Research Paper

Long-term Consequences of the Psychological Distress in Iranian Emergency Medical Personnel: A Qualitative Research

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ABSTRACT

Background: Iran is exposed to several kinds of hazards throughout the country. Disasters cause mental health distress among survivors and disaster rescuers. Most psychological symptoms may decrease in time, but they could persist for months or even years in some individuals. Therefore, the present study aimed to explore the consequences of exposure to traumatic events with its components, which are derived from rescuers' life experiences.

Materials and Methods: A qualitative study based on content analysis was conducted according to Landman and Graneheim approach. Through the purposive sampling method, 17 semi-structured interviews were applied until reaching data saturation. Interviews were transcribed verbatim. In the next steps, data condensing, labeling, coding, and defining categories were conducted.

Results: Based on the experience of the study participants, two main concepts with four categories and 12 subcategories were developed. Two main concepts included regression and resilience consequences.

Conclusion: Emergency departments should be aware of work-related mental health and behavioral problems and provide appropriate support programs to prevent ineffective consequences of incidence scene psychological distress and empower the rescuer's resiliency.

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1. Introduction

Many emergency service jobs are frequently exposed to life-threatening events [1]. Emergency Medical Personnel (EMP) are exposed to various demands like the complexity of the incident scenes and organizational and occupational challenges in the disaster scenes that make it difficult to provide services to patients and victims [2, 3]. In addition to such direct event stresses, disaster rescuers also experience secondary traumatic stresses as indirect psychological effects [2]. Emergency medical personnel exhibit elevated psychological distress due to their complex job, which can have significant emotional problems [1]. They are prone to chronic symptomatic discomfort by repeated exposure to potentially traumatic events, particularly risk factors for Posttraumatic Stress Disorder (PTSD) [4].

EMPs, especially in pre-hospital settings, are at high risk of job burnout due to the complex nature of their work environment [5]. However, some resilience disaster responders can tolerate the effects of traumatic exposures and cope with their work stressors. Resilience as a psychological characteristic is the ability of individuals to thrive after being exposed to extreme and frustrating job stressors [6].

EMPs are different from other medical personnel because of special circumstances, such as working in an ambulance and critical emergencies, while most of this personnel are ignored and marginalized in the care scene. They are usually the first to appear in threatening conditions and traumas [7]. They experience posttraumatic stress disorder and a wide range of occupational injuries, illnesses, violence, burnout, fatigue [8], combined hazards such as accidents and other accidents on the scene, as well as sleep problems [9]. Most studies have been conducted on the prevalence of stress and its relationship with mental health problems in EMPs. For example, the findings of one study revealed that 75.5% of EMPs suffer from moderate to severe stress [10], moderate to high job stress, and moderate quality of life. Some studies have also examined the factors influencing the stress of pre-hospital staff [11], considering that the mental health and well-being of EMPs are very important in providing services to patients and their families. Also, our review of the available literature shows that further studies have focused on providing better services to victims of disasters. Several studies have also examined healthcare team members [12, 13]. While the present study has dealt with specific psychological consequences for medical emergency personnel.

Disaster conditions and situations are completely different in setting, needs, or demands. It needs to the majority of studies on the rescuers' mental health have to be updated. Therefore exploring the consequences of exposure to traumatic events with its components, which are derived from rescuers' live experiences, is essential for developing and improving a preventive and protective plan based on rescuers' psychological problems.

So, the question is what methods pre-hospital staff should use to deal with and manage stress. We did not find any studies showing how pre-hospital staff coped with stress on stage and after that. Given that stress can be reduced by adopting coping strategies and increasing the level of resilience [14]; therefore, we designed a basic study that first identifies the behavior and how these employees deal with stress in real situations.

2. Materials and Methods

This qualitative content analysis study was based on Landman and Graneheim approach. Through purposive sampling, 17 participants consisted of pre-hospital emergency nurses or technicians who have participated in some big disasters in recent years. Sampling and data collection continued until information saturation. Employees selected for this study had participated in at least one national disaster or more than three mass casualty incidents, and those who had not experienced any disasters were excluded from the study. The semi-structured interview method was used to collect data in this study. Each interview lasted 45 to 60 minutes using a face-to-face interview at the participant's workplace. Before the face-to-face interviews, informed consent was received from each participant. All interviews were digitally recorded and then transcribed verbatim using MAXQDA version 10. This study was conducted from July 2018 to May 2020. Data were gathered through semi-structured interviews.

