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MASTER THESIS

Community Health Workers in Emergency Situations: Evidence from the Female Community Health Volunteer's Role in the 2015 Earthquake and the COVID-19 Pandemic.

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Supervisor: Maria Anna Leone

GLODEP 2023

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Declaration of Originality and Referencing

I, Monica Avogadri, hereby declare that the thesis titled "Community Health Workers in Emergency Situations: Evidence from the Female Community Health Volunteer's Role in the 2015 Earthquake and the COVID-19 Pandemic" submitted for the completion of my Erasmus Mundus Joint Master's Degree in Global Development Policies at the Palacký university Olomouc, Clermont Auvergne University and the University of Pavia is entirely my own work. I have diligently and independently conducted the research, analysis, and composition presented within the thesis.

I affirm that all ideas, arguments, and interpretations presented in this thesis are original and have been developed by me through a thorough study of the subject matter. Where I have referred to the work of others, including published or unpublished sources, their contributions have been duly acknowledged and referenced in accordance with the appropriate citation and referencing conventions. I have made every effort to acknowledge the intellectual contributions of others and to maintain academic integrity.

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Zásady pro vypracování

This research stems from the willingness to assess the role of the Female Community Health Volunteers of Nepal during emergency situations, using as study cases the experiences of the earthquake of 2015 and the Covid pandemic started in 2019. The aim is to understand which are the barriers and facilitators for the volunteers' work in these situations, how the disaster management response involving the volunteers has evolved between the two emergencies and what could improve their response and preparedness for the future. As the occurrence of man-made and natural emergencies is always more frequent at a global level, this research could inform the design of disaster risk management strategies for Community Health Workers worldwide, who are often the first line responders in communities during emergencies. The research will be predominantly qualitative, using semi--structured interviews and focus groups with Female Community Health Volunteers, Health Centres directors and public health professionals at the central level in two adjoining municipalities each in three areas of Nepal respectively: the northern and southern regions and in the Kathmandu area.

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Abstract

This research examines and compares the roles, obstacles, and needs of Female Community Health Volunteers (FCHVs) during the 2015 earthquakes and COVID-19 pandemic in Nepal. The study aims to identify the factors influencing their effectiveness and assess whether their experiences varied between emergencies. Additionally, the study evaluates the progression of FCHVs' integration into the country's emergency response system and the level of support provided by the government. By employing qualitative methods, such as interviews, focus group discussions, and the analysis of national official policy documents, the study reveals that despite the proved willingness and capabilities of FCHVs to lead community emergency response and the lessons learnt from the earthquake, persistent challenges and unmet needs hindered their contribution during the emergencies. These challenges encompass issues related to motivation, community and family support, safety and mental health, training and capacity, and stem from inadequate integration into national emergency planning and insufficient government support. The research also identifies a gap between policy and practice, impeding the provision of adequate support for the volunteers.

Keywords: Female Community Health Volunteers, Nepal, Natural disasters, COVID-19, Community Health Workers.

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List of abbreviations

CHWs	Community Health Workers
CPG	COVID-19 Prevention Group
EDRRM	Emergency and Disaster Risk Reduction Management
FCHVs	Female Community Health Volunteers
FGD	Focus Group Discussion
HP	Health Post
IFRC	International Federation of the Red Cross and Red Crescent societies
KII	Key Informant Interview
LMICs	Low- and Middle-Income Countries
MNCH	Maternal New-born and Child Health
MoHA	Ministry of Home Affaires
MoHP	Ministry of Health and Population
NGOs	Non-Governmental Organisations
NHRC	Nepal Health Research Council
PHC	Primary Health Centre
PPE	Personal Protective Equipment
RCCE	Risk Communication and Community Engagement
RRT	Rapid Response Team
SDGs	Sustainable Development Goals
TB	Tuberculosis
WASH	Water, Sanitation and Hygiene
WHO	World Health Organisation

1. Introduction

1.1 Background

Nepal is the 20th most disaster-prone country in the world. Indeed, annually the country experiences an average of 494 disasters, including floods, landslides, epidemics, and earthquakes (MoHA, 2017, 62). Its geographical location and exposure to a highly varied climate, coupled with the lack of land use planning, the rapid and uncontrolled urbanization, the socio-economic vulnerabilities of the population, and the impacts of climate change, contribute to the devastating effects of these hazards (CRED, UNISDR, 2018; MoHA, 2017, 1-2).

In the last ten years the country has been affected by two major emergencies with catastrophic consequences in terms of human injury and loss, the Ghorka earthquakes of 2015 and the COVID pandemic in 2019 (MoHA, 2017, 1-2). These two events have further challenged a weak public health system, plagued by poor coverage and corruption, with a persistent lack of human and material resources (Adhikari et al., 2020, 2). Despite the quick mobilization of the government and the rapid solicitation of international assistance (MoHA, 2017, 3; UN Nepal, 2021,1), the country's geographical and infrastructural barriers have made timely relief distribution to the population living in hard-to-reach areas challenging (Fredricks et al, 2017). Consequently, in Nepal and countries with similar characteristics, communities are often the first and only responders able to act immediately in emergencies (Fredricks et al, 2017).

The vital need for community-based health approaches in emergency preparedness, response, and recovery, from man-made to natural disasters, is a central goal for several high-level policies and agreements, such as the SDGs (UN, 2015), the Sendai Framework for Disaster Risk Reduction 2015-2030 (UNDRR, 2015), the Sphere standards (Sphere, 2018) which guide humanitarian relief activities and the Health Emergency and Disaster Risk Reduction Management Framework (WHO, 2019). Strategies based on communities aimed at educating, empowering, and building disaster preparedness can save more lives than a solid plan designed and implemented solely by experts (Adhikari et al., 2016). Among possible community-based health approaches, Community Health Workers (CHWs) are in a privileged position to assist their communities in times of acute crisis (Fredricks et al, 2017). Community Health Workers are defined by the World Health Organisation (WHO) (2018):

> *"Health workers based in communities (i.e., conducting outreach beyond primary health care facilities or based at peripheral health posts that are not staffed by doctors or nurses), who are either paid or volunteer, who are not professionals, and who have fewer than two years training but at least some training, if only for a few hours".*

In light of the recent COVID-19 pandemic, the importance of a resilient workforce at the community level in emergencies has become even more evident (Hodgins et al., 2021). Thanks to their knowledge of local health needs and vulnerabilities, local proximity, and trust from the community they can sustain the health system's resilience and enhance the capacity of communities to cope with risk (UNICEF, 2021). This is particularly important as disasters are increasing in frequency and intensity, putting additional pressure on the health capacity at the global, national, and local levels. The acute impacts are especially felt at the local and community level and represent a barrier to sustainable development in many developing countries (UN, 2015). In a disaster-prone country like Nepal, where circa 80% of the population lives in rural hard-to-reach areas (Kharel et al., 2022, 1), enhancing communities' autonomy should be prioritized, as depending on external relief increases their vulnerability (KC et al., 2019). In past emergencies, national public health preparedness was considered insufficient, lacking local capacity development and preparedness (Adhikari et al., 2017). Therefore, learning from previous lessons is key for Nepal.

Against this backdrop, in Nepal the role of Community Health Workers is fulfilled by *Mahila Swasthya Sewika* or Female Community Health Volunteers (FCHVs), a cadre of part-time volunteers created in 1988 as a national programme initially present in 27 districts and then expanded to 77. The aim of the programme was originally limited to improving the health of local communities through primary, maternal, and child health. Today the recruited volunteers are 51423 across the country (MoHP, 2021). They are married women between 25 and 60 years old, locally chosen by mothers' groups, that undergo 18 days of basic training (MoHP, 2021). Among the services they provide in their communities, some examples are family planning and iron tablets distribution, home child delivery, postpartum health support, nutrition services provision. Furthermore, they meet with their local mothers' group every month to spread health education and awareness (MoHP, 2021). These volunteers are considered the "*backbone of the Nepali health system*" and they played a pivotal role in Nepal's achievement of the health-related Millennium Development Goals (Kandel et al, 2019). Almost four decades since the programme inception, the role of FCHVs in the health system has evolved without decreasing in significance (Kandel et al, 2019). Indeed, they are now included in several public health government programmes beyond their initial scope, e.g., the risk management of non-communicable diseases (Kandel et al, 2019). Furthermore, in the event of the 2015 earthquakes, their contribution has expanded from routine programmes to include disaster management, acting as frontline workers (Fredricks et al, 2017).

As documented in the existing literature, during the earthquake emergency FCHVs kept providing essential primary health care delivery while also engaging in emergency-specific tasks. However, several challenges hampered their vital contribution (Fredricks et al, 2017). Evidence regarding CHWs' work during emergencies in other LMICs, ranging from natural disasters to conflict and pandemics, reports consistent findings (Bhaumik, 2020; Miller, 2020). Importantly, despite their pivotal contribution being well-recognized, the literature unanimously highlights the need for better support and clearer guidance of CHWs by policymakers in emergencies. Namely, several studies stress the persistent lack of CHWs' integration in emergency preparedness and response plans of many countries (Miller, 2020).

1.2 Purpose of the study

The existing literature conveys the need for more and better data to further understand CHWs' needs and challenges during emergencies. Learning from past experiences will help identifying how policymakers can better support CHWs' work in the future. Nepal in this sense offers a perfect research context, with a well-established CHWs programme responding to two close-in-time, large-scale emergencies.

Nevertheless, while some studies investigate the role of FCHVs during the earthquake in Nepal, no studies have done the same for the FCHVs' experience of the pandemic. The comparison of the two responses will add important knowledge and will enable us to assess the improvement or stagnation of FCHVs response and most importantly of government support. By now this perspective is lacking in the literature, as no study examined the development of the emergency response of a national CHWs programme over time. Lastly, to learn further about government support, there is a clear need to understand more about the flaws, and potentials of existing policies, and track their changes over time.

Therefore, this research aims to answer three questions: (1) Which have been the roles, challenges and needs of FCHVs during the 2015 earthquake and the 2019 pandemic? (2) How did the volunteers' experience evolve across the two emergencies? (3) How did the FCHVs' integration and support in emergency preparedness and response by the government change over time?

By examining the experiences of FCHVs during these two crises, this study aims to gain insights into the factors that affect their effectiveness in emergency response efforts, while also identifying areas where policy and practice improvements can be made to enhance the support for FCHVs.

The questions have been answered by collecting qualitative primary data through Focus Group Discussions and Key Informant Interviews with volunteers, health posts' managers, and local health

government officials. Document analysis has been performed on existing national policies on FCHVs and disaster risk management, to triangulate primary data and provide a clearer picture of the dynamics between policy content, context, and actors. This study is instrumental in understanding how government action in Nepal could further improve FCHVs emergency preparedness and integration in future response plans. Hopefully, this will be a starting point to enhance community resilience in disasters and to strengthen local health system preparedness. The results of this study not only hold significance for Nepal, but they potentially provide reflection points for CHWs programmes in other LMICs suffering similar challenges.

Initially, a detailed review of the current knowledge is provided. Building on it, the setting, methodology, and outcomes of the studies are outlined. The dissertation then reports the findings of the primary data collection and of document analysis, followed by their discussion. Finally, the limitations of the study are considered, and conclusions are drawn.

2. Literature review

The aim of this research is to investigate and compare the experiences of FCHVs in Nepal during the 2015 earthquake and the COVID-19 pandemic, as well as the support they received from policymakers. Although a few studies have analysed FCHVs' experiences during the earthquake, no research has explored their involvement in the pandemic. Despite both being emergencies, the risks and challenges associated with delivering health services were different, making it intriguing to see the role Nepali FCHVs had to play and whether past lessons have been applied. The global literature has extensively discussed the role of CHWs in emergencies, including conflicts, epidemics, and natural disasters. This literature review first explores the current knowledge on Nepali FCHVs in emergencies. Second, it delves into literature concerning Community Health Volunteers in emergencies, limited to LMICs, as these countries share a context similar to Nepal, allowing for comparisons. Finally, this review highlights three crucial literature gaps: the lack of knowledge about FCHVs' response to the pandemic, the lack of inclusion of policy documents analysis, and the absence of studies that examine the development of CHWs' response and government support over time.

Several existing studies, mostly qualitative in nature, have reported on the experiences of FCHVs during the response to the 2015 earthquake in Nepal. A quantitative study by Horton et al. in 2020 found that all FCHVs interviewed had provided some form of assistance in the aftermath of the earthquake, as the majority of them (94%) believed it to be part of their duties. First aid provision was the most common type of support provided (90% of respondents). Qualitative studies by Fredricks et al. in 2017 and Bhattarai et al. in 2020 support these findings, with FCHVs reporting

that they had helped their communities even before external relief arrived, which took an average of 18.9 days after the disaster (Fredricks et al., 2017, 607). Volunteers played various emergency roles, such as transporting the severely injured to health facilities, participating in the search and rescue of missing individuals, managing human and animal corpses to prevent further infection, distributing available food and medicine, providing information on hygiene, water, and sanitation, and offering psychosocial support. Importantly, these volunteers acted without proper guidance and were solely driven by their commitment to their community (Fredricks et al., 2017; Bhattarai et al., 2020).

