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Investigating the Safety and Life-Saving of Aid Workers in Disasters Based on the Standards of the International Federation of Red Cross and Red Crescent Societies

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Abstract

INTRODUCTION: The safety of aid workers in rescue and relief operations is of particular importance due to the exposure to life-threatening, physical, and psychological risks. The International Federation of Red Cross and Red Crescent Societies (IFRC) has provided frameworks for reducing risks and saving the lives of aid workers by providing standards such as the Sphere Project and the Pinheiro Principles. This study aimed to examine these standards and their application in relief operations in Iran in order to provide solutions to improve and promote the level of aid worker safety.

METHODS: This descriptive-analytical study was conducted with purposive sampling of 20 authentic documents and the data were analyzed using thematic content analysis. Key sources included the Sphere handbook (2018), the Pinheiro principles (2005), ISO 45001 and ISO 14001 standards, and IFRC reports (2023-2024). The validity was confirmed by triangulation of sources and reliability by recoding (85% agreement).

FINDINGS: According to the findings, four main components of supporting standards were identified, namely participation (Sphere), competence and training (ISO 45001), communication and participation, and operational control. Sphere standards reduce operational risks by 30%, ongoing incident training by 25%, and equipment inspections reduce technical risks by 40%. Challenges of the current situation in Iran include the lack of specialized training and digital reporting systems.

CONCLUSION: The results show that integrating IFRC standards with local practices can improve the safety of aid workers, along with strengthening specialized training, creating digital reporting platforms, and continuously reviewing guidelines.

Keywords: Aid worker safety; IFRC standards; Sphere project; Pinheiro principles; Crisis management.

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Introduction

Natural and man-made disasters today's world, as one of the major challenges for humanity, not only threaten the lives of millions of people, but also expose frontline aid workers to serious risks. According to reports from the United Nations and the IFRC, more than 200 million people are affected by disasters every year, and aid workers face high risks such as physical and psychological injuries and even death in this process. Ensuring the safety and protection of aid workers is not only a moral responsibility but also a crucial determinant of the long-term effectiveness of rescue and relief operations. Non-compliance with safety standards can result in additional casualties, diminished operational efficiency, and a decline in public confidence in responsible institutions. The IFRC, as a global leader in establishing relief standards, has developed frameworks that prioritize coordination, quality, and safety (1).

Standardization in rescue and relief operations, as a mechanism for achieving coordination and procedural consistency, plays a

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vital role in reducing operational risks. The IFRC standards—rooted in humanitarian principles—emphasize the development of structured programs, the assurance of information quality, and uniformity in training. The Sphere Project, launched in 1997 by a group of humanitarian organizations together with the IFRC, is one of the most prominent frameworks in this regard. By formulating minimum standards across key sectors such as water supply, nutrition, shelter, and health services, the project is grounded in two fundamental principles: alleviating human suffering and preserving the dignity of survivors (2).

The Sphere standards not only focus on the safety of affected populations but also strengthen the protection of aid workers by underscoring supportive principles such as safeguarding human dignity and ensuring impartial access to assistance. For instance, the principle of community participation in planning can reduce risks arising from operational miscoordination and help protect aid workers from exposure to hazardous conditions (3).

In addition to the Sphere standards, the Pinheiro Principles, developed in 2005 by the UN Commission on Human Rights, emphasize the rights of refugees and internally displaced persons to recover their property and housing. Covering seven key areas—including non-discrimination, the right to adequate housing, and compensation—these principles provide a legal framework for humanitarian operations in complex crises (3).

These principles, when combined with international standards such as ISO 45001 (occupational health and safety management systems) and ISO 14001 (environmental management systems), can help reduce environmental and occupational impacts during relief operations. By integrating these standards into its operational guidelines, the IFRC is placing greater emphasis on adherence to HSE (health, safety and environment) requirements, including assessing the competence of aid workers, ongoing training and effective communication (4).

As the national representative of the IFRC, the Iranian Red Crescent Society (IRCS) faces unique challenges, including earthquakes, floods, and various humanitarian crises. On the other hand, there are gaps in the implementation of safety standards, including a lack of specialized training and inadequate supervision of equipment. Therefore, in order to address these shortcomings, this article reviews the standards of the IFRC with a particular focus on the safety of aid workers. It first analyzes the key Sphere and Pinheiro standards, then discusses competence, training and operational control, and finally suggests practical approaches to implementing these standards. Also, drawing on these frameworks, this article explores strategies for saving the lives of aid workers during disasters, attempting to bridge the gap between theoretical principles and practical applications in crisis management.

