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Resilience Amid Rubble: Recovery After Afghanistan Earthquakes

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ABSTRACT

Introduction/Importance: This study examines the impact of the 2023 earthquakes in the hardest-hit area, Herat Province, Afghanistan. Expanding upon existing ongoing research, this study used this unique opportunity as a naturalistic experiment examining community resiliency after disaster in Afghanistan.

Objectives of Study: The goal was to identify possible resiliency factors that assisted community responses to the earthquakes and aftershocks and the resulting disaster sequelae.

Background: Decades of conflict, poverty, and lack of infrastructure, along with oppressive Taliban restrictions, left many communities especially vulnerable to the disaster. A lack of an organized government response required the people to depend on their own community resources. Resilience factors were identified amid the impoverished destruction and Taliban-imposed restrictions.

Methods: Data collection relied on in-person surveys using purposeful and snowball sampling due to safety concerns. A mixed-methods approach integrated qualitative thematic analysis and quantitative background data.

Results: Findings highlight survival strategies and resilience mechanisms in affected communities, contributing to the understanding of crisis responses under oppressive conditions. Three factors appeared critical in our research on the relatively resilient communities post-earthquake in Afghanistan. First, the importance of the role of localized family and extended family groups was identified. Second, the role of the local religious leaders was especially helpful as a communication pathway, along with providing hope. Finally, a return to youth activities with the support of teachers and coaches was an important resiliency factor. This naturalistic study identified that even in devastated communities there were sources of strength that could be utilized for disaster recovery.

Keywords: Afghanistan; Community Resiliency; Natural Disaster; Earthquakes; Naturalistic Study

Introduction

Afghanistan's Herat Province suffered a series of devastating earthquakes in October 2023, with four major tremors-each measuring magnitude 6.3-striking the region and causing widespread destruction.[1,2] The initial two earthquakes occurred on October 7, followed by additional shocks on October 11 and 15, all associated with thrust faulting. The disaster resulted in at least 1,489 deaths and more than 2,400 injuries, while affecting over 43,000 people and leaving tens of thousands homeless as winter approached.[1–3] The epicenter was near the city of Herat, with rural districts such as Zindajan experiencing near-total destruction due to the prevalence of single-story mud-brick homes, which collapsed easily during the quakes.[4]

The earthquakes struck amid a protracted humanitarian crisis. Since the Taliban's return to power in 2021, Afghanistan has faced economic collapse, international isolation, and severe restrictions on aid delivery.[4,5] Development funding, which previously covered about 75% of public spending, was abruptly cut, and the Afghan central bank's reserves remain frozen due to sanctions.[5] These factors, combined with ongoing drought and a harsh winter, have left nearly half the population in poverty and about 15.3 million people facing acute food insecurity.[4-6] Humanitarian agencies, already stretched thin, were further challenged by the earthquakes, with hospitals overwhelmed and aid delivery hampered by funding shortfalls and bureaucratic obstacles.[3,4,7]

In this context, local communities were forced to rely heavily on their own resources and resilience. Decades of conflict, poverty, and weak infrastructure, compounded by Taliban-imposed restrictions, left many areas particularly vulnerable to disaster. Amidst the rubble, Afghanistan's emergency response and construction sectors lacked the capacity to address the overwhelming demand.[8] Inadequate tent shelters for many families were blown away by strong windstorms in the next two months following the earthquakes.[9] Freezing temperatures further strained the unhoused.[10] The psychological toll of displacement further exacerbated mental health challenges, as stable housing is integral to recovery and well-being. As Daniel Peter Endres, acting United Nations (UN) Humanitarian Coordinator for Afghanistan, stated:

These earthquakes have struck some of the most vulnerable communities in Afghanistan, they have already been grappling with decades of conflicts and under development. The affected communities have little resilience to cope with the multiple and simultaneous shocks, and especially with the cold winter coming, when households have limited food resources and are most constrained in capacity.[11(¶5)]

The lack of basic community resources is extreme in Afghanistan. Healthcare access remains a critical hurdle in Afghanistan's recovery efforts. The socio-political changes following the Taliban's return to power in 2021 have severely disrupted healthcare services, exacerbating the effects of the earthquake. Women are not allowed to see male doctors, and female physicians are few to nonexistent. The withdrawal of international aid and funding shortages have resulted in significant healthcare gaps, including shortages of medical supplies and personnel. This has led to increased infant and child mortality rates, heightened malnutrition, and limited access to critical care.[12]

Furthermore, the broader socio-economic instability in Afghanistan poses significant challenges to recovery. Ongoing conflict, economic decline, and the aftermath of the earthquake have created a complex humanitarian landscape. Poverty impacts more than 90% of the population, with 91% of household income spent on food.[13] High unemployment rates and limited international aid further hinder recovery, increasing vulnerability to future disasters. The humanitarian response in Afghanistan has been critically underfunded.[5-14] Despite these overwhelming conditions, the participants were able to identify factors that were sources of resilience that facilitated their recovery. The lack of a coordinated government response and resources meant that survival and recovery depended largely on grassroots initiatives, family networks, and the mobilization of community and religious leaders.

