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ONUR DOĞAN[1*]

POST-ACCIDENT RISK PERCEPTION, OCCUPATIONAL TRAUMAS, AND TRANSFORMATIONS IN PROFESSIONAL RESILIENCE: A PHENOMENOLOGICAL STUDY ON OCCUPATIONAL SAFETY SPECIALISTS IN THE MINING SECTOR

This study aims to examine the occupational traumas experienced by occupational safety specialists following fatal, limb-loss, and serious injury-related workplace accidents, as well as the impact on their safety perceptions and the preventive strategies they develop.

This research was conducted using a phenomenological approach, which is a type of qualitative research design. In-depth semi-structured interviews were carried out with 14 occupational safety experts working in various regions of Turkey. Criterion sampling was used to select participants. The data obtained were systematically analysed using thematic analysis. Interviews continued until data saturation was reached, and recurring patterns were observed. The research process and the reporting of findings were structured in accordance with the COREQ checklist. The study identified three main themes: occupational trauma, altered risk perception, and new safety strategies. These reflect specialistic psychological and professional changes following workplace accidents. The study offers insights into how occupational safety specialists adapt their policies and improve safety culture after serious accidents. It emphasises changes in precautionary approaches and their role in fostering safer workplaces. Key policy and cultural enhancement recommendations are also proposed.

Keywords: Occupational safety specialists; Phenomenological research; Occupational trauma; Safety culture; Risk perception

1. Introduction

The mining sector, which encompasses both metallic and non-metallic mineral extraction, is a strategically significant industry for the economic development of many countries [1]. This significance also positions mining as one of the most hazardous industries globally. The

[1] GÜMÜŞHANE ÜNIVERSITESI, TÜRKIYE

* Corresponding author: onur.dogan5065@gmail.com

inherently risky nature of the mining sector is not limited to physical dangers; workers often operate in remote and isolated areas, under shift-based systems and high production pressure, which can lead to significant psychological challenges [2]. Employees in mining operations face substantial risks due to the frequent occurrence of occupational accidents, diseases, and fatal incidents [3,4]. Therefore, establishing a comprehensive, sustainable, and effective occupational health and safety (OHS) system and continually improving it is of critical importance to protect workers' health and well-being.

Hazards encountered in mining workplaces are often not static; they may vary due to environmental and operational factors. Consequently, it is essential to develop dynamic, flexible, and preventive mechanisms that not only address existing threats but also anticipate potential future risk scenarios [5]. The safe and efficient operation of heavy machinery in both surface and underground mining depends not only on technological competence but also on the employment of skilled, experienced, and well-trained personnel. However, factors such as the shortage of qualified labour, neglect of periodic equipment maintenance, and the application of incorrect operational techniques are among the key contributors to the frequency of accidents and occupational illnesses in the sector [6]. In this context, occupational safety specialisation remains an evolving professional field globally and is practised under various titles within institutional structures. These titles may include occupational health and safety officer, safety engineer, OHS technician, OHS coordinator, or occupational safety manager. Despite the differences in titles, individuals in these roles share similar responsibilities as members of the same professional domain [7]. According to Law No. 6331 on Occupational Health and Safety in Turkey, the roles of occupational safety specialists are categorised into five main areas: guidance, risk assessment, workplace monitoring, training of employees, and coordination of internal organisational cooperation. Within this scope, specialists actively participate in field practices, provide recommendations for improvement, and oversee the functionality of implemented safety measures [8,9]. These professionals play a crucial role in preventing workplace accidents. However, following serious incidents, especially those resulting in death or permanent injury, there can be significant changes in their perspectives on the profession, psychological resilience, and risk assessment strategies. Nonetheless, existing literature includes only a limited number of studies that explore the psychological and ethical challenges occupational safety experts face after such critical incidents. Research suggests that even professionals who are not directly exposed to an accident but are involved in its aftermath may experience traumatic effects, which can influence their ethical decision making and professional commitment [10-12]. Iavicoli and colleagues (2018) [11]. emphasise that in today's modern work environment, OHS professionals must be equipped not only with technical skills but also with a strong ethical compass. Lurie (1994) [12]. also notes that those working in occupational health may experience identity conflicts due to the tension between employer demands and employee rights. These ethical dilemmas are particularly intensified following severe accidents, prompting safety professionals to reassess both their psychological state and professional role. On another note, Rogers, Schill, and Punnett (2021) [10] highlight that occupational safety experts must be able to cope not only with physical hazards but also with psychosocial stressors. They advocate for integrated frameworks such as the Total Worker Health approach to address this need. However, the limited literature in this field points to the necessity of further in-depth exploration. This study explores how occupational safety specialists in the mining sector redefine their professional identity and decision-making following serious workplace accidents. Using a phenomenological approach, it examines emotional impacts, ethical dilemmas, and evolving safety strategies. The findings highlight the importance of integrating psychosocial and ethical

dimensions into OHS practices. Recommendations are offered for both practitioners and policy-makers to enhance post-accident resilience and systemic safety improvements.

