

Trauma counseling centers for psychological support to manage trauma from workplace injuries in Korea: a narrative review

Chang Sook Kim¹, Jeong-Ok Kong², Jung-Wan Koo^{2,3}

¹Eastern Gyeonggi Trauma Counseling Center for Workers, Seongnam, Korea

²Workers Health Center in East Gyeonggi, Seongnam, Korea

³Department of Occupational and Environmental Medicine, College of Medicine, The Catholic University of Korea, Seoul, Korea

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Corresponding author

Chang Sook Kim
Eastern Gyeonggi Trauma Counseling
Center for Workers, 8 Dunchondae-ro
457, Jungwon-gu, Seongnam 13218,
Korea
E-mail: ch020@hanmail.net

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This review describes a psychological support service designed to address post-traumatic stress disorder in workers impacted by workplace injuries, assisting in their recovery and facilitating their return to work. It explores the rationale and context behind establishing trauma counseling centers for these individuals, along with the status, roles, future directions, and recommendations for these centers. The review details the operational framework and functions of the workplace injury trauma management program, the scope of the impacts of such injury, the groups targeted for crisis intervention, and the psychological interventions tailored to each stage of recovery. Initiated as a pilot project in 2018, trauma counseling centers for workers have gradually become more common, with 23 centers in operation across Korea as of 2024.

Introduction

Background

Insights from workplace disasters and policy interventions

The tragic fire at the primary battery facility in Hwaseong in 2024, which resulted in numerous fatalities, serves as a grim reminder of past workplace accidents. These include the crane collapse in 2017, the fatal accident involving a conveyor at a power plant in Taejeon in 2018, and the fire at a logistics center in Icheon in 2020. These incidents have left deep scars and reignited public discourse on the importance of workplace safety. Despite a decreasing trend in the rate of fatal injuries in South Korea since 2014, the country's rates remain quite high compared to other industrialized nations [1]. For instance, in 2023, South Korea's fatal injury rate was 0.39 per 10,000 employees, which is 2.3 times higher than the average rate of 1.66 per 100,000 employees reported by EU member countries in 2022 [2].

Under Korea's Occupational Safety and Health Act, a workplace injury is defined as "any death, injury, or disease of a person who provides labor caused by structures, equipment, raw materials, gas, vapor, powder, dust, etc. related to [their] duties, or by [their] work or other duties." A "serious accident" is a severe incident that involves one or more fatalities or affects many victims [3].

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Since the implementation of the Serious Accidents Punishment Act in 2022, which applies to companies with 50 or more employees, increased attention has been paid to workplace safety systems and accident prevention [4,5].

Workplace accidents result in not only the loss of life and physical and emotional suffering for workers but also economic and social costs, including property damage and loss of productivity. For instance, the 2017 crane collapse at Samsung Heavy Industries caused six deaths and severely injured 25 workers, with over 1,000 people witnessing the tragedy either directly or indirectly. Similarly, the suicide of a stablehand in July 2017 highlighted the mental health risks that workers face, marking a pivotal moment for heightened awareness of mental health in the workplace [6].

Psychological impact of serious workplace accidents

The psychological trauma experienced by workers exposed to serious workplace accidents varies depending on the severity and proximity of their exposure. Individuals who directly witness such events are more likely to face severe psychological effects than those who do not witness them firsthand [7]. The psychological consequences of experiencing catastrophic workplace accidents can be categorized as follows:

1) Psychological disorders stemming from trauma

Traumatic experiences, such as workplace disasters, can trigger a range of mental health issues, including dissociative symptoms like depersonalization and derealization [8,9]. If these issues are not addressed, they may lead to post-traumatic stress disorder (PTSD), depression, panic disorders, substance abuse, and anxiety disorders [10–12]. Survivors may experience insomnia, intrusive memories, nightmares, impaired concentration, and hypersensitivity to noise. They may also grapple with feelings of guilt, hopelessness, and emotional detachment from others [13].