During the earthquake response, FCHVs faced numerous challenges that hindered their contribution. One major issue was the lack of supportive supervision, which included the absence of proper direction and quality assessment regarding relief-specific tasks, as highlighted by Fredricks et al. (2017). Another significant problem was the lack of training in relief assistance, not included in their basic training program (Fredricks et al. 2017). This prevented FCHVs from having sufficient competence to help their communities. However, some of the volunteers who participated in the study by Bhattarai et al. (2020) affirmed to have received some emergency training and found it beneficial. Horton et al. found an increase in training among FCHVs after the earthquake, particularly in first aid and psychosocial support, however the study did not specify the dynamics and sources of the training delivery. In addition to these challenges, FCHVs expressed feeling overburdened due to additional disaster-related tasks and difficulties in balancing their family responsibilities and response activities (Bhattarai et al. 2020). These tasks also caused anxiety and stress among FCHVs, as highlighted by Fredricks et al. (2017).

Following the difficulties during their response efforts, both the volunteers and their supervisors expressed a desire for improvements in future emergency situations. Some suggestions included a clearer definition of the volunteers' roles and better collaboration between the government, NGOs, and FCHVs in the initial stages of an emergency. This would help to determine the needs of the community more effectively (Fredricks et al., 2017). According to Bhattarai et al. (2020), it is also important to provide disaster response training and regular refresher courses for volunteers. This would boost their confidence and provide them with the necessary guidance for their work. Incentives are also necessary to support, motivate and retain the volunteers.

Despite the evidence highlighting the vital role of FCHVs as frontline responders, no existing study deals with the experience of Female Volunteers in the event of the 2019 pandemic. Thus, currently, it is not possible to gauge whether past lessons have been applied in the present emergency and whether volunteers' response was better supported. Few studies hints that some of the mentioned

challenges persisted even during the pandemic. Among these, are the lack of training and preparedness (Bhattarai et al., 2020), high levels of anxiety, depression, and stress. Namely, Basnet and Silwal (2022) reported extremely severe levels of anxiety among 35.5% of the interviewed FCHVs and 21.6% of respondents with a severe level of depression. Nevertheless, this study does not offer deeper insights into the causes.

Existing evidence on the role of national CHWs during emergencies, such as the COVID-19 pandemic, epidemics, conflicts, and natural disasters in other LMICs is consistent with the findings on Nepali FCHVs. Particularly, the West African Ebola outbreak of 2013 and the recent pandemic in 2019 have underlined the vital role of CHWs in emergencies (Miller et al., 2018; UNICEF, 2021). When the increased demand for health services was unmet due to further inaccessibility of health facilities or communities themselves (Miller et al., 2020), CHWs services proved more resilient than health facilities (Miller et al., 2020) and represented the solely available service providers in hard-to-reach areas (UNICEF, 2021), filling the gaps of strained health systems (WHO, R&D Blueprint, 2021). This was possible thanks to their geographical proximity, local knowledge, unique understanding of the context, and trust built with the community (Miller et al., 2020). The same has proven true during the earthquake response in Nepal, where FCHVs represented trusted, culture-friendly health resources with good local knowledge that could be fast mobilized (Fredricks et al., 2017; Parajuli et al, 2020).

Much of the literature confirms that in case of acute emergency and insecurity CHWs were willing and able to keep providing essential services, despite possible disruptions or provision decline in the initial phases of the emergency (Bezbaruah et al., 2021; Miller et al., 2020). Alongside essential services, CHWs greatly contributed to emergency response and recovery activities (Global Health Workforce Alliance et al., 2011). As for Nepali FCHVs, during the cyclone Nargis in Myanmar, CHWs provided relief support before the arrival of NGOs and later supported external organisations in the response (Campbell et al., 2008). The Pakistani Lady Health Workers also acted as frontline responders during the 2010 flooding, conducting malnutrition screening, mass immunisation, health education, and life-saving services (UNICEF, 2010).

In the event of the Ebola epidemic, West African CHWs contributed to community engagement for the virus prevention and control, they spread awareness regarding symptoms, distributed prevention goods, acted as caretakers for infected community members, data collectors and importantly contributed to the demystification of Ebola in public gatherings and thanks to door-to-door sensitisation. External health workers hired to perform the mentioned tasks in these countries were

rejected, sometimes violently, by communities in favour of trusted local CHWs (Miller et al., 2018, 7). Like Nepali FCHVs, they often filled these roles without specific guidance, led by a strong commitment to their communities (Miller et al., 2018). Similar activities and pivotal role in controlling the spread of COVID-19 were reported for CHWs in Bangladesh, particularly in the densely crowded camps of Cox Bazar (Bezbaruah et al., 2022, 43; Roy et al., 2022), and in Rwanda (Niyigena et al., 2022), Kenya, Senegal, Uganda (Chengo et al., 2022). In India, Community Volunteers were essential in containing the pandemic in the densely populated Dharavi slum of Mumbai, giving rise to the so-called "Dharavi model" (Bezbaruah et al., 2022, 43). The tracing of infected returnees from urban to rural areas in Thailand was made possible by national Village Health Volunteers (Bezbaruah et al., 2022, 43-44).

It is interesting to notice how the challenges reported by CHWs in different emergencies, both natural disasters and epidemics, are akin to those reported by FCHVs. Hence, this suggests that without proper support FCHVs might have experienced the same barriers during the pandemic. Among the most common there is the lack of supportive supervision and supplies. These appear to be chronic issues affecting CHWs programs, exacerbated during any type of emergency (Abujaber et al., 2022; Bhaumik et al., 2020; Miller et al., 2018; Niyigena et al., 2021). Another common issue among CHWs was a lack of emergency training and emergency preparedness (Bhaumik et al., 2020; Miller et al., 2020). In some cases, e.g., for West African volunteers during the Ebola outbreak, the training was received too late to be beneficial (as referenced in Miller et al., 2020). Most of the literature reports an increased number of tasks not complemented by a sufficient or equally distributed number of CHWs across the country's affected areas (Miller et al., 2020). Following Miller et al. (2018) this overwhelming number of roles in West Africa too was associated with the difficulty for CHWs in balancing volunteering and private life. Another major issue documented in many studies was the unsafety of CHWs and supervisors. This was especially true in the case of epidemics, due to the lack of protective equipment that increased the fear of CHWs being infected. CHWs also suffered stigmatisation and isolation from their communities. For instance, they were accused by the communities and their families of spreading the virus (Bhaumik et al.,2020; Miller et al., 2018). CHWs responding to the Ebola epidemic also lamented harassment and mistrust by the community members, especially by the families of those identified and reported as infected (Miller et al., 2017, 10). Adding to physical fear, CHWs in humanitarian crises often reported suffering from mental health issues such as posttraumatic stress, burnout, and anxiety (Miller et al., 2020; Niyigena et al., 2022). Finally, the lack of coordination among NGOs and with the government also proved damaging to the work of CHWs. During the 2009 cholera epidemic in

Zimbabwe, CHWs in rural and urban areas received varying incentives for the same work, damaging the relationship among communities, NGOs, and local governments (Brooks, 2010).

Many of the challenges experienced by CHWs in LMICs and during the earthquake in Nepal are related to an important and broader issue – the lack of proper inclusion of CHWs in emergency preparedness and response plans by governments. For instance, despite CHWs being an institution in the communities of West African countries, they were not formally engaged in the first phases of the pandemic (Miller et al., 2018). Adhikari et al. (2016) and Fredricks et al. (2017) noted the same lack of community engagement by NGOs and by the health system in the event of the earthquake in Nepal. This drawback seems to perdure, as most of the recent research still coveys the need for government actors to provide CHWs with better support and clearer guidance. Most importantly, they stress the need to integrate CHWs into the design and implementation of health systems' emergency response plans and policies (Chengo et al., 2022; Miller et al., 2020; Mistry et al., 2021; UNV, 2020). For this to become possible, adding knowledge of the topic is required. Not only regarding the experiences of CHWs in emergencies but also on how the support at the policy level evolved.

The existing literature on community health workers (CHWs) often lacks in-depth analysis of the policy-level perspective, despite concerns regarding their institutionalization. Many studies only focused on CHWs' perceptions of support without verifying them against policy content, and few studies incorporated policymakers' perspectives or examined existing policies. For instance, a study on CHWs' response to COVID-19 in Bangladesh highlighted the presence of guidelines for CHW involvement in emergency response and provided insights from policymakers, showcasing positive examples of government support (Roy et al., 2022). However, the study revealed a disparity in perception between CHWs and policymakers regarding the clarity of guidelines and uneven support. This emphasizes the need for increased government efforts in supporting CHWs. A policy analysis would have allowed for a thorough examination of the strengths and weaknesses of the guidelines, enabling a better understanding of the relationship between policymaking and practice by comparing them with primary data perceptions.

Furthermore, the research on CHWs' emergency response lacks comparative analysis across emergencies and over time, with a focus on single emergencies without considering CHWs response in past hazards. This limits our understanding of improvements in community resilience, CHW utilization, and support during emergencies.

The literature on CHWs' emergency experiences is certainly well-established. Existing evidence on FCHVs' role during the 2015 earthquake constitutes the springboard for this research. However, to

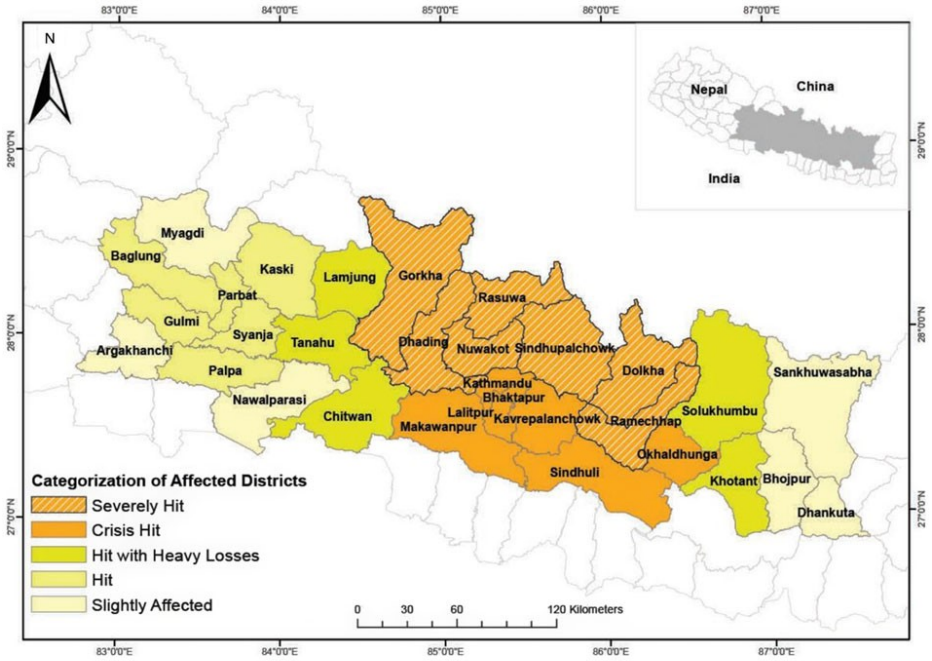
further the knowledge on the topic, it is important to fill three gaps identified in the literature. First, the absence of evidence on FCHVs' experience of the pandemic. Second, the lack of policy perspective, and, lastly, the need for comparison of the response experience across emergencies to gauge improvements or persistent challenges. By conducting FGDs and KIIs with relevant stakeholders, and analysing the content of policy documents, this research attempted filling these three gaps.

3. Methods

3.1 Study context and settings

On the 25th of April 2015 Nepal was struck by a 7.8 magnitude earthquake on the Richter scale. This event was followed by a devastating aftershock with epicentre in Sindhupalchowk district on May 12th and other smaller seismic events, exacerbating the already large-scale impact on the population's health and properties (MoHA, 2018). The death toll amounts to 9000 people, more than 22000 were injured and 2 million left homeless (Health and Population sector, 2015). Among the 77 districts, 31 have been affected, with 14 being declared by the government as the most impacted by the disaster (see figure 1) (MoHA, 2018). The country's fragile health system was put under severe pressure. In the affected districts 80% of health facilities were deeply damaged or destroyed (Subedi et al., 2018). The remaining hospitals were overcrowded and suffered scarcity of equipment and medicines (Subedi et al., 2018). The national health system's preparedness was deemed insufficient, especially outside the metropolitan areas where health posts represented the only facilities and inaccessibility prevented external aid (Shrestha et al., 2021; Subedi et al., 2018). Beyond its immediate impact, the earthquake's long-term consequences such as mental issues, disabilities, and WASH issues related to prolonged stay in temporary shelters still impact the national health system (Adhikari et al., 2017).