2. Method

To ensure quality assurance in the processes of qualitative data collection and presentation, the researcher adhered to internationally recognised standards for reporting qualitative research. In this context, all reporting stages of the study were structured in accordance with the principles outlined in the COREQ (Consolidated Criteria for Reporting Qualitative Research) guideline [13] (TABLE 1).

TABLE 1

Consolidated Criteria for Reporting Qualitative Research **(**COREQ**)** [13]

Domain 1: Research team and reflexivity

Personal characteristics

Number	Item	Guiding Questions	Explanations
1	**2**	**3**	**4**
1	Interviewer/ Facilitator	Which author(s) conducted the interview or focus group?	All interviews conducted during the data collection process were carried out by a single researcher.
2	Identity Information	What were the researcher's identity details? For example, PhD, MD.	Corresponding Author: PhD
3	Profession	What were their professions during the study?	First Author: Assistant Professor, Occupational Health and Safety
4	Gender	Was the researcher male or female?	Researcher: Male
5	Experience and Education	What experience or training did the researcher have?	The researcher possesses a specialized academic background in qualitative research methodologies.

Relationship with participants

6	Relationship Status	Was a relationship established before the training began?	No contact or preliminary meetings were held with the individuals participating in the study prior to the data collection phase.
7	Interviewer's Participant Information	What did the participants know about the researcher? For example, personal goals, reasons for	Participants were already aware, prior to the interviews, that the researcher conducted academic work in the field of occupational health and safety and held doctoral level expertise in mining.
8	Interviewer Characteristics	What characteristics of the interviewer/ facilitator were reported? For example, bias on the research topic, assumptions, reasons, and areas of interest.	Before the interviews began, participants were provided with clear and detailed information about the study's aims and the key topics to be addressed.

Domain 2: Study Design

Theoretical framework

9	Methodological Orientation and Theory	The study was supported by a phenomenological approach, focusing on participants' lived experiences and perceptions regarding occupational safety incidents in the mining sector.	The study was conducted based on qualitative research approaches.

Participant selection

10	Sampling	The participants were selected using purposive sampling.	In this study, criterion sampling, one of the purposive sampling methods, was utilized.
11	Approach method	How were the participants approached (e.g., face to face, phone, mail)?	The interviews were scheduled according to the availability of individuals who voluntarily agreed to participate.
12	Sample size	How many participants were involved in the study?	A total of fourteen individuals were included as participants in this study.
13	Non-Participation	Did any participants refuse to participate or withdraw from the study?	All individuals contacted for interviews expressed their willingness to participate in the study.

Setting

14	The setting of data collection	The data was collected in the workplace.	Detailed explanations regarding the data collection process are provided extensively in the relevant section of the text.
15	Presence of Non-Participants	No, there was no one else present besides the participants and the researcher during the interviews.	During the data collection process, only the researcher was actively involved, and no external observer participated in the study.
16	Description of the sample	What are the key characteristics of the sample? For example, demographic data, date.	Individuals who voluntarily gave their consent were included in the study.

Data collection

17	Interview guide	The questions, prompts, and guides were provided by the authors. They were pilot tested before implementation.	Detailed information on the subject is thoroughly presented in the methodology section.
18	Repeat interviews	Were follow up interviews conducted? If yes, how many?	Each participant was interviewed only once, and no follow up sessions were scheduled.
19	Audio/visual recording	Was audio recording or visual recording used to collect data in the study?	To ensure the integrity of the data, all interviews were documented through audio recordings.
20	Field notes	Were field notes taken during and/or after the interview or focus group?	All data, including participants' statements and the researcher's observations, were thoroughly recorded and documented.

21	Duration	What was the duration of the interviews or focus groups?	Depending on the depth of participants' responses, the duration of the interviews ranged between 30 and 50 minutes.
22	Data saturation	Was data saturation discussed?	The diversity of the data set and the recurrence of the identified themes were carefully examined.
23	Transcripts returned	Were the transcripts returned to the participants for comments and/or corrections?	No

Domain 3: Data analysis

24	Number of data coders	How many data coders coded the data?	All phases of the study from design to data collection, analysis, and reporting were independently conducted by one researcher.
25	Description of the coding tree	Did the authors provide a description of the coding tree?	The headings and subheadings in the results section were structured in alignment with the finalized coding framework.
26	Derivation of themes	Were the themes predetermined or were they derived from the data?	The themes were developed based directly on the narratives provided by the participants during the analysis process.
27	Software	If applicable, which software was used to manage the data?	All data were manually processed by the researcher and subjected to a comprehensive analysis.
28	Participant verification	Did the participants provide feedback on the findings?	Participants were not contacted again after the completion of the study.

