




BMJ Open Factors influencing injury or death due to traumatic events in Afghanistan's crisis-affected populations: a cross-sectional nationwide study

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ABSTRACT

Objective Afghanistan, with one of the world's largest refugee populations, suffers an enormous burden of injury resulting in loss of life. This study aims to identify the epidemiology of injuries or death in the crisis-affected populations across Afghanistan and to investigate factors associated with injuries or deaths due to traumatic events.

Design Cross-sectional study.

Setting This study analysed Whole Afghanistan Assessment 2019 data. This survey geographically covered all 34 accessible provinces in Afghanistan.

Participants 31 343 displaced and shock-affected households in Afghanistan.

Primary and secondary outcome measures Injury or death of household members due to traumatic events.

Results 2561 (8.2%) reported at least one household member had been injured or deceased because of a significant conflict or natural disaster in the past year. Households experienced significant events such as active conflict or violence (prevalence ratio, PR=5.575, $p<0.001$), earthquake (PR=3.118, $p=0.004$), flood (PR=1.534, $p=0.008$) and avalanche or heavy snowfall (PR=3.450, $p<0.001$) were significantly associated with injury or death. The likelihood of injury or death was significantly higher for long-distance households than for households living within a 5 km radius of the nearest healthcare facilities (6–10 km: PR=1.402, $p=0.030$; >10 km: PR=1.560, $p=0.020$).

Conclusion The study provides an epidemiological profile of injuries or death in crisis-affected populations across Afghanistan. Results also suggest that certain factors place the crisis-affected populations in Afghanistan at high risk for injuries or death, which can inform the development of surveillance and prevention programmes, the monitoring of patterns over time and the formulation of healthcare policies.

INTRODUCTION

Injuries, both unintentional and violence-related, are increasingly recognised as an important public health problem, with an estimated 4.4 million people worldwide who died from injuries in 2021.¹ Injuries and violence are significant causes of death along with burden of disease in all countries;

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The study used population-based, cluster-randomised and nationwide survey data.
- ⇒ Complex sample design corrected analysis was carried out to provide unbiased estimates of characteristics of crisis-affected households in Afghanistan.
- ⇒ The outcome variable, injury or death, could not be analysed separately because it was collected through a single response category.

however, they are not evenly distributed across or within countries. Approximately 90% of injury-related deaths occur in low-income and middle-income countries.¹ Injuries and violence in vulnerable populations, such as crisis-affected populations, have a greater impact on loss of life and health.²

Afghanistan is the source of the largest protracted refugee population in Asia and the third-largest refugee population in the world, with nearly 2.6 million Afghans by the end of 2020.^{3 4} Another 2.9 million Afghans are internally displaced due to violent conflict, drought and other natural disasters.³ Pakistan and Iran host nearly 90% of displaced Afghans, including second-generation and third-generation Afghan refugees who have never lived in their home country.^{3 4} Injuries in Afghanistan have been growing in recent decades because of demographic and nutritional transitions, economic growth and technological change.^{3 4} In the early 1980s, communicable diseases were a constant threat to the health of the people of Afghanistan, as were malnutrition and diarrhoea. Later, the incidence of vaccine-preventable diseases was significantly reduced; tuberculosis was better controlled; and rates of diarrhoeal diseases, child mortality and malnutrition were lowered. However, Afghans suffer from a spectrum of conditions, including injuries

and violence. This stems from both a continuous involvement in the recent war in Afghanistan and as a consequence of intentional and unintentional behaviours.

The descriptive epidemiology of injury mortality in the crisis-affected populations across Afghanistan is poorly understood. As a result, accurate data on the vital statistics about injury mortality are not well documented. Furthermore, given the lack of data on injuries in these vulnerable populations, the available data were based primarily on hospital-reported injury patterns and only provided information on war injuries. Studies focused on civilian death and injury in the Iraq War also highlighted that nearly half of death or injury was unreported or unrecorded.^{5 6} This makes it difficult to accurately determine the burden of injuries among the crisis-affected populations in Afghanistan.^{7 8}

The purpose of this study was to identify the epidemiology of injuries or death due to traumatic events and to investigate risk factors associated with injuries or death using large, nationally representative samples of Afghanistan's crisis-affected populations.