Figure 1. Map of the affected district by the 2015 earthquakes[1]



This pressure was exacerbated only five years later by the COVID-19 pandemic (Adhikari et al., 2020). As reported by Kansakar et al. (2021), in Nepal the first case was detected in January 2020, by March the country entered a complete lockdown. The repatriation of migrant workers from India or gulf countries led to a surge in cases, as the precaution measures, such as border case tracing and self-quarantine, did not work as expected. The absence of proper PCR facilities and quarantine centres, lack of medical staff and PPEs, overcrowding of health facilities, as well as by the spread of inaccurate information about the virus led to a second wave. Stigmatisation of health care workers and patients hindered contact tracing and primary health care interventions, leading to an increase in maternal mortality, and mental issues. The vaccination campaign in the country started in January 2021, however, the number of vaccines was below the need, and procurement at the national level was daunting (Kansakar et al., 2021). As of April 2023, the number of cumulative positive cases reached 1001709, and the death cases 12020 (MoHP, 2023).

The study aimed to analyse the experience of volunteers in these two emergency contexts; therefore, the selection of the study sites was based on three criteria:

(1) Being affected by the 2015 earthquakes
(2) Being affected by the COVID-19 pandemic
(3) Feasibility of travel and safe environment for the researcher

[1] Ministry of Science, Technology and Environment. Nepal earthquake 2015: rapid environmental assessment. Ministry of Science, Technology and Environment, Kathmandu, Nepal. 2015. https://d2ouvy59p0dg6k.cloudfront.net/downloads/rea_2.p

Based on the following criteria, as the pandemic affected the whole country (see figure 2), three districts were purposively selected among the 14 declared most affected by the earthquakes: Sindhupalchowk, Kathmandu and Dhading. Particularly, Kathmandu has been selected among others because of the disproportionate impact of covid-19 in this district (see figure 3).

Figure 2. Map of COVID-19 cases intensity by district as of April 2023[2]

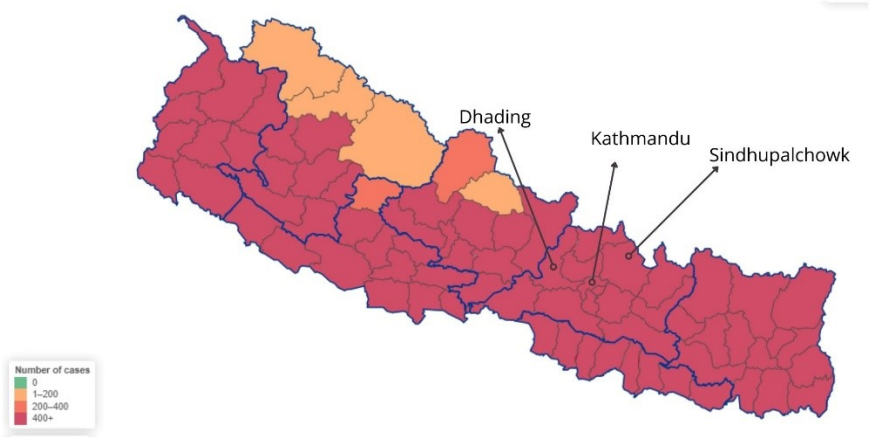
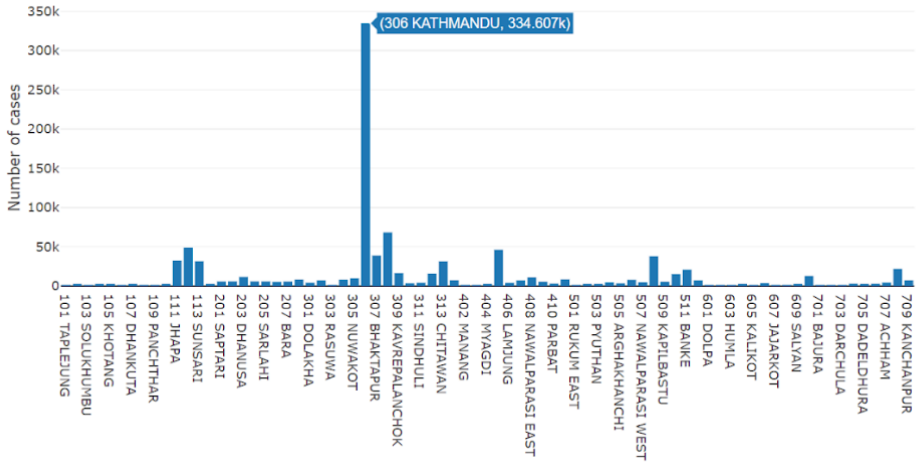


Figure 3. number of COVID-19 cases by district as of April 2023[3]



Following the 2015 constitution Nepal is a federal state with three tiers of government: federal, provincial, and local. The country is divided in 7 provinces and 77 districts, while the local or community level is represented by 753 municipalities, 293 urban and 460 *gaunpalickas* or "rural municipalities". The daily management of primary health care services and of FCHVs is a

[2] Ministry of Health and Population Nepal. *Covid19 Dashboard*. Ministry of Health and Population Nepal. Available at: https://covid19.mohp.gov.np/ (Accessed: April 8, 2023).
[3] Nepal Government Epidemiology and Disease Control Division (EDCD). *Nepal covid-19 statistics*. Available at: https://portal.edcd.gov.np/covid19/index.html (Accessed: April 8, 2023).

responsibility of municipalities (Ban et al., 2021). Therefore, within each of the selected district, one municipality was chosen to represent the district for data collection, based on the feasibility of travel and to ensure variation between urban, peri-urban, and rural areas. The interviews and Focus Groups were conducted in one health post in each municipality.

Data regarding the impact of the two emergencies in the study settings is available only at the district level and has been reported in the following tables:

Table 1. 2015 Earthquakes impact on population health and health facilities.

	Population size in 2011[4]	Number of FCHVs 2014/2015[5]	Dead people[6]	Injured people[7]	Completely damaged health facilities[8] [9]	Number of health facilities[10]				
						Hospital	PHCC/HC	Health Post	Sub health post	Total
Sindhupalchowk	287798	666	3440	2101	64 (81%)	1	3	26	49	79
Kathmandu	1744240	1235	1222	1218	8 (10%)	9	8	26	32	75
Dhading	336067	445	733	952	38 (73%)	1	2	33	16	52
National	26494504	49677	9000	22303	446 (10%)	104	208	1559	2247	4118

Table 2. COVID-19 impact in the study settings.

	Population 2021[11]	Number of FCHVs 2020/2021[12]	Number of health facilities (public and non-public)[13]	Total RT PCR Covid-19 positive cases[14]	Covid-19 death[15]
Sindhupalchowk	262624	667	139	7193	93
Kathmandu	2041587	1078	1109	334607	1921
Dhading	325710	448	124	8092	94
National	29164578	52000	8762	1001605	12020

[4] National Statistics Office. 2011. Nepal Population and Housing Census 2011. Kathmandu
[5] Ministry of Health and Population (MoHP), Department of Health Services. 2015. Annual Report 2071/72 (2014/2015)
[6] Ministry of Health and Population (MoHP). 2015. *A report on* Post-Disaster Needs Assessment and Recovery Plan of Health and Population Sector
[7] Ibidem
[8] Ibidem
[9] Including hospitals, PHC, HP, and private facilities.
[10] Ministry of Health Population (MoHP). 2015. *A report on* Post-Disaster Needs Assessment and Recovery Plan of Health and Population Sector
[11] National Statistics Office. 2021. Nepal Population and Housing Census 2021. Kathmandu
[12] Ministry of Health and Population (MoHP), Department of Health Services. 2021. Annual Report 2077/78 (2020/2021)
[13] Ibidem.
[14] Ministry of Health and Population Nepal. *Covid19 Dashboard.* Ministry of Health and Population Nepal. Available at: https://covid19.mohp.gov.np/ (Accessed: April 8, 2023).
[15] Ibidem.

Sindhupalchowk is the largest district in Bagmati province. It borders Tibet in the north and Kathmandu in the west. The district is prevalently rural, divided in two areas, the mountains region and the high hills region more densely populated (OSOCC, 2015). Of its 12 municipalities, nine of them are *gaunpalickas* (ODCC Sindhupalchowk, 2023). At the time of the earthquake there was only one hospital in the district, and it did not deal with surgical emergencies. Primary health care centres and health posts were insufficiently equipped with material and human resources (OSOCC, 2015). Sindhupalchowk is one of the districts with the highest number of completely damaged health facilities and one of the three top districts in terms of value of damages and losses (Health and Population Sector, 2015). During the response, many areas could not be reached due to communication and logistics inaccessibility (OSOCC, 2015). Since the beginning of the pandemic, the district recorded 7193 positive covid cases. The municipality representing Sindhupalchowk is Melamchi, a geographically and culturally diverse municipality 42 kms north-west from Kathmandu, composed by 13 villages. Here health facilities include 10 health posts, 1 primary health centre and 99 FCHVs (Melamchi Municipality, 2023).

Dhading is a mountainous district located in the Bagmati province. Dhading borders Kathmandu in the east and Tibet in the north. The district has 13 municipalities, of which 11 *gaunpalickas*. Many parts of the district are still inaccessible by road as of today (ODCC Dhading, 2023). During the earthquake Dhading was one of the most affected districts, the few existing roads were blocked by landslides making accessibility even harder (OSOCC, 2015). The cumulative COVID-19 cases in Dhading are 8092 as of April 2023. The municipality selected for Dhading is Dunibeshi, at 16 kms from Kathmandu, composed of 9 villages. Here the health facilities include 3 health posts and 28 FCHVs (Dunibeshi Municipality, 2023).

Finally, the district of Kathmandu, located in a valley in the Bagmati province is the most densely populated district of Nepal, composed by eight urban municipalities and the metropolis of Kathmandu (ODCC Kathmandu, 2023). Despite hosting the nation's capital, most of the facilities and services, and being the centre for national disaster preparedness plans (Health and Population Sector, 2015), the district experienced a high rate of loss and damage during the earthquakes, prevalently due to unplanned urbanization and the high population density (Adhikari et al., 2016). Regarding the pandemic, Kathmandu has the highest toll of cases, accounting alone for 69% of cases in the province (EDCD, 2023). The municipality selected for Kathmandu district is Chandragiri, the largest municipality in the Bagmati province, 10 km from the centre of Kathmandu, composed of 15 villages. The health facilities in this municipality are 11 health posts and 149 FCHVs (Chandragiri Municipality, 2023).

3.2 Study population

Participants included FCHVs, health posts' managers, NGO professionals, and FCHVs' focal persons in the municipal government. The sampling techniques were purposive and snowball.

The inclusion criteria for FCHVs were (1) being active as a volunteer currently and (2) prior to 2015.

Key informants' inclusion criteria were (1) being in their position prior to the earthquake and currently, as well as (2) being knowledgeable about FCHVs' activities during emergencies.

The ideal sample size allowing for data saturation was individuated based on existing qualitative studies with similar objectives, such as Fredricks et al. (2017) and Bhattarai et al. (2022). This includes 24 FCHVs and a range between 6 and 9 key informants. In each municipality, the author of this study conducted one Focus Group Discussion with 8 volunteers, for a total of 24 FCHVs, one Key Informant Interview with one health post manager, one with a local government official respectively and a total of four KIIs with NGO professionals, equating to 10 Key Informants. This sample size allowed for data saturation, with no new themes emerging from the analysis.

Table 3. FCHVs' demographic data [16]

	Range	**Mean**
Age	35-56	44
Length of time as an FCHV (years)	6-39	17
Distance travelled to reach households (kms)	1-35	11

[16] This section only reports the demographic characteristics of FCHVs that participated in the study to elucidate the target population to which the study outcomes are applicable, to report on the variation of experiences, and to provide insights regarding generalisability.