Ultimately, the study demonstrates that adherence to IFRC standards not only protects the lives of aid workers but also enhances the overall efficiency of relief operations. In light of the increasing frequency of global disasters, the need to continuously revise and update these standards is becoming more urgent. The structure of this article—comprising a literature review, an analysis of standards, practical recommendations, and a conclusion—seeks to serve as a guide for policymakers and researchers in the field of crisis management.

Methods

This qualitative, descriptive-analytical study aims to investigate the safety and the protection of aid workers during disasters, focusing on the standards of the IFRC. The research approach is based on a systematic literature review and content analysis, as the topic relies on existing standards, international documents and practical experiences in disaster management. Given that the literature review and content-based preliminary work have already been carried out, the methodology focuses on extracting, analyzing and synthesizing secondary data to develop a practical framework for aid worker safety. This approach allows for the formulation of evidence-based recommendations without collecting primary data (such as interviews or surveys), thereby ensuring that the proposed strategies are rooted in documented evidence.

The research population comprises documents, international standards, and reports related to rescue and relief operations, published by the IFRC, UN, and affiliated bodies such as the Sphere Project and the Pinheiro Principles. Sampling was conducted using a purposive, non-probability approach, given the study's focus on authoritative and highly relevant sources. The primary materials included:

- The *Sphere Handbook* (2018 edition) and its core standards;

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- The *Pinheiro Principles* (2005) issued by the UN Commission on Human Rights;
- ISO 45001 and ISO 14001 standards concerning occupational health and safety and environmental management;
- *IFRC crisis-management reports* (e.g., the 2023 annual report);
- *Internal documents of the IRCS*, such as HSE (Health, Safety, and Environment) guidelines and operational procedures for relief missions.

Approximately 20 key documents were reviewed, selected based on criteria such as source credibility, relevance to the research topic, and recency (post-2000). This purposive sampling approach ensured comprehensive coverage of both global and national standards.

Data Collection and Analysis

Data were collected through a systematic review of the literature. The process consisted of the following stages:

1. *Source Search:* Key documents were identified using databases such as Google Scholar, PubMed, and the official websites of the IFRC and UNHCR. Search terms included "Sphere Standards," "IFRC aid workers safety," and "Pinheiro Principles in crisis management."
2. *Screening:* Out of an initial pool of 100 sources, 20 were selected based on an inclusion checklist (direct relevance to aid workers safety and a focus on IFRC standards). Exclusion criteria included outdated or irrelevant sources (pre-2000).
3. *Data Extraction:* Relevant content was manually extracted from documents, focusing on sections such as Sphere's core standards (e.g., participation, initial assessments, and monitoring) and Pinheiro Principles (e.g., housing rights and compensation).

This secondary-data approach proved highly efficient and avoided challenges associated with field research, such as restricted access to aid workers during crises.

Data Analysis

A qualitative content analysis was conducted using a thematic analysis approach based on Braun and Clarke's (2006) model. The stages of analysis consisted of:

- *Initial coding:* Identification of primary codes such as "personal safety standards," "training and competency," and "operational control" derived from the documents.
- *Theme development:* Grouping of codes into broader themes such as "Sphere's protective principles" and "HSE operational procedures."
- *Comparative analysis:* Comparing IFRC standards with international standards (e.g., ISO) to identify gaps and develop recommendations.
- *Interpretation:* Integrating findings to present a practical framework, with emphasis on applicability in Iran (e.g., flood and earthquake response scenarios).

To increase validity, triangulation was performed by cross-checking different sources (international and national documents). Reliability was ensured through re-coding by a second researcher, which resulted in 85% agreement between coders. Although this study is limited by its reliance on secondary data (due to the lack of newly collected field data), this limitation is mitigated by focusing the research on established standards and documented practices.

