



University
of Exeter

A Scoping Review on the Contributions of Military Medicine in Humanitarian Aid and Disaster Relief Operations

Clementine Silverwood



Introduction

Military medical teams play an essential role in humanitarian aid and disaster relief operations, particularly in the aftermath of natural disasters, pandemics, and conflict zones. Their ability to provide timely medical services is crucial in high-stress and resource-limited environments (*Canyon, et al., 2019*). However, there is limited analysis of the available literature on the contributions of military medicine in these settings. The only literature review analysing the relationship between military and civilian agencies was published in 2014 (*Heaslip & Barber, 2014*).

This scoping review aims to explore the contributions of military medical teams in humanitarian aid and disaster relief operations, with a focus on understanding operational challenges and coordination with civilian health systems.

Aims

- Map the existing literature on military medical teams' contributions to humanitarian aid and disaster relief operations.
- Examine the effects of operational and logistical challenges faced by military medical teams in these settings.
- Explore the coordination mechanisms between military and civilian healthcare organisations and examine how it effects the outcomes of disaster relief efforts.

Methods

The Prisma for scoping reviews guidelines have been followed (*Tricco, et al., 2018*). This method complies with author guidelines for the Disaster Medicine and Public Health Preparedness Journal. The electronic databases Medline (EBSCO), EMBASE and Global Health were used for literature retrieval. The search strategy key terms were developed using the JBI PCC framework (*Khalil et al., 2024*).

All search results were exported into EndNote for reference management. Duplicates were removed, and the final list of eligible studies compiled. Full-text articles were assessed for eligibility. A data extraction form was used to systematically collect key variables from the studies: country of origin, aims, methodology, key findings and relevance to review aims. By synthesising this information, the review provides a comprehensive understanding of military medicine's role in humanitarian operations.

References

- Borgers, F., S. Van Boxtael and M. Sabbe (2021). "Is tactical combat casualty care in terrorist attacks suitable for civilian first responders?" *J Trauma Acute Care Surg* 91(4): e86-e92.
- Canyon, D. V., Ryan, B. J. & Burkle Jr, F. M., 2019. Rationale for Military Involvement in Humanitarian Assistance and Disaster Relief. *Prehospital and Disaster Medicine*, 35(1).
- Heaslip, G. & Barber, E., 2014. Using the military in disaster relief: systemising challenges and opportunities. *Journal of Humanitarian Logistics and Supply Chain Management*, 4(1).
- Khalil, H., Campbell, F., Danial, K., Pollock, D., Munn, Z., Welsh, V., Saran, A., Hoppe, D. & Tricco, A. C. (2024) *Advancing the methodology of mapping reviews: A scoping review. Research Synthesis Methods*, 15(3), pp. 384–397.
- Pollock, D. et al., 2023. Recommendations for the extraction, analysis, and presentation of results in scoping reviews. *JBI Evidence Synthesis*, 21(3), pp. 520-532.
- Tricco, A. C. et al., 2018. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*, 169(8).

Results

The number of studies included in this review total 120 papers. The spread of origin country in the selected papers was vast, however a significant proportion of them were written from a United States of America (USA) perspective as illustrated in figure 1. The majority of papers identified (75%) were written by high-income western countries with prominent military and foreign aid programs.