Methods

Since the Taliban takeover in 2021, they have created an environment of fear and absolute control.[15] Consequently, the ability of independent researchers and aid agencies to gather data was restricted.[16] This specific original study was begun

in October of 2022, one year after the series of earthquakes and aftershocks that hit Afghanistan in 2023, and was being conducted by an Afghan professor with their students working at a major national university (name and specific credentials withheld due to concern for their safety). This research was part of a larger, ongoing study examining current conditions in Afghanistan, which completed the equivalent of an Institutional Review Board (IRB) review and approval within a university in Afghanistan (name of university withheld). However, as conditions have worsened under Taliban rule, concerns for the safety of the researchers increased due to the study's ongoing findings documenting deteriorating conditions in the Herat province. Therefore, the data analysis was shifted to Germany and the United States of America (USA). Nonetheless, the infrastructure for conducting research in Afghanistan was still active. Consequently, when the earthquakes hit, the researchers recognized the opportunity to conduct a naturalistic study examining community resiliency after disaster, and the study was expanded. This part of the study looked at the impact of the earthquakes and possible resiliency factors within the communities, and was conducted by in-person surveys. Initially, the participants were identified through local coordination with community elders. Subsequently, snowball sampling was used to identify other participants in the community willing to talk to the researchers and expand the survey. The frontline Afghanistan research team provided data electronically to former colleagues in Germany requesting to stay anonymous. The translation and analysis of the data was completed by the named authors of this paper.

Sampling Methods

As stated above, the safety and security of participants and researchers were paramount. In the current situation, the Taliban have imposed countless restrictions and punishments on women, including not traveling without being accompanied by a male member of the family.[17] Furthermore, the ability for researchers to talk to someone of the opposite gender was also restricted.[18] Therefore, for this study, a group of 5 female data collectors, along with their male family members acting as escorts, as well as 4 male data collectors, visited the target communities from October through December 2024. Access to all the families with a household-based survey was not possible due to their mobile status and the dislocation of the families in villages. Many families from the target communities were difficult to contact in the aftermath of the earthquakes due to a combination of loss of homes, income sources, and hope, thus forcing them to move to different villages. Consequently, normal random sampling methods were not possible, and the data collection took place on the basis of snowball sampling, availability, and readiness of community members to participate. Initially, a purposeful sampling method was used to select a small number of participants. As stated above, as the study progressed, a snowballing method was added in which researchers were directed to other people within the communities who would be willing to participate. Although the lack of random sampling limits the ability to generalize the findings of this study to the population of Afghanistan as a whole, it still provides critical information regarding the experiences of people who are difficult to access.

Data Analysis

Once the deidentified transcripts and survey information were received and translated, the authors analyzed the database using framework analysis, combining data- and theory-driven perspectives. Specifically, the analysis was conducted as follows. First, the data was reviewed independently multiple times by the researchers to increase their familiarity with the responses. The researchers then independently coded 10% of the responses using inductive codes from the qualitative review of transcripts. To begin the process of convergence, the researchers then met to discuss the preliminary codes, collapse and refine them, and create a codebook that was then used to recode the same 10% of the sample. A reiterative process of adding emergent codes and refining the codebook was followed. Next, the researchers again independently coded all responses from the interviews. Interrater reliability for the final round of coding was calculated via Cohen's kappa[19] and found to be $k = .88$. Finally, the independent ratings were synthesized, and consensus was used to resolve any discrepancies that had been identified. Thematic analysis was then conducted on the final English version of the transcripts.

Background of the Researchers

The five researchers each brought important skills and knowledge to this study. The three Afghan

researchers had extensive experience conducting research in Afghanistan at the university level prior to becoming refugees in Germany. Additionally, they had the translation skills and cultural knowledge needed to ensure proper analysis of the data. The two U.S. researchers have extensive experience working with diverse languages and cultures in post-disaster environments.

Qualitative Research Aim

The aim of the study, through a secondary data analysis, is to qualitatively examine the previously collected database transcripts from a critical theory perspective to document the impact and community responses to the earthquake. In particular, one goal was to identify possible resiliency factors that assisted community responses to the earthquakes and aftershocks and the resulting disaster sequelae.

