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Psychological effects of rabies on the relatives of people who died from human rabies in Côte d'Ivoire between 2023 and 2025: Qualitative Observational Study

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Research Article

Keywords: Human rage, mental health, close relatives, Côte d'Ivoire

Posted Date: August 25th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10796782/v1

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Additional Declarations: The authors declare no competing interests.

Abstract

Background: the psychological impact of rabies on the relatives of people who died from the disease remains largely unexplored. The aim of this study was to analyse the psychological effects of rabies on the relatives of people who died from human rabies in Côte d'Ivoire.

Patients and methods: A single-center descriptive study was conducted from January to June 2026 using a qualitative approach, enabled an in-depth exploration of the experiences of these relatives. The participants, aged at least 18 years, were relatives of people who died from confirmed or suspected human rabies between 2023 and 2025, identified from the death notification register of the Anti-Rabies Center of the National Institute of Public Hygiene. The data were collected by individual semi-structured interviews conducted until data saturation was achieved, then subjected to a thematic analysis.

Results: Thirty-seven relatives were included (mean age 39.8 years; range: 21–66 years); 59.5% were men. Faced with the announcement of the diagnosis and its fatal prognosis, sadness (18/37), helplessness (15/37), anger (8/37) and shock (9/37), feelings of abandonment (1/37) and guilt (7/37) were the predominant emotional responses. After death, relatives reported almost universal intrusive memories, sleep disturbances (24/37), nightmares (15/37) and avoidance of animals (11/37), suggestive of post-traumatic psychological distress and prolonged grief, aggravated by the disruption of traditional funeral practices.

Coping relied almost exclusively on prayer (28/37), and family and community support (18/37), with no participant reporting receipt of any formal psychological support.

Conclusion: The burden of rabies extends beyond mortality and includes profound and lasting psychological suffering among the relatives of people who die from human rabies. The integration of a culturally appropriate psychosocial component into rabies management would help relieve families and strengthen awareness towards achieving the goal of eliminating rabies by 2030.

Introduction

Rabies is a feared zoonosis because of its lethality [1, 2]. Its impact on mental health is comparable to that of cancer diseases for which studies among relatives have highlighted a major psychological impact characterized by feelings of helplessness, sadness, fear of the future, anxiety and often depression. Worldwide, the number of human deaths recorded each year is estimated at approximately 59,000. In Africa, approximately 24,000 human deaths are recorded every year, making the continent one of the most affected regions in the world [3]. Rural populations are the most vulnerable, due to limited access to post-exposure prophylaxis, low canine vaccination coverage and socio-cultural barriers that delay access to modern health facilities [3, 4]. In Côte d'Ivoire, the disease is an average of approximately 24 human deaths reported annually [5, 6]. Beyond its epidemiological impact, every death from rabies represents a brutal and traumatic experience for the families of the victims. The particularly frightening nature of the symptoms, the rapid and inevitable progression toward death, expose loved ones to intense

emotional shock and profound psychological repercussions [7]. Studies conducted among families bereaved by rapidly evolving infectious diseases have reported psychological and psychiatric manifestations [7]. However, with regard to rabies, very few studies have specifically addressed the psychological consequences for the families of affected individuals [7, 8]. Even in response activities outside epidemiological surveillance, post-exposure prophylaxis and community outreach, psychological support for bereaved families remains virtually non-existent [4, 6]. Providing adequate psychological support could not only help relatives overcome their trauma but also enable them to become effective community advocates for rabies awareness, thereby contributing to the global goal of eliminating human rabies by 2030 [1]. The overall objective of the study was to analyze the psychological impact of rabies on relatives of people who died from human rabies in Côte d'Ivoire between 2023 and 2025.