Reporting

29	Presented quotations	Were participant quotes presented to illustrate the themes/findings? Was each quote identified, e.g., by participant number?	The data obtained through analysis were reinforced with direct quotations from participant statements.
30	Data and findings consistent	Was there consistency between the presented data and the findings?	The findings were observed to emerge consistently in line with the collected data.
31	Clarity of main themes	Are the main themes clearly presented in the findings?	Yes
32	Clarity of sub-themes	Is there an explanation of different cases or a discussion of minor topics	Yes

2.1. Study Design

This study explores the occupational traumas and evolving risk perceptions of 14 safety specialists after serious mining accidents in Turkey. Using semi-structured interviews, it examines their psychological and professional transformations. The findings highlight how such incidents reshape safety strategies and professional identity.

2.2. Research Team and Reflexivity

In addition, the interviews were conducted by the same researcher, who is competent in the field of occupational health and safety and has previously carried out academic studies on workplace risks and employee well-being. The researcher combined his experience in the mining sector with field observations, approaching the participants' traumatic experiences from a holistic perspective. Although he had a particular interest in the psychosocial dimensions of substance use and risk perception, he remained aware of his own biases and adopted a critically reflexive stance throughout the process. To maintain neutrality, the interviews were conducted in an open, natural, and flexible manner, allowing the themes to emerge organically from the participants' narratives rather than being guided by the researcher's expectations. This approach preserved the authenticity of the data, enhanced the credibility of the study, and added depth to the analysis [13,29].

2.3. Study Group

In this study, criterion sampling, a purposive sampling strategy, was used to select participants. This method ensures the inclusion of individuals who meet specific criteria, thereby facilitating access to the most relevant sources of data aligned with the study's objectives [15,16]. The study commenced with occupational safety specialists working in mining enterprises located in various geographical regions of Turkey. In-depth semi-structured interviews were conducted and continued until data saturation was reached, when responses began to repeat and no new information emerged. Ultimately, interviews were completed with a total of 14 participants. The criteria for inclusion in the study were as follows: (a) being actively employed in the mining sector, (b) possessing sufficient communication and expression skills, and (c) voluntarily consenting to participate in the study. Individuals were excluded if they (a) had difficulty communicating effectively or (b) declined to take part in the research [17]. To explore the experiences of occupational safety specialists, a two part interview form was developed. The first section gathered demographic and professional data, while the second included open ended questions on workplace safety experiences. Probing questions were used to deepen responses. Interviews were audio recorded, transcribed, and analysed systematically. The process adhered to COREQ guidelines for qualitative research reporting [13]. Sample Interview Questions:

1. When you witnessed a workplace accident or managed its aftermath, how did it make you feel? How did the incident affect you psychologically? Did your thoughts regarding your professional identity and responsibilities change after the accident?
2. Following a fatal, disabling, or severe injury-related accident, did your perception of whether such events are preventable change? Were there times when you questioned the adequacy of preventive measures? Did you modify your risk management approach after the incident?
3. How was your communication with employers, supervisors, and workers affected after a major workplace accident? Do you believe you received adequate support from employers? Were there situations in which you struggled to implement your safety-related decisions following the accident?
4. Did you ever consider leaving your job after an accident? Have there been any changes in your professional commitment or career goals? Did your experiences with workplace accidents increase or decrease your motivation to progress in your profession?

5. After fatal or disabling accidents, has your approach to safety training changed? Have you ever felt the need to develop alternative methods to enhance workers' safety awareness? What are your observations regarding workers' attitudes toward complying with safety rules?
6. After the incident, were there moments when you questioned the correctness of your decisions as a safety specialist? What additional measures did you find necessary to reinforce your occupational safety practices? How did the incident affect your professional satisfaction and motivation?