METHODS

Design and data collection

This was designed as a descriptive study to investigate the household level of Afghanistan's crisis-affected populations in the Whole of Afghanistan Assessment (WoAA) 2019. This survey is a multisectoral and needs assessment conducted under the framework of the Inter-Cluster Coordination Team co-facilitated by Renewed Efforts Against Child Hunger and undernutrition in close collaboration with the UN Office for Coordination of Humanitarian Affairs. Between 17 July 2019 and 19 September 2019, structured household surveys were conducted using the Open Data Kit (KoBo Toolbox) among a sample of 31 343 displaced and shock-affected households in accessible areas throughout all 34 provinces in Afghanistan. The household survey was based on a random cluster sample, stratified by eight population groups: recent internally displaced persons (IDPs) (<6 months), non-recent IDPs (>6 months), cross-border returnees, non-displaced conflict-affected, non-displaced natural disaster-affected, refugees (in South-Eastern region only), IDP returnees (in Badghis province only) and host communities. A sample was drawn from across all accessible parts of Afghanistan using stratified random cluster sampling. Further information regarding the survey design and data collection of WoAA 2019 can be found in the official assessment report.⁹

Variables

The variables included the demographic characteristics of the household (number of family members, age, sex of head of household (HOH), literacy, displacement status, health status of HOH (sensory, motor or cognitive dysfunction and presence of chronic illness), distance to the nearest healthcare facility, and experienced major

events. Literacy was considered as having at least one household member over the age of 10 able to read and write and dichotomised as 'yes' or 'no'. Dysfunctions included sensory (vision or hearing), motor (walking) or cognitive (memory or concentration), and dichotomised as 'yes' or 'no'. Whether the HOH had chronic diseases was obtained through the question: 'Does the HOH have any chronic illness?', and participants responded 'yes' or 'no'. To measure the distance to the nearest healthcare facility, participants were asked, 'How far is the closest functioning comprehensive health centre to your household?', and they responded 'within 2 km,' '2–5 km,' '6–10 km,' 'more than 10 km' or 'none'. Response was classified as '≤ 5 km,' '6–10 km' or '> 10 km (including the 'none' response)'. Information about experience of major events was assessed through the question, 'Has the majority of your household directly experienced any major conflict or natural disaster events in the past year?', and participants responded 'yes' or 'no' to each of the active conflict or violence, earthquake, flood, avalanche or heavy snowfall and drought. The outcome variable, injury or death of a household member, was defined as the case of responding to 'injury/death of household members' as a result of the previously noted major event.

Statistical analysis

Descriptive analyses were performed to summarise participants' demographics, health status of HOH, accessibility to healthcare facilities and experience of major events. Results were presented as weighted mean estimates with 95% CIs for numerical data and sample frequencies with weighted percentages for categorical data as appropriate. To examine the difference according to injury or death of a household member, univariable linear regression for numerical data and Rao-Scott corrected χ^2 test for categorical data were conducted. Multivariable Poisson regression analysis was performed to explore the factors related to participant injury or death due to traumatic events.¹⁰ The result was reported as a prevalence ratio (PR) with 95% CI. The Taylor-series linearisation was used to variance estimation in account for the complex sampling design nature of the WoAA 2019 survey to provide unbiased estimates of population characteristics. The data were analysed using Stata/MP V.16.1 (StataCorp). The alpha level of 0.05 (two tailed) was considered a threshold for statistical significance.

Patient and public involvement

No patient was involved in this study. This study is based on a secondary data source and therefore, patients were not involved in any way.

