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Targeted violence against community health workers: A critical barrier to Pakistan's polio eradication goals

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ABSTRACT

Workplace violence is a significant occupational risk faced by healthcare personnel in community-based settings, posing a global public health threat. Pakistan, one of the few countries, where polio remains endemic has faced targeted violence against polio workers, hindering its progress in eradicating the disease. This violence has profoundly impacted vaccination campaigns, leading to a resurgence of polio cases and the tragic loss of over 200 polio vaccination workers and security officials in recent years. Such violence not only endangers lives but also hampers vaccination initiatives creating fear among workers and reducing immunization coverage, particularly in high-risk areas. The history of these attacks intensified by a breach of trust has compounded resistance from militant groups and the spread of misinformation. Cultural norms, gender-based resistance, and socio-economic vulnerabilities further impede vaccination efforts. This letter proposes the use of community-based approaches such as employing voluntary community mobilizers (VCMs) to enhance public trust and vaccination coverage through strategies including the establishment of polio immunization centers in vulnerable areas, strengthening multi-sectoral partnerships, involving local influencers to address community concerns and implementing safety measures and incentives for health workers. These strategies aim to improve worker safety, promote vaccine acceptance, and ensure sustainable progress toward a polio-free Pakistan.

Dear editor,

Pakistan's journey towards eradicating polio, a crippling and highly contagious disease primarily affecting young children, faces a formidable obstacle: the targeted violence against community health workers. Pakistan has reported 59 cases of wild poliovirus type 1 (WPV) in 2024, with 26 cases occurring in Balochistan and 16 cases in Khyber Pakhtunkhwa (KPK). These regions not only account for the highest number of polio cases this year but have also experienced the most frequent and severe attacks on health workers [1]. This alarming correlation suggests that the resurgence of polio is intricately linked to the prevailing insecurity. The tragic consequences of such violence are evident in recent incidents. In the Bajaur district of KPK, an explosion targeting a vehicle escorting polio workers killed five police officials, and injured twenty-two others [2]. Similarly, another tragic incident on November 01, 2024, a bombing near a girls' school in Mastung, Balochistan, claimed nine lives, including five schoolchildren, and injured twenty-nine others [3]. This attack was carried out with an improvised explosive device attached to a police vehicle escorting polio workers, aimed at impeding national eradication campaigns. These cowardly acts not only claim innocent lives but also jeopardize years of progress, threatening the health of countless children and exacerbating the existing polio crisis. The sacrifices made by the frontline health workers as illustrated in Table 1 are substantial, yet the violence they face remains a serious barrier to a polio-free Pakistan.

The Government of Pakistan has successfully organized immunization drives but faces challenges in extending them to high-risk areas due to pervasive fear among polio workers. This fear, stemming from security threats and societal misconceptions, has hindered immunization campaigns. Particularly in high-risk areas where polio remains

prevalent, polio workers face death threats from communities opposed to vaccination campaigns. As a result, the reluctance to operate in these regions has led to reduced vaccination drives and a decreased coverage rate, putting vulnerable communities at risk of outbreaks, and potentially undoing decades of progress, which could contribute to the resurgence of polio [4].

Specific events have significantly influenced the intricate interplay of trust, cooperation, and the achievement of crucial goals in global security and public health. The disclosure of information back in 2011 that the Central Intelligence Agency had conducted a fake hepatitis B vaccination program to obtain DNA from Osama bin Laden's alleged hideout not only sparked violent resistance from militants but also triggered a series of targeted killings and attacks on polio healthcare workers involved in immunization drives [5]. This initial breach of trust resulted in the first attack in July 2012, involving a Ghanaian World Health Organization (WHO) doctor and his driver in Gadap Town, Karachi [6]. These violent incidents led to the deaths of several polio workers, restricting the use of supplementary immunization activities (SIA's) and post-SIA surveys in high-risk regions.