2) Intrusive responses and emotional dysregulation

Trauma survivors often report re-experiencing distressing events, feeling as if they are being repeatedly exposed to the same incident. Intrusive symptoms, a hallmark of PTSD, are frequently associated with excessive alcohol consumption used as a coping mechanism. Research indicates that individuals with severe early symptoms of PTSD are at increased risk of problematic drinking and persistent PTSD [14–17].

Workers who have been exposed to workplace accidents frequently report a lower quality of life, along with higher rates of suicidal thoughts and depressive symptoms, compared to those who have not experienced such incidents [18,19]. Factors contributing to this reduced quality of life include poor sleep, decreased motivation, depression, and anxiety, with anxiety identified as particularly key [20].

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, published by the American Psychiatric Association, recognizes that experiencing or witnessing traumatic events can result in involuntary, intrusive memories and prolonged psychological distress [21]. Similarly, the National Institute for Occupational Safety and Health has identified a range of symptoms associated with traumatic incident stress. These include chest pain, difficulty breathing, memory problems, nightmares, anxiety, guilt, fear, and uncontrollable anger, and are frequently observed following exposure to catastrophic workplace events [22].

3) Cognitive and social impacts

Trauma resulting from workplace accidents can also impact cognitive functions and social adaptability. Studies investigating the neurological effects of trauma have shown that individuals with smaller hippocampal volumes or larger cavum septum pellucidum 1 month after trauma

exposure tend to exhibit more severe symptoms at both 1 and 14 months post-trauma. These findings highlight the importance of long-term monitoring, psychological stabilization, and early intervention within the first year following exposure [23,24].

The severity of disabilities following trauma, alongside mental health challenges and reduced adaptability, significantly impacts the ability of workers to return to their jobs and maintain productivity [25,26].

Returning to work: balancing recovery and livelihood

Returning to work is often a primary concern for individuals affected by industrial accidents. However, the prospect of encountering recurring traumatic triggers in the workplace presents considerable challenges. Despite the profound psychological impact of workplace injuries, recovery is achievable.

Social support plays a critical role in protecting mental health. Research has demonstrated that social support reduces the likelihood of developing PTSD, mitigates the effects of substance abuse, and helps preserve mental well-being, even during crises such as the coronavirus disease 2019 pandemic [27].

Establishing a robust psychological support system can assist workers in navigating their trauma and developing resilience, empowering them to move forward with their lives despite the challenges.

Policy and prevention: addressing trauma at the workplace

Recognizing the urgent need to address trauma resulting from workplace injuries, Korea has enacted policies aimed at preventing and mitigating PTSD among workers who have been exposed to serious workplace accidents. In 2018, the Korea Occupational Safety and Health Agency (KOSHA) initiated a pilot program for an Occupational Trauma Center, designed to protect the mental health of workers and facilitate their recovery.

Objectives

This article provides an overview of the establishment, current operations, and future directions of the Occupational Trauma Center regarding its expanding role in supporting affected workers and promoting mental health recovery at the community level.

Ethics statement

As this study is a literature review, it did not require institutional review board approval or individual consent.

Purpose and status of Occupational Trauma Centers

According to data from the Ministry of Employment and Labor, the number of workers covered by industrial accident compensation insurance has steadily increased annually, rising from 15.44 million in 2013 to 19.07 million in 2018 before reaching 20.63 million in 2023 (Fig. 1). In the context of work-related injuries, the approval rate for PTSD claims has increased from two cases in 2011 to 83 in 2021, representing a 40-fold surge (Table 1). This trend reflects a growing societal recognition of post-traumatic stress as an occupational disease.