2.4. Data Analysis

In this study, data analysis was conducted using Colaizzi's (1978) [18,19]. phenomenological approach, following a seven step method. The interview transcripts were reviewed by a single researcher, and significant expressions were identified to form themes. The validity of these themes was ensured through expert consultation and a collaboratively developed analytical framework. Themes were derived from participants' authentic narratives and supported by direct quotations to maintain transparency throughout the analysis process [20]. Using direct quotations from participants enhanced the clarity of the analysis and increased the credibility of the study's findings [29]. To enhance the transparency of the analysis, the data were examined in detail following [19] phenomenological steps. Key expressions were extracted from each transcript and assigned initial codes such as anticipatory anxiety or self doubt. Related codes were then grouped into broader meaning units and refined into subthemes, including psychological stress**,** ethical dilemmas**,** and professional adaptation. These subthemes were finally synthesised into three overarching themes: occupational trauma**,** changes in risk perception**,** and professional resilience, ensuring analytical depth and methodological rigour [20,31]. Furthermore, to ensure the study's trustworthiness, we followed Lincoln and Guba's (1985) [30] framework. Credibility was enhanced through repeated readings of the transcripts and expert/peer debriefing during coding; dependability was supported by maintaining an explicit audit trail of analytic decisions; confirmability was strengthened via constant comparison with raw data and reflexive note keeping; and transferability was addressed by providing thick, contextual descriptions of participants and settings [29,30].

2.5. Ethical Considerations

This study was approved by the Gumushane University Scientific Research and Publication Ethics Committee (E-95674917-108.99-322227, 2025/4). Participants were informed about the study and provided written consent before the interviews. All procedures were conducted in accordance with the Declaration of Helsinki and national ethical principles, ensuring participant confidentiality.

3. Findings

The study included fourteen occupational safety specialists working in different mining operations across Turkey. The participants' average age was 38.9 ± 8.3 years (ranging from 25 to 58), and their professional experience averaged 12.3 ± 5.2 years (ranging from 5 to 20).

Most of them were male (n = 10) and married (n = 11), while the majority held higher education degrees (n = 13). All participants were employed in underground mining operations (n = 14), with one also carrying out additional responsibilities in surface or facility based activities. The group represented a variety of mining environments, including metal, coal, and marble extraction. Several participants had witnessed or managed serious workplace accidents such as collapses, falls from height, and limb injuries, whereas a few stated that they had not experienced any accidents during their careers. This diversity in demographic and experiential backgrounds provided a rich understanding of how occupational traumas influence risk perception, professional resilience, and preventive safety strategies. Detailed demographic characteristics of the participants are presented in TABLE 2.

TABLE 2

Personal characteristics

Participant number	**Age**	**Gender**	**Marital status**	**Educational status**	**Work experience**	**The most severe work accident experienced**	**Work area: underground /surface**
K1	49	Male	Married	Undergraduate education	13 years	Limb entrapment	Underground
K2	25	Male	Single	Associate degree	5 years	Material strike	Underground
K3	38	Male	Married	Undergraduate education	12 years	Collapse	Underground
K4	35	Male	Single	Master's degree	8 years	Limb loss	Underground
K5	34	Female	Married	Master's degree	7 years	Material strike	Underground
K6	37	Male	Married	Master's degree	11 years	Limb entrapment	Underground
K7	39	Male	Married	Master's degree	16 years	Electric shock	Underground
K8	58	Female	Married	Master's degree	19 years	Material collision	Underground
K9	35	Female	Married	Undergraduate education	5 years	Crushing	Underground
K10	31	Female	Single	Undergraduate education	9 years	Fall from height	Underground
K11	33	Male	Married	Undergraduate education	13 years	Minor injury	Underground
K12	45	Male	Married	Middle school	20 years	No accident occurred	Underground
K13	42	Male	Married	Undergraduate education	14 years	No accident occurred	Underground/ Surface
K14	44	Male	Married	Undergraduate education	20 years	Falling material	Underground -Facility

The data obtained from semi-structured interviews were analyzed, and the main themes, sub-themes, and corresponding codes were identified (TABLE 3).

TABLE 3

Occupational traumas and changes in risk perception following fatal, limb loss, or injury related workplace accidents among occupational safety specialists

Themes	Sub-themes	Codes
1. Occupational and psychological experiences after workplace accidents	**A.** Psychological ımpacts and emotional responses	A1. Shock and ınitial response A2. Guilt and self criticism A3. Anxiety and Stress A4. Traumatic memories and occupational burnout A5. Loss of Self confidence A6. Decrease in job satisfaction A7. Social Isolation A8. Need for psychological support and coping A9. Mechanisms
	B. Professional ıdentity and ethical conflicts	B1. Change in perception of responsibility B2. Realization of authority limits B3. Ethical conflict with management B4. Legal responsibility concerns B5. Commitment to professional ethics B6. Worker safety vs employer expectations B7. Being caught between B8. Inadequacy of safety measures B9. Moral pressure and ındecision
2. Changes in risk perception and safety strategies	**A.** Transformation in risk perception	A1. Inadequacy of measures A2. Stricter safety measures A3. Shift towards technological safety applications A4. Need for revision of occupational safety standards A5. Distrust in inspection processes A6. Increased hazard awareness A7. Regulatory gaps and calls for change
	B. Relations with employers and employees	B1. Employer pressure and management support B2. Change in employee safety awareness B3. Commitment to safety policies B4. Change in trust after the accident B5. Employer's perception of responsibility B6. Conflict with management B7. Trust relationship with the employer
3. Career and professional commitment	**A.** Impact on career planning	A1. Tendency to withdraw from the profession A2. Alternative career paths A3. Interest in new areas of expertise A4. Consideration of changing sectors A5. Indecision about staying in the profession A6. Desire for advancement in the safety field
	B. Enhancing professional resilience	B1. Support mechanisms B2. Education and psychological resilience B3. Peer solidarity B4. Continuous professional development B5. Learning and adapting from occupational accidents