Findings

Based on the qualitative content analysis conducted on core documents from the IFRC, the Sphere Project, the Pinheiro Principles, and international standards such as ISO 45001 and ISO 14001, the study's main findings are categorized into four key components: supportive and core standards, aid workers competency and training, communication and participation, and operational safety control. These components were derived through thematic coding and further analyzed by comparing international frameworks with local guidelines, including the HSE procedures of the IRCS. The findings highlight the critical importance of integrating IFRC standards into relief operations to reduce risk to aid workers. According to IFRC crisis-management reports, such integration has the potential to reduce secondary casualties by up to 30%, underscoring the essential role of standardized safety protocols in enhancing the protection and effectiveness of relief workers.

On the other hand, risk is defined as a combination of the likelihood of an incident occurring due to exposure to a specific hazard and the severity of its consequences, typically calculated using the formula:

$$Risk = Probability \times Severity$$

In the context of rescue and relief operations, risk encompasses the assessment of threats to aid

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workers' lives during crises, which must be explicitly addressed and integrated within the principles of emergency response and operational planning.

Component 1: Supportive and Core Standards in the Sphere Project

Analysis of the Sphere Handbook (2018 edition) revealed that core standards, such as participation (Standard 1) and initial assessment (Standard 2), play a critical role in ensuring aid workers safety. For instance, the principle of community participation in operational planning reduces risks associated with lack of coordination and protects aid workers from hazardous conditions, such as local insecurity. Key indicators of these standards include equal access to information for men and women and maximizing the use of local capacities.

Comparison with the Pinheiro Principles (2005) indicates that these standards align with refugee rights—for example, Principle 8, which emphasizes the right to adequate housing—and can strengthen aid workers safety in complex crises, such as floods or earthquakes. The findings underscore that non-compliance with these standards can lead to operational duplication and increased risk, as reflected in the IFRC 2024 Annual Report, which documented 167 emergency operations in 2024.

Component 2: Competency, Training, and Awareness

Analysis of the HSE guidelines IRCS revealed that it is essential to assess the competence of aid workers based on individual abilities, experience, and technical knowledge. Periodic evaluation methods, such as systematic analysis of job requirements, indicated that over 70% of operational risks are linked to insufficient training. Training programs, including pre-employment and on-the-job sessions, that focus on topics such as stress management and the proper use of Personal Protective Equipment (PPE) can significantly increase safety. however, its integration with ISO 45001 standards, which emphasize occupational hazard reduction, suggests that continuous training can reduce incidents by up to 25%, particularly in operations in Iran such as flood response.

Component 3: Communication and Participation

Findings from the content analysis of IFRC documents indicate that internal communication (e.g., hazard reporting) and external communication (with legal authorities) are crucial for enhancing HSE performance. The participation principle in the Sphere standards, which emphasizes building mutual trust, helps reduce risks arising from misinformation or lack of coordination.

In Iran, this component faces challenges, such as a shortage of safety meetings; however, integration with the Pinheiro Principles—specifically Principle 14, which highlights consultation in decision-making—can strengthen local community engagement and ensure aid workers safety during humanitarian crises.

Component 4: Operational Control and Implementation Procedures

The analysis of operational control focused on three areas: personal safety, activity-based measures, and equipment management. Safety guidelines for operations, such as earthquake or flood response, demonstrated that periodic equipment inspections (e.g., rope and stretcher checklists) reduce technical risks. Identifying high-risk activities (e.g., working at heights) and developing preventive protocols, inspired by the IFRC risk management framework, emerged as a key finding.

Overall, the results indicate that integrating IFRC standards with local guidelines can enhance aid workers safety by up to 40%. However, continuous revision is necessary to keep pace with the increasing frequency of disasters, as highlighted in the DREF 2024 report, which recorded 24 million people affected.

These findings, grounded in triangulation of sources, provide practical recommendations for policymakers and emphasize that standardization not only protects the lives of aid workers but also enhances the overall efficiency of relief operations.

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Table 1. Comparison of key aid workers safety components with IFRC standards and practical applications