Job trauma refers to the psychological and physical responses—including fear, anxiety,

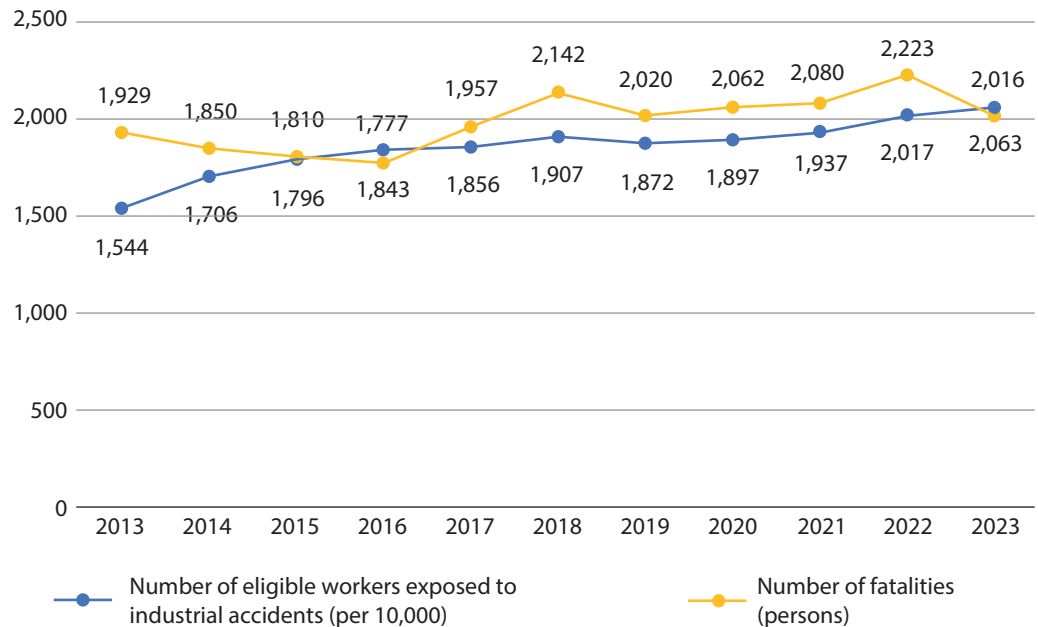


Fig. 1. Number and rate of fatalities due to industrial accidents. Data from Ministry of Employment and Labor [1].

Table 1. Mental health disorders associated with occupational injuries (2011–2022)

Category	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Applications	102	127	137	137	165	183	213	268	331	581	720	678
Approvals	26	47	53	47	63	85	126	201	231	396	515	445
Approval rate (%)	25.5	37	38.7	34.3	38.2	46.4	59.2	75	69.8	68.2	71.5	65.6
Depression	14	15	14	17	17	14	52	72	66	113	113	80
Adjustment disorder	2	11	5	11	13	21	32	53	78	162	248	227
Acute stress disorder	4	7	14	3	9	5	8	15	15	23	10	26
Post-traumatic stress disorder	2	7	9	9	14	25	21	36	39	55	83	63
Anxiety disorder	2	1	2	3	2	4	1	5	13	19	21	23
Others	2	6	9	4	8	16	12	20	20	24	40	26

Data from Korea Workers' Compensation & Welfare Service [28].

and anger—that emerge after direct or indirect exposure to a significant industrial accident or comparable event in the workplace [29]. In 2014, the Worker Health Center in East Gyeonggi initiated programs aimed at stabilizing acute stress and preventing post-traumatic stress among manufacturing workers affected by workplace accidents, whether directly or indirectly. These initiatives highlighted the importance of psychological interventions in the aftermath of such incidents, prompting the Center to seek appropriate countermeasures.

In 2017, a crane accident in the heavy industry sector resulted in numerous casualties and public outcry. At the time, no specialized system had been implemented to address trauma among workers impacted by such an event. This large-scale disaster underscored the critical need for occupational trauma management to alleviate post-traumatic stress and support workers' return to their jobs following industrial accidents. In response, a pilot Occupational

Trauma Center was established in Daegu in 2018, with a focus on addressing industrial accidents throughout the nation for a 2-year period [30]. By 2020, the initiative had expanded to include eight centers across the country. As of 2024, Korea has a total of 23 such centers operating under the jurisdiction of KOSHA, which also oversees on-site accident investigations to ensure effective coordination with affiliated organizations.