To talk about one of their recent experiences in disasters and emergencies then, other questions were asked based on the participants' responses. Each interview was read several times to redefine the next questions. The authors, with experience in psychological interviews and research qualitative, conducted interviews. According to the content analysis approach: audio files were listened to several times after each interview to understand the participants' accounts; then, the meaning units were gathered. Finally, similar codes based on differences and similarities were sorted into sub-categories and categories, which were compared.

Rigor

Four Lincoln and Guba validation criteria [15] were considered in this study to increase the validity of the study. To gain credibility, we selected participants with the maximum variety of experiences. Sampling was continued until the data reached saturation and the most appropriate semantic unit was selected. For confirmability, after coding by the research team, the text of the interviews and the extracted codes were presented to the participants, and they commented on its accuracy and discrepancies.

Regarding dependability, a complete description of the research process, including data collection, analysis, and formation of themes, has been done to provide the possibility of assessing the research by the audience and readers. The work process was also provided to several research colleagues to confirm the accuracy of the research.

To facilitate transferability, the researcher provided a clear description of the context, how to select the participants and their characteristics, data collection, analysis process, and presentation of rich and accurate findings with appropriate quotations.

Ethical considerations

Each participant read and signed the written informed consent form, which ensured anonymity and confidentiality. The Ethics Committee of Shahid Sadoughi University of Medical Sciences approved the study (Approval ID: IR.SSU. SPH.REC.1397.093). Each interview was recorded with the permission of the participants. In addition, a summary of the study's results was mailed to participants interested in the findings.

3. Results

Based on the experience of the study participant, two main concepts with four categories and 12 subcategories were developed. There are two categorise consist of resilience and regression.

Resilience is the logical and efficient consequence of rescuers after dealing with the stresses of the accident scene which personal maturation, self-confidence, and altruism are components of resilience.

Our study participants mentioned that being skilled, innovative, and intelligent in critical situations are examples of individual maturation.

A rescuer who was present in the Bam earthquake said: "providing relief in Bam earthquake was my first personal experience in disasters; when I had just graduated in nursing with no experience, I remember I could not do anything. Nevertheless, a few years after that, when I participated in the Sarpol-e Zahab earthquake, I had become so skilled that I could manage inexperienced people and tried to provide the most efficient services in the shortest time."

Sense of identity and efficiency, acceptance of occupational problems, and awareness and acceptance of individual weaknesses are examples of self-confidence. In this regard, the rescuer who was present in the crash of the Ukrainian plane said:

"On the way to the crash site, I kept telling myself that this is my profession, so I have to accept all its hardships and problems."

The pleasure of helping in the profession, the pleasure of helping others, having an altruistic attitude towards others, and interacting with colleagues are considered examples of altruism. "During missions, one of my motivations is to help others. This love of helping the injured helps us to tolerate the problems of this profession."

On the other hand, applying an emotion-based approach and psychological regression on the scene over time leads to psychological erosion, personal dysfunction, and job burnout. Psychological erosion, personal dysfunction, and job erosion are examples of dysfunctional consequences of psychological distress at the scene. Cognitive and emotional consequences explain psychological erosion.

A reminder of incident scenes, mental conflict with the death of victims, and making catastrophic and feedback to events are examples of the cognitive consequences of exposure to stressful events. In this regard, the rescuer who was well-experienced mentioned:

"When we returned from a fatal accident for several days, my mind was occupied with the death scene, and I constantly asked myself why I could not help him. Maybe it was because of me that he died". Stress, nervousness, trauma-related disorders, self-blame, depression, victim dependence, irritability, and emotional numbness represent the emotional consequences of exposure to stressful events.

I have been working in the emergency center for 18 years, comparing myself with the first years, and I find myself very nervous and upset. "I do not have the same mood as before, as if I had become someone else."

Threats of social interactions, work addiction, and behavioral consequences are components of individual dysfunction. Tendency to isolation, family conflicts, and disruption of interpersonal relationships are examples of threats to social interaction.

Participant 12 said this: "Recently, I'm not in the mood to participate in the family gatherings ...I think by describing the events that happen to me every day, I will ruin their mood too. So I prefer to appear less at family parties. Or if I had to try to speak less."