Patients and methods

Location of the study

This study was conducted at the anti-rabies center (CAR) of the National Institute of Public Hygiene (INHP) of Treichville which is the reference center for the care of people exposed to rabies in the district of Abidjan, which serves as the reference center for the management of individuals exposed to rabies in the Abidjan district and coordinates all anti-rabies centers in Côte d'Ivoire. The Anti-rabies center of the National Institute of Public Hygiene (INHP) of Treichville is responsible for human rabies control. Its mission includes the systematic management of individuals exposed to rabies according to national protocols, pre-exposure vaccination of high-risk individuals, follow-up of patients lost to follow-up through a telephone reminder system to ensure completion of the vaccination schedule, behavior change communication (BCC) on rabies prevention, and the coordination of epidemiological surveillance activities for human rabies throughout the country in collaboration with health districts through four (4) municipal branches, twenty (20) regional branches, and six (6) departmental branches of the INHP. The Anti-rabies center also collects, analyzes, and centrally disseminates surveillance data from all anti-rabies centers nationwide.

Type and period of study

This was a single-center descriptive qualitative study conducted between January and June 2026 to explore the psychological impact of rabies on the relatives of people who died from human rabies.

Study population

The study population consisted of close relatives, including the spouse or spouses, the father or mother, the guardian, children aged 18 years or older, siblings, and individuals who had lived in the same household as patients who died from laboratory-confirmed human rabies diagnosed by the Institute

Pasteur of Côte d'Ivoire (IPCI) during the study period and who could be identified through the hospital records of the INHP.

Sampling

Records of 128 individuals who died during the study period were selected from the RAC database and 837 contact were listed. Participants were selected according to their relationship with the deceased, their ability to describe their emotional and psychological experiences, and their accessibility using the contact information available through the INHP Anti-Rabies Centers (Fig. 1).

Inclusion Criteria

The inclusion criteria of this study were to be a close relative of a person who died of rabies including the parent, spouse, siblings or any person who lived in the same household as the victim, the death must be due to a confirmed or suspected case of human rabies between 2023 and 2025 and have an age ≥ 18 years (Fig. 1).

Criteria for non-inclusion

The non-inclusion criteria for this study were a relative who could not be reached by telephone, who was unable to communicate in French, or declined to participate in the study (Fig. 1).

Data collection

The data were collected primarily through semi-structured individual interviews. An interview guide was developed in collaboration with the Anti-rabies center (ARC) team of physicians. A sociologist and a psychiatrist were consulted to adapt the interview guide to the study objectives and to ensure that the wording and language were appropriate for the target population. Semi-structured interviews were conducted until data saturation was reached. The duration of the interviews ranged from 30 to 45 minutes, with some lasting up to one hour.

Conduct of interviews

The semi-structured individual interviews were conducted with all relatives who met the inclusion criteria, resulting in a total of 37 participants. These interviews were conducted by to overcome the financial constraints associated with travel. A digital audio recorder was used to record all interviews. All interviews began with an introduction by the interviewer, followed by an explanation of the study objectives and procedures, to establish a relationship of trust with the participants.

Retranscription and data analysis

All interviews were transcribed verbatim and analyzed using the MAXQDA 2026 software. The audio recordings were reviewed to verify the accuracy of the transcripts, and the verbatim transcripts were manually corrected word for word to preserve the authenticity of the participants' narratives.

Ethical Consideration

The study obtained ethical approval from the National Institute of Public Hygiene (INHP) under the number 00087/07/01/26/MSHPCMU/INHP/EKD/FC dated 13 January 2026. The participation of relatives was entirely voluntary free and informed verbal consent was obtained from all participants prior to the interviews. They were all informed that the interviews were being recorded and all collected data would be anonymized and used solely for research purposes. Because the interviews addressed sensitive issues related to bereavement, particular attention was given to protecting the dignity, privacy, and emotional well-being of all participants. Whenever psychological distress was identified during an interview, participants were offered referral to an appropriate psychological support service. No physical risks were associated with participation in this study. The expected benefits included improving the recognition and integration of psychosocial follow-up for families affected by human rabies after epidemiological investigations. Participant anonymity was ensured through the use of identification codes during data processing and analysis.

Results

Sociodemographic characteristics of relatives

The majority of participants surveyed were aged between 30 and 39 years (n = 17), The mean age was 39.8 ± 10.7 years (range: 21–66 years). Men accounted for the majority of participants, with 22 of the 37 participants (59.5%). The male-to-female ratio was 1.5. Most participants were single (n = 15), followed by married (n = 13), cohabiting (n = 5), and widowed (n = 3). Participants with no formal education and those with secondary education were the most represented, with 12 participants (32.4%) in each category. Farmers/planters constituted the largest occupational group (12/37; 32.4%). Parents and siblings were the most frequent categories of relatives, each representing 11 participants (29.7%).