Quantitative Research Aim

Additionally, basic background information (e.g., age, education, etc.) will be used to place the qualitative data into perspective and to understand better the context of the reported experiences of the communities.

Mixed Research Aim

Due to limitations imposed by using data from de-identified (anonymous) surveys, a convergent mixed-methods design was used in data analysis in that both qualitative and quantitative data were collected simultaneously.

Ethical Considerations

The main ethical concern of this study was for the safety and well-being of both the participants and the researchers. The structure of the study was made with this in mind, including:

- No personal names or identifying information were gathered during the data collection.
- The data collection process was individual-based at locations designed to give participants full privacy and the willingness to participate.
- Participants were instructed to feel free to respond or not to respond to any questions they felt were irrelevant, risky, or that had the potential to expose their identity.
- Participants were recruited by a snowballing, word-of-mouth method in which recruiters carefully sought out members of the target communities. Trusted potential participants were then given the survey and each individual was given a choice whether if and when they would respond. Although this approach raises issues regarding bias and generalizability, it was required to ensure the safety of all that were involved with this study.

Given that the authors of this report conducted a secondary data analysis on a de-identified survey database that had already received IRB approval within Afghanistan, the University of Utah's Institutional Review Board (IRB) granted "Exempt" status to the project.

Results

Demographics

A total of 406 respondents participated in this survey. Specifically, 25 villages and geographic areas were covered under this study, including 4 districts of Herat city. This included Hawz Karbas, Shalbafan, and Mahal Kandahariha, which are the slums and densely populated areas where the majority of the houses are built either with almost no earthquake resistance measures or are mud-constructed houses. Table 1 shows the number of participants surveyed in each area or village.

Table 1. Number of respondents in each village or area surveyed

	Village or Area	# of Respondents	%
1	Qala Nawak	15	3.7
2	Wardakha	22	5.4
3	Siah Aab	26	6.4
4	Izqulak	8	2.0
5	Sanjab	23	5.7
6	Qarmushak	17	4.2
7	Koshk	35	8.6
8	Butan	12	3.0
9	Chahak	35	8.6
10	Asia Badek	10	2.5
11	Naw Abad	4	1.0
12	Faiz Abad	7	1.7
13	Hazrat Abad	6	1.5
14	Meer Abad	7	1.7
15	Bernabad	13	3.2
16	Bolandab	20	4.9
17	Nayeb Rafi	15	3.7
18	Sheer Abeh	18	4.4
19	Khosh Rebat	18	4.4
20	Hawz Karbas-Urban	7	1.7
21	Shalbafan-Urban	6	1.5
22	Mahal Kandahariha-Urban	8	2.0
23	Kajkal	23	5.7
24	Sarboland	30	7.4
25	Herat City random areas	21	5.2
	Totals	406	100.0

As shown in Table 2, the researchers surveyed relatively equal numbers of males and females.

Table 2. Gender Distribution of Respondents

Gender	# of Respondents	%
Male	211	52.0
Female	195	48.0
Totals	406	100.0

Also, the respondents were predominantly middle-aged, with half of the participants being 31 to 50 years old.

Table 3. Respondents' Age Distribution

Age Category	# of Respondents	%
Below 18	19	4.7
18-30	88	21.7
31-50	191	47.0
51-70	90	22.2
Above 70	18	4.4
Totals	406	100.0

Additionally, as shown in Tables 4, two-thirds of respondents were married.

Table 4. Respondents' Marital Status Distribution

Marital Status	# of Respondents	%
Single	124	30.5
Married	255	62.8
Widowed	27	6.7
Total	406	100.0

Furthermore, the vast majority of respondents had traditionally large families (five or more children).

Table 5. Sizes of Respondents' Families

# of Children in Family	# of Respondents	%
2-5	65	16.0
5-7	152	37.4
7-10	156	38.4
above 10	33	8.1
Totals	406	100.0

Quantitative Findings

When asked to report the level of devastation to their village or areas from the earthquakes, in 21 of the 25 locations, 100% of respondents stated that their homes were "completely destroyed." These 21 locations were all rural villages. The other 4 areas were 4 districts within Herat city. Hawz Karbas, Shalbafan, and Mahal Kandahariha are the slums and densely populated areas of Herat city, where the majority of the houses are built either with almost no earthquake resistance measures or mud-constructed houses. Nonetheless, 64.3% of the 42 respondents from these Herat city districts reported "no damage," and 45.7% reported minor damage. Clearly, there was a significant difference in the level of damage between the urban and rural locations.