RESULTS

A total of 31 343 Afghanistan households were enrolled in this study. About 61.1% of those were households from outside the area where the interviews took place. The average number of family members per household was

Table 1 General characteristics of crisis-affected populations of Afghanistan

Variable	Injury or death of household members				Total (n=31 343)		Statistics	P value
	No (n=28782)		Yes (n=2561)					
	n	Weighted %	n	Weighted %	n	Weighted %		
Demographics								
No of family members*	6.2	(6.0, 6.5)	6.5	(6.1, 7.0)	6.2	(6.0, 6.5)	1.110	0.267
Age of HOH*	43.6	(42.8, 44.3)	44.2	(42.7, 45.7)	43.6	(42.9, 44.3)	0.740	0.457
Sex of HOH								
Male	26578	85.9	2349	5.2	28927	91.1	2.179	0.140
Female	2204	8.5	212	0.4	2416	8.9		
Literacy (any member of household)								
No	11096	41.8	768	2.2	11864	43.9	3.340	0.068
Yes	15717	52.4	1708	3.7	17425	56.1		
Displacement status								
Displaced	13366	57.2	1274	3.9	14640	61.1	0.943	0.332
Non-displaced	14140	37.1	1266	1.8	15406	38.9		
Health status of HOH and healthcare facilities								
Sensory dysfunction								
No	24225	79.5	2020	4.6	26245	84.0	0.913	0.340
Yes	4443	14.9	521	1.0	4964	16.0		
Motor dysfunction								
No	23986	79.8	1969	4.4	25955	84.2	1.541	0.215
Yes	4516	14.8	527	1.0	5043	15.8		
Cognitive dysfunction								
No	22667	75.6	1687	4.2	24354	79.8	3.391	0.066
Yes	6063	18.8	864	1.4	6927	20.2		
Chronic illness								
No	22617	75.8	1722	4.3	24339	80.1	2.232	0.135
Yes	5115	18.6	781	1.4	5896	20.0		
Healthcare facility distance								
≤5 km	20529	73.4	1503	3.8	22032	77.3	1.370	0.252
6–10 km	5339	14.7	745	1.3	6084	16.0		
>10 km	2914	6.3	313	0.5	3227	6.8		
Experienced major event								
Active conflict or violence								
No	9208	27.2	225	0.4	9433	27.5	65.338	< 0.001
Yes	19574	67.2	2336	5.2	21910	72.5		
Earthquake								
No	28143	92.8	2384	4.9	30527	97.7	30.258	< 0.001
Yes	639	1.6	177	0.7	816	2.3		
Flood								
No	20733	78.4	2001	4.2	22734	82.6	4.791	0.029
Yes	8049	16.0	560	1.4	8609	17.4		
Avalanche or heavy snowfall								
No	28528	93.9	2403	5.1	30931	99.0	162.309	< 0.001
Yes	254	0.5	158	0.5	412	1.0		
Drought								
No	16330	55.2	1496	3.2	17826	58.4	0.115	0.735
Yes	12452	39.2	1065	2.4	13517	41.6		

Strata with single sampling unit centred at overall mean.
 *Weighted mean estimates and 95% CIs are presented.
 HOH, head of household.

Table 2 Factors associated with injury or death of household members

Variable	PR	SE	P value	95% CI	
				LL	UL
Demographics					
No of family members (min=1; max=30)	1.016	0.026	0.544	0.966	1.067
Age of HOH (min=15; max=110)	0.999	0.004	0.876	0.991	1.008
Sex of HOH					
Male	ref				
Female	0.966	0.176	0.851	0.676	1.382
Literacy (at least one of household member)					
No	ref				
Yes	1.279	0.227	0.166	0.903	1.813
Displacement status					
Displaced	ref				
Non-displaced	0.725	0.193	0.227	0.430	1.222
Health status of HOH and healthcare facilities					
Sensory dysfunction					
No	ref				
Yes	1.058	0.161	0.712	0.785	1.426
Motor dysfunction					
No	ref				
Yes	1.269	0.180	0.093	0.961	1.675
Cognitive dysfunction					
No	ref				
Yes	1.213	0.127	0.065	0.988	1.488
Chronic illness					
No	ref				
Yes	1.128	0.142	0.337	0.882	1.443
Healthcare facility distance					
≤5 km	ref				
6–10 km	1.402	0.218	0.030	1.033	1.902
>10 km	1.560	0.297	0.020	1.074	2.267
Experienced major event					
Active conflict or violence					
No	ref				
Yes	5.575	1.270	<0.001	3.566	8.715
Earthquake					
No	ref				
Yes	3.118	1.216	0.004	1.451	6.697
Flood					
No	ref				
Yes	1.534	0.247	0.008	1.118	2.104
Avalanche or heavy snowfall					
No	ref				
Yes	3.450	1.120	<0.001	1.825	6.519
Drought					
No	ref				
Yes	0.826	0.136	0.244	0.598	1.140

Strata with single sampling unit centred at overall mean.

