

Coping and Psychological Impact on Survivors of the Casita Volcano Landslide in Posoltega and Chichigalpa Communities, Chinandega, Iii Quarter 2023

Fonseca Blandón Corina Jahosca¹, Méndez Ángulo Eveling María¹, Vivas Pérez Erlin Antonio¹, Rocha Peña Víctor Saúl^{2,*}

¹Bachelors in science and literature, Nursing students, Nursing Department, Faculty of Medical Sciences, UNAN-León, Nicaragua

²Bachelor of Nursing Sciences, Professor of the Nursing Department, Coordinator of the Vice-Rector's Commission for Innovation and Entrepreneurship in Nursing, Member of the Nursing Research and Development Committee, CIDE-UNAN León, Nicaragua

ABSTRACT

Twenty-four years ago, Hurricane Mitch caused one of the biggest disasters in Nicaragua, when the Casita volcano in Chinandega collapsed. 2,500 people were buried by 250,000 cubic meters of mud and rock. The present study aimed to describe the coping and psychological impact on survivors of the Casita volcano landslide in the communities of Posoltega and Chichigalpa. Chinandega. III quarter 2023. It is a qualitative, phenomenological and cross-sectional study. It consists of a universe of 20 participants, adults over 40 years old, the data collection process was carried out through in-depth interviews with survivors of the Casita volcano, obtaining information verbally through Open questions, the analysis was carried out through the open code 4.03 program According to the sociodemographic data, the surveyed participants had an average age of 68 years, most of them were Catholic Christians, with a prevalence of 80% from urban areas and 80% of them were married. With respect to coping with the survivors of the Casita volcano landslide, It was possible to demonstrate that most of the survivors have faced the dramatic event they experienced, such as the floods, the flooding, the overflows, the flights, the deaths, and will be marked forever. Regarding the psychological impact on survivors of the Casita volcano landslide, the people interviewed expressed that they experienced several series of emotional and psychological impacts. Some of these may include post-traumatic stress, depression, anxiety, fear of new eruptions, loss of loved ones, loss of property, and problems rebuilding a normal life.

Keywords: Landslide, Coping, Survivors, Psychological Impact.

INTRODUCTION

A disaster is the severely negative consequence of a catastrophic event that causes great losses in people, crops, animals, industries or

Vol No: 05, Issue: 04

Received Date: October 17, 2023

Published Date: November 28, 2023

*Corresponding Author

Rocha Peña Víctor Saúl

Bachelor of Nursing Sciences, Professor of the Nursing Department, Coordinator of the Vice-Rector's Commission for Innovation and Entrepreneurship in Nursing, Member of the Nursing Research and Development Committee, CIDE-UNAN León, Nicaragua, Phone: 85234521, ORCID: 0009-0001-2545-8566

E-mail: victor.saul@cm.unanleon.edu.ni

Citation: Jahosca FBC, et al. (2023). Coping and Psychological Impact on Survivors of the Casita Volcano Landslide in Posoltega and Chichigalpa Communities, Chinandega, Iii Quarter 2023. Mathews J Nurs. 5(4):29.

Copyright: Jahosca FBC, et al. © (2023). This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

other valuable assets, people who remain and witness the destruction caused by a natural disaster usually experience more mental problems than those who were able to evacuate [1,2].

There are many effects of climate change, which can trigger displacement, make living conditions even more difficult, or prevent displaced people from returning to their place of origin. Every year, more than 20 million people around the world must leave their homes and move to other parts of their own country due to the dangers caused by the increasing intensity and frequency of extreme weather events [3].

Countries in Latin America and the Caribbean have reduced the number of fatalities in some disasters, mainly due to disaster preparedness and response activities. Today they have the possibility of reducing their economic losses using mitigation measures in the context of development. Natural disasters generate a large demand for capital to replace what has been destroyed and damaged [4].

Nicaragua has a territory with many volcanoes, hills and mountain ranges. This means that there are lands with sandy or earthen slopes that break up easily. With the rains, these lands are easily washed away and form streams of stone and mud [5].