Occupational Trauma Centers are located within Worker Health Centers across the country. Each trauma center is staffed with two counseling psychologists and equipped with private consultation rooms to promote psychological safety. Table 2 details the annual operational status of these centers [31].

Occupational Trauma Management Program and operational framework

The Occupational Trauma Management Program is a psychological support initiative designed to alleviate the emotional impact on workers who have experienced serious workplace accidents, work-related injuries, or incidents such as a colleague's intentional self-harm, workplace violence (including bullying), and verbal or physical abuse from customers. This program is designed to support workers in their return to their jobs. In the case of serious workplace accidents, where the extent of damage and worker exposure may be extensive, timely coordination of post-incident psychological support is crucial. Following an accident, a rapid assessment is conducted to evaluate each affected individual's level of exposure, the extent of the impact, relationships with injured parties, available support systems and resources, and the company's response to the accident. This ensures that high-risk groups can be prioritized for psychological support.

When a serious workplace accident occurs, referrals can be made through the following channels:

First, in the event of a serious workplace accident, the local branch (or sub-branch) of the Ministry of Employment and Labor responsible for investigating the scene may inform the affected workplace and recommend the implementation of the Occupational Trauma Management Program. The incident can be referred to the Occupational Trauma Center if the workplace has 50 or more employees; if two or more fatalities have occurred, resulting in widespread exposure; or if the accident has generated substantial public concern. Additionally, if investigators interviewing witnesses of a significant industrial accident determine that occupational trauma management is necessary, they have the authority to notify the local KOSHA office (Fig. 2).

Table 2. Operational status of Occupational Trauma Centers in Korea by year

Year	Number of centers opened	Centers
2018–2019	1	Pilot center with national jurisdiction (Daegu Occupational Trauma Center)
2020	8	Eastern Gyeonggi, Western Gyeonggi, Gyeongnam, Gwangju, Bucheon, Daegu, Daejeon, Incheon
2021	5	Northern Gyeonggi, Ulsan, Jeonju, Jeju, Chungnam
2023	1	Geoje
2024	9	Gangwon, Southern Gyeonggi, Northern Gyeongbuk, Gyeongsan, Busan, Seoul, Western Seoul, Chungbuk, Eastern Jeonnam

Data from Korea Occupational Safety and Health Agency [31].



Fig. 2. Operational framework of the occupational trauma management program. Data from Korea Occupational Safety and Health Agency [28].

Second, when investigating a serious workplace accident, the Central Accident Investigation Team of KOSHA may recommend and promote the implementation of the Occupational Trauma Management Program.

Third, the Occupational Trauma Management Program may be activated following a serious workplace accident or incident if either the workplace or individual workers recognize the need for occupational trauma management and request psychological support.

Furthermore, in the event of large-scale accidents—such as the 2020 fire at the Logistics Center in Icheon or the 2024 fire at a primary battery plant in Hwaseong—that result in a significant number of casualties and widespread exposure among workers, response efforts may extend beyond jurisdictional boundaries through coordinated requests among government ministries [32].

Additionally, it is crucial to regularly monitor KOSHA's reports on fatal accidents, regardless of whether a request for occupational trauma management has been made. Access to up-to-date information about accidents and the number of victims within the relevant jurisdiction can facilitate rapid intervention.

Psychological responses by post-accident phase

Psychological states—including physical, emotional, cognitive, and behavioral aspects—evolve following an accident. Within 48 hours after the event, individuals typically enter a period of shock, while within 7 days of the incident, they begin to distance themselves from the immediate psychological impact. Recovery rates vary from person to person. The period from 1 week to 1 month after the accident is generally regarded as the recovery phase. This is followed by a period of adaptation, which facilitates reintegration into daily life (Fig. 3). The following overview summarizes each phase in the Occupational Trauma Management Program's psychological response following an accident.