Figure 4. FCHVs' ethnic group

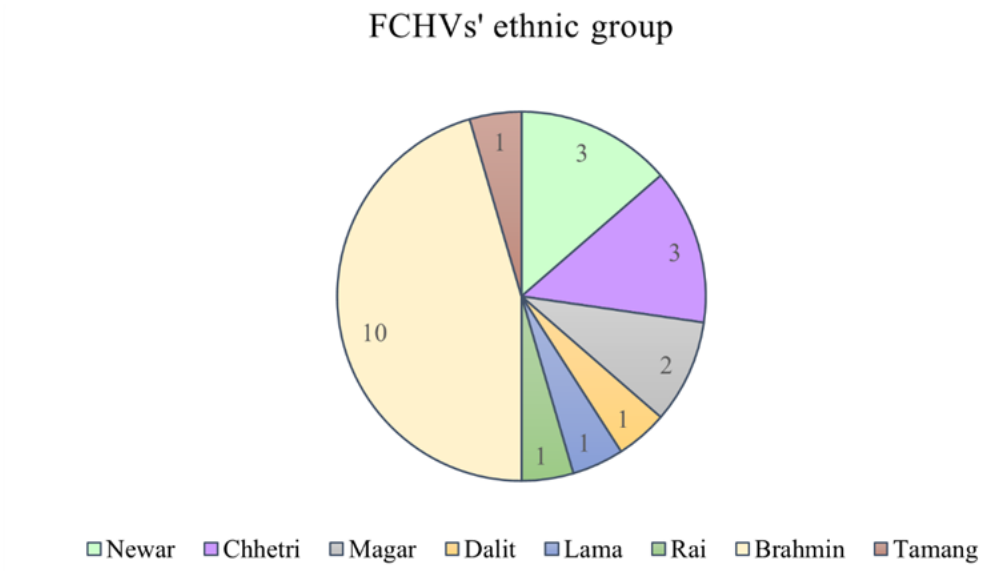
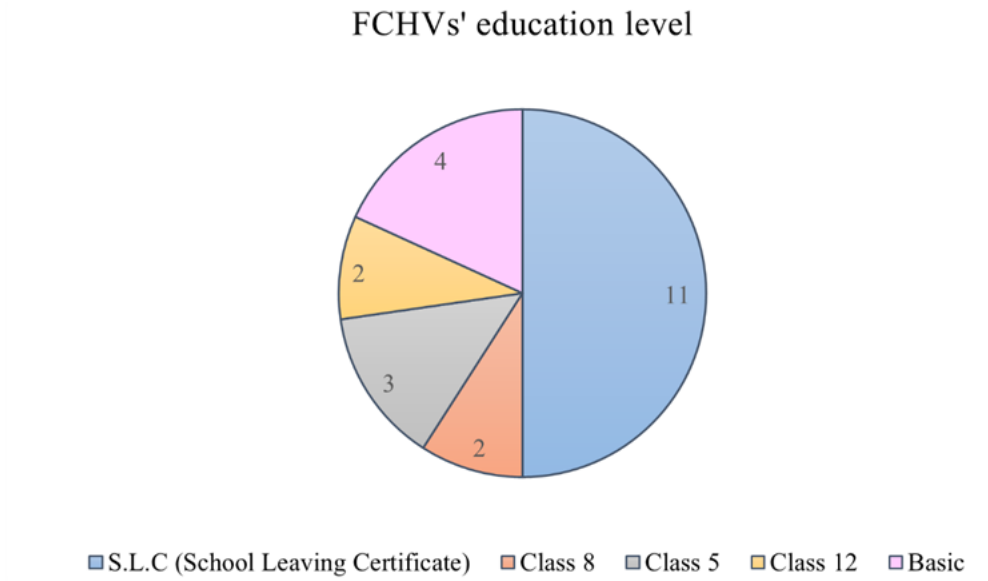


Figure 5. FCHVs' education level



3.3 Methodology

3.3.1 Primary data collection

For primary data collection this study employed qualitative tools, such as Focus Group Discussions with Female Community Health Volunteers and semi-structured in-depth Key Informant Interviews with health post managers, NGO professionals, and local government officials. These methods are considered appropriate to delve into the experiences, beliefs, and motivations of participants (Harrell, Bradley, 2009). Additionally, Key Informant Interviews are considered efficient to explore experts' knowledge and gathering factual data such as information on government or policy

dynamics (Harrell, Bradley, 2009). Focus Group Discussions have been chosen as an inquiry method because group communication fosters participants to explore not only into their individual perspectives but also into their collective experiences (Morgan, 1988). This method has been consistently used in community based public health research (Quintanilha et al., 2015).

The interview guidelines utilized in this study are based on established protocols from relevant studies such as Fredricks et al. (2017) and Bhattarai et al. (2022), with necessary modifications to align with the specific research objectives. Prior to commencing data collection, a pilot study was conducted in one municipality in Kathmandu to test both the FGD and key informant interview KII protocols. The participants have been recruited by phone. The author obtained permission from the municipality's health department to conduct the research, after which the health post contacted FCHVs.

The FGDs were moderated by the principal investigator with the help of a trusted Nepali mother tongue interpreter who provided real-time Nepali-English translation, as most of the volunteers do not speak English. This technique allows the moderator to have an active role in directing the focus group and in generating the data despite the language (Quintanilha et al., 2015).

The Focus Group Discussions protocol involved (1) the FCHVs' roles, (2) challenges, (3) needs, and the (4) support received during the earthquake and the pandemic. They were additionally asked to (5) compare the two experiences and (6) think about lessons learnt across the two emergencies.

The Key Informant Interviews have also been conducted by the principal investigator following semi-structured guidelines, in English, when possible, but always supported by Nepali-English translation when needed by the participant. The interviews involved (1) the Key Informant's experience with FCHVs during the emergencies, (2) their expert opinion on the volunteers' integration in emergency response, (3) on existing policies, and (4) on lessons learnt.

Focus Group Discussions and Interviews lasted between 60 and 90 minutes, they have been audio-recorded and later transcribed verbatim in English, or from Nepali to English by two different interpreters.

3.3.2 Primary data analysis

The interviews and focus groups dataset were analysed using a thematic analysis approach, which involves identifying recurring patterns of meaning, known as themes. A theme represents a cohesive integration of different pieces of data (codes) that form the research findings, highlighting significant patterns related to the research questions (Braun, Clarke, 2006).

This study employed the six-step approach proposed by Braun and Clarke (2006) for thematic analysis. First, the researcher familiarized themselves with the data by reading the transcripts

several times. Then, initial codes were manually generated using colour codes and memos in an iterative process over multiple rounds, Microsoft Excel was used as a support tool. The coding process was descriptive, using a single word or noun to summarize data, providing a highly concise description facilitating the referencing, and inductive, to allow for the emergence of new ideas and personal perspectives of participants. A codebook was created to ease the identification of broader themes obtained by combining different codes. Three broad themes emerged: roles, challenges, lessons learnt and perceived needs; and nine sub-themes. These themes were then reviewed for coherence and to ensure they reflected the meanings present in the entire dataset. After refinement, the themes were named, and the report was produced.

The principles of coding data, searching for, and refining themes, and reporting findings in thematic analysis are common to other qualitative research methods such as grounded theory, discourse or narrative analysis, and content analysis. These approaches have a common objective: obtain a deeper understanding of a specific phenomenon by exploring the first-hand perspective of individuals who have experienced it. Thematic analysis has been chosen over other approaches due to its flexibility, yet capacity to provide an elaborate and deep account of data (Braun, Clarke, 2006). Indeed, the significance of a theme in thematic analysis is not determined quantitatively, but rather by its pertinence to the research question, differently from content analysis where a theme can be identified only based on its frequency in the text (Braun, Clarke, 2006). Thematic analysis is therefore suitable for an exploratory study like this, aimed at understanding a variety of experiences, thoughts, or behaviours within a particular dataset (Kiegner, Varpio, 2020). Moreover, this analysis technique is well-suited for developing recommendations and policies, the aim of this study, unlike grounded theory approaches that aim to build a theoretical background. Thematic analysis was an appropriate choice for a study based on translated data because it does not require as much transcript detail as discourse or narrative analysis. What matters most is that the transcript preserves the essential information from the verbal account and does so in a way that is true to its original nature (Braun, Clarke, 2006).

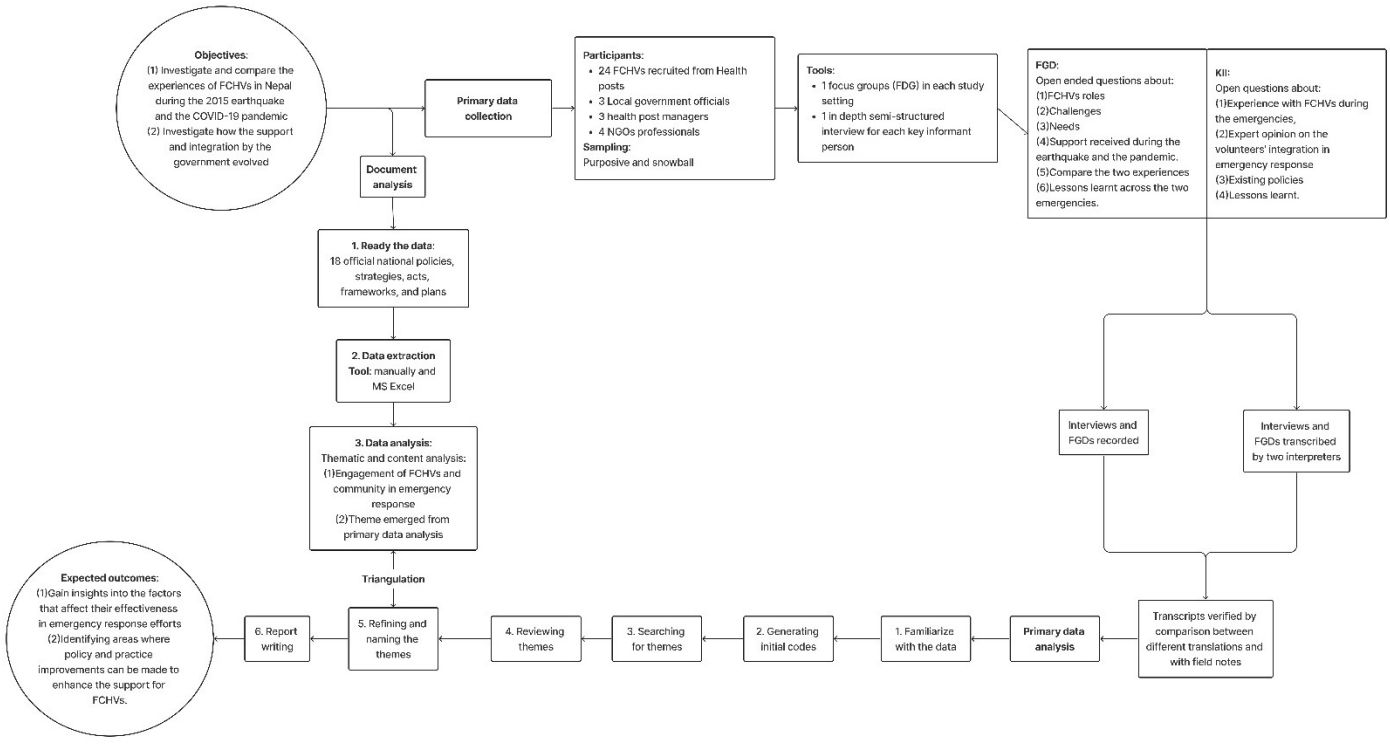
3.3.3 Document analysis

Alongside KIIs and FGDs, document analysis was employed to triangulate the primary data but also to track changes and development in the policy environment regarding FCHVs' role during emergencies. Documents were analysed through the READ approach, consisting of four steps: *"(1) ready your materials, (2) extract data, (3) analyse your data, (4) refine the data"* (Dalglish et al., 2020).

First, parameters were set regarding the nature of the documents to analyse and 5 criteria for the selection of the documents were defined: the analysed documents included 18 official national policies, strategies, acts, frameworks, and plans (1) available online in English or Nepali, and regarding (2) the FCHVs programme, (3) disaster preparedness, response, and reduction and (4) the COVID-19 emergency. Another inclusion criterion was for the document (5) to be in force in 2015 or after this date, to capture the policy environment during the two emergencies and highlighting the evolution across time. Second, Microsoft Excel was used for data extraction to categorize the relevant information. Third, data were analysed using deductive thematic and content analysis looking for mentions of the engagement of FCHVs or community in disaster preparedness or response and applying the themes and sub-themes arising from primary data analysis, until the saturation point was reached. Finally, the findings have been triangulated with primary data.

National official documents are generally available in national ministries' websites and on the Nepal Law Commission website[17]. However, few older documents and most local ones could not be found online. Additionally, many documents are available only in Nepali, this made the translation from a mother-tongue interpreter necessary.

