Exploring the Role of FCHVs in Trauma Case Management in Nepal: A Qualitative Study

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ABSTRACT

BACKGROUND: Traumatic injuries are a major cause of morbidity and mortality worldwide, with disproportionate burden in low-and-middle income countries. Nepal is no exception. Achham, a rural district in Nepal, suffers from a high prevalence of traumatic injuries primarily due to falls and road traffic incidents. Female Community Health Volunteers (FCHVs) might serve as essential frontline health providers to mitigate delay in care in rural regions. This study explores the feasibility of integrating FCHVs into the pre-hospital trauma care system in Achham, Nepal.

METHODS: A qualitative approach using phone-based key informant interviews with 20 randomly selected FCHVs and five purposively selected health coordinators from different municipalities across the Achham district was conducted. Data analysis involved thematic coding using NVivo software to identify key themes related to FCHVs' interest, availability, authority, potential barriers and opportunity in their participation in pre-hospital trauma care.

RESULTS: FCHVs demonstrated high availability (flexible schedules, willingness to respond to emergencies) and motivation. However, a significant knowledge gap exists (90% unfamiliar with first response in trauma) and existing first-response training was limited (25%). Health authorities from all represented municipalities showed support for FCHV training and mobilization efforts in pre-hospital trauma care.

CONCLUSIONS: FCHVs possess the potential to contribute to pre-hospital trauma care, but require thoughtful program development that includes training and supervision. This study highlights the initial feasibility, motivation from participants and leaders for FCHVs integration in rural trauma care, paving the way for improved trauma care access in rural Nepal.

KEYWORDS: Rural Nepal; Female Community Health Volunteers; Community Health Responders; Trauma care; Emergency care

INTRODUCTION

In Nepal, the Female Community Health Volunteers (FCHVs) program, established in 1988 to promote family planning, has evolved into a broader role, encompassing maternal and child health, disaster response, and chronic disease management.[1-3] Despite their frontline presence, FCHVs' involvement in trauma care is uncommon, a critical gap in a country with a high burden of traumatic injuries.[4] The Achham district, characterized by remoteness, low human development, and limited access to healthcare, epitomizes this challenge.[5,6]

To enhance emergency response, including trauma care, a Provincial Health Emergency Operation Center (PHEOC) is under development in the region.[7,8] However, it is in its initial stages. To bridge this gap, a pilot research program was initiated by Kharel et al in 2023 to involve community health responders (CHRs) in pre-hospital trauma care in Achham.[9,10] Previously identified CHRs in the region included police, teachers, community health workers, and other social leaders.[11] This study aims to assess FCHVs' interest in joining the CHRs group to help in pre-hospital trauma care, and local leadership support for expanding their role in pre-hospital trauma care.

METHODS

Setting, Design and Participants Selection

A qualitative study was designed to understand the willingness and feasibility of FCHVs involvement in pre-hospital trauma care.

The study was conducted in all local levels (four municipalities and six rural municipalities) of Achham district, Nepal. A two-stage sampling approach was utilized. In the first stage, all available FCHVs (total 941) from the district of Achham were listed linearly. In the second phase, a systematic random-sampling technique was done, where all FCHV's were assigned a unique identifier, and a random number generator was used to identify interview participants from the large list. Twenty total random numbers between 0 and 941 were chosen. Four out of 20 randomly selected participants could not be reached via phone call. Therefore, we selected four new participants from the list of 941 FCHVs to substitute those who could not be contacted.

In addition, to identify the health coordinators from the

district, a purposive sampling technique was used. Five key health coordinators and decision-makers in the district of Achham were chosen by the study team. Any inactive FCHVs and health coordinators were excluded from this study.

A computer-assisted telephone interviewing (CATI) technique was used for data collection. Semi-structured key informant interviews (KIIs) were employed to gather primary data. Two distinct interviews were developed: one for FCHVs actively working in the community (n=20), and other for active health coordinators (n=5). A trained research coordinator (SC) conducted all the interviews, with verbal consents given prior to participating in the interview.

Following semi-structured telephone interviews using paper-based guides, the collected data underwent rigorous transcription, translation, and secure storage on OneDrive with restricted access for the study team only. All names were removed during the data storage, and surveys were aggregated either as FCHVs or health coordinators. A thematic analysis was then conducted, involving iterative reading, codebook development, coding with NVivo software, and identification of inter-code relationships to derive the final themes.

Ethical approval

Ethical approval was obtained from the Nepal Health Research Council (NHRC). Verbal informed consent was obtained from all respondents prior to the interview. Participants were informed that they had the right to deny or withdraw from the study at any time and the result and contents of this study will be presented in publications.