Nicaragua suffers a landslide in the area of Macizo Peñas Blancas on November 19, 2020 caused by Hurricane Iota where the mud and pieces of debris buried several dead and missing people, the National Police blocked the passage and also the national media access. Several families were left in immense pain [6].

The highest levels of landslide risk have been identified for 457 communities with a population of almost 113,000 people; The location on mountainous or volcanic slopes, proximity to natural channels or slopes in urban areas and, above all, cultural aspects make these populations highly vulnerable to these events [7].

On Friday, October 30, 1998, a mud avalanche hit the Casita volcano. Related to Hurricane Mitch, which lasted more than a week, caused flooding of large areas in the central part and northwest of Nicaragua. The rivers destroyed most of the important bridges, the Pan-American Highway between Honduras, El Salvador and Nicaragua is interrupted, in many places [8].

Several northwest-trending normal faults cut the summit

area and delimit the two sides of the crater. Explosion craters located on the southern plain of the volcano are aligned along a group of conjugate strike-slip faults. The domes at the summit are self-brecciated (the rock was strongly fractured during the original emplacement of the cones) and present strong hydrothermal alteration, the latter being consistent with the low-temperature fumarolic activity observed during past decades [9].

The present study aims to give continuity to the area of life research, describe the quality of life and health status of people with cryonic diseases and productive living conditions and productive teaching work in León, Chinandega and teaching work for all.

BACKGROUND

In 2018 Hernández Laura P. in a correlational, qualitative quantitative design study." Correlational study between individual and family coping strategies in the face of environmental disasters caused by hydrocarbon collapses in the municipality of Santiago de Talu, department of Sucre, Colombia. It has been demonstrated that individuals show disinterest in knowing the particularities and participation of the problem and choose to wait it out and receive social support [10].

In 2018, Peralta. B. Lent. Conduct research with qualitative methodology, descriptive and interpretive. "Families in the face of natural disasters. Study of two cases, members of two families, from the Menem Shelter, and their integration into the new context: Villa Dignidad neighborhood, in district VI of the municipality of Managua, during the period 2010-2012." Demonstrating that the relocation of populations for disaster risk reduction is an emerging strategy at the regional level, taking into account the protection of human lives and property [11]

In 2018, López Tarjado K. In a mixed design study "post-traumatic stress disorder in survivors of the avalanche that occurred in Mocoa-Putumayo" Finding a serious alteration on an emotional level due to stimuli such as rain, the smell of mud and the euphoria that incites them to re-share the sensations of the day of the tragedy [12].

In 2018, Garria, Stella, Olanda. In an exploratory qualitative-quantitative methodological design study "Resilience as a coping strategy in a population of victims of environmental" The results of this study enable us to think that the

populations, of the localities that were worked on, have competencies to cope with disaster situations, without them being a high mental health risk.

JUSTIFICATION

Natural disaster refers to the enormous material losses and human lives caused by natural events or phenomena, such as earthquakes, floods, tsunamis, landslides, among others. Coping is behavior of direct action on the problem, search for information, self-control and social support. The psychological impact addresses the stigma associated with seeking mental health care and psychosocial support, emphasizing the most vulnerable people [13-15].

On October 30, 1998, death literally fell from the Casita volcano and claimed the lives of more than 2,500 people living in the Rolando Rodríguez and El Porvenir communities. They all died buried by the flow of mud, rocks and trees that came down from the top and dragged everything in its path [16].

The present research aims to describe the coping and psychological impact in survivors of the Casita volcano landslide in Posoltega and Chichigalpa communities. Chinandega. III quarter 2023. The results will be announced to you:

Political leaders of the municipality of Chichigalpa and Posoltega, so that you know that your population, even after so many years that have passed, still have or have consequences from this disaster.

To the people who live on the slopes of the Casita volcano, they are in a high-risk place.

To future researchers who wish to delve deeper into the natural disaster of the Casita volcano that occurred in 1998 in the Rolando Rodríguez and El Porvenir community, Municipality of Posoltega, León, Nicaragua.

