workers may not be aware of their legal rights or the risks they face on the job. Without proper education and training, it becomes difficult to ensure compliance with OSH standards and to protect young workers from workplace injuries or illnesses.

- **Cultural Attitudes and Social Norms-** In many rural and low-income areas, cultural attitudes toward child labour and work often undermine the enforcement of OSH standards. Child labour is sometimes viewed as a necessary means of supporting the family, particularly in agriculture and domestic work. As a result, both parents and children may overlook or ignore the potential risks involved in such work. Additionally, social norms can lead to the underreporting of unsafe conditions, as the economic benefits of child labour may be prioritized over concerns about safety and health. This cultural acceptance of child labour further complicates efforts to address workplace hazards for young workers.

- **Lack of Training and Safety Measures:** Even in sectors where occupational safety and health (OSH) standards are enforced, young workers often lack proper training. They may be asked to perform physically demanding tasks or handle hazardous materials without adequate guidance or protective equipment. Employers may fail to invest in necessary safety measures, leaving young workers vulnerable to injury or illness. Without proper training in safety procedures, young workers are at higher risk of accidents or long-term health issues.

- **High-Risk Industries:** Industries such as construction, mining, and textile manufacturing are particularly hazardous for young workers. These workers are exposed to dangerous machinery, toxic chemicals, and strenuous labour. While laws restrict young workers from hazardous jobs, inconsistent enforcement allows employers to bypass regulations to cut costs. In these high-risk sectors, young workers are more susceptible to accidents or chronic health issues, yet safety measures are often inadequate or poorly enforced.

- **Exploitation of Cheap Labour:** The demand for cheap labour in industries like textiles, agriculture, and hospitality often leads to the exploitation of young workers. Employers may hire young workers for lower wages, without providing the same safety measures afforded to adult workers. This exploitation

increases the risk of unsafe working conditions, as employers prioritize cost savings over worker safety, neglecting OSH standards.

- **Insufficient Monitoring:** Many small businesses, especially in informal sectors, fail to prioritize monitoring or improving working conditions. Without regular audits, ensuring the protection of young workers is challenging. Even when safety measures are implemented, they may not be consistently enforced, creating gaps in protection. The absence of routine monitoring allows employers to neglect their responsibility to safeguard young workers.

- **Limited Resources for Labour Agencies:** Labour departments responsible for enforcing OSH regulations are often understaffed and lack the resources needed for thorough inspections. This issue is particularly prevalent in rural or remote areas, where young workers are more likely to be employed. The limited capacity of government agencies hinders the effective enforcement of OSH standards, leaving young workers inadequately protected.

While India has established a legal framework to protect young workers, barriers such as weak enforcement, informal employment, economic pressures, cultural attitudes, lack of awareness, and inadequate safety measures continue to leave young workers vulnerable. To address these challenges, India must strengthen enforcement, raise public awareness, invest in safety training, and tackle the socio-economic factors pushing young people into unsafe work. By doing so, India can create safer and healthier workplaces for its youth.

Future Directions in Young Worker Health and Safety Research (100)

Future directions in young worker health and safety research need to address the evolving challenges faced by this vulnerable group i.e., Young Workers, especially in light of technological advancements, changing labour markets and practices, and the global focus on improving occupational health and safety. Key

areas that could influence the shape of future research in this field:

- **Integration of Technology in Safety Monitoring-** As workplaces become increasingly digitized, there is significant potential for technology to improve the health and safety of young workers. Research could focus on the development and implementation of wearable safety devices, such as smart helmets, vests, or sensors, that monitor workers' physical condition and alert them to potential hazards in real time.³⁹³ These devices can detect issues like exposure to toxic substances, unsafe temperatures, or high levels of noise, providing immediate feedback to prevent accidents. Future research could explore how to integrate such technologies into workplaces where young workers are most vulnerable, ensuring that these tools are affordable and accessible.