Figure 6. Methodology flow chart



[17] Nepal Law Commission. Retrieved May 2, 2023, from https://lawcommission.gov.np/en/

3.4 Ethical considerations

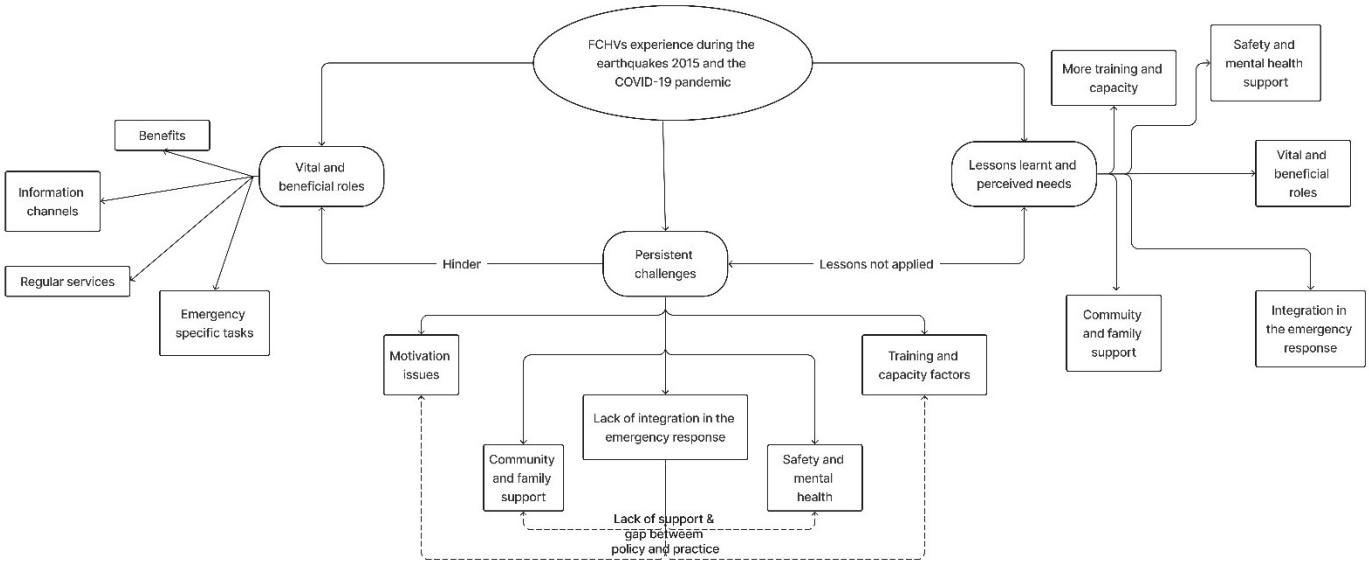
At the outset of the FGDs or KIIs, participants were presented with an Informed Consent Form, which was available in both English and Nepali. Participants were given the opportunity to read and sign the document if they wished to take part in the study. Additionally, they were encouraged to voice any concerns or uncertainties they had regarding the form or the study. For participants who had difficulty reading the form, a Nepali interpreter was available to read it aloud. Prior to the audio recording, verbal consent was obtained.

To conduct the Focus Group Discussion, the author sent a formal request for permission to each municipality health department. The author received a signed authorization in return, which was presented at the health post.

Throughout the study, the participants were not coerced into taking part and their individual autonomy was upheld. Their responses were kept confidential and anonymous during the research, and personal identification was not linked to their answers during data analysis and presentation. Furthermore, all secondary sources used in this study were cited correctly.

4. Results

Figure 7. Thematic analysis map



4.1 FCHVs emergency response: vital and beneficial role

Participants generally agreed on FCHVs' roles during both emergencies, with health post managers and volunteers reporting a wider range of roles compared to NGO professionals and government officials. Common roles were identified for both earthquake and COVID-19 pandemic, while some

were specific to each emergency. FCHVs performed emergency response tasks and their regular services in both situations.

4.1.1 Regular tasks

All participants agreed that FCHVs adapted their regular services, outlined in the national strategy, to the emergency context during both crises. One volunteer stated, "*During the earthquake we continued our regular services to the people living in temporary shelter".* They provided child malnutrition services, family planning and maternal health services, prevention of communicable diseases, and raised awareness on health and WASH related issues by visiting the community door to door, holding mothers' groups meetings when possible, or through public demonstrations. Elaborating on this, one FCHV stated "*The children were vulnerable to malnutrition because they couldn't get proper food during the earthquake. We measured them to identify who was weak*". Another volunteer stated, "*We spread public awareness on social distancing and on symptoms of covid-19 at Health Mothers Groups*". Key informants confirmed, one NGO professional mentioned *"MUAC is already one of their regular roles, so we applied it during the pandemic context.",* while a government official said *"Ideally, their basic role is to create public awareness, and that's what they did even during these emergencies".*

4.1.2 Information channels

During both emergencies, FCHVs acted as intermediaries between the health system, NGOs, and the community, relaying messages and reporting data on affected individuals and needs. This role was frequently cited by NGO professionals and government officials.: *"FCHVs have been used by us and any other organisation as a source of information channel from the field, they work at the grassroots level, so they are the easier way to get information from and messages in the community."* While a government official mentioned: *"In emergencies like COVID or earthquake, FCHVs helped gathering the data as soon as possible."*. FCHVs mapped the vulnerable members of the community, an NGO professional explained "*During COVID we also worked on community mental health support, to identify the beneficiaries we used FCHVs because they could provide a map of vulnerable people in the community. People with mental health issues are not very happy to express their problems in front of outsiders*". According to key informants, FCHVs served as community gatekeepers during both emergencies, facilitating communication between external service providers and community members through translation or mediation, as noted by an NGO professional: "*they took our message to the community, that the vaccination was coming to their doorstep, and they accompanied the organisation staff to the communities' doors. If an FCHV is there the community member will trust more the service provider*".

4.1.3 Emergency specific tasks

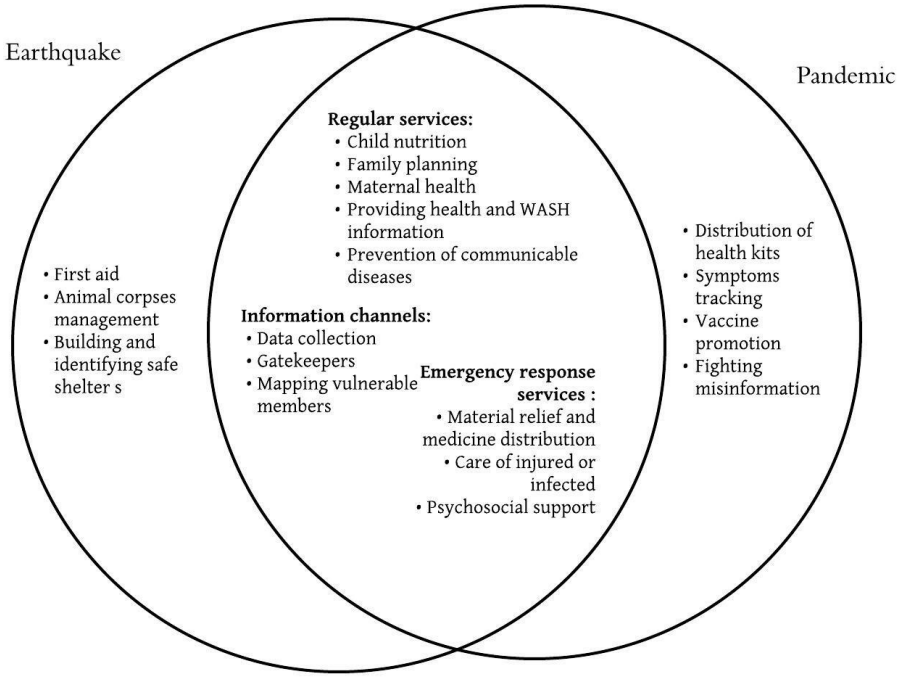
In both emergencies the volunteers reported acting as frontliners providing emergency services, such as material relief and medicine distribution, often independently, and taking care of vulnerable, injured or affected people, as explained by one FCHV: "*We helped those who got infected with COVID-19 the same way as we did during the earthquake. The earthquake led to people out of their houses with no food. Those who were isolated with no work during the pandemic, we provided them and their families food items*". One FCHV added, "*we had just one doctor who prescribed medication and advised patients, so we helped them* (the community) *by delivering medicines, oximeter, and food items to their doors*". Health post managers and other key informants also mentioned these roles "*During the pandemic, every government service was closed except for the health system so FCHVs served as frontliners during that period*". Finally, few FCHVs reported providing some kind of psychosocial support in both situations, and this was confirmed by some health post managers.

During the earthquake FCHVs provided first aid, managed animal corpses, helped in building and identifying safe shelters. As stated by a volunteer "*I had some medicines, so I offered first aid to the victims for their wounds and injuries*". During the pandemic instead, they distributed health kits and tracked covid symptoms in the community. Importantly, they had a pivotal role for vaccine promotion, raising awareness door-to-door, acting as role models for the community by getting vaccinated first, and fighting misinformation circulating in the community. As reported by an FCHV "*People were worried about the first batch of COVID-19 vaccines, so we took the lead and got vaccinated first. Then, we promoted the vaccination campaign in our local areas*", one FCHV added "*they thought that the vaccine was being tested on the people of Nepal, we had to dismantle this misconception*".

4.1.4 Benefits

Key informants highlighted the benefits of having FCHVs as part of the response. One NGO professional stated: "*when the pandemic or the earthquake happened, their role was crucial because they already had a system. In Nepal even in very remote areas, the structure is there. They were ready to help people.*" According to participants, the pre-existing system enabled FCHVs to provide services in remote areas and respond quickly, thereby limiting further damage from the emergencies and filling gaps in the health system. Moreover, most key informants noted that due to their knowledge of the community, local languages, and established trust, FCHVs were the best option for working with the community. As expressed by a health post manager "*if we didn't have FCHVs someone from the health system should go door to door, that would take so much time and the community wouldn't trust them, but FCHVs are already there*".

Figure 8. FCHVs' role during the 2015 earthquakes and the COVID-19 pandemic



4.2 Persistent challenges

4.2.1 Motivation and related issues

When asked about their motivation to act in emergency response, FCHVs cited responsibility to their community and a desire to improve its health situation, rather than working for profit. As mentioned by one of them "*I want to build a healthy community that knows the basis of healthcare.*", one volunteer added: "*We are Mahila Swasthaya Swayam Sewika, we help because we know we should. No matter what hurdles we must go through*."

FCHVs feel proud and satisfied with their role, as it earns them respect and makes them an essential part of the community. Elaborating on this one FCHV said:

> "*We are the ones who know the health status of community members. We were always the contact person for anyone who comes to work at community level, even when there are more educated people in the community, since FCHVs are more entrusted by people than anyone else.*"

Finally, FCHVs are happy to help and serve other people as this is part of their culture and religion, *"We stand by the precept sewa nai dharma ho (service is the only religion)"* or again "*it's like if God has chosen us to help*".

Despite FCHVs high motivation, they faced challenges during the emergency response, including a lack of recognition, appreciation, and supportive supervision from the government and health posts. One FCHV stated "*Health post did supervise, but they only used to come and point out our flaws without any appreciation for what we did or concrete suggestions to improve; they could have advised us on how to do it well, but they didn't*.", or again: "*Government never recognized our work, they cheer us on National Volunteer Day but besides that, no one appreciates our effort*". Some FCHVs mentioned receiving recognition during the earthquake, but not during the pandemic. This was confirmed by a health post manager and some NGO professionals. Talking about this, one volunteer stated, "*Encouragement and appreciation from government level would have improved our morale and motivated us even more*". Volunteers stated that additional incentives would have boosted their motivation during the emergencies. The absence of such incentives was also noted as the primary challenge affecting volunteers by key informants during both the earthquake and pandemic response: "*their daily allowance is very low, so NGOs are not allowed to pay them more. This impacts their motivation*."

Key Informants were asked if there are provisions to boost volunteers' motivation during emergencies, given the increased workload. Most participants didn't identify any measure as such, but some mentioned material or monetary incentives from NGOs or the government to increase volunteer engagement. However, one of the participants underlined that monetary incentives are not a sustainable solution "*If you give them cash in the long run, you will have the opposite effect. You will always have to raise the amount*". Some health post managers mentioned municipal government annual rewards for three "excellent" volunteers, FCHVs confirmed but were displeased with the arrangement.

4.2.2 Community and family support

FCHVs reported that issues related to community members and their families limited their ability to respond efficiently during both the earthquake and pandemic. False beliefs held by some community members led to accusations and mistreatment towards FCHVs. Some Health Post managers were also aware of these challenges.

For instance, during the earthquake response some community members accused FCHVs of keeping resources for themselves instead of distributing them, since FCHVs were instructed to prioritize vulnerable members for relief distribution. Furthermore, they were accused to collect community data and selling them for personal profit. An FCHV explained: "*The municipality at first promises to provide certain goods and mobilize FCHVs to collect data for distribution. But when they* (the government) *didn't deliver, FCHVs were accused and called data sellers*". Some

FCHVs stated that more cooperation from the community could have eased their work during the earthquake.