PROBLEM STATEMENT

24 years ago, Hurricane Mitch caused one of the biggest disasters in Nicaragua, due to the landslide of the Casita volcano, in Chinandega. 2,500 people were buried by 250 thousand cubic meters of mud and stone. Those who lived in the Rolando Rodríguez and El Porvenir communities in the Municipality of Posoltega. INETER described this natural phenomenon as the rains of the century, remembering that in Chinandega in just one night 500 millimeters of water

were recorded [17,18].

Coping with a disaster is very relative, so the historical memory of the affected people must be worked on, as a process of acceptance, reworking of what happened and the dignity of the victims. Above all, if the circumstances make it even more difficult to face a mourning process such as: disappearance, the impossibility of recognizing the corpses, collective burials in common graves [19].

The psychological impact suffered by survivors of a disaster has a direct influence, causing feelings of insecurity that can be especially observable and evident in children, who can constantly feel insecure, feelings of sadness, post-traumatic stress that transfers in a person to control their emotions, leading to outbursts of anger or crying, causing depression, eating problems, panic attacks [20].

Based on the above, the following question arises:

What is the coping and psychological impact like in survivors of the Casita volcano landslide in Posoltega and Chichigalpa communities, III quarter 2023?

OBJECTIVES

General objective

- Describe the coping and psychological impact in survivors of the Casita volcano landslide in Posoltega and Chichigalpa communities. Chinandega. III quarter 2023.

Specific objectives

- Sociodemographically characterize the survivors of the Casita volcano landslide in the Posoltega community and Chichigalpa Chinandega. III quarter 2023.
- Identify the coping of survivors of the Casita volcano landslide in the Posoltega community and Chichigalpa. III quarter 2023.
- Investigate the psychological impact of survivors of the Casita volcano landslide in the Posoltega and Chichigalpa community. III quarter 2023.

Theoretical framework

Generalities

Keywords:

Landslides: Landslides have occurred in almost all states of the country and can cause considerable damage. The term "slide" describes downhill land movements that can be slow,

causing damage gradually, or rapid, destroying property and causing death suddenly and unexpectedly.

Most landslides are caused by natural forces or events, such as heavy rain and snowmelt, earthquake shaking, volcanic eruptions, and gravity. In general, landslides are associated with periods of intense rain or rapid thaws that aggravate the effects of flooding [21].

Coping: any activity that the individual can implement, both cognitive and behavioral, in order to confront a certain situation. Therefore, the individual's coping resources are made up of all those thoughts, behaviors, etc. So that the individual can obtain the best results [22].

Survivor: A person who remains alive and maintains functional capacity while facing or overcoming serious difficulties, including a life-threatening illness. In the cancer setting, a person is considered a survivor from the time of diagnosis to the end of life. Also called survivor [23].

Psychological impact: It is the set of changes and behaviors, thoughts or emotions that appear, or intensify as a consequence of the experience of some type of situation that involves a loss, damage or an intense, important or prolonging threat.

For some authors, coping styles refer to personal predispositions to deal with situations and are responsible for individual preferences in the use of one or another type of coping strategies, as well as their temporal and situational stability [24].

COPING

They defined coping as those constantly changing cognitive and behavioral efforts that are developed to manage specific external and/or internal demands, which are evaluated as surplus or overflowing the individual's resources.

The coping strategies that each person develops and uses on a regular basis can be a facilitator or an obstacle when facing the stressful situation [25].

Denial

When on October 30, 1998, a large wall of stones and mud buried more than 2,000 residents of the communities surrounding the Casitas Volcano, former President Arnaldo Alemán did nothing but call the Sandinista mayor of Posoltega, Felicita, "crazy." Zeledón, who insistently warned that Hurricane Mitch could have left a tragedy of great

proportions in that town [26].

Denial is a very common emotional reaction. It is characterized by the person denying that there is any danger and acting without paying attention to calls to protect themselves, or to leave the danger zone and take preventive measures. It is a defense mechanism, of poor quality, that makes us deny danger rather than face it. They often act this way because they do not want to abandon their belongings and home, which increases their experience of abandonment and uncertainty. Faced with such a possibility, the subject prefers to use denial and not assume a fighting attitude [27].