Emergency response phase (within 7 days of the incident)

During this stage, intrusive symptoms are highly active. Survivors may experience guilt, a sense of loss, anger, grief, irritability, dissociation, flashbacks, nightmares, and insomnia, with these symptoms collectively peaking in severity for up to a week. Symptoms observed between 3 days and 1 month after exposure meet the criteria for acute stress reaction, with PTSD being diagnosed after 1 month. The primary goal is to stabilize the individual psychologically; however, debriefing about the event can trigger re-experiencing, so caution is advised [33,34].

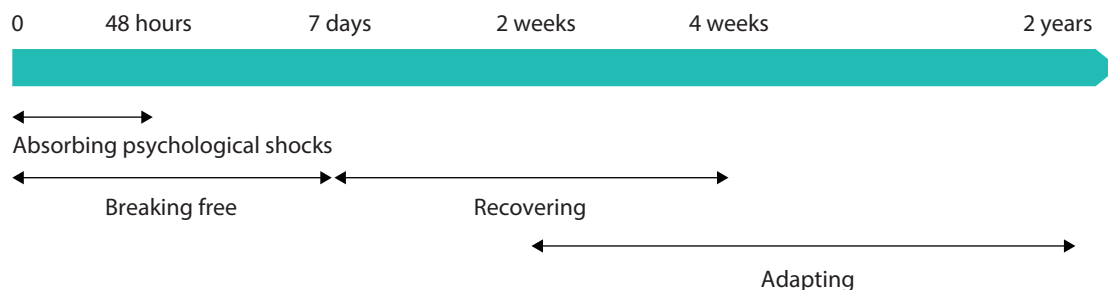


Fig. 3. Changes in psychological responses by phase after exposure to or witnessing of an accident. Data from Korea Occupational Safety and Health Agency [29].

If an individual exhibits extreme psychological and physical reactions in the early stages, it is crucial to establish a safe environment where they can access counseling services to achieve psychological stabilization. Survivors should not be compelled to share personal thoughts or emotions about the incident [35]. If symptoms are not severe, clinicians should encourage the maintenance or swift resumption of daily activities and recommend medication if necessary. Additionally, they should endeavor to prevent isolation and to pay close attention to any difficulties the worker reports.

As an example, the Eastern Gyeonggi Occupational Trauma Center has an emergency response team—consisting of an occupational and environmental medicine specialist, a counseling professional, and a musculoskeletal disorder prevention specialist—in place for rapid crisis intervention. Depending on the needs of the workplace and workers, nursing or occupational hygiene professionals may also be added to the team (Table 3).

The primary targets for emergency intervention are detailed in Table 4. In cases of physical injury, psychological intervention can occur after appropriate medical treatment has been administered. Individuals who initially discover or respond to accidents, such as safety managers and health managers, may also be at high risk for PTSD and are therefore prioritized for support [36].

Early response phase (8 days to 1 month after the incident)

During the early response phase, symptoms of post-traumatic stress may intensify, including insomnia, major depression, alcohol dependence, and anxiety. The primary objective of management is to prevent the development of PTSD, sleep disorders, major depression, anxiety disorders, alcohol dependence, and suicidal behavior. At this stage, clinicians typically administer screening assessments, such as tests for post-traumatic stress reactions, physical responses, emotional issues like depression or anxiety, and suicidal ideation. Formal counseling is often initiated at this point. Any ongoing acute stress reactions must also be monitored. Individuals with mild symptoms are encouraged to practice self-care and resume their daily activities. However, if recovery is not observed after 1 month, or if severe insomnia, panic disorder, or an exacerbation of pre-existing mental health conditions occur within this first month, the use of psychiatric medication may be considered.