Role of relatives in care

The role most frequently reported was providing care or accompanying the patient during hospitalization, reported by 31 of the 37 participants (83.8%). Because participants could perform more than one role, the percentages exceeded 100%. Most participants had lived with the deceased (27/37; 73.0%). Participants without domestic animals were the most represented (24/37; 64.9%).

Circumstances of exposure and perception of risk

The circumstances of exposure were predominantly dog bites (n = 32), followed by scratches (n = 5), most often caused by stray or uncontrolled dogs. Three participants reported that the bite occurred while playing with a puppy, illustrating the tendency to underestimate the risk associated with such

exposures. Underestimation of the risk emerged as a recurrent theme, identified in 24 of the 37 interviews.

Illustrative verbatims

P2 « We sent him to the hospital, but he was not referred to the Anti-Rabies Center... we didn't know about it."» (Woman, 49 years old, shopkeeper, wife of the deceased);

P5 « It was just a puppy, it was a dog. He used to play with the puppy… it was during his amusement that there were screams… it was not something serious. » (Woman, 30, client advisor, close relative of the deceased);

P17 « The dog… caught his clothes... it scratched him... it didn't actually bite him, and there wasn't even any bleeding." (man, 38, farmer, grandbrother of the deceased).

Diagnostic Experience

Care pathways and barriers encountered

The care pathway of the deceased was characterized by delays in initiating post-exposure prophylaxis in the vast majority of cases. The main barriers identified the initial use of traditional treatments, limited awareness of rabies vaccination, and organizational constraints within the healthcare system, including the lack of vaccination services on public holidays and other non-working days, thereby limiting access to appropriate care.

Illustrative verbatims

P2 « The same day, we went to… we say it's a holiday… they turned around… they sewed the tear… they didn't rage… » (woman, 49 years old, shopkeeper, wife of the deceased);

P11 « He did not go to the hospital… he went to see an old man who gave him a traditional medicine… put powder on the part and then put a little to eat. » (Man, 55 years old, planter, little brother of the deceased);

P20 « … when the dog bit him there... we went to the hospital and then they made injections there called tetanus antiserum … » (Man, 45 years old, unemployed, father of the deceased)

P25 « In the beginning, they made indigenous medicine. » (Woman, 29, housewife, big sister of the deceased);

P31 « We had a dog too but the dog that bit my dad was not for us...So dog was passing, … my dad was outside…The dog felt threatened, he jumped…I don't even think he bit him by the way... He scratched it …. It was a small wound... He didn't even bleed that day…. He said to send salt we will put on it… then he took the lemon, he rubbed it on it. » (Woman, 24, shopkeeper, eldest daughter of the deceased);

P36 « She thought that with tradition it had to pass… » (woman, 33 years old, housewife, mother of the deceased)

P27 « When the dog bit him, really, we didn't go to the hospital. When the illness was severe, we went to the hospital. » (Man, 45, farmer, father of the deceased).

Diagnosis Announcement

The announcement of the rabies diagnosis was consistently described as a traumatic experience. This announcement was most often abrupt, and was systematically accompanied by the announcement of the fatal prognosis. The dominant codes were surprise and shock/amazement. Misunderstanding and confusion were common, particularly among participants without prior knowledge of the disease.

Illustrative verbatims

P3 « I cried… really, I had lost hope because I didn't think it was going to happen. » (Man, 52, planter, Father of the deceased);

P15 « when they said that I started crying… I didn't know what I could do yet… it was my only child boy » (Female 49 years old, shopkeeper, mother of the deceased);

P17 « Well, I was sad. » (Man, 38, farmer, older brother of the deceased)

P28 « I felt bad… Sometimes he screams. He cries like a dog. » (Woman; 26 years old, housewife, little sister of the deceased);

P 37: Ah…Okay? When they told me ah…. It hurt my heart, but how am I gonna do it? (Man, 41 years old, planter, father of the deceased).