HOH, head of household; LL, lower limit; PR, prevalence ratio; ref, reference; UL, upper limit.

6.2. The mean age of the HOH was 43.6 years, and 91.1% of HOH were male. Just about half (56.1%) of households had at least one member over the age of 10 who was able to read and write. The HOH vision, hearing, walking, remembering and concentration functions were relatively good. Most of them (84.0%) had no problem seeing or hearing with aid; 84.2% of them said they had no difficulty walking; and 79.8% had no problems with memory or concentration. Also, 24 339 (80.1%) people answered that they had no chronic disease. Approximately 77.3% of the households reported that the distance to the nearest healthcare facility was within 5 km. When participants answered the major conflict or natural disaster that they experienced in the last year in multiple responses, 21 910 (72.5%) reported active conflict or violence, 13 517 (41.6%) answered drought and 8 609 (17.4%) answered flood (table 1).

To explore the factors associated with injury or death of household members, multivariable Poisson regression was conducted. Results from analysis revealed that households experienced major event such as active conflict or violence (PR=5.575, $p<0.001$, 95% CI=3.566 to 8.715), earthquake (PR=3.118, $p=0.004$, 95% CI=1.451 to 6.697), flood (PR=1.534, $p=0.008$, 95% CI=1.118 to 2.104) and avalanche or heavy snowfall (PR=3.450, $p<0.001$, 95% CI=1.825 to 6.519) and were significantly associated with injury or death. It was confirmed that the likelihood of injury or death was significantly higher for long-distance households than for households within a 5 km radius of the nearest healthcare facility (6–10 km: PR=1.402, $p=0.030$, 95% CI=1.033 to 1.902; >10 kilometers: PR=1.560, $p=0.020$, 95% CI=1.074 to 2.267) (table 2).

DISCUSSION

This study presented population-based data on the prevalence of injury or mortality due to traumatic events and the risk factors for injury or mortality among the crisis-affected populations in Afghanistan. To our knowledge, this is the first comprehensive report on the risk factors of the populations affected by the crisis across Afghanistan. We found the cumulative injury incidence or mortality for all injuries or death to be 82 per 1000 persons. The prevalence of injuries or death among the crisis-affected populations in Afghanistan is higher than in other migrant populations, such as Vietnamese refugees in England and Wales and Lebanese refugees.^{11 12} Our analysis of WoAA 2019 confirms that the prevalence of injury in the crisis-affected populations across Afghanistan is higher than in other migrant populations who settled in foreign places due to economic or other non-crisis-related reasons.

The results of this study provide further evidence regarding who is at risk for injuries or death among the crisis-affected populations in Afghanistan. The most notable finding of this study is that the experience of major events, including active conflict or violence, earthquake, flood and avalanche or heavy snowfall, was strongly associated with injury or death of household members.

Afghanistan has been a victim of terrorism and political and economic instability, exacerbated by natural disasters such as floods, earthquakes and chronic droughts. Some of these factors directly influence the health of the crisis-affected populations and cause displacement of populations.³ In particular, conflict and violence are significant health challenges among the crisis-affected populations, leading to both physical and mental disorders, especially for the traumatised or vulnerable such as victims of torture and trauma and unaccompanied minors.¹³ A study of 992 migrants and refugees from Syria and Afghanistan attending Médecins sans Frontières mobile mental health clinics found that almost 4 in 10 individuals had experienced one or more traumatic events, including violence and physical trauma, during their journey.¹⁴ Another study examining access to healthcare for people facing multiple health vulnerabilities in 26 cities across 11 countries (Belgium, Canada, France, Germany, Greece, the Netherlands, Spain, Sweden, Switzerland, Turkey and the UK) found that, among 1809 patients interviewed about their experience of violence, nearly 85% had experienced one or more episodes.¹⁵ Surprisingly, our study found that 72.5% had experienced active conflict or violence in the crisis-affected populations across Afghanistan. Development and implementation of strategies to prevent and effectively deal with such conflict or violence are urgent, including identifying victims, providing life-saving medical supplies and care, ensuring a timely response to the health needs and continuity of health services, and expanding work on trauma and rehabilitation for conflict-related injuries.¹⁶