Mid-term response phase (1 to 3 months after the incident)

Starting at the 1-month mark, the objective is to reduce symptoms of PTSD and prevent lasting effects. During this period, an individual may be formally diagnosed with PTSD. While many people begin to show improvement or recovery, those who do not should receive ongoing

Table 3. Crisis intervention programs offered by the Eastern Gyeonggi Occupational Trauma Center

Focus area	Support personnel	Activities
Psychological education	Counseling specialist	- Education on physical, cognitive, emotional, and behavioral trauma responses - Information on recovery processes - Referral to trauma counseling services
Physical stabilization training	Musculoskeletal disorder Prevention specialist	- Muscle relaxation through physical exercises - Promotion of body awareness and preventing dissociation
Medical and psychological assessment	Occupational and environmental medicine Specialist	- Medical diagnosis of pre-existing and physical conditions - Assessment of psychological state
	Counseling specialist	- Initial psychological evaluation for stress and emotional responses
Psychological stabilization	Counseling specialist	- Counseling to prevent hyperarousal and dissociation - Expansion of emotional safety and promotion of psychological comfort - Individual or group counseling
Administrative support	Office manager	- External cooperation and scheduling - Support during mobile counseling
Work environment improvement	Occupational environment specialist	- Consultation to ensure safety in the accident area

Data from Eastern Gyeonggi Occupational Trauma Center.

Table 4. Victims and priority groups for crisis intervention

Victim type	Description
Primary victims	Survivors experiencing physical injuries or psychological trauma
Secondary victims	Witnesses or responders to fatalities or injuries, accident response managers, team members of victims, roommates, or others feeling responsible for the incident
Program eligibility	Includes directly affected individuals, first responders, safety managers, health officers, colleagues with close personal ties to victims, and coworkers or roommates

Data from Korea Occupational Safety and Health Agency [37].

follow-up. Most individuals are capable of resuming their daily activities, with the option of receiving further counseling if necessary.

Long-term response phase (3+ months after the incident)

The long-term response is the stage of follow-up designed to alleviate any residual effects of post-traumatic stress. At this point, most individuals can fully resume normal activities, and the restoration of regular routines is encouraged. However, in workplaces where multiple accidents have occurred, gradual recovery may require flexible adjustments to the number of counseling sessions.

From a managerial perspective, once an accident occurs, operations at the workplace should be temporarily halted to prevent secondary incidents. Exposed workers must be monitored for potential sleep, dietary, health, or psychological issues, and transparent information should be provided to prevent misunderstandings or mistrust regarding the incident. Workers who require it should be granted time off or leave to support their psychological well-being. Those affected should be separated from the accident site and public areas, and if the demands of their job are high, they should be temporarily reassigned to lighter duties to avoid overwork. If any individual experiences chest pain, difficulty breathing, severe pain, extreme anxiety, or insomnia, management should ensure they have access to appropriate medical care [37].

Crisis intervention methods and case examples

Before any crisis intervention takes place, it is essential to establish the objectives and process of psychological intervention and adapt them to the specific workplace environment. A private counseling area that fosters a sense of safety should be designated, and efforts should be made to offer psychological services to all exposed workers, ensuring clear advance communication to avoid misunderstandings. Research has shown that employing multiple intervention methods is more effective than relying on a single approach [38].

The Occupational Trauma Management Program involves a variety of crisis intervention strategies. These include group-based psychological education aimed at immediate stabilization, individual and group counseling, and follow-up services.

Psychological education

This training provides trauma education based on Psychological First Aid (PFA), with core principles including the neurophysiological foundations of physical, emotional, cognitive, and behavioral responses, as well as the processes of arousal control, normalization, and validation. The safety of survivors should be promoted and emphasized [39]. PFA is widely endorsed by experts as a key early intervention for individuals affected by disasters and is considered the standard for mental health and psychosocial support in catastrophic or extreme conditions [40]. One advantage of psychological education is its capacity to address many individuals simultaneously. Its objectives are to promote personal awareness of acute reactions (such as anxiety or fear), increase psychological stability, and prepare individuals for potential future psychological shifts. When feasible, this education is offered during the emergency and early response phases, although the timing can be adjusted as necessary (Table 5). Additionally, psychological education can help support physical safety when integrated with activities like group stretching or muscle relaxation exercises.