There are several different causes for these attacks (Fig. 1). The militant group Tehrik-i-Taliban perceives attempts to combat polio as an opportunity to attract global attention or gain leverage in negotiations. By fostering instability, they aim to advance their cause worldwide, potentially gaining influence and notoriety [7]. In 2012, the militant group imposed restrictions on polio vaccination in Federally Administered Tribal Areas (FATA), which have now merged into KPK, leaving 300,000 children unvaccinated. This contributed to a 69% surge in wild poliovirus type 1 (WPV1) cases in 2014 [8], making not only FATA but all of Pakistan, a significant reservoir of polio. After a two-year ban from

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Table 1

Timeline of violence against polio team and escorts in Pakistan, detailing key incidents that highlight the risk and challenges faced by frontline workers. ^a

Date	Location	Incident	Casualties
July 12, 2012	Gadap Town, Karachi	The first attack involved a Ghanaian WHO doctor and his driver, who were helping fight polio in Karachi, were wounded in an attack	2 workers wounded
July 18, 2012	Gadap Town, Karachi	Polio worker shot dead	1 worker killed
October 16, 2012	Quetta	Polio worker killed	1 worker killed
December 18, 2012	Landhi, Baldia, Korangi (Karachi), Peshawar	Five workers were killed including four in Karachi and one in Peshawar	5 workers killed
December 19, 2012	Charsadda, Peshawar	Two workers were killed in Charsadda and one in Peshawar	3 workers killed
January 28, 2013	Swabi	A policeman providing security for a UN protected polio vaccination team was killed	1 policeman killed
January 31, 2013	Kurram Agency	Two polio vaccination workers killed in a landmine blast	2 workers killed
February 26, 2013	Mardan	One polio worker killed	1 worker killed
April 10, 2013	Mardan	One policeman killed	1 policeman killed
May 28, 2013	Peshawar	Two workers were killed in Peshawar	2 workers killed
June 16, 2013	Bajaur, Swabi	Levi personnel killed in Bajaur, two workers shot dead in Swabi	3 workers killed
July 30, 2013	Pishin	One worker was shot dead	1 worker killed
October 7, 2013	Peshawar	Two policemen killed	2 policemen killed
November 23, 2013	Khyber Agency	Teachers had been abducted by militants for supporting a polio campaign, they were later released as a result of the Jirga intervention	Abducted and released
November 30, 2013	Peshawar	Policeman killed	1 policeman killed
December 13, 2013	Swabi, Khyber Agency	Two policemen killed in Swabi, one polio worker killed in Khyber Agency	2 policemen killed, 1 worker killed
December 23, 2013	Jamrud Tehsil, Khyber Agency	A polio worker was shot and killed by unidentified militants in Khyber Agency's Jamrud Tehsil Area	1 polio worker killed
December 28, 2013	Peshawar	Two gunmen killed a polio worker, leaving two others injured	1 killed, 2 injured
January 21, 2014	Karachi	Three members of a polio vaccination team, including two women were shot dead in the streets of Karachi	2 female members of a polio vaccination team were killed
January 21, 2014	Mansehra	An anti-polio health worker was killed in the Mansehra district of KPK province	1 anti-polio health worker killed
January 22, 2014	Charsadda	An explosion in the Charsadda district of KPK, near a police vehicle providing security for polio-immunization workers,	7 killed, 9 injured

Table 1 (continued)

Date	Location	Incident	Casualties
March 01, 2014	Khyber Agency	left seven people dead and nine injured A bombing has left twelve members of the Khasadar force dead and 10 injured	12 killed, 10 injured
March 25, 2014	Peshawar	A female polio vaccine provider was abducted from her home in Gulozai village, a Peshawar suburb, and was later found killed	1 killed
September 12, 2014	Faisalabad	Two unidentified attackers killed the polio vaccine provider in Faisalabad	1 killed
November 26, 2014	Quetta	Three female health workers and their male driver were among the seven polio vaccination workers who were shot dead in Quetta, in southwest Pakistan. The other three workers faced brutal injuries	4 killed & 3 injured
January 26, 2015	Karachi	A police officer protecting a polio team was fatally killed	1 policeman killed
February 05, 2015	Sukkur	A group of six men armed with clubs and hatchets attacked two members of the polio team, injuring both	2 polio workers injured
February 14, 2015	Khyber Pakhtunkhwa (KPK)	In a van with two polio workers, the driver was killed by gunmen	1 driver carrying polio workers killed
February 17, 2015	Zhob	Four days after the abduction, four members of the polio vaccination team were found dead	4 polio workers killed
February 18, 2015	Sheikhupura	An Imamia colony resident attacked a member of the polio team with a knife	1 polio worker injured
March 17, 2015	Mansehra	Unidentified gunmen opened fire on a polio team near an Afghan refugee camp, killing three people including two female health workers and a police constable	2 female health workers and 1 Police constable killed
October 18, 2015	Bajaur Agency	An unidentified motorcyclist shot and killed a polio worker	1 polio worker killed
November 30, 2015	Swabi	The Expanded Program on Immunization (EPI) District Coordinator was killed and his driver was injured when an unknown assailant opened fire on their car	1 polio worker was killed and 1 injured.
January 13, 2016	Quetta	An explosion near a polio center in Satellite Town, Quetta, resulted in 14 fatalities and over 10 injured	14 killed, 10 injured.
April 20, 2016	Karachi	Seven police officers monitoring polio personnel were killed in separate attacks	7 policemen killed
June 28, 2016	Karak	Anti-polio campaign was put on hold when an unidentified man opened fire forcing vaccine	No casualties reported