Next, participants were asked about the type of aid that they had needed and received. In response, 91.2% indicated that the main aid they had received came from international organizations or non-governmental organizations (NGOs), while local authorities were the main source for 8.3% of respondents. In regards to the type of services that were needed, 96.3 reported they needed temporary shelter, 89.7% needed employment assistance, 85.5% desired psychosocial and mental health services to deal with the trauma, 77.9% needed financial aid to assist with rebuilding, 77.2% needed healthcare services, and 47.5% needed food and clean water.

Table 6 shows how satisfied the participants were with the services and aid that they had received. As shown in the table, there appeared to be a skewed response, with 71.9% being very or somewhat satisfied with the assistance they had received, while 23.0% were very or somewhat dissatisfied with the aid and support they had received. In examining the data further, the level of satisfaction was strongly correlated with the level of isolation that the villages had experienced after the earthquakes. For example, roads to some villages had been destroyed due to landslides and flooding, resulting in little aid reaching the area for extended periods of time.

Table 6. Satisfaction with Aid and Support Received

Level of Satisfaction	Frequency	%
Very satisfied	69	17.0
Somewhat satisfied	222	54.7
Neutral	21	5.2
Somewhat dissatisfied	60	14.8
Very dissatisfied	34	8.4
Total	406	100.0

Despite the relatively high level of satisfaction, as shown in Table 7, 56.7% of respondents indicated that their communities had a somewhat or very weak ability to recover from the earthquakes.

Table 7. The Community's Ability to Recover from the Earthquake

Rated Level of Recovery	Frequency	%
Very strong	30	7.4
Somewhat strong	123	30.3
Neutral	23	5.7
Somewhat weak	203	50.0
Very weak	27	6.7
Total	406	100.0

When asked to identify the factors that best assisted the community in recovering from the earthquakes, 92.2% indicated community cooperation (e.g., sharing of resources) and organization. Alternatively, when asked to identify the biggest challenges to recovery, 83.7% stated

economic hardship and lack of resources to rebuild, 65.3% reported a lack of access to healthcare and mental health services, and 59.9% identified a lack of international aid.

Qualitative Findings

In addition to the quantitative questions, participants were given open-ended questions that asked them to identify factors that hindered and helped their community's ability to respond to the earthquakes. In regard to factors that caused them the greatest challenges, the vast majority reported results similar to the quantitative findings. The most common themes included a lack of financial resources to afford the rebuilding, as well as a lack of actual building supplies and access to construction professionals.

The participants also identified several other areas not covered by the quantitative survey that negatively affected their response to the earthquakes. First, because of the unexpected and repeated occurrences of the earthquake and aftershocks, a common theme was a general sense of fear and a lack of safety. Respondents repeatedly described feeling vulnerable, recognizing that future earthquakes could occur again without warning. For example, one respondent stated:

From the first earthquake, I was so scared that I could hardly walk. The second earthquake and the aftershocks were more terrifying. I lost both of my parents in the first earthquake. I lost my hope for life. I feel so lonely. Whenever I hear the sound of an earthquake, I cannot trust the tents either. The aftershocks also did not leave me alone. They happened one after another in a very short period of time. Going out to get away from the fear of the repeating earthquakes, I see my parents' entreaty for help and water. I see the destroyed houses, dead parents, and frightening shakings of houses as well as screaming children and women. -*Y.S., 18 years, female, Sanjab village*

This led to a second theme where participants would describe symptoms of posttraumatic stress, including nightmares, anxiety attacks, insomnia, and separation anxiety among the children. As a result, participants also reported a lack of access to trained mental health professionals. This was a particular concern for people with children who were having difficulties. Another respondent stated:

Many of our family members and relatives lost their lives during the earthquake and after due to the severe injuries. The NGOs [Non-Governmental Organizations] and entities provided us with food, clothes, and money. This assistance helped us in our physical needs, but we need psychological assistance and doctors to help us mentally so that we can overcome the current hard situation. – *N. K., 27 years old, Koshkak village, Zinda Jan district, Herat Province*

The final issue that interfered with the recovery of people was the severe limitations on travel for women. The Taliban continues to restrict the movement of women, requiring that they only leave their homes with the accompaniment of a male family member. Consequently, women were often left untreated for injuries, and they often did not receive adequate maternal healthcare (for pregnant women) or management of chronic conditions. It should be noted that although women most often complained of the lack of healthcare, men would also report concerns about the travel restrictions on women. Such travel restrictions had a negative impact on the family, in those males being forced to take women to distant clinics used up important time and resources needed for the recovery efforts.