Figure 1 – Literature Country of Origin

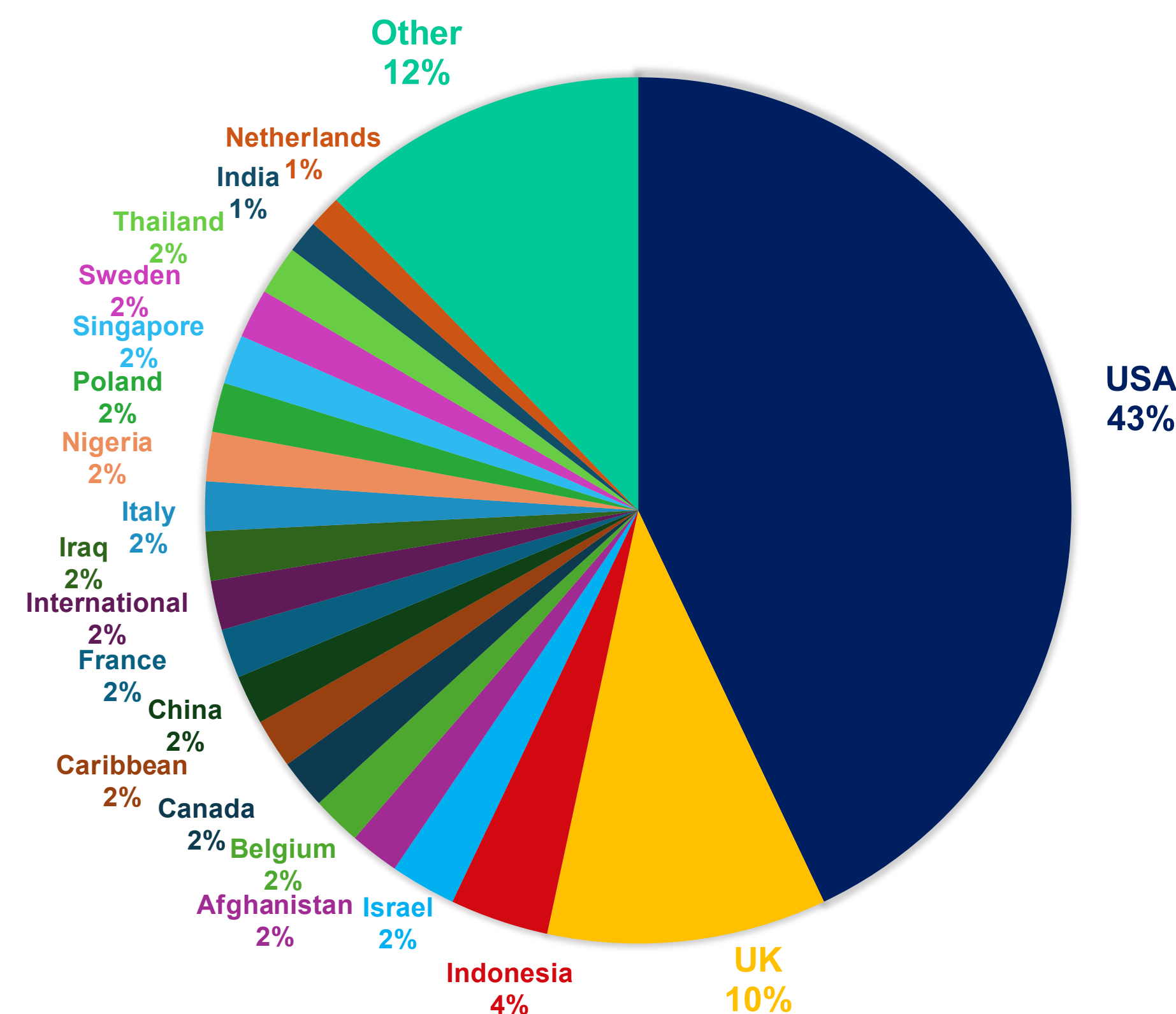
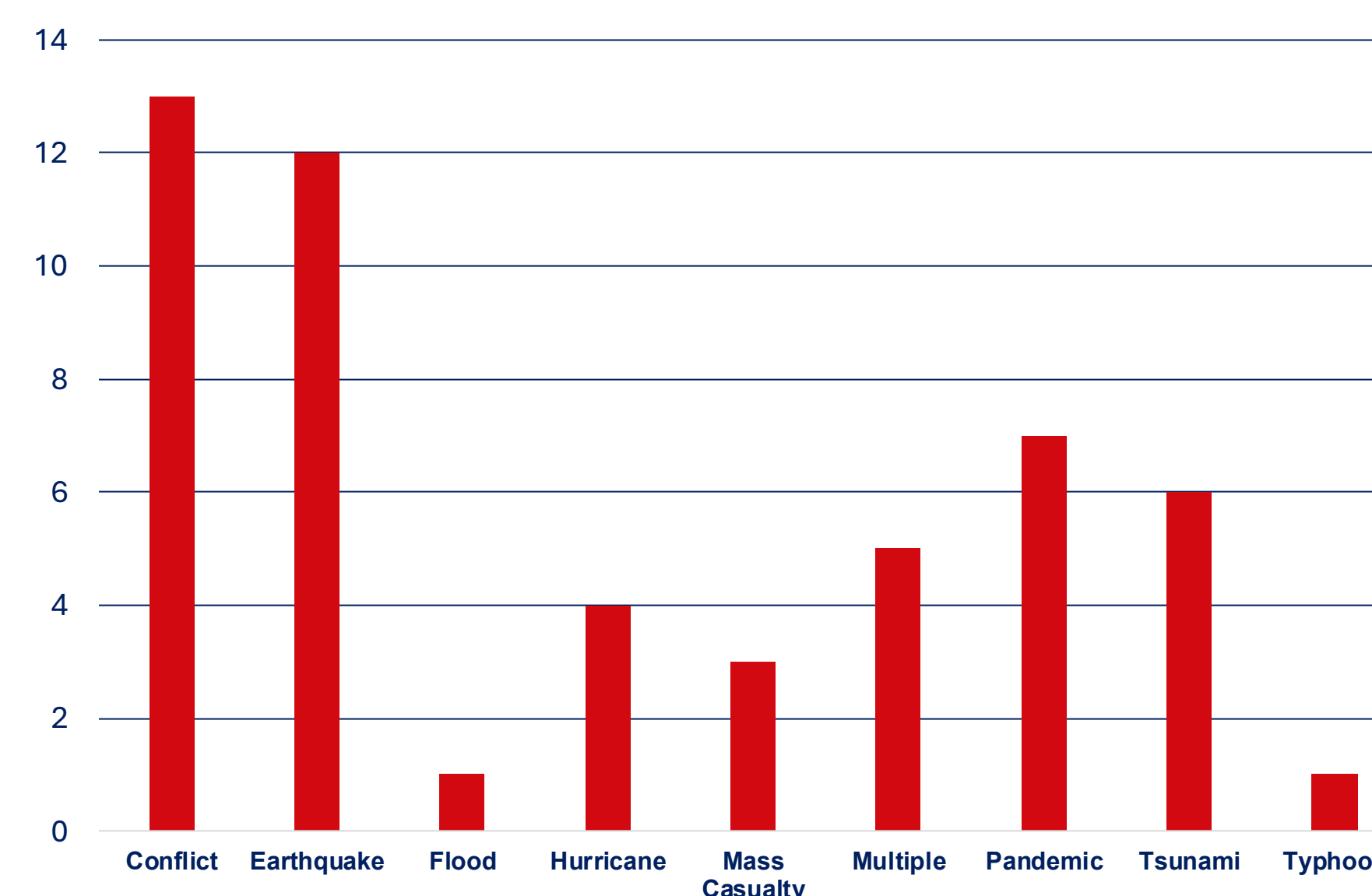