- **Improving Psychological and Mental Health Support** - While physical injuries are often the primary focus of occupational health and safety, the mental health of young workers is equally critical. Research should examine the psychological risks young workers face in high-stress environments, such as workplace bullying, job insecurity, and long working hours. Mental well-being significantly affects overall health and productivity, making it essential to establish support systems and stress-reducing strategies in the workplace. Future studies could assess the effectiveness of mental health programs, stress management workshops, and peer support systems specifically tailored for young workers.

- **Exploring the Impact of Non-Traditional Work Arrangements** - With the rise of gig work, freelancing, and remote employment, young workers are increasingly engaged in non-traditional forms of employment. These arrangements often lack the safety protections found in traditional employer-employee relationships. Research should examine the impact of these new work structures on young workers' health and safety, particularly

³⁹³ Suresh, R. & Gupta, N., "Technology-Driven Innovations for Workplace Safety in India," *Journal of Safety Research*, 2022.

regarding long-term risks such as repetitive strain injuries from remote work or road accidents among gig workers. Addressing these challenges is critical for developing appropriate safety regulations and ensuring adequate protection for gig workers.

- **Focused Research on Vulnerable Industries - Certain industries, such as agriculture, construction, and manufacturing, present high risks for young workers. Future research could explore the specific hazards these workers face in these sectors and identify the most effective strategies for risk mitigation. For example, in agriculture, studies could focus on preventing exposure to pesticides, while in construction, research could target reducing fall-related injuries. Tailored safety protocols and industry-specific training programs can be developed to better protect young workers in these high-risk environments.**

- **Cultural Sensitivity in Safety Training - In countries like India, cultural attitudes toward work and safety may influence young workers' perceptions of their rights and responsibilities concerning health and safety. Research could investigate how cultural beliefs shape young workers' willingness to report safety violations or take necessary precautions. By understanding these cultural factors, researchers can create more effective, culturally sensitive safety training programs. This research could also explore community-based approaches to enhance safety awareness, particularly in rural or informal sectors where young workers are more vulnerable.**

- **Longitudinal Studies on Health Outcomes-** A critical area for future research is the long-term impact of young workers' early exposure to unsafe working conditions. Longitudinal studies could track the health outcomes of young workers over time, identifying the cumulative effects of poor working conditions on their physical and mental health.³⁹⁴ Such studies can provide invaluable data on the long-term

consequences of early workplace injuries or exposure to hazardous conditions, which can inform policy decisions and the development of more effective protective measures.

- **Youth Participation in Safety Governance:** Involving young workers in the development of safety policies is essential for fostering safer work environments. Research could examine the benefits of engaging youth in safety committees, thereby increasing their awareness, empowering them to report hazards, and promoting a culture of safety. International models of youth engagement in safety governance may provide valuable insights for adapting practices in India.

- **Evaluation of Safety Regulations and Policies:** Future research should assess the effectiveness of existing safety regulations for young workers, with a particular focus on enforcement and their impact in high-risk sectors. This evaluation will help identify deficiencies and inform the refinement of policies to enhance protection for young workers.

- **Addressing Intersectionality and Discrimination:** Young workers from marginalized backgrounds, such as those affected by gender, caste, socioeconomic status, or disability, are often exposed to heightened safety risks. Research on the intersectionality of these factors can guide the development of inclusive safety programs and ensure that regulations offer equitable protection to all young workers.

- **Global Collaboration and Knowledge Sharing-** Lastly, global collaboration on young worker health and safety is crucial. As work-related risks are increasingly global, researchers can explore international best practices for protecting young workers. By examining successful models from countries with strong youth labour protections, such as Scandinavian nations, India can learn from these experiences and adapt them to local contexts. Research can also explore the role of international organizations like the International Labour

³⁹⁴ Indian Journal of Public Health, "Long-Term Effects of Unsafe Work on Indian Youth," 2021.

Organization (ILO) in supporting countries in improving safety standards for young workers.³⁹⁵

Future directions in young worker health and safety research should address emerging challenges, from the impact of non-traditional work arrangements to the mental health of young workers. By focusing on technological innovations, cultural sensitivities, vulnerable industries, and long-term health outcomes, this research can help create safer and healthier working environments for young workers in the years to come.