Key Component	Related Standard	Key Indicators	Practical Application in Iran	Impact on Aid workers Safety
Supportive and Core Standards	Sphere Core Standards (Participation, Initial Assessment, Accountability)	- Active involvement of local communities in planning; - Equal access to information for men and women; - Maximizing use of local capacities.	- Integration of local communities in flood and earthquake response planning; - Reduction of operational duplication in critical areas.	Reduction of 30% of operational risks due to lack of coordination (6)
Competency, Training and Awareness	ISO 45001, Iranian Red Crescent HSE Guidelines	- Assessment of individual abilities and experience; - Pre-employment and on-the-job training - Periodic retraining.	- Implementation of specialized training for aid workers in earthquake-prone areas; - Annual competency assessments.	Reduction of 25% of occupational incidents through continuous training (ISO 45001 analysis)
Communication and Participation	Sphere Participation Principle, Pinheiro Principle 14 (Consultation in Decision-Making)	- Rapid hazard reporting; - Regular safety meetings; - Communication with legal authorities.	- Establishment of an online hazard reporting system in relief bases; - Safety meetings with local stakeholders.	Reduction of risks from misinformation and improved coordination by 20%
Operational Control and Implementation Procedures	IFRC Risk Management Framework, Equipment Safety Guidelines	- Periodic equipment inspections; - Safety protocols for high-risk activities (working at heights, floods); - Incident documentation.	- Equipment checklists in mountain rescue operations; - Development of safety protocols for seasonal floods.	Reduction of 40% of technical and operational risks through regular inspections (6)

Discussion and Conclusion

A content analysis of documents from the IFRC, the Sphere Project, the Pinheiro Principles and ISO standards revealed that standardization in rescue and relief operations plays a central role in saving lives. The findings suggest that Sphere's core supporting standards – particularly the principles of participation and early assessment – can reduce operational risks by up to 30% by increasing coordination between local communities and response teams (6). This is particularly important in Iran, which is frequently hit by natural disasters such as earthquakes and floods.

However, gaps in the implementation of these standards, including inadequate specialist training and inadequate monitoring of equipment, pose challenges for local operations. Comparison with the Pinheiro Principles showed that emphasizing refugee rights (e.g., the right to adequate shelter) can indirectly enhance the safety of aid workers by reducing local tensions. This alignment between international and local standards highlights the need to integrate global frameworks with local practices to increase operational efficiency and protect aid workers (5).

The competency and training component, inspired by ISO 45001, demonstrated that systematic competency assessments and continuous training can reduce occupational incidents by up to 25%. In Iran, the IRCS's training programs—particularly in stress management and the proper use of Personal Protective Equipment (PPE)—require revision and strengthening to align with complex operational conditions. For instance, specialized training for operations in high-altitude areas or flood-affected regions can prevent life-threatening risks.

Additionally, communication and participation, as the third theme, underscore the importance of rapid hazard reporting and interaction with legal authorities. The absence of online reporting systems in Iran, contrary to IFRC recommendations, represents a critical weakness that should be addressed by implementing digital platforms (6&7).

Operational control, particularly regarding equipment safety and high-risk activities, demonstrated that periodic inspections and preventive protocols can reduce technical risks by up to 40% (2).

However, limitations such as financial constraints and insecurity in certain operational areas (e.g., conflict zones) make full implementation of standards challenging. In Iran, addressing these challenges requires increased budget allocation and collaboration with international specialized. These challenges, particularly in Iran, require additional funding and cooperation with international institutions. A comparison of IFRC standards with ISO 14001

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also highlighted that attention to the environmental impacts of relief operations—such as waste management in crisis-affected areas—can further enhance aid workers safety by mitigating environmental hazards (8&9).

This study demonstrated that the integration of IFRC standards, particularly the Sphere standards and Pinheiro Principles, with local HSE implementation procedures can significantly enhance aid workers safety. Practical recommendations include strengthening specialized training, establishing digital reporting systems, and conducting regular equipment inspections. In Iran, it is essential to develop locally adapted guidelines that reflect the country's frequent natural disasters.

Domestic regulations, such as the "Fadakare Khedmat (Devoted to Service)" decree (2021), Although they address compensation for injured aid workers, they lack comprehensive protocols on safety, specialized training, and psychosocial support in line with international instruments.

Overall, these results provide guidance to policymakers and crisis managers to ensure the safety of aid workers and the efficiency of operations by implementing global standards.

Compliance with Ethical Guidelines

There were no ethical considerations in this research.

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Author's Contributions

In this article, first author Mohammad Nateghi was responsible for conducting the research, collecting, and analyzing the data; the second author, Hadi Azimi Garekani, was responsible for design and supervision, and Jamshid Masoumi was responsible for the methodology. However, Hadi Azimi Garekani and Mohammad Nateghi was responsible for correspondence and editing the final manuscript submitted to the journal.

Conflict of Interests

The authors declare no conflict of interest.

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None

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