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Table 1 (continued)

Date	Location	Incident	Casualties
September 11, 2016	Peshawar	recipients to find refuge in neighboring areas A senior member of the Polio Eradication Team was shot dead by gunmen on a motorbike	1 polio worker killed
April 19, 2017	Lahore	Two women, who were on duty to administer polio drops were beaten up by unidentified assailants	2 female polio workers were beaten up
May 24, 2017	Bannu	A polio worker was shot dead by unknown assailants	1 polio worker killed
July 02, 2017	Peshawar	As the health worker returned from an outreach campaign to his base, two motorcyclists shot him	1 polio worker killed
January 18, 2018	Quetta	Suspected Taliban militants killed a mother and daughter team of health workers while they were giving out polio vaccinations	2 female polio workers killed
January 19, 2018	Quetta	Three personnel from the Balochistan Constabulary while commuting to Polio Eradication Drive were shot by armed individuals riding motorbikes. Two of the personnel constables passed away immediately while one sustained severe injuries	2 constables killed, 1 injured
January 20, 2018	Muzaffargarh	An anti-polio female campaign worker was attempted to be raped by a group of men	1 female polio worker survived an attempted rape
March 17, 2018	Mohmand Agency	Two polio workers were shot dead and three others by unknown assailants were abducted	2 polio workers were killed and 3 abducted
November 14, 2018	Swabi	During the anti-polio campaign, a female polio worker was attacked and seriously injured	1 female polio worker injured
December 27, 2018	Quetta	Armed men opened fire, wounding a female health worker who was administering anti-polio drops to children	1 female polio worker injured
April 09, 2019	Ghalanai	Unidentified gunmen fatally shot a Union Council polio officer who was connected with the World Health Organization	1 polio worker killed
April 23, 2019	Bannu	A policeman assigned to guard polio workers was shot and killed	1 policeman killed
April 23, 2019	Lahore	A man injured a polio worker with a knife to prevent his child from receiving a vaccination	1 polio worker injured
April 25, 2019	Chaman	A Female Polio vaccine worker killed by two gunmen on a motorbike	1 female Polio worker killed
May 06, 2019	Bajaur	Polio vaccination worker was killed by unidentified militants when returning back to home	1 polio worker killed

Table 1 (continued)

Date	Location	Incident	Casualties
December 18, 2019	Lower Dir	Two policemen were killed by unknown assailants, targeting a polio vaccination campaign	2 policemen killed
January 21, 2020	Khuzdar	Two polio workers while returning back after administering polio vaccination were killed in a truck accident	2 polio workers killed
January 29, 2020	Swabi	While the polio team was on duty, two of the workers were killed by unknown men opening fire on them	2 polio workers killed
January 29, 2020	Parmoli, Swabi	Two polio lady health workers were shot and killed by unidentified assailants	2 polio lady health workers killed
February 18, 2020	Dera Ismail Khan	While on duty to ensure the safety of polio workers, one policeman was killed and two more suffered injuries when a police mobile was targeted by an improvised explosive device	1 policeman killed, 2 injured
September 22, 2020	Quetta	Five polio workers were abducted by armed men while they were administering polio drops to children on the outskirts of Kohlu town	5 polio workers abducted
November 02, 2020	Chiniot	A villager attacked the polio vaccination team with an axe. Later, the polio team was compelled to leave the village	polio team attacked
January 12, 2021	Karak	Unidentified gunmen shot and killed a policeman who was guarding a group of polio health workers	1 policeman killed
June 09, 2021	Mardan	Two police officers assigned to guard polio vaccination workers were shot and killed by unidentified assailants	2 policemen killed
August 01, 2021	Peshawar	A Police worker was killed by gunmen as he was returning home from security duty	1 police worker killed
September 20, 2021	Kohat	A police worker guarding the polio team was killed	1 police worker killed
December 12, 2021	KPK	A gunman opened fire, killing a police officer assigned to guard polio vaccination team	1 police worker killed
June 28, 2022	KPK	Two policemen and one polio worker administering the polio drops were killed by unidentified militants firing shots at a polio vaccination team, leaving a child injured	3 killed, 1 injured
October 25, 2022	Pishin	Unknown gunmen in Pishin shot and killed a Police officer who was guarding a polio vaccination team	1 killed
November 30, 2022	Quetta	Three civilians and one police officer were killed when an explosion	4 killed