Emotional experience before death

Following the announcement of the diagnosis, sadness was the predominant emotional response, reported by 18 of the 37 participants, followed by helplessness (15/37), shock (9/37), anger (8/37), guilt (7/37), and feelings of abandonment (1/37). Participants identified the announcement of the fatal prognosis, witnessing the patient's agony, and the inability to offer any curative treatment as the most emotionally distressing moments of their experience.

Illustrative verbatims

P2 « I was sitting. I was crying. » (Woman, 49, shopkeeper, wife of the deceased).

P3 « She was crying, I also cried… It annoyed me a lot… » (man, 52 years old, planter, father of the deceased).

P5 « Not really anger… ourselves, we questioned ourselves… it was more the guilt of not having taken this seriously. » (Woman, 30, client advisor, close relative of the deceased).

P25 « I was saddened… it hurt me a lot… it was shocking to know that someone can die this way… » (Woman, 29 years old, housewife, big sister of the deceased).

Immediate reactions and feelings after death

Following the death, participants described intense emotional distress, most commonly expressed as profound shock and overwhelming grief. Many also reported that the restrictions on traditional funeral practices, imposed because of rabies-related public health measures, intensified their bereavement, as they were unable to take the body home or perform customary funeral rites. Feelings of guilt, injustice, and abandonment by the healthcare system were also recurrent themes.

Illustrative verbatims

P2 « We have not seen the body anymore… the hospital has not accepted because it is said to be a contagious disease… » (woman, 49 years old, shopkeeper, wife of the deceased);

P 30 « We can't describe it, it's so painful and we were angry that we didn't send him to the hospital... it devastated us a lot. » (Woman, 30 years old, shopkeeper, big sister of the deceased);

P31 « There is one thing that happened at the hospital, at the Chu. …But, I'm going to talk about that anyway…. (Acquiescence of the investigator) …. And they also said he was not going to live. Okay, I accepted that... But you have to know that the care was not that... I don't know if it's because they knew he was going to die... But…the guys weren't actually doing it. Even to enter the room, to do the care, were really difficult. … to change the serums, … It's as if they were afraid to enter. It is a contagious disease. They are afraid to touch the old man, but… I thought to myself that… it's your job, you're here for that. Even if he dies there, …… And he had a wound on his neck there, …. But then, that there, they left the wound like that… » (Woman, 24, shopkeeper, eldest daughter of the deceased).

Persistent psychological manifestations

Persistent psychological manifestations emerged as one of the main findings of the study. Intrusive memories were the most frequently reported symptom (37/37) (37/37), followed by sleep disturbances or insomnia (24/37) (24/37), nightmares (15/37) and avoidance of or aversion to animals (11/37). Flashbacks were reported by one participant who was an (1/37) healthcare professional. The most common triggers of these intrusive memories were seeing dogs, passing by the hospital where the deceased had been treated, and reminders encountered on social media.

Illustrative verbatims

P2 « I spent almost two years without sleeping… every day I had nightmares… » (woman, 49, shopkeeper, wife of the deceased);

P3 « I can't sleep… I even went a month without sleep… every night, I cried. » (Man, 52, planter, Father of the deceased);

P6 « No nightmare disorder. But… flashbacks. » (Man, 46, pharmacist, guardian of the deceased).

Coping strategies and needs of loved ones

Adaptation strategies

The coping strategies adopted by the participants relied primarily on faith and prayer (28/37), followed by family and community support (18/37) and acceptance or resignation (11/37). None of the participants reported receiving formal psychological or mental health support during the bereavement period.

Illustrative verbatims

P1 « To move forward, I took courage, and then the advice of my friends…, my big brothers... » (Man, 38 years old, farmer, big brother of the deceased);

P6 « These are my fellow pharmacists… The family too... Mrs. also… » (Male, 46, pharmacist, guardian of the deceased);

P15 « I said to God: let your will be done... » (Woman, 49 years old, housewife, mother of the deceased);

P34 « I had to use prayer... » (Woman, 31, shopkeeper, aunt of the deceased);

P36 « It was prayer. [...]With prayer, by the grace of God. » (Woman, 33, housewife, mother of the deceased).