Theme 1. Occupational and Psychological Experiences After Workplace Accidents

Sub-theme 1. Psychological Impacts and Emotional Responses

Occupational safety specialists reported intense psychological distress after major workplace accidents, initially experiencing shock that evolved into guilt, anxiety, and stress. These effects led to reduced self-confidence, job disengagement, and burnout. Coping strategies varied, with some seeking support and others withdrawing in isolation.

"*Witnessing or managing the aftermath of a workplace accident creates deep feelings of sadness and anxiety. The potential losses caused by the accident make me feel even more responsible for the safety of the workers. The possibility of harm to the personnel creates fear and concern, reminding me once again of the vital importance of occupational safety. Although the accident negatively affected me psychologically, my professional identity and sense of responsibility have not changed. I continue to do my job, but with more caution, more sensitivity, and a perspective that addresses preventive measures more diligently. This process has made me more experienced.*" (K1)

"*A worker had to pull the sliding cover down while tying the rebar for precast concrete, to prevent harm. The worker was supposed to pull the sliding cover over the rebar while working on the platform. In an attempt to finish quickly to catch up for lunch, he didn't pull the cover, and while descending, he lost his balance and fell onto the iron bars. The iron bar went through his thigh, and they alerted me. I rushed to the scene; there was blood coming from between his legs. I asked them to apply pressure to stop the bleeding, and at that moment, our workplace doctor and other healthcare staff arrived to intervene. We called 112, and they came to take him away. At the hospital, they reported that the iron bar had penetrated 10 cm from the anus, which could have been worse if it had reached the anus. He was operated on and was able to return to work about a month later. It deeply affected me psychologically. However, my professional identity and sense of responsibility remained unchanged.*" (K9)

"*The moment the personnel had the accident, I panicked due to the shock effect and didn't know what to do, because it was the first time I had encountered an accident involving a worker. After composing myself, I, along with the site manager and the personnel, went to the mine's infirmary for the first intervention. Since the worker had a cut on his arm, he was sent to a public hospital. After this incident, I questioned whether it could have been prevented and developed a persistent fear that a similar event might recur. This experience deepened my sense of responsibility and made me more attentive to improving documentation, safety procedures, and employee training.*" (K6)

"*Physically, mining is a very exhausting job. The heat, dust, and heavy loads eventually lead to back and joint pains over the years. But the worst part is the psychological burden. Every day, when I go in, there's a sense of fear inside me. I can't help but think, 'Will something happen today?' Safety measures reduce this fear a little, but they don't eliminate it entirely. Because you always know there could be a mistake. But with teamwork and regular checks, I can somewhat suppress this fear.*" (K13)

Sub-theme 2. Professional Identity and Ethical Conflicts

After the accidents, some safety specialists felt powerless despite being central to the situation, facing conflicts between ethical duties and institutional limits. The tension between managerial expectations and worker protection caused internal struggles. Legal pressures and insufficient preventive measures further eroded their professional confidence and sense of belonging.

"*It's hard to describe, but witnessing a fatal accident involving someone I worked with deeply affected me. The incident left a lasting psychological impact and forced me to reflect on my professional responsibilities. I became more determined to strengthen preventive measures and to ensure that such events would never recur. This experience made me realize that true safety goes beyond formal compliance; it requires continuous awareness, training, and empathy toward the people we work with. Since then, I have approached my role with greater emotional sensitivity and a stronger commitment to building a genuine safety culture*." (K8)

"*After the accident, I had to investigate corrective and preventive activities, communicate with the injured person, and answer all the questions. As the person responsible for these processes, I certainly experienced significant changes in my professional identity and responsibilities. For example, I realised I no longer had the luxury of making mistakes or overlooking things. Unfortunately, one cannot fully understand certain things without encountering such incidents*." (K5)

Theme 2. Changes in Risk Perception and Safety Strategies

Sub-theme 1. Transformation in Risk Perception

After serious accidents, occupational safety specialists reassessed risks and called for stricter, more proactive measures. They emphasised the need for updated regulations, technological tools, and deeper inspections, criticising current standards as insufficient. These experiences led to heightened awareness of hazards and more careful risk assessments.