RESULTS

The diverse age range, with the average age of Female Community Health Volunteers (FCHVs) was 41 years. The age groups were evenly spread, with the largest percentage (35%) being between 50–59 years. The individuals had varied professional experience, averaging 14 years, with 40% having 20–29 years of experience. The respondents were almost equally split between rural (55%) and urban (45%) residents, indicating a slight rural majority [**Table 1**].

All (100%) FCHVs said that they were available as per need, which is stated as part of their current roles, and worked four to five mandatory days per month, which is mandated by government of Nepal. They were also available as per need if they received emergency meeting calls from the community leadership as well as patients. The FCHVs reported their involvement at communities in the following services: maternal and child health, including family planning, awareness, counseling, and education campaigns, and conducting outreach clinics.

Table 2 presents the distribution of knowledge and interest in pre-hospital trauma- care service. Only 10% of FCHVs interviewed expressed an understanding of what "trauma" meant; however, all (100%) expressed a strong interest in receiving training and participating in pre-hospital trauma care. Sixty percent (60%) of FCHVs reported they still had knowledge and skills in some first aid (training they receive as part of their recruitment), while 10% reported they had no retained knowledge or skills in first-aid techniques.

A substantial number, 60%, reported lacking any formal training in at least one of the crucial areas in trauma care. The specific skills reported varied. Wound care was stated as a topic where most FCHVs had received training (70%), while only 5% reported being trained in fracture immobilization [**Table 3**].

Table 1. Socio-Demographic Characteristics

Characteristic	Years/area	Number (n=20)	Percentage (%)
Age Distribution (Years)	20–29	4	20
	30–39	5	20
	40–49	4	20
	50–59	7	20
	Average Age	41	—
Year of Experience	0–9	7	35
	10–19	5	25
	20–29	8	40
	Average Year of Experience	14	—
Area of Residence	Rural	11	55
	Urban	9	45

Table 2. Distribution of Respondent by Knowledge and Interest

Aspect of Knowledge and Interest	Number (n=20)	Percentage (%)
Understanding of "Trauma"	2	10
Interest in Trauma Care Training	20	100
Retained Knowledge/ Skills in First Aid	12	60
Minimal Retained Knowledge/ Skills in First Aid	6	30
No Retained Knowledge/ Skills in First Aid	2	10

Note: Individual FCHVs were allowed multiple responses

Table 3. Distribution of Respondent by Trauma-Care Training

Trauma-care training topic	Number (n=20)	Percentage (%)
Wound Care	15	70
Position of Pregnant Women	8	40
Hemorrhage/Bleeding Control	5	25
Making Stretcher	3	15
None	3	15
Fracture Immobilization	1	5

Note: Individual FCHVs were allowed multiple responses

Table 4. Distribution of Respondent by Their Perception (n=5)

Health Coordinator's Perception	Agreement (%)
FCHVs' Current Lack of Utility in Trauma Care	100
Benefit of FCHVs' Participation in Trauma Training	100
Support for Future Community Efforts in Trauma Care	100

Ninety percent (90%) of FCHVs felt they would be able to provide pre-hospital trauma care if equipped with adequate knowledge and skills. FCHVs also believed they could play a role in the transfer of patients to hospitals. FCHVs felt their participation in pre-hospital trauma care would improve their reputation in the community, and a few FCHVs believed it would build trust in the community. The primary barrier identified by FCHVs was a lack of dedicated training in pre-hospital trauma care. The majority of FCHVs reported no barriers to participation from their families.

Table 4 shows that the distribution of health coordinators by their perception on FCHVs mobilization in pre-hospital trauma care. Health coordinators across all municipalities (100%) reported the lack of utility of FCHVs and their training for pre-hospital trauma care, and agreed that FCHVs' participation in pre-hospital training programs and care delivery would be beneficial for the community. The health coordinators offered their support in future endeavors in the local community for pre-hospital trauma care.

DISCUSSION

This study demonstrates results for a phone-based key informant interview for FCHVs and health coordinators of the Achham district, and their perceptions for FCHVs participation in pre-hospital trauma care. Traumatic injuries cause a large healthcare burden in Achham (and across Nepal), and FCHVs could serve as a key group of community health responders for pre-hospital care. While a large gap in lack of formal trauma training was identified in this study, FCHVs' and health coordinators' strong willingness to participate in pre-hospital trauma care was significant. Furthermore, some FCHVs already participate in pre-hospital basic care without formal training. Their deep community engagement and local availability makes them well-positioned to provide crucial pre-hospital care.

Bayalpata Hospital, the only hospital in the far-West region providing in-hospital trauma care, provides free, high-quality trauma care at the hospital level, but a major gap in pre-hospital trauma care exists in the district. A pilot study by Kharel et al showed the knowledge sustainability and patient metrics improvement when various CHRs were used for pre-hospital trauma.[11] While FCHVs were not included as CHRs in the pilot study, this assessment indicates the local stakeholder buy-in for FCHV involvement in future efforts.[12] Bayalpata Hospital has committed to serving as a center for excellence for rural trauma care, and FCHVs will continue to be a key network of available providers in improving pre-hospital trauma care. In a future planned district-wide study by the research team, based on this study findings, FCHVs will be included as CHRs.