In the case of the pandemic, FCHVs reported that these challenges were exacerbated, in the words of a volunteer "*We got scolded just because we knocked at doors, some people also left their dogs on us. It took an ample amount of time to make sure people understand*". False beliefs and accusations of being paid caused harassment, as promised services such as vaccines were not available. One FCHV expanded on this: "*there were many people who wanted to get vaccinated, but the number of vaccines were limited. This led to many people getting angry on us as we were the ones who convinced them for vaccination in the first place*." Furthermore, as frontline responders, during the pandemic they were stigmatized as vectors of infection and isolated by the community, making it difficult for them to deliver services. One FCHV mentioned "*Community members had resistance towards us when we reached out to their houses, commenting that they didn't want us to visit them as they feared we might get them infected with COVID-19*". According to most FCHVs, a sense of community was more prevalent during the earthquake, despite some negative experiences, whereas this was completely absent during the pandemic, making their work more challenging. Many FCHVs faced additional pressure from their families to quit their roles due to the perceived risk during the pandemic, in the words of one volunteer: "*Since our families have vulnerable people too, it was a bit difficult to convince them that we were helping others by risking our lives*".

4.2.3 Safety and mental health

Safety concerns have been the challenge most mentioned by the volunteers when recalling both the earthquake and the pandemic response. Particularly FCHVs expressed a lack of support by authorities in this sense, "*We're called Swayam Sewika and assigned multiple tasks, but there's not much done for our safety and well-being*."

Talking about the earthquake, one volunteer stated "*One temporary shelter hosted almost 30 people which increased the risks of poor health and sanitation. We were the ones supporting others to keep them healthy, but we were worried about our own well-being*". Moreover, the lack of necessities, such as food, during the earthquake made it challenging for FCHVs to provide services, forcing them to work with "starved stomachs". However, they did not feel supported: "*we were also affected by the earthquake, and we were working despite of it. But no organization offered to provide us with refreshments when we were distributing these supplies and it required being mobile from place to place."*

During the pandemic, this issue became more pronounced since volunteers were the ones who had contact with infected individuals but lacked personal protective equipment (PPE) as it had not been provided to them. In the words of the volunteers:

> "*We had to interact with people, write their names, age, which led to a very low physical distance. There was no sanitizer, we had to buy it ourselves, and the mask and gloves too. Some of us were provided with an apron, which made us feel like we're here to cook food. There were no proper safety precautions for us*."

Also, "*Due to unavailability of mask and other PPEs, we re-used the same mask after washing it even though we know it's not safe*". Some volunteers expressed concern about the lack of insurance, which had been provided to health workers but not to them. One health post manager mentioned a lack of prioritization of FCHVs safety: "*One of the priorities was to provide safety gears to the health workers but the government couldn't provide for everyone, so FCHVs came last*". According to some volunteers, the lack of necessities and support was harsher during the pandemic "*During the earthquake, the government distributed tarpaulin and food items. But during the pandemic, there was a lack of resources, be it masks, food, or medicines. There was no proper support during COVID-19*." The volunteers noted that the lack of external aid during the pandemic, in contrast to the material support they received from NGOs during the earthquake, contributed to the challenge.

FCHVs encountered mental health challenges during both emergencies, but generally reported a lack of support or counselling in this sense. They mentioned stress, frustration, fear, and helplessness, while some of them used the word "headaches" to express this concept. In their words "*We experienced mental stress seeing losses and people suffering because of the earthquake. We had headaches thinking about what was coming next, and fear*." Or again, "*During COVID no one ever asked about our mental health. We weren't a priority.*" FCHVs mentioned that the only support available was their "sisterhood". Despite not receiving direct assistance, one FCHV mentioned to have practiced self-help by utilizing the teachings of a psychosocial counselling training provided by an NGO.

Key Informants did not name this challenge, but when asked about mental health support for FCHVs, they acknowledged that there is no prioritization or system in place, despite support being available for other health workers. One participant highlighted that this issue represents a significant gap:

> "*I think a lot of NGOs look at them as sources of data instead of taking them as individuals and supporting them with psychosocial support. We are already working on that with health*

workers, but the support did not go beyond them. We didn't ask to FCHVs if they were doing ok, I think that is a huge gap."

However, one health post manager suggested that FCHVs are "checked up" during their monthly meetings with the health post staff. Another health post manager recalled that, during the earthquake, one NGO provided local FCHVs with counselling. Additionally, an NGO professional indicated that their organization offered mental health services to the whole community during the pandemic, although this was not specifically communicated or intended for FCHVs.

4.2.4 Training and capacity factors

Some volunteers reported insufficient training and knowledge regarding safety and emergency response during the earthquake. Similarly, a number of key informants mentioned that the volunteers struggled with understanding some of the messages they should have delivered during the pandemic and often lacked knowledge on the use and effects of the medications. This was further complicated by the fact that NGO staff often overestimated their capabilities, assigning complex tasks and messages.

FCHVs were asked whether they received any emergency related trainings prior to the earthquake or between the two emergencies. Some FCHVs reported not having received such training, while others did. The training was provided mainly from NGOs, before or after the earthquake, on first aid, earthquake protection measures, or disaster management. However, the volunteers deemed this training as insufficient in real practice. One group said they received psychosocial counselling training from an NGO. Others received an orientation on covid-19 guidelines, how to use sanitizer, and the proper way to wear masks always from an NGO. Some mentioned having previous knowledge on epidemics from their basic training. One FCHV claimed that during covid times "*We got informed and aware through the news, TV, and mobile. It was mostly self-information*".

Some NGO professionals stated that their organisations provided pandemic task orientations and emergency response simulations, or online training on hygiene promotion and MUAC screening. However, most key informants were unaware of such training, which some participants attributed to health post decisions, while other to the government choice. The participants highlighted that trainings for FCHVs may not always be considered necessary. Moreover, other participants said that trainings provided may only reach upper-level health providers or government officials and not the volunteers. As explained by a health post manager: "*training regarding emergencies is given to upper-level people, ministries, local representants, those trainings are not taken seriously and never given to junior people, every time we start from scratch*."

4.2.5 Integration in the emergency response

The participants explained that FCHVs are primarily mobilized through the health posts and local government wards. The federal government formulates policies, the district and municipal authorities issue directives to the health posts, which in turn assign tasks to the FCHVs. However, FCHVs can carry out their regular duties without waiting for directions from the government. Indeed, many volunteers mentioned that they sometimes acted independently to help the community, especially during the earthquake. NGOs require support from the municipality to involve FCHVs in their programs and can only mobilize them through the health post. FCHVs acknowledged to have worked with NGOs, more during the earthquake, receiving training and support. KIIs suggested that the volunteers are generally automatically integrated into NGO community health programs.

Informants found pandemic mobilization challenging due to unclear protocols and late involvement, as authorities considered FCHVs a "*plan B*" after mobilizing technical workers first. However, a government official mentioned that FCHVs were well-mobilized during both emergencies.

Most informants reported poor integration and lack of consultation with FCHVs throughout the emergency cycle. One participant stated, "*Government considers them part of the system but they are not really integrated. if you are a part of the system, everything that happens comes through you*." FCHVs are directly consulted regarding community needs but not for their own needs or challenges during emergencies. Their inclusion happens mostly in prompt and by default, one participant defined them as "*on-demand workers*." Some government officials cited available consultation platforms such as review systems and emergency response committees, while another stated that FCHVs are included in every local emergency response committee, particularly the Rapid Response Team (RTT).

Most of the participants recognized a lack of guidelines defining the role of volunteers in emergency response, which led to vague roles and responsibilities, overburden, and message overload, causing them confusion. In the words of a participant,

> "*Since there is no clear guideline, they are confused. Without these guidelines different organisations will use them for different purposes, the government others, they don't know which is their role, and they end up overburdened*."

Other participants admitted not being aware of any such guideline. Some participants mentioned specific documents, such as the Risk Communication and Community Engagement (RCCE) and RRT guidelines, but they underlined the lack of a more holistic approach. Others referred to the

FCHVs National Strategy, but they clarified that there is no emergency specific mention there. One participant affirmed that new guidelines are always created ad hoc by the federal government for the specific emergency. Most FCHVs declared not having any knowledge of such guidelines; one FCHV said, "*there are no such guidelines. We are on a standby mode like an army and get going as soon as we are assigned a task. We're available any time, on demand*."

When asked regarding the barriers that prevent FCHVs proper integration in the emergency cycle, most participants identified the limited capacity of FCHVs, citing their lack of understanding or knowledge of some health concepts and illiteracy. One participant said, "*There is a limitation in FCHVs' understanding of some health issues and concepts, this is a barrier to incorporating them in health emergencies*". Additionally, participants said that there is a lack of awareness among NGOs and government regarding their skills, they are often underestimated and not included in the response: "*by now political people don't really know how beneficial they can be*". The absence of guidelines and sustainable plans also hinders their involvement, as organizations must act quickly and are unsure of FCHVs' ability to contribute. Other barriers mentioned include physical fitness, lack of government resources, and security issues.

4.3 Perceived needs and lessons learnt.

Most participants emphasized the value of drawing on past emergencies, highlighting lessons and future needs related to the efficiency of FCHVs' emergency roles, safety and support, capacity building, and integration of the volunteers in the disaster response. Nonetheless, some participants felt that the government failed to apply earthquake-related lessons to the pandemic.

4.3.1 Emergency response: roles and motivation

Most FCHVs stated they became more self-confident regarding their tasks across the two emergencies: "*We were less fearful about such emergency situations after having dealt with earthquake, it increased our self-confidence to deal with COVID-19 and other emergency situations in future*." The volunteers listed among the main lessons learnt the importance of preparedness: "*the importance of having basic commodities in stock like blankets, and clothes. We understood that preparedness is important. Especially when it comes to medicine supplies*."

Participants acknowledged the effectiveness of FCHVs in providing primary health services, waste management, psychosocial counselling, data collection, vulnerable population support, and material relief distribution during the earthquake. This knowledge was applied during the pandemic. However, some participants expressed concern about the persistent underutilization of FCHVs in emergencies, stating they were not being used efficiently for immediate action. One participant

commented, "*FCHVs are not utilized efficiently. In disaster you need immediate action, they are the one that can provide it, but they are not utilized immediately.*" Therefore, some participants recommended using FCHVs more for rapid response, crowd and stock management, and other emergency tasks.

4.3.2 Safety and mental health

Regarding safety and support, the volunteers think this is a central need to tackle for future emergencies. One of them said "*We could have worked better if someone cared about our safety and security, provided us PPEs*". Most key informants recognized the need to provide more safety equipment, insurance, as well as making sure they are provided with their basic needs.

4.3.3 Community and family support

FCHVs mentioned that support could have been helpful also to deal with community issues, one FCHV stated "*Regarding people attacking us, the health post staff should at first go around with us to resolve people's misconceptions*."

4.3.4 Training and capacity

FCHVs and key informants unanimously agreed about the need of further and regular training on emergency preparedness and relief, especially on earthquake response, and first aid. Additionally, FCHVs mentioned the need to be trained on vaccines. Key informants also emphasized that training could increase the volunteers' confidence and empowerment. As one informant stated, "*We have to provide them with skill development trainings to make them more confident about their skills. Right now, the training provided by the government is not really supportive, is not building their confidence*." However, participants reiterated the need for simple trainings. One NGO professional stated "*training is important, but it must be simple, if you start training them on anything it will overload them*". Another lesson learned was the necessity of enhancing community response capacity. One participant stated, "*We realised that building the response capacity in the community is necessary, because the disaster always happens in the community. Enhancing the capacity at the community level is more needed than enhancing it at the central level*." However, as the health needs in the community become more complex, many participants suggested selecting more qualified and educated volunteers to enhance capacity. As one participant stated, "*Today the needs of the health system are more advanced, but their qualification level is too basic, now we need more prepared health workers, FCHVs need a higher qualificatio*n." They suggested that providing more benefits could attract these volunteers. However, a government representative reported that discussions have taken place within the health department to terminate the FCHV program based on

insufficient qualifications. The alternative proposal would be to replace FCHVs with a single trained health worker in each ward.

4.3.5 Integration in the emergency response

Many participants emphasized the need for more integration. First, they highlighted the necessity to conduct consultations to identify volunteers' skills and how to best mobilize them. They also stressed the importance of defining and preplanning the roles of FCHVs by the government and NGOs. One participant said: "*the municipality needs to have some prior plan prepared, if FCHVs know what's their role they would automatically fit in the emergency response, be more effective, more motivated.*" An NGO professional stated "*During emergencies every organisation has its own plan to mobilize its human resources, having a prior strategy to engage FCHVs from the organisation itself would be better*." According to the participants clearer roles for FCHVs during emergencies would allow better resource allocation for capacity enhancement, as mentioned by a local government official: "*Their clear role during emergencies is not defined at any level of government, once we establish this, we can train them better*." To facilitate faster inclusion of FCHVs in the response, participants suggested the establishment of contact persons in the volunteers' group and the use of technology. Additionally, some participants stated that NGOs should have more sustainable programs for FCHVs' involvement in emergency.