Unmet needs

Participants reported several unmet needs The most frequently expressed need was psychological support (28/37), followed by financial assistance to cope with the expenses associated with the illness and death (6/37). Other unmet needs included better information on rabies and its prevention (2/37) and greater involvement and support from healthcare professionals (1/37).

Illustrative verbatims

P7 « Financial support because the one who left there, he left children and then there were debts. » (Man, 66 years old, planter, cousin of the deceased).

P10 « supporting the families…. the calls to see how they are… this is important… for example me my case…. I have not received support, if it is not the grace of God may be that I will also be dead… » (woman, 45 years old, building assistant, daughter of the deceased).

P13 « I want the doctors to talk to us a little after the death… (sighs) today's call comforted me a little… I say thank you. » (Woman, 54, shopkeeper, mother of the deceased).

P30 « All we need is moral support [...] even if we give you billions, it can not extinguish the pain. » (Woman, 30 years old, shopkeeper, big sister of the deceased).

P31 « There is one thing that happened at the hospital, at the Chu. …But, I'm going to talk about that anyway…. (Acquiescence of the investigator) …. And they also said he was not going to live. Okay, I accepted that... But you have to know that the care was not that... I don't know if it's because they knew he was going to die... But…the guys weren't actually doing it. Even to enter the room, to do the care, were really difficult. … to change the serums, … It's as if they were afraid to enter. It is a contagious disease. They are afraid to touch the old man, but… I thought to myself that… it's your job, you're here for that. Even if he dies there, …… And he had a wound on his neck there, …. But then, that there, they left the wound like that… » (Woman, 24, shopkeeper, eldest daughter of the deceased).

Discussion

This study examined the psychological impact of human rabies on relatives of individuals who died from confirmed or suspected cases in Côte d'Ivoire, with the aim of informing the integration of psychosocial support into rabies response activities. To our knowledge, this is the first study in Côte d'Ivoire to explore this often-overlooked dimension of rabies. Appropriate psychological support could help bereaved relatives cope with their experiences while strengthening their engagement in community-based rabies awareness and prevention efforts, ultimately contributing to the global goal of eliminating human deaths from dog-mediated rabies by 2030.

This study has several limitations. Some eligible relatives could not be included because of language barriers (inability to speak French) or because they could not be contacted by telephone, particularly in rural areas where telecommunications network coverage is limited. These factors may have affected the representativeness of the study sample. In addition, psychological symptoms were identified through qualitative interviews rather than standardized diagnostic instruments and should therefore be interpreted as self-reported indicators of psychological distress rather than clinically confirmed psychiatric disorders. Finally, the sensitive nature of bereavement may have introduced social desirability or recall bias, potentially influencing participants' responses.

The socio-demographic profile of the bereaved relatives reflects the epidemiological context of rabies in Côte d'Ivoire. The predominance of men (22/37; 59.5%), farmers (12/37; 32.4%), and participants with no formal education (12/37; 32.4%) or only primary education (9/37; 24.3%) is consistent with the fact that rabies disproportionately affects rural and socioeconomically disadvantaged populations. This finding is supported by Tiembré et al., who reported that 63.5% of rabies-related deaths recorded in Côte d'Ivoire between 2016 and 2022 occurred in rural areas [6]. The high proportion of parents (11/37; 29.7%) and siblings (11/37; 29.7%) among the bereaved also reflects the predominance of rabies among children and adolescents, leaving parents and siblings to cope with the loss. In addition, most participants had lived with the deceased (27/37; 73.0%) and were first-degree relatives, suggesting a close emotional bond with the deceased. Ek et al. demonstrated among bereaved siblings in Sweden that the closeness

of the relationship and the availability of social support strongly influenced the long-term grieving process [9].