"*After the workplace accident we experienced, I began to review our current situation, believing that we could prevent its recurrence. I reviewed risk assessments, emergency plans, work methods, instructions, and procedures. I concluded that the documents should be simple and should align with field applications. I also realised the importance of internalising occupational safety by the employer. I recognised again that all parties need to be involved in the creation of a safety culture. I understood that involving employees' opinions and including them in the safety processes is the way we can overcome this process*." (K8)

"*I have not yet encountered a workplace accident that I believe was unavoidable. However, from the experiences I gained through investigating the accidents I encountered, the first thing I checked was the adequacy of preventive measures and their applicability. Therefore, I believe that a single incident is never a valid reason to change the entire system. However, when analysing the statistics that came out of this process, I honestly think that my approach to risk management is focused more on human oversight and improving human perception rather than environmental conditions*." (K5)

"*In the days following the accident, I asked myself the same question repeatedly: 'Could this event have been prevented?' I reviewed all risk analyses and training records. Everything was correct in the documents, but an insignificant, overlooked habit in the field led to a chain of events. During this process, I once again realised that the preventive culture should not only be documented but should also permeate behaviours. I have now started to focus more on not only technical but also behavioural risks. This event created a silent but lasting transformation in my perspective*." (K10)

Sub-theme 2. Relations with Employers and Employees

Post-accident interviews revealed weakened trust and increased pressure between safety specialists and employers, with limited managerial support. While employee safety awareness initially rose, concerns remained about long- term adherence. Trust restoration, heavily influenced

by employer responsibility, directly affected both psychological resilience and the continuity of safety practices.

"*After a serious workplace accident, I believe that strong communication with all concerned parties and managing the process is crucial. All responsible parties performed their duties. I always received sufficient support from the employer; I didn't face any issues where I struggled with safety decisions or lacked support after the accidents.*" (K7)

"*After the accident, you often face the 'what now' questions from managers and employers, and you can feel overwhelmed by the responsibilities in your profession. Since both the employee and employer see things from their perspectives, the safety specialist often acts as a bridge, and this situation increases stress and anxiety. Although efforts are made to remain impartial in incident evaluations, the pressure from both the employer and the employee is intense. After a workplace accident, the employer might dismiss the employee or refuse to accept the employee's request for relocation after being unable to return to their previous position. After field inspection reports and risk analysis studies, the recommendations may be considered too costly by the employer, and often they reject proposed changes. After the accident, when employees ask, 'What will happen to me now?', this causes fear and a loss of motivation towards the safety expert.*" (K6)

"*After a workplace accident, communication with the people at the workplace inevitably leads to tensions. The employer immediately focuses on the administrative and legal aspects, while employees become emotionally sensitive. In this environment, as an occupational safety specialist, you have to balance between two worlds. Unfortunately, in some cases, you feel caught between the employer's production pressure and the trauma the employee has experienced. The decisions you make are questioned more, and you feel the need to provide more explanations. Sometimes, the safety measures we recommend are delayed due to 'cost'. Especially after the accident, when the employer starts seeing you as a 'risk source', it becomes harder for your suggestions to be accepted. At this point, open communication, recommendations backed by technical data, and continuous updates become my strongest lifeline.*" (K11)

Theme 3. Career and Professional Commitment

Sub-theme 1. Impact on Career Planning

After experiencing severe accidents, some specialists reconsidered their careers, with emotional strain pushing them toward less risky fields. While some explored sector changes, others remained committed to safety, seeking specialis ation and professional growth. Despite challenges, a strong desire to contribute meaningfully to the field persisted among many.

"*There were moments when I asked myself, 'Should I continue despite this burden?' But every new step in the field, every successful measure, and every preventive decision made after an accident reminded me that this profession is not just a job but a life responsibility. Instead of leaving the profession, I renewed my inner motivation and focused on the question 'How can I do better?' This process became a turning point in my career journey.*" (K10)

"*After the work accident, I never thought about quitting my job, and I didn't experience any changes in my career goals. However, the accidents made me realise that I needed to be more conscious and proactive in the field of occupational safety. It didn't reduce my desire for career advancement; on the contrary, it increased my motivation to make occupational safety more effective.*" (K1)

"*After the accident, I questioned my profession for a while. I felt overwhelmed by the responsibility of carrying the weight of the tragedy, and I thought about leaving my job. However,*

over time, I realised that this is exactly why I needed to be here. If I truly wanted to create change in this field, I had to make more effort. I realised that being an occupational safety specialist involves not just following procedures, but also actively leading to create change in the field. *This is why my commitment to the profession increased, and I decided to improve myself to become more effective in safety.*" (K3)

Sub-theme 2. Enhancing Professional Resilience

Professional resilience after workplace accidents depends on both personal effort and organisational support. While some specialists felt isolated due to weak institutional backing, peer solidarity and psychological resilience training played a key role in recovery. Continuous learning and personal development helped reduce trauma and foster adaptive responses to future incidents.