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Table 1 (continued)

Date	Location	Incident	Casualties
May 20, 2023	Dera Ismail Khan	happened next to a police truck providing security to polio workers A police constable who was guarding the polio vaccination team was killed by unknown attackers	1 killed
May 20, 2023	Bannu Road	A grenade attack on a police van resulted in the deaths of a passerby and a militant, and the subsequent gunfight between the militants and police resulted in twenty-two injuries including two police workers	1 killed, 2 injured
August 01, 2023	Quetta	While escorting the polio vaccination team, two cops were killed	2 killed
August 10, 2023	Lakki Marwat	An unidentified group of miscreants killed a policeman guarding polio workers	1 killed
January 08, 2024	Bajaur	During a polio vaccination campaign, an explosive device targeted the vehicle of a police officer, resulting in the deaths of at least five officers and nearly two dozen injuries. A militant group i.e., Tehreek Taliban Pakistan claimed responsibility for this incident	5 killed, 22 injured
January 09, 2024	Miran	Two policemen were killed and two injured by terrorists in the Miran area of Bannu District, Khyber Pakhtunkhwa, while protecting the Polio team	2 killed, 2 injured
January 12, 2024	Quetta	In Quetta, a shooting incident near Eastern Bypass School claimed the life of a police constable assigned to protect polio workers	1 killed
January 19, 2024	Bajaur	A polio program official was killed and a policeman injured in a vehicle attack in the Tarkhoo area of Mamond tehsil, Bajaur District, Khyber Pakhtunkhwa	1 killed, 1 injured
February 28, 2024	Lakki Marwat	A polio vaccinators was killed by unidentified assailants in Khyber Pakhtunkhwa's Bhattani subdivision while he was returning from duty	1 killed
March 05, 2024	Mardan	In the South Waziristan District of Khyber Pakhtunkhwa's Ragzai area, a policeman assigned to guard the Lot Quality Assurance Sampling (LQAS) of the Polio team was shot and killed.	1 killed
April 06, 2024	Wana	A police constable was killed when unidentified armed men attacked the	1 killed

Table 1 (continued)

Date	Location	Incident	Casualties
May 01, 2024	Bajaur	post-polio assessment team Gunmen killed the policeman escorting the polio vaccination team	1 killed
June 03, 2024	Chaman	Two security escort personnel and two female polio workers were beaten up by a large crowd owing to the closure of the Pakistan-Afghan border	4 injured
July 11, 2024	Dera Ismail Khan	Two unidentified gunmen stopped an anti-polio vaccine team in Khyber Pakhtunkhwa and seized their vaccines and motorcycle at gunpoint in Dera Ismail Khan district	robbed
September 10, 2024	South Waziristan	A bomb explosion in South Waziristan injured six people in a vehicle carrying polio workers and police officers, as an explosive device denoted near the vehicle	6 injured
October 30, 2024	Orakzai & Waziristan	Militants attacked two healthcare centers in Orakzai and Waziristan, which are used in the polio vaccination campaign.	2 police officials killed
November 01, 2024	Mastung	An improvised explosive device denoted near a police van escorting polio workers killed nine people including five school children and left twenty-nine injured.	9 killed and 29 injured

^a This timeline highlights incidents of violence faced by polio vaccination teams and their police escorts in Pakistan, underscoring the challenges and risks involved in the country's polio eradication efforts. It underscores the persistent challenges, including targeted attacks and threats that jeopardize the safety of frontline workers and impede progress in the country's polio eradication efforts.

2012 to 2014, the military operation Zarb-e-Azb cleared militant-occupied areas, resulting in the lifting of the polio vaccination ban. Deeply embedded myths in society, such as the belief that the United States is using vaccination campaigns to sterilize the Muslim population, create fertile ground for misinformation and manipulation by extremist groups [9]. Furthermore, Pakistan's low literacy rate, widespread poverty, and lack of opportunities exacerbate feelings of marginalization, making communities more susceptible to radical ideologies.