Another important risk factor in this study was the distance to healthcare facilities. Over the last decade, Afghanistan's healthcare system has been steadily developed, improving the coverage of healthcare services across the country. The number of healthcare facilities increased from 496 in 2002 to 3135 in 2018, giving nearly 87% of the population access to healthcare within 2 hours.¹⁷ These improvements, however, have not been evenly distributed throughout the country.^{17 18} Afghanistan includes over half a million acutely displaced people with limited access to healthcare, with returnees and refugees often deprived of essential healthcare services.¹⁶ Our analysis of WoAA 2019 demonstrated substantial inaccessibility to the healthcare system in Afghanistan's crisis-affected populations, particularly those who experienced displacement. In addition, the findings of this study suggest that limited access to the healthcare system and facilities might hinder Afghans' ability to obtain timely care following an injury, making them more vulnerable to injuries or death. This study points to advocating for the inclusion of crisis-affected populations into healthcare systems at affordable costs and sufficient quality, improving access to healthcare services for the transportation disadvantaged, as a priority for decreasing injuries or death in Afghanistan's crisis-affected populations.¹⁹

This study has several limitations. First, data were self-reported by household members. Self-reported injuries



commonly underestimate the actual burden of injuries or death, particularly in populations where stigma or cultural barriers may affect reporting.²⁰ The risk of recall bias and lack of details of the household verbal autopsies may affect the prevalence estimates of injury or death. Second, this study did not evaluate the specific conditions and events in which the reported injuries or deaths occurred, such as types of injuries (eg, fall, road traffic injuries, burns), anatomical location (eg, extremities, head, neck), mechanism of injuries (eg, shootings, beatings) and lethality of injuries. In addition, other possibly related or important factors such as health status (eg, comorbidities), living conditions and settlements (eg, heating and lighting sources) and socioeconomic status (eg, employment status, household income) were not considered in this study. Future study is needed to explore injury patterns further and identify other sources of injuries to shape healthcare policies and develop intervention programmes in Afghanistan's crisis-affected populations.

Despite the limitations, this study adds to the currently limited body of evidence of risk factors for injuries or death among Afghanistan's crisis-affected populations using nationally representative survey data. The sample size was an accurate representation of the study area and was large enough to give statistical power. The finding of this study provides a rationale for proposing strategies against injury or death as a critical element of healthcare services in the crisis-affected populations in Afghanistan.

This study found that households that experienced major events such as conflict and violence and lived long distances from healthcare facilities were significantly associated with injury or death. The factors identified in this study can provide healthcare providers with preliminary evidence to inform interventions to decrease the injury impact on the Afghan communities and to mitigate the strain for health and rehabilitation services on the Afghan healthcare system. It is necessary to receive more attention not only to physical injuries but also to mental trauma. A study regarding the postinvasion conflict in Iraq emphasised the lack of mental health services for the crisis-affected population and its importance.²¹ In addition, health policy makers might enhance the discussion of the crisis-affected populations across Afghanistan and could use such information to facilitate the best support. In addition, future research through a mixed-methods approach incorporating qualitative and quantitative methods is needed. Research involving qualitative studies can deepen our understanding of the complex issues associated with injuries and death and protective factors of injury mortality in the crisis-affected populations in Afghanistan. Such research can help develop successful surveillance and prevention programmes to decrease the incidence of injuries or death, monitor patterns over time and shape healthcare information policies for crisis-affected populations in Afghanistan.