They are typical responses to traumatic events and disasters, especially in the first days afterward. Both shock and denial are normal protective reactions.

It consists of not recognizing that something very stressful has happened, or not fully recognizing the intensity of the event. You might even feel temporarily paralyzed or disconnected from life. As the initial shock disappears, reactions may vary depending on the person affected [28].

It is nature's way of protecting us from the excessive pain and suffering of loss. It is an adaptive strategy that helps us face the situation to survive and manage the impact and pain.

Denial is necessary, because we gain time to assimilate reality little by little, in doses acceptable to our psyche. After this, anger and anger make us look for someone to blame for what happened, after it the negotiation, so we would do anything to change reality, the sadness and feeling of emptiness in the face of the loss continues, and finally acceptance, It allows us to resume our lives, even with the pain, we accept that it is a reality and that we have to continue living [29].

Acceptance

Even when it is accepted that the existence of an extreme physical or natural event does not constitute a disaster in itself without having a negative impact on society, it exists, in general.

An acceptance that a natural disaster is a result of 'extremes' in geophysical processes the direction of causality or direction of explanation runs from the physical environment to its social impacts the dominant approach relegates social and economic factors to a dependent position. The initiative of a calamity is with nature, and it decides where and what social conditions or responses become significant.

A consequence of this vision is that disasters are not conceived as an integral part of the spectrum of human-nature relations or directly dependent on them, but rather as an “overcome problem”, temporally and territorially limited, something rare or extraordinary, “events that violate normal life and its relationships with the habitat.” In short, there is a separation of disasters and their causes [30].

The individual’s ability to cope with the personal changes produced by the disaster and that of the environment, in an appropriate and healthy manner. The survivor tries to find ways to adapt, for example, through denial, avoidance, religious beliefs, or resignation. In essence, these processes are efforts to maintain the stress load within functional limits and try to adapt to the painful reality. If the survivor cannot achieve this goal, it is possible to develop acute or chronic pathological reactions [31].

Emotional Support

With the right support, most people will be able to overcome these difficult experiences. This is what is highlighted in the IASC Guide on Mental Health and Psychosocial Support in Humanitarian Emergencies and Disasters, developed by the Inter-Agency Standing Committee of the United Nations, and the PAHO publication on Mental Health and Psychosocial Support in Disasters [32].

While psychologists do not provide therapy at the scene of a disaster, they can help people draw on their own inner strength in order to begin the recovery process after the disaster. Psychologists help those at the scene of a disaster develop resilience skills and move from feeling like hopeless victims to survivors with a realistic view of their prospects.

This process may include taking action toward specific goals and bonding with others as they learn to cope with the logistical and emotional challenges posed by a disaster [33].

Psychological support in emergency and crisis situations consists, in summary, of mobilizing the innate and acquired resilience mechanisms of those affected, with interventions in three phases and based on demonstrated evidence. Thus, the activation of their coping strategies in the face of the situation is accelerated and, in subsequent phases, adaptation, improvement and post-traumatic growth are favoured [34].

It is very important that people talk about what has happened. Let it be talked, let it be said, let it be told, let it

cry, let it be expressed enough, you have to get over it”, in the case of children, focus on playful activities as therapy. “They need to draw the earthquake, the children who are in shelter need a theater teacher to help them physically express the anguish they are feeling” [35].

At the very moment of the catastrophe, it has been followed that all survivors would be offered a help service that avoids stigmatization of the person as a victim or sick person, the following are postulated as the most important:

Support and listen, an attitude of listening, welcoming and supporting is essential when contacting those affected by the catastrophe.

To help cope with what happened, the person must be helped to understand her experience so that she can reconstruct her cognitive world.

Understanding emotional reactions, the survivor must be reassured that emotional reactions as strong as he has experienced, or that exceed them, are common, and that they are the normal reactions that are triggered after a catastrophic event.