Figure 2 – Types of Natural Disaster Featured in Literature



Military medical teams contribute to a diverse range of operations worldwide including natural disasters, conflict zones, and humanitarian crises. The studies covered a wide range of disaster types (figure 2). The most common humanitarian aid efforts by military forces were conflict and earthquake missions, making up 48% of analysis.



Military support can provide rapid deployment of field hospitals and surgical units. Supply chain management and transport can be provided quickly and effectively through pre-existing military frameworks.



Training civilian medics in military medical advancements using the Tactical Combat Casualty Care (TCCC) guidelines improve patient outcomes by developing airway management and haemorrhage control (*Borgers, F., et al. 2021*). 5% of the analysed papers discuss TCCC adaption to improve civilian health practices and protocols.



There are many challenges that impact effective coordination between military and civilian forces. Differences in operational priorities with military protocols, differing from civilian standards, has caused communication breakdown. Bureaucratic hurdles can cause delays to care implementation. Ethical tensions result in poor military-civilian collaboration. 8% of the papers deep-dive military ethical challenges when integrating with civilians.



Key improvements for effective communication in future disasters:

- Joint pre-disaster education drills to standardise protocols and communication techniques.
- Policy frameworks developed to provide clearer mandates for military-medical operations by balancing efficiency with ethical care.

Conclusion

This scoping review has mapped the existing literature, detailing the contributions of military teams spanning two decades of research. The literature demonstrated that militaries possess unique operational and logistical skills that are well suited to providing humanitarian and disaster relief services in austere environments. Good communication and cooperation between military-civilian groups improve operation outcomes.

During the screening process, military sources had to be excluded as the full paper could not be accessed there are likely further military research relating to the aims of this study. Limiting the language of academic papers omitted papers relevant to this review from credible international sources. A limitation was the predominance of US-centric literature.

This scoping review has identified several areas for future research:

- Do proactively combined civilian and military forces responding to a natural disaster result in fewer communication challenges than individual operations?
- Developing current research evidence practices in disaster medicine to prioritise the long-term impacts of military medical interventions may improve mission sustainability outcomes. Prospective studies that assess quantitative outcome data will provide useful patient information to guide future health interventions and priorities for humanitarian missions.