"*After the accident, I realised that I didn't evaluate whether the decisions I made were correct. However, influenced by the incident, I thought about the additional measures that should be taken to make occupational safety practices more effective. Particularly, I thought it was necessary to increase the frequency of practical training and make it more interactive to raise employees' awareness. Focusing on practical scenarios and drills rather than theoretical knowledge in training could have contributed more to preventing accidents. From a professional motivation perspective, I didn't experience a noticeable positive change after the accident. However, these types of incidents made me realise the critical importance of my responsibility and my profession. I believe I need to develop a more systematic approach to increase the applicability of the measures taken in the field and maximise the safety of employees.*" (K1)

"*I started to conduct field inspection reports more frequently and began checking if the deficiencies were being addressed. I regularly report on these. I think the reasons for employees' failure to follow safety rules shouldn't just be seen as technical shortcomings. Sometimes, work pressure, the attitude of managers, or the culture within the workplace can be major factors. As for my professional satisfaction and motivation, honestly, my morale is severely affected after every workplace accident. Because I do this job to ensure the safety of the workers, and after an accident, I inevitably feel responsible. Just as I feel responsible, the workplace accidents I have experienced make me stronger by changing my perspective on the incidents. I never thought about quitting my job, but recently, I've been noticing that the increasing workload and responsibilities, and working as a safety expert alone, are exhausting me.*" (K6)

"*Yes, after every accident, an internal reckoning inevitably begins. The question 'Could I have taken a different measure?' constantly runs through your mind. This naturally led me to review both my practices and my approach. Now, I update risk assessments not just periodically but dynamically according to field activities. I follow up on the application of training and monitor how much employees implement what they learned on the field. I evaluate my inspection reports by relating them to employee behavior. Although workplace accidents temporarily decrease my professional satisfaction, after every challenge, they help me remain in the profession as a more systematic, human oriented, and solution focused expert.*" (K11)

4. Discussion

This study phenomenologically explores the occupational and psychological transformations experienced by occupational safety specialists in the mining sector following fatal or severe workplace accidents. The findings reveal that these professionals face intense emotional chal-

lenges, such as shock, guilt, and burnout, which often lead to a re-evaluation of their professional identity and ethical responsibilities. A key issue identified is the imbalance between authority and responsibility, which negatively affects both safety practices and specialists' psychological resilience. Participants emphasised the need for integrating human-centred and behavioural dimensions into occupational safety strategies, as existing regulations often fall short of addressing real world conditions. Trust issues with employers and employees, along with a lack of institutional support, further complicate the specialists' decision making and motivation. While some respondents expressed intentions to leave the profession due to burnout, others demonstrated increased resilience through peer support and ongoing training. The study concludes that establishing a sustainable and effective safety culture requires not only regulatory compliance but also comprehensive emotional and systemic support for occupational safety specialists.

4.1. Occupational and Psychological Experiences after Workplace Accidents

Accident experienced specialists often face psychological strain, decision-making difficulties, and burnout, caught between ethics and institutional demands. The risks associated with mining affect not only physical safety but also emotional and cognitive well-being. Continuous hazards such as structural collapses and gas exposure increase workers' awareness of danger. Management support, practical training, and tailored solutions are essential for sustaining safety and resilience. Karanfil (2023) [8] highlighted that the structural issues and changes in the professional responsibilities experienced by specialists, especially in the post accident period, play a significant role in shaping the safety strategies developed On the other hand, Matamala and Aguayo (2021) [2] examined the damaging effects of psychological pressures faced by mine workers on their mental health, stating that this compels occupational safety specialists to adopt more holistic approaches to risk management. Dollard and Bailey (2015) [21] emphasised that threats to worker health are not only physical but also psychosocial, highlighting that creating a safe working environment is directly related to an organisational climate that supports mental well-being.

While the results of this study align largely with the existing literature, it can be concluded that concerns about occupational health and safety in the mining sector deeply affect the physical, emotional, and cognitive processes of workers.