Individual counseling

Sessions are conducted on a one-on-one basis and typically last between 40 and 60 minutes. The details can be adjusted depending on the individual's level of exposure and the degree of trauma. If medical treatment or medication is required, psychiatric referrals can be made. Initial sessions are generally focused on stabilization; once individuals can self-regulate, they proceed to processing memories and mourning, and ultimately to reintegration and resuming their daily

Table 5. Processes and activities associated with psychological support for witnesses to workplace fatalities at a manufacturing company

Processes	Activity
Collaboration request	- The local branch of the Ministry of Employment and Labor or KOSHA sent a request to the Occupational Trauma Center for collaboration on the case. - The Occupational Trauma Center coordinated with the health and safety manager of the company to select workers who required psychological support.
Rapid intervention	- The Occupational Trauma Center formed an emergency response team. - The emergency response team administered a psychological and physical stabilization program. - Psychological evaluations for trauma, depression, and anxiety were conducted along with individual counseling.
Worker recovery support	- Two to nine sessions of individual psychological counseling were provided. - Follow-up evaluations were completed at 1 month, 6 months, and 3 years after the accident.

KOSHA, Korea Occupational Safety and Health Agency.
Data from Eastern Gyeonggi Trauma Counseling Center.

activities [41]. The degree of early stabilization may be indicative of prognosis.

Group counseling

Approximately 10 workers experiencing similar levels of shock may participate in a group. If an individual's symptoms are severe, one-on-one counseling is preferable. Group members can verbalize or use other media to express their grief and shock, collectively engage in mourning processes, and contribute to psychological healing. At the initiation of group counseling, rules should be established to prevent secondary trauma, such as avoiding blame or accusations.

Follow-up

Follow-up services begin when individuals have largely returned to normal functioning and are approaching discharge from the program. These services aim to prevent relapses and verify successful adaptation.

The following brief example from a crisis intervention for witnesses of a fatal accident at a workplace in the eastern Gyeonggi region illustrates how psychological support can facilitate post-accident intervention.

When the Occupational Trauma Management Program intervention was applied, individual recovery times varied. Nonetheless, psychological assessments conducted at 1 month, 6 months, and 3 years after the accident revealed reductions in post-traumatic stress, depression, and anxiety to more stable levels compared to initial measurements. These outcomes are illustrated in Fig. 4.

Role of the Occupational Trauma Center

Occupational Trauma Centers were established to prevent post-traumatic stress among workers exposed to sudden workplace accidents and to support their return to normal life and

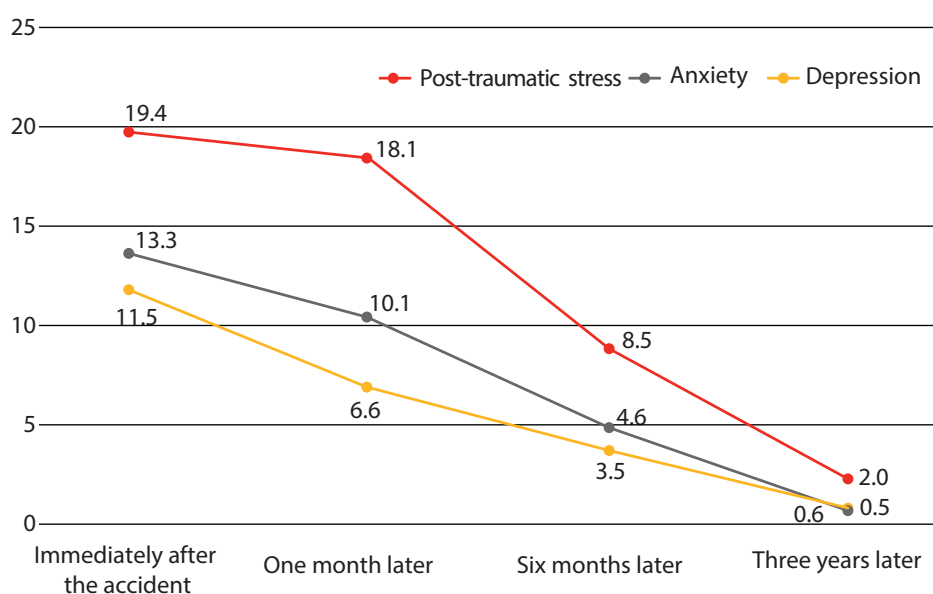


Fig. 4. Changes in post-traumatic stress and emotional state among workers receiving psychological support. Data from Kim et al. [24].