4.4 Document analysis

The role of FCHVs is hardly recognized in policies related to disaster risk management in Nepal, however, there has been an evolution in terms of emphasizing the importance of a community-based approaches. Terms like "local community", "volunteers" and "community volunteers" have been increasingly used in time, especially after the 2015 earthquake.

The 2009 National Strategy for Disaster Risk Management (MoHA), in force during the 2015 earthquakes, recognized the need for involving different stakeholders in disaster management, including community-based organizations. It suggested enhancing community capacity and awareness in disasters and recognized the lack of adequate arrangements to mobilize volunteers. It mentioned that volunteers should have been part of rescue and relief teams, however, the term "volunteer" is not defined and FCHVs are not mentioned in the policy.

In the Local Disaster Risk Management Planning guidelines 2068 (MoLD, 2012), FCHVs were listed as one of the possible human resources for local disaster risk management, and the policy mentioned the need for direct participation of communities in disaster risk planning.

The National Disaster Response Framework (MoHA, 2013) listed "community volunteers" as an organization that should support disaster response management but did not provide a definition of "community volunteers" or their specific roles.

After the earthquake, new policies still in force now, were produced. The Disaster Risk Reduction Management Act (MoLJPA, 2017) established the National Disaster Risk Reduction and Management Authority to constitute a "volunteer bureau" for search, rescue and relief operations mobilize "local communities" and "volunteers" for the construction of disaster learning centres and safe shelters for the affected people. The Act also established the Local Disaster Management Committee, which should use traditional knowledge and skills for disaster management, mobilize local communities, and provide capacity building and training for stakeholders engaged in disaster response while prioritizing the safety of staff and volunteers. The Act lists communities and volunteers to support the disaster response through data collection, situation assessment, relief and rehabilitation, disaster management, increase awareness on disaster management, participate in capacity building, search, rescue, and relief activities.

The National Disaster Risk Reduction policy (MoHA, 2018) builds on the Sendai Framework, the lessons learned from previous policies and the 2015 earthquakes. It emphasizes the mobilization of volunteers at the community level through a community-based approach to disaster risk reduction activities, enhancing their capacity and "*using local knowledge, skill, resources and materials*".

Finally, in the Disaster Risk Reduction National Strategic Action 2018-2030 (MoHA, 2018), the priority action 15 is "*promoting community-based disaster risk reduction*" through empowering the community. The policy emphasizes the need for a group of community-based trained, formerly practiced first responder volunteers and building their capacity so that they will be available in the community.

In 2020, the National Disaster Risk Reduction and Management Authority published the Disaster Management Volunteer Bureau Formation and Operational Procedures. Volunteers are defined as "*unpaid human resources who work in the disaster risk reduction and management sector*". The document outlines the sectors where volunteers can be mobilized during emergencies, including early warning, search and rescue, relief distribution, primary and basic health care, initial rapid assessment, psychosocial support, temporary shelter, managing quarantines, and protection of vulnerable people. Based on these directives, the bureau should provide training through basic courses, exercises, and drills for different emergency scenarios. At the local level the bureau is

responsible for organizing volunteers, providing capacity development, and coordinating with organizations such as the Red Cross. The bureau should reward volunteers and provide insurance.

FCHVs are not mentioned in the Rapid Response Team guidelines of 2022 (MoHP) as part of the Local Team, dedicated to rapidly provide health services in different emergency situations such as diseases, epidemics, and natural disasters. FCHVs are not mentioned at all in the National Health Policy of 2019, despite the policy fostering community participation in health services related to disaster risk management.

The author reviewed the FCHVs National Strategy (MoHP) for references to disaster management roles for the volunteers. The 2009 strategy did not mention any such roles, but the 2019 version includes health education and participation in health programs related to epidemics control, identifying risks in the community, and disaster management, without specifying further. The motivation strategies offered to volunteers remain the same: provision of a fund, transportation allowance, and celebration on FCHVs national day.

During the pandemic, FCHVs were included in some emergency response documents. In 2019, the "Directives for Mobilizing Volunteers in the Community for the Prevention and Control of COVID-19" (MoHP) recognized the importance of community participation in controlling the pandemic. FCHVs were listed as a member of the COVID-19 Prevention Group (CPG) alongside other officials. The guidelines outlined specific roles for each member, including managing quarantines, providing preventive education, ensuring infected people are treated with respect, contact tracing, identifying and isolating individuals with symptoms, and facilitating testing, treatment and disinfection as well as managing dead body disposal. This policy states that the responsibility for providing safety equipment to the team is on the local government. Additionally, each member of the team is entitled to specific amounts of monetary incentives and provision of an insurance. A policy of 2021 (MoHP) listed FCHVs as part of the Risk Communication and Community Engagement (RCCE) Team and provided training on risk communication and community participation. The training, outlined in guidelines specifically directed to FCHVs and local leaders, provided orientation on COVID-19 and local statistics, vaccine information and misbeliefs related to it, the role of FCHVs and community leaders in vaccination campaigns, effective communication, and promotion of vaccines. Additionally, specific roles of the participants after the orientation are outlined, broadly related to vaccine awareness, promotion, and education activities.

Table 4. Summary of main findings

Theme	Sub-theme	N. of extracts earthquakes[18]	N. of extracts pandemic	Theme description
1. Vital and Beneficial Roles	**1.1 Regular tasks**	16	17	FCHVs had a vital and beneficial role in both the emergencies, providing emergency specific services, while maintaining their regular tasks and acting as a bridge between the health system and the community
	1.2 Information channels	33	31	
	1.3 Emergency specific tasks	33	38	
	1.4 Benefits	8	10	
2. Persistent challenges	**2.1 Motivation and related issues**	39	45	Despite FCHVs' motivation, they faced persistent and exacerbated challenges hindering their contributions from the earthquake to the pandemic. The root cause was the lack of integration in the emergency response cycle, leading to insufficient government support. Document analysis confirmed this issue and highlighted a gap between policy and practice, despite the government's inadequate efforts.
	2.2 Community and family support	6	23	
	2.3 Safety and Mental health	22	27	
	2.4 Training and capacity factors	27	22	
	2.5 Integration in the emergency response	77	86	
3. Perceived needs and lessons learnt	**3.1 Roles and motivation**	16		The participants have highlighted the importance of learning from past emergencies, however some of them felt that the government failed to apply earthquake-related lessons to the pandemic. For this reason the challenges experienced by FCHVs have translated in persistent unmet needs for future improvement.
	3.2 Community and family support	7		
	3.3 Safety and Mental health	7		
	3.4 Training and capacity factors	35		
	3.5 Integration in the emergency response	20		

5. Discussion

This study aimed at analysing and comparing the roles, challenges, and needs of FCHVs during the 2015 earthquake and the 2019 pandemic. Additionally, the study sought to assess changes in the level of government integration and support for FCHVs in emergency preparedness and response over time.

The study found that FCHVs in Nepal played a vital role during both the earthquake and COVID-19 pandemic thanks to the inherent benefits of their programme. This study confirms that not only the volunteers kept providing their regular services in the crisis context, but also delivered lifesaving emergency-specific relief. While all key informants highlighted the advantages of FCHVs' programme in emergencies, NGO professionals and government officials were not completely aware of the wide range of roles volunteers performed. The study's results also suggest that the

[18] The frequency of extracts referring to a sub-theme is reported solely for descriptive purposes, this reporting practice does not imply that themes are determined quantitatively but rather provides a descriptive summary of their prevalence within the dataset. This practice helps to understand the thematic landscape, highlighting salient and pervasive themes. However, it is crucial to acknowledge that participants may have different understandings, and the absence of a mention does not imply nonexistence.

willingness and capacity of FCHVs to respond to emergencies remained constant over time. These findings are consistent with previous research on the experience of FCHVs during the 2015 earthquake (Bhattarai et al., 2020; Fredricks et al., 2017; Horton et al., 2020) and studies on CHWs in other emergency settings, including the COVID-19 pandemic (Bhaumik et al., 2020; Bezbaurah et al. 2021; Chengo et al., 2022; Miller et al., 2018; Miller et al, 2020;, Niyigena et al.,2022; Roy et al., 2022).

Moreover, the research explored the challenges confronted by FCHVs during the two crises. The results align with previous research regarding the earthquake response, but also unveil new difficulties. Furthermore, this investigation contributes to the existing body of knowledge by shedding light on the obstacles faced by FCHVs during the pandemic. In doing so, it enhances our understanding of the challenges that community health volunteers encounter in emergency situations. Notably, the study emphasizes that most of the challenges and needs that FCHVs encountered during the earthquake persisted or were exacerbated during the pandemic.

First, FCHVs lacked recognition, appreciation, and support from the government and health posts, as well as appropriate incentives, which negatively impacted their motivation. According to the participants this issue was persistent but more evident during pandemic response. Similarly, Bhattarai et al. (2020) highlighted that lack of incentives was a discouraging factor during the earthquake response. These findings suggest that motivation mechanisms have not evolved to recognize the important effort of the volunteers during emergencies. Providing recognition to individuals through either monetary or non-monetary incentives is widely acknowledged as essential (Bezbaurah et al., 2021; Bhaumik et al., 2021). However, the choice between these two forms of recognition remains a hotly debated topic. While some studies argue for financial incentives (for instance Niyigena et al., 2022), the International Federation of Red Cross and Red Crescent Societies (IFCR) (2011) and the WHO (2021) recommend the use of non-monetary incentives such as scholarships or preferential access to jobs or services, as these do not create distortions in the long term, unlike monetary incentives. This was also suggested by the participants. Non-financial incentives were found to be desirable by community health volunteers working during the Ebola epidemics, as highlighted by Miller et al. (2018).

Secondly, FCHVs faced harassment, accusations, and stigmatization due to false beliefs from community members during both emergencies, but particularly during the pandemic, when the sense of community prevalent during the earthquake, disappeared entirely. This factor limited their ability to provide services effectively. Moreover, during the pandemic, FCHVs experienced additional pressure from their families to quit their roles. This finding denotes a lack of awareness

and sensitization regarding the volunteers' responsibilities and importance at the community level. The pressure from community and family is a challenge frequently named in the literature regarding emergency contexts (Bhaumik et al., 2021; Miller et al., 2018). In Nepal, Fredricks et al. (2017) noticed that when FCHVs where not able to help during the earthquake, their relationship with the community was strained.

The most voiced challenge common to both emergencies was the personal safety concern, coupled with shortfall of safety support and prioritisation from authorities and organizations. Volunteers also faced mental health challenges during both emergencies but reported never receiving support or counselling in this regard, except for the sporadic efforts of some NGOs. While Fredricks et al. (2017) and Basnet and Silwal (2020) have previously reported on the elevated levels of anxiety, depression, and stress experienced by FCHVs during emergencies, this study sheds light on the persistent nature of this issue. Despite being a recognized problem, the study reveals that mental health support mechanisms remain absent and the psychological well-being of FCHVs is not adequately considered. Furthermore, while safety concerns have been largely voiced regarding CHWs in other emergency situations (Bezbaurah et al., 2021; Bhaumik et al., 2021; Miller et al. 2020), no research in the Nepali context had previously highlighted this issue. The participants have reiterated a need for better safety measures for FCHVs.

Additionally, FCHVs lamented insufficient training and knowledge for emergency preparedness. Some volunteers had never received such support, while others had received some disaster preparedness orientation mainly from NGOs, however all the participants voiced a need for better, regular, and simple training. The results suggest that the distribution of this supportive measure was not consistent, which is likely due to emergency training not being a standard part of the basic curriculum for FCHVs (Fredricks et al., 2017). The availability of training appears to be contingent on the geographical reach and objectives of NGOs' projects. Instead, to promote sustainability and standardization of CHWs programs, previous studies argued that government efforts should support these initiatives (Miller et al., 2020). CHWs often face inadequate training during emergency situations, as reported by many (Bezbaurah et al., 2021; Chengo et al., 2022; Miller et al., 2020; Niyigena et al., 2022). FCHVs also voiced this issue during earthquake contexts (Fredricks et al., 2017; Horton et al., 2020). In line with the findings of this study, Bhattarai et al. (2020) observed that the provision of training before the earthquakes was inconsistent, but FCHVs who did receive training found it extremely beneficial, resulting in improved confidence and performance. Differently, poorly trained CHWs have been found to underperform when providing services (Niyigena et al., 2022).