Resiliency Factors

Respondents also reported factors that assisted in the recovery and resiliency of their communities. A common theme expressed that strong family ties, which often included extended family relations, allowed the communities to address the isolation and lack of resources that they experienced. Such ties allowed for the sharing of resources and the provision of mutual support. For instance, one respondent reported:

The emergency assistance at the time of the earthquake included clothes, dinnerware sets, sanitation kits, and fuel for heating. The majority of clothing and dinnerware, as well as food supply, were provided by the local communities and family who were a great support for the reduction of grief. – *S. I., 40 years old, Izqulak village, Zinda Jan district, Herat Province*

Another theme repeatedly expressed was the central role that many religious leaders assumed in the recovery efforts. The religious leader became

a central person who provided a conduit for communication and updates to be channeled. Without access to mental health treatment to address the trauma that community members experienced, spiritual counseling, collective prayers, and reinforcing the belief in divine providence were often cited as a source of comfort and strength. As one survivor expressed:

Our Iman was the main source of communication and comfort." *S. I., 40 years old, Izqulak village, Zinda Jan district, Herat Province.*

A final area cited was that teachers and sports coaches quickly re-establishing daily routines for children was beneficial to reduce distress. A return to schooling, in whatever location was available and safe, was helpful. Sports programs and exercise were particularly effective in managing distress and providing peer-to-peer support. Sport coaches had a positive impact on mentoring youth through the crisis. For those communities that were less resilient, they reported a lack of return to schooling, sports, or activities for the youth.

Discussion

Despite the prolonged war and earthquake trauma, and losses in Herat Province, our data show that some communities found sources of resilience. The concept of resilience includes both individual traits and the availability of culturally relevant resources that communities can access during hardship.[20] Perhaps Afghanistan's historical experience with conflict and natural disasters has fostered strong local family and community ties and a sense of solidarity. Lacking national infrastructure from the Taliban government and the inability of international Non-Governmental Organizations (NGOs) to support them, the isolated local community and family groups that responded best shared resources and mutual support. This finding highlights the importance of localized disaster preparedness strategies, which have been shown to be critical in previous research.[20–28] These resilient Afghan survivors employed problem-solving-focused strategies like improving their living conditions and sharing resources in their communities. They also had emotional coping strategies such as seeking and giving social support, and checking in on every household in the community. These coping mechanisms reflect the adaptive capacity of some Afghan communities in managing stress and trauma.[29] After a disaster, immediate and mid-term recovery requires five essential elements: 1) a sense of safety, 2) calming, 3) a sense of self- and community efficacy, 4) connectedness, and 5) hope.[29] In these extended family and community groups, they were able to convey 4 out of the 5 elements. However, a sense of safety was more tenuous and difficult to find due to the massive destruction, the ongoing aftershocks, and the subsequent severe weather (windstorms) that prevented their return to a sense of safety in a timely manner. In the absence of formal support, extended families became the backbone of survival and recovery. These networks facilitated the pooling of resources, mutual aid, and emotional support, enabling households to withstand the immediate shock and begin rebuilding.[30]

Other localized support, particularly from religious leaders, was mentioned in our results. Local governance and institutional frameworks significantly impact resilience. Research from other disasters shows that without a strong, organized national governmental system, the recovery efforts fell to local organizations.[31] In highly religious societies, these local organizations are often faith-based, with mosques and imams serving as both spiritual centers and operational hubs during crises.[32,33] In Muslim-majority communities, religious leaders assisted in the recovery by providing a communication channel and using their influence to help disseminate critical information, promote public safety measures, and ensure equitable aid distribution to the most needy.[33] Resilient communities in our study pointed to the comfort provided by their Iman or Muslim religious leaders. In Muslim communities, religious leaders provide critical psychological support by offering spiritual counseling, leading collective prayers, and reinforcing the belief in divine wisdom and perseverance. Faith-based coping strategies, such as communal prayer, have been shown to assist in alleviating trauma and promoting mental well-being after disasters. For instance, after the 2004 Bam earthquake in Iran, faith-based coping strategies helped many survivors navigate the emotional aftermath.[34,35] One additional contribution of this study is the recognition that community-based religious institutions not only

provided hope but also filled logistical and operational voids left by the lack of organized national government. They helped manage aid flows, mediated disputes, and even coordinated temporary shelters, echoing findings in other contexts where religious institutions became de facto governing bodies during crisis.[32] In summary, local religious leaders, such as imams and scholars, played a crucial role in disaster response and recovery. Their moral authority, deep community ties, and ability to mobilize resources made them effective communicators and coordinators of aid.[36] Mosques and religious institutions often served as shelters, distribution centers, and sources of hope, fostering unity and resilience.[30,36] Faith-based organizations also organized fundraising campaigns and provided essential supplies, illustrating the transformative potential of religious engagement in disaster management.[36]