Beyond the web of misinformation, resistance to vaccination campaigns in Pakistan is compounded by deeply ingrained cultural norms. Female healthcare workers often face resistance due to the low acceptance of women in such roles and negative perceptions, with some believing they are part of a hidden agenda to dismantle traditional social structures. In certain conservative communities, these women are viewed as agents of Western influence, involved in activities considered anti-Islamic. This resistance stems from the strict gender roles prevalent in tribal areas, where individuals are expected to adhere to norms and behaviors associated with their gender. In contrast, some families restrict male polio workers, particularly when the male head of the household is absent, creating barriers to successful immunization campaigns in conservative regions with stringent gender standards. These opposing views hinder vaccination campaigns, highlighting the critical need for culturally sensitive strategies to increase vaccination rates.

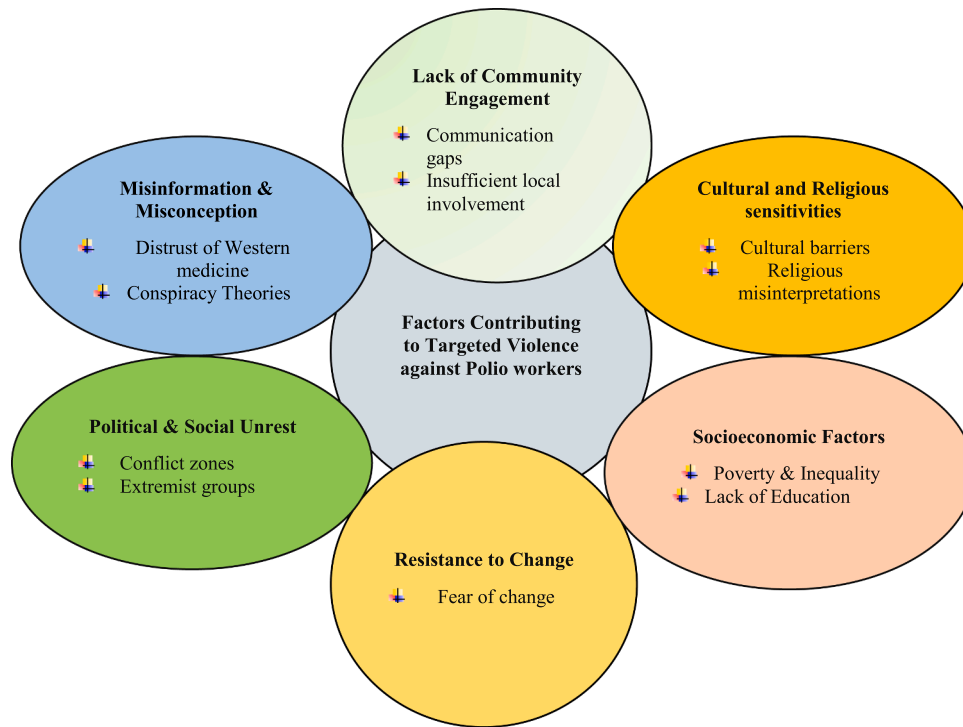


Fig. 1. Factors contributing to targeted violence against community health workers in Pakistan are categorized into misinformation and misconceptions, lack of community engagement, cultural and religious sensitivities, political and social unrest, socio-economic factors, and resistance to change. These challenges represent significant barriers to achieving Pakistan’s polio eradication goals.

The success of Pakistan’s healthcare system, especially in progress towards universal health coverage and achieving the Millennium Development Goals for health, is largely attributed to the exemplary model of lady healthcare workers. Following the success of this model, the introduction of voluntary community mobilizers (VCMs) is a key strategy to strengthen public confidence further and improve health services. VCMs are integral to the success of polio eradication [10]. Their responsibilities include a wide range of tasks designed to ensure comprehensive healthcare delivery: conducting house-to-house visits between immunization rounds, maintaining community outreach to

promote vaccination, monitoring expectant mothers and newborns for timely vaccinations, reaching missed children, facilitating access to healthcare, engaging in social mobilization activities, addressing concerns of non-compliant parents, and helping increase routine immunization coverage. Thus, implementing VCMs can drive sustainable progress towards public health goals.