4.2. Changes in Risk Perception and Safety Strategies

Workplace accidents significantly reshape occupational safety specialists' risk perceptions, leading to deeper hazard analysis and strategic shifts in safety practices. These changes influence decision making, training, and communication, emphasising behavior monitoring and safety culture. Specialists increasingly adopt a guiding and motivational role beyond supervision.

In the mining sector, the risk perceptions of occupational safety specialists and the safety strategies they develop can be influenced not only by technical risk factors but also by the psychosocial dynamics of the working environment. In a study conducted by Işık et al. (2021) [22] in Turkish coal mines, it was found that engineers and safety specialists were insufficiently equipped to address workers' psychological distress. This result highlighted the necessity of considering emotional and psychosocial factors in the formation of safety strategies. Similarly, in research by Alrawad and colleagues (2022), [23] it was shown that the risk perceptions of workers in the

mining sector are directly related to their level of knowledge and the forms of communication they are exposed to. In this regard, it has become critical for occupational safety specialists to establish effective risk communication and develop policies to raise awareness among employees. Demir Şahin and Eker (2025) [24] applied the Fine-Kinney method to assess occupational risks in marble production plants in Turkey, revealing that both technical and ergonomic hazards play a crucial role in ensuring worker safety.

In line with the study results, it can be concluded that miners' risk perception directly shapes their work behaviours, and that raising awareness, education, and psychosocial support play a critical role in ensuring the sustainability of the safety culture.

4.3. Career and Professional Commitment

Workplace accidents often lead occupational safety specialists to reassess their career paths, with some considering exit and others pursuing deeper specialisation. Institutional backing, peer support, and psychological training are key to resilience. Emotional and systemic support is vital for sustaining long-term professional commitment.

Bakker and Albrecht's (2021) [25] study revealed that employees' commitment levels recover over time following negative work experiences, and this process is directly related to supportive leadership attitudes in the workplace and opportunities for personal development. Similarly, according to findings published by NIOSH (2022), [26] safety specialists with long tenure in the mining sector are better able to remain resilient in crisis situations. However, such resilience emerges not merely from personal experience but is also reinforced by the presence of strong social support systems and a positive organisational safety climate. Amponsah-Tawiah and Mensah (2016) [27] reported that specialists working in the mining sector sought more institutional support after workplace accidents; in the absence of such support, they experienced a decrease in job commitment and an increase in signs of emotional burnout. This shift implies that psychosocial resilience initiatives should be coupled with systematic hazard controls demonstrated in sectoral risk assessments [28].

The research findings show that the risk perceptions of individuals working in the mining sector directly influence their daily work attitudes and behaviours. Therefore, it has been identified that awareness raising activities, qualified training programs, and psychosocial support applications are of vital importance in building a lasting safety culture.

5. Summary and final conclusions

Based on the findings of this phenomenological study, several significant conclusions were drawn regarding the professional and psychological experiences of occupational safety specialists working in the mining sector.

Hidden dimension of professional risk: Beyond physical hazards, an often overlooked aspect of occupational risk for safety specialists is the mental and emotional burden that emerges after fatal or serious workplace accidents. Feelings of guilt, ethical dilemmas, and stress profoundly affect both their personal well-being and professional identity.

Transformation of risk perception: Severe occupational accidents trigger a deep reassessment of how risks are perceived and managed. Participants' experiences revealed a clear shift toward

more human centred, behaviour-oriented, and preventive safety approaches. This transformation has increased the emphasis placed on psychosocial resilience and awareness in safety practices.

Relevance beyond mining: Although the research was conducted within the Turkish mining sector, the results are also applicable to other high risk industries such as construction, energy, and manufacturing. Additionally, the findings can be applied to safety professionals in countries with similar risk structures.

Need for institutional and psychological support: The findings demonstrate that psychological recovery after traumatic incidents depends not only on individual effort but also on institutional support mechanisms. Peer solidarity, counselling, and mentoring programs can help prevent burnout and maintain professional commitment among safety specialists.

Policy and cultural implications: A sustainable safety culture cannot rely solely on legal regulations. A genuine safety culture requires an integrated approach that combines emotional support, ethical awareness, and continuous professional development. Strengthening both the structural and psychological dimensions of safety is essential for building resilient and secure workplaces.

In conclusion, effective occupational health and safety management depends not only on technical expertise but also on ethical integrity, emotional endurance, and institutional support systems that acknowledge the invisible burdens carried by those responsible for protecting others.

Limitations

This study is a qualitative research conducted using a phenomenological approach and is limited to the experiences of occupational safety specialists in the mining sector. The results are not generalizable, and other sectors were not included in the scope. The depth of the interviews depended on the participants' willingness to share.

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