The analysis of the care pathway identified several major barriers to accessingpost-exposure prophylaxis, including limited awareness of rabies risk and neglect of bite-related injuries. This lack of awareness often led individuals to seek traditional remedies or adopt community-based practices instead of seeking prompt medical care. Although, some individuals sought care from conventional health services, organizational constraints within the healthcare system hindered timely access to appropriate treatment. For example, it was found that some rabies vaccination centers did not provide services during public holidays or weekends, thereby limiting access to life-saving post-exposure prophylaxis. These barriers not only contributed to the occurrence of death but also shaped relatives' psychological responses and retrospective awareness following the loss. Participants frequently reported a painful realization that the death could have been prevented through timely post-exposure vaccination. This retrospective awareness, arising from the failure to recognize the seriousness of the bite or to receive appropriate post-exposure prophylaxis, fostered profound feelings of guilt and regret, which were among the most prominent psychological manifestations identified in this study. In addition, the announcement of the rabies diagnosis was experienced as a profoundly traumatic event by all participants. This announcement occurred most often in a brutal manner and the signs specific to the disease and the pain or bitterness that systematically accompanied the announcement of the fatal prognosis. These findings are consistent with those of Champion MJ et al., who showed that the sudden and preventable nature of death intensifies grief reactions and reinforces feelings of guilt and self-blame, with the circumstances surrounding the death being a major determinant of complicated grief [10]. The often brutal manner in which the diagnosis was announced to families may have. Further exacerbated this psychological burden. Even before the patient's death, relatives experienced intense emotional distress characterized by sadness, helplessness, shock, and anger, while witnessing the particularly distressing terminal phase of rabies, marked by agitation, hydrophobia, behavioral disturbances, and other characteristic neurological manifestations. Witnessing the death of a loved one is, in itself, a potentially traumatic experience. Our findings are consistent with those of Erogul et al., who reported that such exposure may lead to post-traumatic stress symptoms [11]. The sudden and bewildering nature of the illness, coupled with relatives' limited understanding of its progression, likely intensified this traumatic experience. In addition, several participants expressed a sense of abandonment, reporting that they perceived insufficient support for patients with rabies. Following the death, participants reported psychological manifestations suggestive of post-traumatic stress. Intrusive memories were almost universal (36/37), accompanied by sleep disturbances (24/37), nightmares (15/37), avoidance behaviors (11/37), and flashbacks (1/37). This constellation of symptoms including intrusive memories, avoidance behaviors, sleep disturbances, and persistent fear overlaps with the core symptom clusters of post-traumatic stress disorder (PTSD). The sudden, life-threatening nature of rabies, its dramatic clinical course, and the unexpected loss of a loved one constitute well-recognized risk factors for post-traumatic stress reactions. Qiu et al. reported a high prevalence of post-traumatic stress symptoms during infectious disease outbreaks [12], while Franza et al. found that post-traumatic stress disorder, anxiety,

and depression frequently coexisted among families bereaved during the COVID-19 pandemic [13]. In the specific context of rabies, these psychological reactions may be further intensified by the dramatic neurological manifestations observed during the terminal phase of the disease, the retrospective realization that the death might have been preventable, and restrictions surrounding the management of the body after death. However, post-traumatic stress reactions alone do not fully explain the psychological burden experienced by bereaved relatives. The persistence of these symptoms, together with the continued preoccupation with the deceased, also suggests features of prolonged grief, particularly given the close relationship between these conditions. Boelen et al, in a systematic review, identified bidirectional associations between prolonged grief symptoms, depression, anxiety, and post-traumatic stress [14]. Similarly, Wen et al. described bereavement trajectories in which prolonged grief, post-traumatic stress disorder, and depression frequently coexist [15]. Comparable findings have also been reported in African settings. Robinson et al., in a study involving more than 1,500 bereaved individuals in Ghana, Kenya, and Nigeria, found symptom patterns consistent with the ICD-11 criteria for prolonged grief disorder, while emphasizing that the central role of family and community relationships in these settings may increase the risk of persistent psychological distress following bereavement [16]. Nevertheless, these findings should be interpreted with caution. The psychological manifestations identified in this study were derived from qualitative interviews rather than standardized diagnostic instruments and should therefore be considered suggestive of post-traumatic stress and prolonged grief symptoms rather than clinical diagnoses. Faced with bereavement, relatives adopted a range of coping strategies, the most common being reliance on faith and prayer, reported by the majority of participants (28/37). This predominance of religious coping reflects the cultural context of bereavement in sub-Saharan Africa. Kokou-Kpolou et al., in a pioneering study of spousal bereavement in Togo, showed that religious coping serves multiple functions, providing comfort and emotional refuge, regulating psychological distress, and helping individuals find meaning in their loss [17]. Family and community support, the second most frequently reported coping resource (18/37), also played a central role in the grieving process. Consistent with these findings, Eisma et al. reported that strong social support following a sudden or violent loss was associated with more favorable bereavement outcomes [18]. Participants also described relying on courage and the gradual acceptance of their loss as important adaptive responses. A particularly noteworthy finding was the adoption of action-oriented coping behaviors. Some relatives transformed their grief into preventive actions by raising awareness among members of their community (10/37) or by ensuring rabies vaccination for other family members and domestic animals (7/37). These behaviors reflect meaning-focused and problem-focused coping strategies, through which bereaved individuals regain a sense of control by attempting to prevent similar tragedies from occurring. Such constructive adaptation has been identified as one of the most protective responses within contemporary models of grief [23]. These findings directly address the study objective of describing the behaviors adopted by relatives following the death of a loved one from rabies. Despite these adaptive strategies, the resources available to participants remained almost exclusively informal. One of the most striking findings of this study was the near absence of formal psychological support, despite the considerable unmet needs expressed by participants, including psychological support, information about rabies, financial assistance, and opportunities to be heard. Stromberg et al.