Normalize physical reactions, such as: fatigue, lack of sleep, nightmares, loss of memory and concentration, palpitations, tremors, breathing difficulties, lump in the throat, nausea, diarrhea, muscle tension that can lead to pain,

Assess changes in social relationships, help survivors identify changes in family and social relationships, including positive changes such as organizing new friendships and groups in relation to what happened.

Anticipate subsequent tensions, that may appear in social relationships. People sometimes feel let down by the lack of support and understanding from those around them. In addition, it has been found that accidents are more frequent after severe episodes of stress [36].

Social influence

Social Work today and since its origins as a social service has been present in the care of people affected by natural or man-made disasters. As specific knowledge about these has advanced, such as their phases, preventable aspects, magnitude and others; as well as the effects of the economic, physical, social, psychological and cultural impact they have on people and the environment [37].

The social worker has fulfilled and redefined his actions in

this field, which is why the author considers it important to formulate and submit for colleagues' consideration a proposal for basic guidelines regarding the intervention of the social worker in a disaster situation [38].

Social protection, by guaranteeing basic levels of income and access to social services (health, education and housing, among others) and promotion, strengthens prevention and response capacity and reduces vulnerability, contributing to a recovery in the short and medium term long term.

Therefore, social protection constitutes a key public policy to address disasters before, during and after their occurrence. In particular, it can contribute to strengthening people's capacity to cope with the negative impacts of climate-related events and livelihood losses [39,40].

During a crisis, the public depends on leaders to make decisions, provide updates, and make recommendations about things that may affect their safety and well-being. Leaders, including government officials, leaders of non-governmental organizations, community organizations and religious groups, play an important role in helping communities and people cope with disasters, both when they occur and afterward. Learn how to help your community cope with a disaster [40].

To guide society, to promote tranquility and reduce fear and distress. It should promote appropriate social relationships, reducing conflict and risk behaviors. From the field of communication, we can help so that the population can understand the dimension of risk, identify danger zones and know the measures to prevent, mitigate and better confront a disaster.

This contributes to reducing fear and distress, avoiding disorganization and alleviating the suffering of affected people, as well as a more appropriate response. Misinformation contributes to increasing psychosocial problems in disaster situations [41].

This contributes to reducing fear and distress, avoiding disorganization and alleviating the suffering of affected people, as well as a more appropriate response. Misinformation contributes to increasing psychosocial problems in disaster situations [41].

Economic contribution

Disasters are social, and refer to the rights of communities and people, from the concept of the right to adequate housing, security of tenure and habitability, precepts that incorporate aspects of legal protection against forced eviction and "protection against cold, humidity, heat, rain, wind or other health risks and structural risks."

Optional, instrument designed to make the enforceability and justiciability of the corresponding rights feasible. This practically restricts the exercise of the right to housing, influencing housing reconstruction in post-disaster contexts [42].

Regional organizations include the Center for the Prevention of Natural Disasters of Central America (CEPREDENAC), the Caribbean Disaster Emergency Response Agency (CDERA), and the Andean Center for Disaster Prevention and Attention (CAPRADE), the Regional Disaster Information Center (CRID).

The Latin American and Caribbean Economic System (SELA), the Regional Council for Agricultural Cooperation (CORECA) and others. The national organizations responsible for emergency response and risk management, such as the Civil Defense and the National Committees for Disaster Prevention, Mitigation and Attention, among others, as National Focal Points.

The organizations of the inter-American system include the Inter-American Development Bank (IDB), the Pan American Health Organization (PAHO), the Pan American Institute of Geography and History (PAIGH), the Pan American Development Foundation (PADF), the Inter-American Institute of Cooperation for Agriculture (IICA), the Inter-American Agency for Cooperation and Development (AICD), the Inter-American Defense Board (IADB) [43].

PSYCHOLOGICAL IMPACT

In a disaster situation, both physical and psychological are affected in a very important way. In the face of a natural disaster, the psychological mechanism that we as a person have to be able to face these extreme situations may be insufficient because mental pathologies will appear. A disaster can alter the meaning and even the purpose of the lives of those who experience it; they can even modify the point of view that someone has regarding the world and themselves [44].