An unexpected finding for youth resilience was the role that sports programs and youth coaches provided in the relatively resilient communities. While family stability is a crucial factor in fostering resilience among children and youth after an earthquake, extended family also buffers the adverse effects of the disaster. However, schools and local sports organizations for the youth played vital roles in providing stability and continuity.[37,38] Being able to return to school and have peer support is particularly important for youth, as social connections help them process emotions and regain a sense of normalcy. Grassroots-led initiatives, such as youth recreational activities, contributed to emotional healing and stress relief in our study, which has been found in a few other studies.[39–41] This underscores a broader implication: disaster recovery frameworks must integrate the psychosocial and developmental needs of youth, not just infrastructural repair. Programs that reintroduce routine, play, mentorship, and peer interaction have long-term benefits for both emotional regulation and community cohesion.[39,41] In brief, the resumption of youth activities, with the involvement of teachers and coaches, contributed significantly to psychological recovery and social stability. These activities offered a sense of normalcy, purpose, and collective identity, helping young people and their families cope with trauma and loss.

Despite these resilience mechanisms, the challenges remain immense. The earthquakes exacerbated pre-existing vulnerabilities, including poverty, hunger, and inadequate infrastructure. International aid efforts, while vital, have been constrained by funding gaps, political restrictions, and logistical difficulties under Taliban rule.[4,5] Nonetheless, the collaborative response between local actors, humanitarian agencies, and faith-based organizations demonstrates that even under oppressive and resource-scarce conditions, communities can exhibit remarkable adaptability and strength.[30,36]

The Herat earthquakes thus underscore the importance of leveraging local social structures, religious leadership, and youth engagement in disaster response strategies. Strengthening partnerships with faith-based actors and investing in community-driven recovery can enhance resilience and improve outcomes in future crises.[30,36]

Conclusions

Three factors emerged as critical in our research on the relatively resilient communities in Afghanistan following the earthquake. The role of localized family and extended family groups was identified. Furthermore, the leadership role of the local religious leaders, especially as a communication pathway, was vital. Finally, a return to school and youth activities with the support of teachers and coaches was important to the youth. This naturalistic study identified that even in devastated communities, there were sources of strength that could be utilized for disaster recovery and resilience.

Author Contributions:

AHW, SA, and NS coordinated the transfer of the survey data from contacts in Afghanistan, translated the responses into English, and sent the database to the University of Utah and Utah Valley University. AP and PTP conducted the literature review and analyzed the qualitative data. All authors participated in the drafting and editing of the manuscript. Furthermore, all authors have read and approved the final manuscript.

Conflict of Interest Statement:

We have no conflicts of interest to declare.

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Institutional Review Board Statement:

As stated previously, given that the authors of this report conducted a secondary data analysis on a de-identified survey database that had already received IRB approval within Afghanistan, the University of Utah's Institutional Review Board (IRB) granted "Exempt" status to the project. (IRB_00160554)

Informed Consent Statement:

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement:

The data underlying this article cannot be shared publicly due to the dangers participants would face from the Taliban. Thus, extra safeguards are required. The corresponding author will share the data upon reasonable request.

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Conflicts of Interest:

The authors report there are no competing interests to declare.

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References:

1. Afghanistan Earthquakes in Herat Province, Health Situation Report No. 8, 15-16 October 2023 - Afghanistan | ReliefWeb. October 16, 2023. Accessed May 17, 2025. https://reliefweb.int/report/afghanistan/afghanistan-earthquakes-herat-province-health-situation-report-no-8-15-16-october-2023

2. Shapour, R. Nature's Fury: The Herat earthquakes of 2023. Afghanistan Analysts Network - English. November 10, 2023. Accessed May 17, 2025. https://www.afghanistan-analysts.org/en/reports/economy-development-environment/nautres-fury-the-herat-earthquakes-of-2023/

3. Afghanistan earthquake emergency 6-month impact report - V4.pdf. Accessed April 24, 2025. https://reporting.unhcr.org/sites/default/files/2024-04/Afghanistan%20earthquake%20emergency%206-month%20impact%20report%20-%20V4.pdf