Extreme emphasis on safety principles, extreme dependence on work, and immersion in job roles are the components of job addiction.

Participant 6 says in this regard: "When my wife complains about headaches, she somehow expects love from me. Because I have seen so many head amputations in various missions, I tell her to thank God as her head is not amputated, but my wife just wants me to pay attention to her, but I also consider myself an idiot at home."

Taciturnity, reducing care sensitivities, use of psychiatric drugs, and eating and sleep disorders are examples of the behavioral consequences of exposure to traumatic events.

Participant 12 said: "When we are in the emergency center, we try to eat fast because the mission bell can ring at any moment, in the middle of eating, so we do not realize how much we are eating and we usually overeat, and this made us fat."

Emotional-occupational numbness, demonstrations of behavioral-occupational symptoms, and physical-occupational erosion are the components of job burnout. Incuriosity, decreased motivation, irritability, feeling disgusted or numbness, and apathy is components of emotional-occupational numbness.

Participant 12 said in this regard: "In the first days when we went to the flooded areas, we listened to the affected people complain with all our heart and soul, and all our efforts were to solve their problems, but after a month, when we saw that no one cared us, we no longer had the patience to listen to people and calm them down."

Behavioral-occupational demonstrations include frequent absenteeism, willingness to retire early, increased conflicts with colleagues, and job change and efficiency reduction.

Participant 12 said in this regard: "After a while, many of our colleagues are looking for sickness, not to go on missions or to find ways to retire early."

Hair bleaching, backache, hair loss, gastrointestinal problems, headaches, and the effects of radiation are some of the physical-occupational erosions which appear in rescuers over time.

In this regard, the rescuer who was present at the Mecca incident and said:

"A month after return from Mecca mission, more than half of my hair turned white all at once after all the stress on me during the Mena incident."

4. Discussion

Disaster rescuers are exposed to various stressful scenes in disasters and emergencies. That would result in efficient and inefficient consequences in the long term. This research tried to identify the efficient and inefficient consequences with their components resulting from exposing disaster rescuers to psychological distress incident scenes.

The main components of each category are discussed below. Inefficient consequences of psychological distress included psychological disturbance, personal dysfunction, and job burnout. Cognitive and emotional consequences explain the psychological disturbance component (Table 1).

According to many participants, recollection of incident scenes, mental preoccupation with the death of victims, catastrophe, and feedback on events are found as cognitive consequences of psychological distress. According to the literature, emergency care providers are at risk for acute and chronic psychological distress. They often witness the death, loss, and suffering of people. The consequences of these tragedies can lead to post-traumatic stress disorder and untreated cases. Emotional responses of survivors and patients of empathy distress and care fatigue can affect job performance and have adverse psychological consequences for employees [16].

Table 1. Categories and subcategories of consequences of psychological distress

Psychological Consequences (Theme)		
Categories	**Subcategories**	**Meaning Unit**
Regression	Cognitive	- A reminder of incident scenes - Mental conflict with the death of victims - Making catastrophic and feedback to events
	Emotional	- Stress - Nervousness - Trauma-related disorders - Self-blame - Depression - Victim dependence -irritability - Emotional numbness
	Social	- Tendency to isolation, - Family conflicts - Disruption of interpersonal relationships
	Behavioral	- Taciturnity - Reducing care sensitivities - Use of psychiatric drugs - Eating and sleep disorders
	Job addiction	- Extreme emphasis on safety principles - Extreme dependence on work - Immersion in job roles
	Job burnout	- Emotional-occupational numbness, - Behavioral-occupational symptoms - Physical occupational erosion
	Behavioral-occupational demonstrations	- Frequent absenteeism - Willingness to retire early - Increased conflicts with colleagues, - Job change - Efficiency reduction
	Physical-occupational erosions	- Hair bleaching - Backache - Gastrointestinal problems - Headaches - Effects of radiation
Resilience	Personal maturation	- Being skilled - Innovative and - Intelligence in critical situations
	Self-confidence	- Sense of identity and efficiency - Acceptance of occupational problems -Awareness and -acceptance of individual weaknesses
	Altruism	- Pleasure of helping - Having an altruistic attitude towards others, - Having good interaction with colleagues