The persistent issue of poor integration and lack of consultation with FCHVs was reported by informants throughout the two emergencies, leading to confusion and overburden, with unclear protocols causing late mobilization and underutilization during the pandemic. One of the possible reasons behind lack of inclusion in the response cited by key informants are the misconceptions regarding the volunteers' capacities at the government level or among NGO professionals, which further confirms a lack of dialogue with the volunteers. Fredricks et al. (2017) and Bhattari et al. (2020) formerly referred to the lack of proper integration of FCHVs in the national emergency response plans, while Kharel et al. (2022) found that the government did not prioritize the inclusion of FCHVs in areas where their impact is more significant. Similarly, the Ebola outbreak response was hindered by delayed involvement and under-utilization of CHWs (Miller et al., 2018). Therefore, the findings of this study confirm the widespread idea that local or national disaster risk management plans in health and other sectors often fail to include CHWs and properly address their roles, competencies, and minimum standards (Hung et al., 2021; Miller et al., 2020Hub). Instead, as suggested by Bezbaurah et al. (2021), CHWs are more effective when fully integrated in the national system.

Despite the lessons from past emergencies identified by the participants, including the importance of empowering the community's response capacity over centralization and the identification of effective volunteer tasks, the ongoing and exacerbated challenges imply inadequate implementation of these lessons. These challenges persist due to insufficient government support, with the lack of integration being the underlying issue. For instance, recent studies suggest that due to the insufficient integration in the health system, CHWs in LMICs have been excluded from national planning and projections of PPE need, and therefore disproportionately affected by the scarcity of protective equipment during the pandemic (Nepomnyashchiy et al., 2020).

Conversely, the documents' analysis suggests an increased effort at the policy level to recognize community participation and the contribution of volunteers over time. While FCHVs were never specifically named in disaster preparedness policies, the use of the term "volunteers" in most recent documents, as well as the inclusion of "disaster management" among the roles outlined in the FCHVs National Strategy 2019 suggests that they could be included in the mobilization efforts. Despite this, the policies fail to offer precise definitions of the roles falling under the umbrella of "disaster management," as well as the roles and definitions of "volunteers." Moreover, the lack of any explicit mention of FCHVs in the relevant documents underscores the inadequate recognition of their essential contributions during emergency situations. The fact that the 2019 Health Policy no longer includes any reference to FCHVs, unlike its previous version, provides further evidence of a

decline in recognition by high-ranking policymakers. New ad hoc pandemic policies better outline the roles of FCHVs, with a focus on capacity building and safety. Nevertheless, the findings indicate that participants were often unaware of these policies and expressed dissatisfaction with the lack of clear guidance, which could suggest ineffective communication among the three tiers of government and other stakeholders. It is worth noting that the support offered to volunteers, as reported in the findings, was inconsistent with the provisions laid out in the policies. For instance, FCHVs were not provided with necessary safety measures, insurance, and training, despite these requirements being explicitly stated in policies.

These aspects imply a gap between policy and practice, as policies may exist on paper but not be implemented on the ground. Indeed, the Nepal Health Research Council in its assessment of COVID-19 related policies (2020) has acknowledged that although the government has made efforts to develop plans and policies, there was a lack of implementation at the local level, primarily due to the incapacity to fulfil all the necessary requirements. Other studies recognized that implementing policies for CHWs programs can be a challenging task due to various contextual factors, including limited financial resources; deficits in health staff management; competing priorities within and beyond the health system; and challenging physical environments, such as remoteness (Lewin et al., 2021). However, it is crucial that policies and plans consider implementation right from design phase (IFRC, 2011). Indeed, the priority when governing CHWs programs is to align and catalyse these factors, to prevent unsystematic or slow implementation (Lewin et al., 2021). Finally, it is important to note that several participants emphasized the need for pre-planning, while ad hoc policies are insufficient to ensure a swift response in emergencies. As noted by Miller et al. (2018), establishing community response structures beforehand is crucial for effective emergency preparedness.

The findings imply that the government needs to step up its efforts in supporting FCHVs in emergencies and translating policies into practice to ensure better outcomes. A more holistic approach is needed to ensure that FCHVs are adequately supported and integrated into disaster management efforts, and that they have the necessary skills, knowledge, and resources to respond effectively to crisis situations. A clear and consistent pre-planned policy that delineates the roles of FCHVs in emergency response systems is crucial for strengthening the volunteers' integration in the emergency response (Cometto et al., 2018; Miller et al., 2018), this need was clearly voiced by participants.

Therefore, it is recommended that FCHVs' emergency roles, responsibilities, incentives, and required equipment be added to their National Strategy. As demonstrated by the findings, this is the

most well-known policy regarding FCHVs among different stakeholders, including NGO professionals. By doing so, duplication can be avoided, and a strategy can be readily available to ensure a rapid response in case of emergencies. Additionally, it is necessary to clearly mention FCHVs in national emergency preparedness plans, outlining their roles as suggested for other CHWs programmes (Miller et al., 2020). Nevertheless, in order to ensure effective policy planning and well-defined roles, adopting a participatory approach including local government, FCHVs, health post managers and NGO representatives is crucial. This approach should include dedicated consultations to determine the required responsibilities, incentives, and training needs. Indeed, studies have highlighted the significant role that CHWs can play in the policy cycle, including design, implementation, and evaluation (Colvin et al., 2021; IFCR, 2011).

Furthermore, based on the findings, it is imperative to consider these aspects when developing future plans:

1) Consider recognizing publicly the whole group of volunteers following emergencies and regularly, to maintain the sense of sisterhood and teamwork that drives them, rather than singling out a select few.
2) Provide non-monetary incentives such as free health services for the volunteer and their close family, providing scholarships for volunteers or their children, providing transport and children allowance. This not only will improve the volunteer's motivation but could contribute to increased family support.
3) Provide simple and regular training on emergency preparedness and response as part of their basic training.
4) Enhance safety and support by providing in advance, and ensuring a dedicated stock of, protection packages e.g., the one suggested by WHO and UNICEF guidelines (2020), which includes surgical masks, eye protection, gloves, gowns, disposable bags to safely store and discard contaminated items. However, to ensure provision it is vital to include FCHVs in the national PPE supply projections. Finally, the government should provide a permanent, sustainable mental health support system in collaboration with NGOs.
5) Address community mistrust by engaging local leaders and promoting FCHVs' role in emergencies through awareness campaigns. Previous studies on the experience of CHWs programmes in emergency situations found this strategy beneficial to rebuild trust and regain community acceptance (Miller et al., 2020; UNICEF, 2020).

However, future studies should inspect the feasibility of these options at the government level and their desirability at the community level based on the no-harm principle.

6. Limitations of the study

The study's limited timeline and resources may have restricted the sample's diversity in geography and experience. Travel challenges prevented the inclusion of hard-to-reach area, where populations are more vulnerable to disasters and access to healthcare or external relief is restricted, limiting the generalizability of the findings. However, the study tried to include diverse urban, peri-urban, and rural areas, and utilized focus groups to include participants of varying caste, age, and experience. The documented diversity of experiences suggests the sample is a representative reflection of the emergencies' impact in Nepal.

Second, although the use of a translator may have resulted in some loss of nuances in the Nepali responses of participants, the study mitigated this limitation by using audio recordings and two interpreters for transcription, which were cross-referenced with session notes to ensure accuracy.

Third, the document analysis only included federal documents as local ones were not accessible online, potentially missing local policy perspectives on FCHVs' role in emergencies. However, understanding FCHVs' integration at the national level is important given the national scope of the program. Furthermore, national policies often influence local ones, making this analysis relevant. Future studies should analyse policies at the local level by directly requesting them from municipalities and ask more detailed questions about participants' knowledge of relevant policies. This could help investigate further the factors that hinder the appropriate integration of volunteers into the local health system or emergency cycle, as well as the barriers that prevent the implementation of policies aimed at them at the local level.

Fourth, qualitative data collection might have been subjected to recall biases among participants, especially when significant time has elapsed since the earthquake. To address this, multiple collection techniques, different participants and document analysis were included, to triangulate the data. Future studies could benefit from a mixed-method approach to more accurately determine the level of support received, especially regarding the ongoing COVID-19 pandemic, which is still fresh in people's minds. The possible social desirability bias of participants was tamed by clearly stating, verbally and in the consent form, that no personal benefit would have resulted from the participation in the research.

Finally, qualitative research is vulnerable to the researcher bias, but to address this, the author employed several strategies. These included practicing self-reflexivity, cross-checking the author's understanding with participants during interviews and focus groups, and discussing findings with the Nepali interpreter at the end of each session to gain a different perspective.

7. Conclusions

The 2015 earthquakes and coronavirus had a profound impact on the health of Nepal's communities, including deaths, injuries, and long-term health issues. Due to Nepal's geographic and infrastructural barriers, and its weak healthcare system, communities often found themselves acting as first responders. Lay health workers such as community health volunteers, as members of the community with basic health training, can naturally take the lead through their pre-existent institutionalised system. Indeed, previous research demonstrated that in Nepal Female Community Health Volunteers were well-positioned and motivated to mobilise communities and offer assistance during all phases of the 2015 earthquake. However, the literature highlighted that FCHVs have not been fully integrated into the national response and faced several challenges hindering their contributions.

No research has been conducted on these volunteers during the pandemic. Therefore, the objective of this study was firstly, to investigate and compare the roles, obstacles, and needs of FCHVs during the earthquake and pandemic, to identify factors that influence effectiveness and assess how their experiences varied. Secondly, the study sought to examine the evolution in the level of integration of FCHVs into the country's emergency response and the degree of support provided by the government.

Qualitative research including focus group discussions and key informant interviews confirmed that volunteers are capable and willing to apply their basic knowledge of health service delivery to lead in community emergency response and limit the damage. However, this research also found that despite the lessons learnt from the earthquake, the challenges faced by FCHVs persisted or deepened during the pandemic. This study suggests that systems have not evolved to recognize volunteers' efforts, nor demonstrated awareness and sensitivity regarding the scope of their contributions and responsibilities in policymaking and community action. This has resulted in issues with community members and families which obstructed their work due to negative reception and distrust by community members and pressure to quit their role by their families. In both emergencies the volunteers' security and mental health were not prioritised, and they were often forced to work in unsafe conditions, despite this being a widely recognized issue. Moreover, volunteers' readiness was not consistently prioritized, as emergency training was inadequate and inconsistently provided, relying heavily on NGOs whose projects are limited in terms of geography and duration.

This study indicates that the underlying cause of these challenges is persistent poor integration of FCHVs into national emergency response planning and the lack of government support. While the analysis reveals that FCHVs are inadequately included in main national documents, it also indicates that the government has made efforts to increase the recognition of community-based approaches to emergencies. There remains a gap between policy and practice, which may be due to lack of required clarity in the documents or to the absence of pre-existent strategies in favour instead of ad hoc policies. Additionally, inadequate communication and coordination regarding policies between the three government tiers and other stakeholders might affect enforcement. More needs to be done to enhance government support and ensure implementation.

A more holistic approach is required, which should include FCHVs in national preparedness and response policies, as well as clearly defining their roles, emergency responsibilities, and resources committed. This should be outlined in the FCHV National Strategy and defined through participatory approaches. Measures to increase volunteer safety, capacity, recognition, and motivation need to be implemented to secure effectiveness, welfare, and retention.

These findings confirm previous research on FCHVs in emergency response, and also reveal additional insights. First, this investigation uncovers previously undocumented roles, needs and obstacles faced by FCHVs during the pandemic. The research also provides fresh perspectives on the evolution of community resilience, CHWs utilisation, and the capacity of government, health systems, and communities to learn from previous experiences. This is achieved through comparative analysis of the volunteers' experiences across different emergencies and over time. Finally, this study sheds light on FCHVs' integration in national disaster planning by unpacking the relationship between policy and practice, thereby opening potential for further study. Researchers should indeed further explore factors hindering volunteers' integration in local health and emergency systems, as well as policy implementation barriers. The feasibility and desirability of the measures suggested in this study should also be investigated. Lastly, quantitative data on the topic are missing; a mixed-method study could offer further insights into volunteers' contributions and the support they receive.

The COVID-19 pandemic has proven the urgency of bolstering community engagement in emergency response. Learning from past experiences and optimising the utilisation of established community systems, such as the FCHVs and other CHWs programs worldwide, is crucial. This is especially pertinent as the frequency and severity of calamities globally are on the rise due, for

instance, to growing environmental risk and unplanned urbanisation. Countries have therefore to leverage their assets to meet the problem such as modern technology, networks able to spread information quickly, and in this case the existence of close-knit communities with a solidaristic ethic. Enhancing our understanding of the experiences and needs of volunteers during emergencies, as well as identifying areas for improvement in the policy-practice dynamics, can be particularly crucial in disaster-prone countries like Nepal. By doing so, we can better support CHWs and increase their effectiveness in responding to emergencies, thereby strengthening community resilience.

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