4. Semple M. Afghanistan earthquakes: Taliban interference in aid efforts is affecting disaster response. The Conversation. October 13, 2023. Accessed May 17, 2025. http://theconversation.com/afghanistan-earthquakes-taliban-interference-in-aid-efforts-is-affecting-disaster-response-215511

5. Crisis in Afghanistan: What you need to know and how to help | The IRC. May 17, 2024. Accessed May 17, 2025. https://www.rescue.org/article/crisis-afghanistan-what-you-need-know-and-how-help

6. Starving Afghan earthquake survivors face reality of aid shortfall - Nikkei Asia. Accessed May 17, 2025. https://asia.nikkei.com/Economy/Natural-disasters/Starving-Afghan-earthquake-survivors-face-reality-of-aid-shortfall

7. Chen H. Aid groups warn devastation from Afghanistan earthquake 'worse than we imagined.' CNN. October 9, 2023. Accessed May 17, 2025. https://www.cnn.com/2023/10/09/world/herat-afghanistan-earthquake-aid-challenges-intl-hnk

8. ReliefWeb. Afghanistan Earthquake in Herat Province, Health Situation Report No. 6, 12 October 2023 - Afghanistan | ReliefWeb. October 12, 2023. Accessed April 6, 2025. https://reliefweb.int/report/afghanistan/afghanistan-earthquake-herat-province-health-situation-report-no-6-12-october-2023

9. International M. Herat Afghanistan Earthquake Shelter and Housing Response. October 11, 2023. Accessed April 24, 2025. https://miyamotointernational.com/2023-herat-afghanistan-earthquake-preliminary-shelter-and-housing-response/

10. Almost 100,000 Afghan children are in dire need of support, 3 months after earthquakes, UNICEF says. AP News. January 15, 2024. Accessed April 24, 2025. https://apnews.com/article/children-need-support-western-afghanistan-efe8e974a6befab9669306f25f03221c

11. 'A mountain of hardship', as Afghanistan suffers yet another earthquake | UN News. October 16, 2023. Accessed April 6, 2025. https://news.un.org/en/story/2023/10/1142402

12. Abbasi F. "A Disaster for the Foreseeable Future." *Hum Rights Watch*. Published online February 12, 2024. Accessed April 6, 2025. https://www.hrw.org/report/2024/02/12/disaster-foreseeable-future/afghanistans-healthcare-crisis

13. Afghanistan. In: *The World Factbook*. Central Intelligence Agency; 2025. Accessed April 6, 2025. https://www.cia.gov/the-world-factbook/countries/afghanistan/

14. Afghanistan: Agencies launch funding appeal for quake-hit families | UN News. October 13, 2023. Accessed April 6, 2025. https://news.un.org/en/story/2023/10/1142327

15. Afghanistan: Three years of Taliban rule and international inaction for Afghans. Amnesty International. August 15, 2024. Accessed April 6, 2025. https://www.amnesty.org/en/latest/news/2024/08/afghanistan-three-years-of-taliban-rule-and-international-inaction-have-left-afghan-community-with-little-hope/

16. Flacks Marti, Preputnik LB, Larnerd NJ. The Taliban's Increasing Restrictions on Civil Society and Aid Organizations. Published online February 16, 2023. Accessed April 6, 2025. https://www.csis.org/analysis/talibans-increasing-restrictions-civil-society-and-aid-organizations

17. FAQs: Afghan women three years after the Taliban takeover. UN Women – Europe and Central Asia. August 20, 2024. Accessed April 6, 2025.

https://eca.unwomen.org/en/stories/explainer/2024/08/faqs-afghan-women-three-years-after-the-taliban-takeover-0

18. Noack R. As Taliban starts restricting men, too, some regret not speaking up sooner. *The Washington Post*. https://www.washingtonpost.com/world/2024/09/22/afghanistan-taliban-restrictions-men-beards/. September 22, 2024. Accessed April 6, 2025.

19. Cohen J. A Coefficient of Agreement for Nominal Scales. *Educ Psychol Meas*. 1960;20(1):37-46. doi:10.1177/001316446002000104

20. Ungar M. Resilience, Trauma, Context, and Culture. *Trauma Violence Abuse*. 2013;14(3):255-266. doi:10.1177/1524838013487805

21. Djalante R, Holley C, Thomalla F, Carnegie M. Pathways for adaptive and integrated disaster resilience. *Nat Hazards*. 2013;69(3):2105-2135. doi:10.1007/s11069-013-0797-5

22. Fernandez G, Ahmed I. "Build back better" approach to disaster recovery: Research trends since 2006. *Prog Disaster Sci*. 2019;1:100003. doi:10.1016/j.pdisas.2019.100003