highlighted the importance of addressing these support needs and documented the diversity of coping strategies used during bereavement [19]. The gap between the informal resources mobilized by families and the lack of an institutional support response underscores the need to strengthen bereavement support services and has important implications for policy and clinical practice. Faced with bereavement, relatives adopted a range of coping strategies, the most common being reliance on faith and prayer, reported by the majority of participants (28/37). This predominance of religious coping reflects the cultural context of bereavement in sub-Saharan Africa. Kokou-Kpolou et al., in a pioneering study of spousal bereavement in Togo, showed that religious coping serves multiple functions, providing comfort and emotional refuge, regulating psychological distress, and helping individuals find meaning in their loss [17]. Family and community support, the second most frequently reported coping resource (18/37), also played a central role in the grieving process. Consistent with these findings, Eisma et al. reported that strong social support following a sudden or violent loss was associated with more favorable bereavement outcomes [18]. Participants also described relying on courage and the gradual acceptance of their loss as important adaptive responses. A particularly noteworthy finding was the adoption of action-oriented coping behaviors. Some relatives transformed their grief into preventive actions by raising awareness among members of their community (10/37) or by ensuring rabies vaccination for other family members and domestic animals (7/37). These behaviors reflect meaning-focused and problem-focused coping strategies, through which bereaved individuals regain a sense of control by attempting to prevent similar tragedies from occurring. Such constructive adaptation has been identified as one of the most protective responses within contemporary models of grief [23]. These findings directly address the study objective of describing the behaviors adopted by relatives following the death of a loved one from rabies. Despite these adaptive strategies, the resources available to participants remained almost exclusively informal. One of the most striking findings of this study was the near absence of formal psychological support, despite the considerable unmet needs expressed by participants, including psychological support, information about rabies, financial assistance, and opportunities to be heard. Stromberg et al highlighted the importance of addressing these support needs and documented the diversity of coping strategies used during bereavement [19]. The gap between the informal resources mobilized by families and the lack of an institutional support response underscores the need to strengthen bereavement support services and has important implications for policy and clinical practice.

Declarations

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Human Ethics and Consent to Participate declarations

This study obtained ethical approval from the Institutional Ethics Committee for Life Sciences and Health Research (CEIRSVS) of the National Institute of Public Health (INHP) under the number 052/07/01/26/MSHPCMU/INHP/DG-Ck. The protocol was approved in accordance with the ethical principles outlined in the Declaration of Helsinki for research involving human subjects. All participants provided their informed consent, verbally, prior to the audio recording. Participation was entirely

voluntary, and participants were informed of their right to withdraw at any time without any adverse consequences.

Competing interest

The authors declare that they have no conflicts of interest.

Funding

This study received no external source of funding.

Authors' contributions

Their valuable participation made this study possible. CAD, ZLI, NB et DC conceptualized and designed the study. CAD, ZLI et ZSB collected the data. CAD et ZLI drafted the manuscript. TSM, ATH, KDE et IT critically revised the manuscript for important intellectual content. All authors read and approved the final version of the manuscript.