The participants of this study pointed out that stress, stress-related disorders, nervousness, depression, irritability, emotional numbness, victim dependence, and self-blame represent the emotional consequences of exposure to stressful events. Emergency nurses typically encounter traumatic work-related accidents and confusing work conditions. Numerous studies have reported a high prevalence of posttraumatic stress disorder in these nurses. A cross-sectional study of the psychological problems of 248 emergency nurses showed that approximately one in three nurses had sub-levels of anxiety, depression, and physical complaints, and 8.5% had clinical levels of posttraumatic stress disorder. Fatigue levels were high, although not directly related to the frequency of exposure to traumatic events. Emotional coping was associated with an increase in all outcomes. Avoidance coping was more associated with physical complaints. Problem-based coping was associated with reduced symptoms [17]. These psychological effects can lead to various reactions, such as depressive and anxiety disorder, also stress-related disorders, like acute and posttraumatic stress disorder [15]. As a result, the psychological and skill preparation of rescuers is one of the requirements of this profession for better performance and to reduce tensions [18].

According to many participants, threats of social interactions, work addiction, and behavioral consequences are considered personal dysfunction. Findings in another study have emphasized that marital and family relationships often suffer, especially rescuers who remain locked into their experiences [19]. Another survey pointed out growing conflicts and aggression towards co-workers and employers due to feelings of exhaustion after exposing traumatic events [20]. In this regard, another study resulted in an association between posttraumatic stress disorder and social isolation [21]. Social isolation constitutes a risk factor for posttraumatic stress disorder or is an outcome of posttraumatic stress disorder, especially for individuals with no close friends or family [22]. Therefore, therapeutic counseling sessions are recommended for rescuers' families and spouses.

Based on current findings, emotional-occupational numbness, demonstrations of behavioral-occupational symptoms, and physical-occupational erosion are the components of job burnout. However, as other studies show, rescuers are highly at risk for depression or sleep disorders [23]. Another research shows that providing relief to dying patients causes meaningful emotional exhaustion [24]. Different studies supported the tendency of relief workers to retire early because of job-related stressors [25]. Also, the results of a study showed the high prevalence of back pain among Iranian emergency medical services personnel [26]. In this regard, a study in Iran explained occupational burnout as depersonalization, emotional exhaustion, and the lack of professional accomplishment [27]. Similar findings were obtained from another study which mentioned that individuals with burnout might exhibit an anxious state, hopelessness, guilt, irritability, mood swing, depressed mood, and aggressive behaviors [28]. Findings in a study have emphasized that cumulative stress, regardless of work experience, age, and gender, may increase the risk of posttraumatic stress disorder in most disaster relief workers, even experienced ones. This is a reminder that experienced rescuers are not necessarily immune to psychological problems. As a result, monitoring all rescuers after hard missions is necessary [29]. As the participants of the present study stated, resilience is the logical and efficient consequence of rescuers after dealing with the stressors of the accident scene which personal maturation, self-confidence, and altruism are the components of resilience. In this regard, the results of the study revealed that the factors that empower nurses in the face of significant stress include optimism, cognitive flexibility, altruism, finding a flexible role model or mentorship, learning to deal with fear and active coping skills include connecting to a supportive social network, exercise and having a good sense of humor [30]. Concordance with this study, the concepts like decisive action, honesty, tenacity, interpersonal connectedness, self-control, and optimism to recover or re-energize the achievement of the desired outcome was discovered as resiliency [31]. Therefore, resilience can be learned as a protective mechanism to prevent developing symptoms and signs associated with psychological disorders related to a stressful job environment.

Study limitations

This study was performed on emergency personnel and did not include the other rescuers. Therefore, caution should be exercised in generalizing the results. We conducted this study in Tehran, and the psychological consequences of emergency work in other parts of Iran can be different. We did not study to measure the outcome variables, and future studies can compensate for this deficiency.

5. Conclusion

According to the study results, two main concepts included regression and resilience consequences. due to the exposure of rescuers to stressful disasters, two efficient and inefficient outcomes are achieved. Therefore,

emergency department policymakers should be aware of work-related mental health and behavioral problems and provide appropriate support programs to prevent ineffective consequences of incidence scene psychological distress and empower the rescuers' resiliency.

Ethical Considerations

Compliance with ethical guidelines

This article was approved by Ethics Committee of the Shahid Sadoughi University of Medical Sciences (Code: IR.SSU.SPH.REC.1400.050)

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no competing interests.

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