The ongoing threat of targeted killings underscores the need for reforms in public health infrastructure (Fig. 2). One important step is to ensure the availability of polio immunization centers in high-risk areas. Establishing these centers can reduce the number of healthcare workers

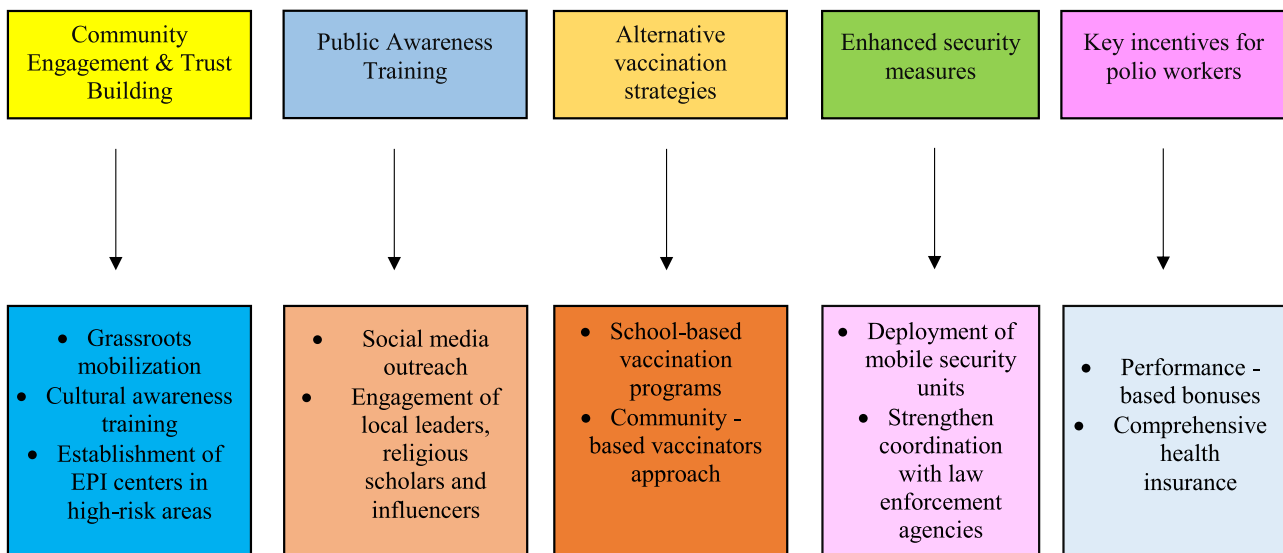


Fig. 2. Key strategies to prevent targeted violence against community health workers in Pakistan, emphasizing their critical role in ensuring safe and effective vaccination campaigns in high-risk areas. These strategies focus on building community trust, mitigating risks through enhanced security protocols, and countering misinformation to protect frontline workers and sustain polio eradication efforts.

who have to travel to volatile regions that are vulnerable to attacks. Strengthening multi-sectoral partnerships and advocacy strategies involving public and private organizations and collaborating with national, provincial, and religious figures to promote vaccine acceptance is essential for gaining the public's trust and fortifying social norms around polio vaccination in high-risk areas. Implementing targeted outreach strategies with local influencers and culturally sensitive workers can address specific community concerns, fostering trust and ownership of immunization campaigns. Given the minimal daily leverage for polio health workers, it is crucial to enhance their safety and well-being through risk bonuses, insurance schemes, and performance-based incentives. These measures will contribute to the sustainability of immunization programs and the well-being of polio workers.

In conclusion, targeted violence against community health workers in Pakistan poses a significant barrier to polio eradication goals and highlights deeper societal issues such as mistrust and misinformation surrounding vaccination. The violence not only impedes vaccination campaigns but also instills widespread fear in health workers, weakening the healthcare system's capacity to respond to other communicable diseases and health emergencies jeopardizing frontline workers' safety, and impairing access to immunization in high-risk areas. As a result, the chaos resulting from these acts causes the immunization campaigns to be canceled or postponed, which directly impacts polio eradication goals. The interplay between violence and polio eradication efforts in Pakistan highlights a significant challenge. Violence incidents targeting community health workers emphasize the urgent need for global health and humanitarian organizations to reassess their strategies. Ensuring the safety of these workers is essential for fostering stability and advancing public health initiatives, which are critical for reaching eradication goals.

Ethical approval

Ethical approval is not applicable for this study, as it does not involve human participants, animal subjects, or the use of sensitive data.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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