Acknowledgements

The authors sincerely appreciate the relatives of individuals who died from rabies for their willingness to share their experiences and emotions during this difficult time.

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Figures

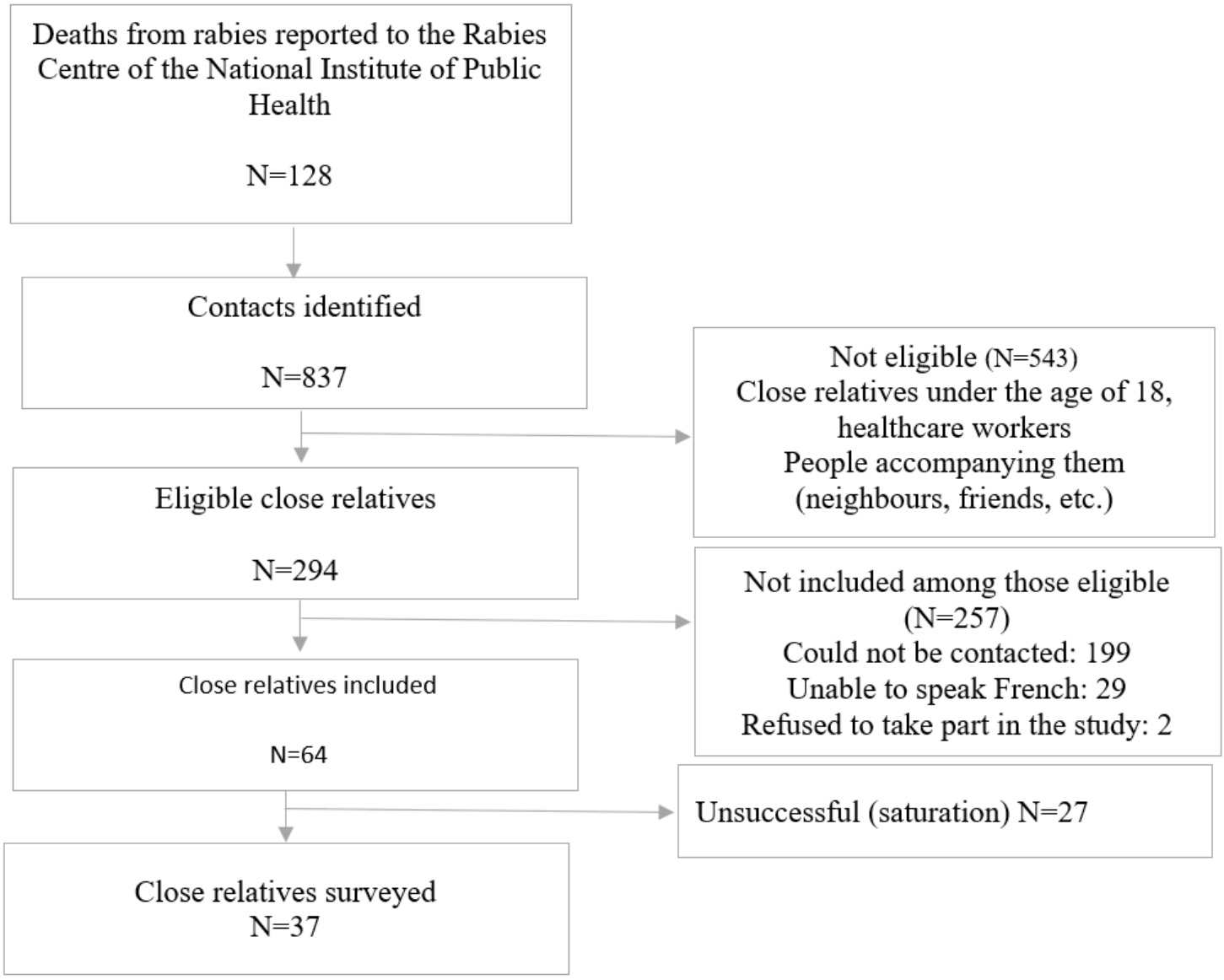


Figure 1

Participant recruitment flow diagram