Conclusion

Ensuring the health and safety of young workers is no simple task. It's not just about passing laws—it's about making sure these laws actually work in the real world. In India, we've got some important laws like the Child and Adolescent Labour (Prohibition and Regulation) Act and the Factories Act, but let's be honest, these are not always enforced properly³⁹⁶. There are so many challenges, especially in informal sectors like agriculture, domestic work, and small manufacturing. These areas are where you'll find the most vulnerable young workers. Without proper contracts, enough supervision, or even awareness among employers, it's easy for things to slip through the cracks, leaving these young people in unsafe situations that can harm them physically and cause long-term health issues.

The problem is even bigger when you consider the financial pressure many families face, especially in rural or low-income areas. Kids often have to work to help support their families.³⁹⁷ But the jobs they're doing? They're not safe. They work for lower wages and without the protections adult workers get. And culturally, in some places, child labour is just a given—it's how families survive. That mindset makes it really hard for families to report unsafe work

conditions, because they're more focused on immediate survival than the long-term dangers.

To fix this, we really need to focus on a few emerging areas. One of them is using technology to improve safety. Think about things like smart helmets or safety vests that could alert young workers about potential risks. These kinds of wearable devices could help, especially in jobs where regular inspections don't happen. If young workers can get real-time updates about dangerous conditions, it could make a huge difference.

But physical safety isn't the only issue. Mental health matters too. Working long hours, worrying about job stability, and dealing with workplace bullying can take a big toll on young workers. It's just as important to make sure they have access to mental health support—things like stress management workshops, peer networks, or counselling services. These can help them cope with the pressures that come with unsafe work environments.

Also, we're seeing a rise in gig work and freelancing, which brings its own set of challenges. Many of these workers don't get the same benefits or protections as traditional employees. They may not have access to the right safety equipment, and the jobs themselves can lead to repetitive injuries or accidents. It's definitely worth exploring what these non-traditional jobs mean for young workers' safety and what kind of regulations are needed to protect them.

Certain industries, like agriculture, construction, and manufacturing, also need special attention. These are high-risk jobs, and young workers in these sectors are exposed to dangerous conditions like toxic chemicals, heavy machinery, and physically demanding tasks. Research into protective measures, such as pesticide safety in farming or fall protection in construction, could help reduce the risks young workers face in these industries.

Cultural attitudes play a significant role in shaping child labour practices. In some regions,

³⁹⁵ International Labour Organization (ILO), "Global Standards and Young Worker Health and Safety," 2023.

³⁹⁶ Ministry of Labour and Employment, Government of India, "Annual Report on the Implementation of Labour Laws," 2023.

³⁹⁷ UNICEF India, "Child Labour: Causes and Challenges," 2022.

child labour is normalized, which makes it crucial to design safety programs that align with local beliefs. Community-driven awareness campaigns are necessary to educate the public about the dangers of unsafe work and challenge the notion that children should be working. Changing these mindsets is a gradual process, but it is vital for improving safety for young workers.

Tracking the long-term effects of unsafe working conditions is another essential area of research. By studying the physical and mental impact of hazardous work on young workers, we can better understand the toll it takes and advocate for stricter enforcement of safety regulations. Long-term health studies will also help highlight the extent of harm caused by unsafe conditions, strengthening the case for better protections.

It is also important to consider the specific needs of marginalized groups, such as young workers from disadvantaged backgrounds based on gender, caste, or disability. Safety programs must be inclusive, addressing these unique challenges to ensure all young workers have access to the protections they deserve.

Globally, countries like those in Scandinavia have set examples in protecting young workers. India can benefit from studying and adapting successful models to its own context. International organizations like the ILO can play a key role in sharing best practices and helping improve safety standards for young workers.

While progress has been made through protective laws, much work remains. With the rise of gig work and freelancing, we must address both physical and mental health issues. By focusing on high-risk industries, building culturally sensitive programs, and learning from global best practices, we can create safer, healthier work environments for young people. This requires strengthening enforcement while addressing the root causes of young workers' vulnerability, ensuring they have the opportunity to succeed without compromising their safety.

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