23. Kyne D, Kyei D. Understanding Associations between Disasters and Sustainability, Resilience, and Poverty: An Empirical Study of the Last Two Decades. *Sustainability*. 2024;16(17):7416. doi:10.3390/su16177416

24. Links JM, Schwartz BS, Lin S, et al. COPEWELL: A Conceptual Framework and System Dynamics Model for Predicting Community Functioning and Resilience After Disasters. *Disaster Med Public Health Prep*. 2018;12(1):127-137. doi:10.1017/dmp.2017.39

25. Mayer B. A Review of the Literature on Community Resilience and Disaster Recovery. *Curr Environ Health Rep*. 2019;6(3):167-173. doi:10.1007/s40572-019-00239-3

26. Panday S, Rushton S, Karki J, Balen J, Barnes A. The role of social capital in disaster resilience in remote communities after the 2015 Nepal earthquake. *Int J Disaster Risk Reduct*. 2021;55:102112. doi:10.1016/j.ijdrr.2021.102112

27. Panos A, Panos P. The Importance of Non-Governmental Organizations in Response to the Corona Virus Pandemic in Rural Mozambique: A Case Study. *Med Res Arch*. 2024;12(10). doi:10.18103/mra.v12i10.5910

28. Saja AMA, Teo M, Goonetilleke A, Ziyath AM. A Critical Review of Social Resilience Properties and Pathways in Disaster Management. *Int J Disaster Risk Sci*. 2021;12(6):790-804. doi:10.1007/s13753-021-00378-y

29. Hobfoll SE, Watson P, Bell CC, et al. Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention: Empirical Evidence. *Focus*. 2009;7(2):221-242. doi:10.1176/foc.7.2.foc221

30. Afghanistan: One year after devastating quakes in 2023, residents get keys to a new life | IFRC. December 17, 2024. Accessed May 17, 2025. https://www.ifrc.org/article/afghanistan-one-year-after-devastating-quakes-2023-residents-get-keys-new-life

31. Phillips BD, Mincin J. *Disaster Recovery*. Third edition. Routledge; 2023. doi:10.4324/9781003261636

32. Cheema AR, Scheyvens R, Glavovic B, Imran M. Unnoticed but important: revealing the hidden contribution of community-based religious institution of the mosque in disasters. *Nat Hazards*. 2014;71(3):2207-2229. doi:10.1007/s11069-013-1008-0

33. Nurdin MR. Islamic faith-based organisations and their role in building social capital for post-disaster recovery in Indonesia. *Disasters*. 2024;48(S1):e12635. doi:10.1111/disa.12635

34. Chan CS, Rhodes JE. Religious Coping, Posttraumatic Stress, Psychological Distress, and Posttraumatic Growth Among Female Survivors Four Years After Hurricane Katrina. *J Trauma Stress*. 2013;26(2):257-265. doi:10.1002/jts.21801

35. Cheema AR, Scheyvens R, Glavovic B, Imran M. Unnoticed but important: revealing the hidden contribution of community-based religious institution of the mosque in disasters. *Nat Hazards*. 2014;71(3):2207-2229. doi:10.1007/s11069-013-1008-0

36. Wolf FD. Religious Leader's Engagement in Disaster Management. JLI. February 17, 2025. Accessed May 17, 2025. https://jliflc.com/2025/02/religious-leaders-engagement-in-disaster-management/

37. Bikar SS, Rathakrishnan B, Kamaluddin MR, Che Mohd Nasir N, Mohd Nasir MA. Social Sustainability of Post-Disaster: How Teachers Enable Primary School Students to Be Resilient in Times of Ranau Earthquake. *Sustainability*. 2021;13(13):7308. doi:10.3390/su13137308

38. Ferris C, O'Brien K. The ins and outs of posttraumatic growth in children and adolescents: A systematic review of factors that matter. *J Trauma Stress*. 2022;35(5):1305-1317. doi:10.1002/jts.22845

39. Cox RS, Scannell L, Heykoop C, Tobin-Gurley J, Peek L. Understanding youth disaster recovery: The vital role of people, places, and activities. *Int J Disaster Risk Reduct*. 2017;22:249-256. doi:10.1016/j.ijdrr.2017.03.011

40. Kunz V. Sport as a post-disaster psychosocial intervention in Bam, Iran. *Sport Soc*. 2009;12(9): 1147-1157. doi:10.1080/17430430903137803

41. Thorpe H. Informal sports for youth recovery: grassroots strategies in conflict and disaster geographies. *J Youth Stud*. 2021;24(6):708-730. doi:10.1080/13676261.2020.1763936