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REFERENCES

- 1 World Health Organization. Injuries and violence, 2021a. Available: <https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence> [Accessed 18 Jan 2022].
- 2 Borse NN, Hyder AA. Call for more research on injury from the developing world: results of a bibliometric analysis. *Indian J Med Res* 2009;129:321.
- 3 United Nations High Commissioner for Refugees. Afghanistan, 2021a. Available: <https://www.unhcr.org/afghanistan.html> [Accessed 20 Jan 2021].
- 4 United Nations High Commissioner for Refugees. Refugee data finder, 2021b. Available: <https://www.unhcr.org/refugee-statistics/> [Accessed 21 Jan 2022].
- 5 Crawford NC. Civilian death and injury in the Iraq war, 2003-2013. In: *Costs of War*. Watson Institute for International and Public Affairs, 2013.
- 6 Abbas ZA, Omar AJ, Salih SM. Total civilian deaths during 2003-2015 and post-conflict period in Iraq: challenges and achievements of the medico-legal directorate (MLD) in Baghdad. *Arab J Forensic Sci Forensic Med* 2018;1:800-10.
- 7 Nasir K, Hyder AA, Shahbaz CM. Injuries among Afghan refugees: review of evidence. *Prehosp Disaster Med* 2004;19:169-73.
- 8 Hyder AA, Ghaffar A, Masud TI, et al. Injury patterns in long-term refugee populations: a survey of Afghan refugees. *J Trauma* 2009;66:888-94.

- 9 REACH, Resource Centre, 2019. Available: <https://www.reachresourcecentre.info/country/afghanistan/theme/multi-sector-assessments/cycle/29824/#cycle-29824> [Accessed 18 Nov 2021].
- 10 Barros AJD, Hirakata VN. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. *BMC Med Res Methodol* 2003;3:1–13.
- 11 Swerdlow Aj. Mortality and cancer incidence in Vietnamese refugees in England and Wales: a follow-up study. *Int J Epidemiol* 1991;20:13–19.
- 12 Al-Hajj S, Pawliuk C, Smith J, *et al.* History of injury in a developing country: a scoping review of injury literature in Lebanon. *J Public Health* 2021;43:e24–44.
- 13 World Health Organization. Regional office for Europe. Strategies and interventions on preventing and responding to violence and injuries among refugees and migrants: technical guidance, 2020. World Health Organization. Regional Office for Europe. Available: <https://apps.who.int/iris/handle/10665/331268> [Accessed 15 Dec 2021].
- 14 Arsenijević J, Schillberg E, Ponthieu A, *et al.* A crisis of protection and safe passage: violence experienced by migrants/refugees travelling along the Western Balkan corridor to northern Europe. *Confl Health* 2017;11:1–9.
- 15 Simonnot N, Vuillermoz C, Vanbiervliet F, *et al.* Taking action to rebuild: violence experienced by migrants consulting doctors of the world in Europe. *Eur J Public Health* 2015;25:ckv171.017.
- 16 World Health Organization. WHO Afghanistan Emergency Plan: Meeting the health needs of Afghanistan's crisis-affected populations, 2021b
- 17 World Health Organization. WHO Afghanistan country office. Geneva, Switzerland WHO; 2019.
- 18 Frost A, Wilkinson M, Boyle P, *et al.* An assessment of the barriers to accessing the basic package of health services (BPHS) in Afghanistan: was the BPHS a success? *Global Health* 2016;12:1–11.
- 19 Kaafarani HMA, Khalifeh JM, Ramly EP, *et al.* A nationwide, systematic, and comprehensive assessment of surgical capacity in Lebanon: results of the surgical capacity in areas with refugees (scar) study. *Ann Surg* 2019;269:1206–14.
- 20 Buhman C, Mortensen EL, Lundstrøm S, *et al.* Symptoms, quality of life and level of functioning of traumatized refugees at psychiatric trauma clinic in Copenhagen. *Torture* 2014;24:25–39.
- 21 Garfield R, Diaz J. Epidemiologic impact of invasion and post-invasion conflict in Iraq. *Biosci Trends* 2007;1:10–15.