work. The Occupational Trauma Management Program plays a key role in safeguarding the mental health of workers impacted by workplace injuries. As of 2024, a total of 23 Occupational Trauma Centers have been established within Worker Health Centers across Korea, aligning with the jurisdictions of local branches of the Ministry of Employment and Labor.

The key prerequisites for Occupational Trauma Centers to foster psychological safety and ensure prompt stabilization for workers are as follows:

1) Timely intervention after workplace accidents: Early interventions, including PFA and community-based trauma care, are vital for improving outcomes for survivors [42]. When investigating industrial accidents, local offices of the Ministry of Employment and Labor should actively recommend the implementation of the Occupational Trauma Management Program.

2) Regional accessibility: Korea now has 23 Occupational Trauma Centers operating within Worker Health Centers, making psychological interventions for industrial accidents in nearby jurisdictions more accessible than ever. The availability of on-site services helps to alleviate the time and financial burdens faced by businesses.

3) Follow-up for exposed workers: Monitoring is necessary to prevent secondary trauma, track worker recovery, and evaluate the ongoing efficacy of treatment.

Conclusion

In the context of workplace injury, it is imperative to raise awareness about the need for collaboration among relevant agencies, workplaces, and individuals to safeguard the mental health of victims and to ensure that the hidden suffering associated with high rates of work-related fatalities is addressed. Employers must recognize that preventing post-traumatic stress is key to helping workers resume their duties and minimizing lost labor time.

Going forward, Occupational Trauma Centers must emphasize public accessibility, professional expertise, and diverse empirical research to validate the effectiveness of the program, as follows.

Public accessibility

Nationwide legislation is required to protect workers' mental health following workplace accidents. Such legislation would increase awareness of mental health in the workplace, facilitate prompt access to psychological services for affected individuals, and promote the consistent implementation of Occupational Trauma Management Programs. Although improving accident investigation systems to prevent recurrence is crucial, now is also the time for active referral to and promotion of Occupational Trauma Centers to avoid secondary psychological harm resulting from accidents.

Professional expertise

A training system for occupational trauma experts must be established. Specialized counseling personnel—trained to address industrial disasters, as these differ from other forms of disaster or personal trauma—are needed. It is essential to develop a structured educational system that considers variations by timeframe, recovery phase, and risk level, and that supports the acquisition of empirically verified techniques. Such a system is crucial for the continuous improvement of professional standards in the field of industrial accident trauma counseling.

Empirical research

To evaluate the Occupational Trauma Management Program, a variety of empirical studies are

necessary. More experts are encouraged to generate evidence-based findings regarding the effectiveness of psychological interventions after industrial accidents.

Large-scale workplace accidents continue to occur, and climate change has led to an increase in significant catastrophes. Consequently, there is a growing need for collaborative responses across multiple agencies. Extending beyond public institutions, more robust networks of occupational health managers must be fostered within workplaces. Such networks would ensure that community-based systems can operate effectively to safeguard the mental health of workers affected by workplace accidents.

ORCID

Chang Sook Kim: <https://orcid.org/0009-0002-5950-6180>

Jeong-ok Kong: <https://orcid.org/0009-0008-9911-8637>

Jung-Wan Koo: <https://orcid.org/0000-0001-8306-0292>

Authors' contributions

Project administration: Kim CS, Kong JO, Koo JW

Conceptualization: Kim CS, Kong JO

Methodology & data curation: Kim CS, Kong JO

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Writing – Original draft: Kim CS

Writing – review & editing: Kim CS, Kong JO, Koo JW

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