A few key limitations of this study include potential sampling bias. While all FCHVs were sampled using a random number generator, there is variability in the training of FCHVs based on their dates of recruitment into the program. The findings of this study might be just limited to Achham, and not generalizable to other FCHVs across Nepal. Only five health coordinators were identified, and these positions are temporary leadership roles. The views of studied coordinators might not be the same with changing local government and leadership. Additionally, FCHVs and coordinators response could have been subject to response bias leading to exaggerated answers. Recall bias could play a role in the answers as well.

CONCLUSIONS

This study highlights the willingness and feasibility of integrating FCHVs into the pre-hospital trauma care program in Achham, Nepal. By addressing knowledge and skills gaps through comprehensive training and fostering collaboration, this initiative has the potential to significantly improve access to lifesaving pre-hospital trauma care in a geographically challenging region. The findings can inform the development and implementation of a pre-hospital trauma program through CHRs in Achham district.

References

1. Khatri RB, Mishra SR, Khanal V. Female community health volunteers in community-based health programs of Nepal: future perspective. Front Public Health. 2017 Jul 21;5:181. doi: 10.3389/fpubh.2017.00181. PMID: 28785555; PMCID: PMC5519587.
2. Fredricks K, Dinh H, Kusi M, et al. Community health workers and disasters: lessons learned from the 2015 earthquake in Nepal. Prehosp Disaster Med. 2017 Dec;32(6):604-9. doi: 10.1017/S1049023X1700680X.
3. Tan J, Xu H, Fan Q, Neely O, Doma R, Gundi R, Shrestha B, Shrestha A, Shrestha S, Karmacharya B, Gu W, Østbye T, Yan LL. Hypertension care coordination and feasibility of involving female community health volunteers in hypertension management in Kavre District, Nepal: a qualitative study. Glob Heart. 2020 Oct 23;15(1):73. doi: 10.5334/gh.872. PMID: 33150138; PMCID: PMC7583706.
4. Bhattarai HK, Hung KKC, MacDermot MK, Hubloue I, Barone-Adesi F, Ragazzoni L, Della Corte F, Acharya R, Graham CA. Role of community health volunteers since the 2015 Nepal earthquakes: a qualitative study. Disaster Med Public Health Prep. 2023 Mar 15;17:e138. doi: 10.1017/dmp.2022.47. PMID: 35287784.
5. Wikipedia contributors. Achham District. Wikipedia, The Free Encyclopedia [Internet]. 2024 Aug 18 [cited 2024 Aug 18]. Available from: https://en.wikipedia.org/wiki/Achham_District
6. Dulal TD. Status of human development index with reference to Nepal. J Popul Dev. 2023;4(1):166-80. doi: 10.3126/jpd.v4i1.64256.

7. World Health Organization (WHO). Second PHEOC in Sudurpashchim Province handed over to MoHP [Internet]. 2023 Aug 7 [cited 2024 Aug 18]. Available from: https://www.who.int/nepal/news/detail/07-08-2023-second-pheoc-in-sudurpashchim-province-handed-over-to-mohp
8. Ministry of Health and Population (MoHP). Health Emergency Operation Center Network of Nepal: The Voyage and the Vista. Kathmandu: Ministry of Health and Population; 2021. Available from: https://heoc.mohp.gov.np/uploads/publications/file/64aceaa29600b.pdf
9. Nyaya Health Nepal. Nepal trauma care and rural healthcare activity [LinkedIn post]. [cited 2024 Aug 18]. Available from: https://np.linkedin.com/company/nyaya-health-nepal
10. Nyaya Health Nepal. Annual health report: 2022-2023. Kathmandu; 2023. [cited 2024 Aug 18]. Available from: https://www.nyayahealthnepal.org/_files/ugd/ffc567_e125b6e8a4e64274b2fc50537b8d8da5.pdf
11. Kharel R, Pathak M, Lubetkin D, et al. Implementing a culturally adapted pre-hospital trauma program for community health responders: a pilot study from rural Nepal [Internet]. Available from: https://ssrn.com/abstract=4931039
12. Junkin R, Reed J, Paudel R, Chand SB, et al. Qualitative evaluation of the feasibility and effectiveness of a novel community lay responders trauma training program in rural Nepal. 2023 Warren Alpert Medical School Academic Symposium [abstract]. Brown Digital Repository. Brown University Library. [cited 2024 Aug 18]. Available from: https://repository.library.brown.edu/studio/item/bdr:dpyks4mv/

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Disclosures

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