Post-traumatic stress

Post-traumatic stress syndromes that appear months after the event are generally associated with the continuous memory of the events and the re-experiencing of the situation experienced, recurring dreams and also the almost obsessive avoidance of situations similar to or related to the event.

Patients with total or partial amnesia of the event are also observed, in whom psychological over-excitement, irritability, lack of concentration, unmotivated fear, insecurity, insomnia and nightmares persist. All require specialized treatment by mental health personnel. On the other hand, grief management is especially important in disaster and emergency situations, in which great losses are frequently experienced.

In disaster situations, mental health interventions should be carried out as soon as possible and maintained as long as necessary. It is desirable in these cases that primary care medical personnel be prepared to carry out the necessary emergency interventions. It must be kept in mind that, in these situations, health teams are exposed to great emotional and physical overload [45].

When someone has post-traumatic stress, they feel in a state of continuous wakefulness, they have automatic memories of the event that triggered them, such as hearing a seismic alarm without it being activated, or feeling that the ground is moving. There is fatigue, it is difficult to sleep and dreams evoke the event. They have a feeling of isolation and emptiness, even despite being surrounded by people, the university student mentioned.

He who suffered a car accident, he exemplified, suffers from anxiety when he hears the screeching of tires; or a woman who was raped relives the experience every time she is approached by a stranger. Furthermore, places and things that evoke the event are avoided.

"Humans have developed systems that alert us to certain situations; "Fear and anxiety are those alarm signals, but in the case of post-traumatic stress the event is relived with extreme anxiety, similar in intensity to that described in panic attacks" [46].

Overcome post-traumatic stress and addictive behaviors. It has been used internationally on thousands of people as an immediate and simple way to help to traumatized people,

after a disaster, an accident, a terrible event. It can be used on oneself or on another person. It does not change reality, but it does change the way the person sees it or reacts to it. The positive result is that the person can remember the traumatic moments, but without their emotional burden.

This simple therapy was used with the victims of Hurricane Mitch by Nicaraguan psychologist Mary Bolt. Mary taught it to some refugee communities in Posoltega, the place in Nicaragua that accumulated the most deaths, injuries, missing persons and victims from the collapse of the Casita volcano due to intense rains [47].

Many people learned to use this therapy to empower themselves, as a technique they could do by themselves and at any time. After the hurricane, every time the torrential rains and lightning awakened terrible memories of Mitch, women, men and children pressed their acupressure points with their own hands and thus managed to constructively control their fear and anxiety [48].

In PTSD, the individual experiences or witnesses an event in which death, injury, or a threat to the life of oneself or others occurs; that is, events of a catastrophic nature that would in themselves cause suffering and dismay in any person [49].

The way the subject reacts to trauma should include, according to the DSM-IV, fear, hopelessness, and intense horror. Once the expected time for an acute stress reaction has passed, symptoms of persistent re-experiencing of the traumatic event, persistent avoidance of the stimuli associated with it, and blunting of the individual's response capacity should occur [50].

Also, states of hypervigilance or alertness occur, usually with insomnia or startle responses. These symptoms must cause clinically significant distress and interfere with the person's usual functioning.

The symptoms are usually fluctuating, with the presence of both anxious and depressive components, frequent episodes of relives and nightmares, vegetative hyperreactivity and avoidance of triggering situations, which may evoke memories of the traumatic event. When this condition lasts more than seven months after the trauma, we are authorized to add the qualifier chronic [51].

Anxiety

The World Health Organization (WHO) lists among the

symptoms of generalized anxiety disorder: excessive worry about everyday things, problems controlling worries or nervousness, awareness that you worry more than you should, and problems with anxiety, concentration or excessive sweating [52].

Anxiety can energize people to dedicate them to rescue tasks, ignoring important risks to their physical integrity. But, equally, this anxiety prevents people from identifying important aspects in their physical and social environment that can help them better survive the disaster.

In the context of what we are experiencing, it could arise from not having a safe place to be or not having what is necessary to feel protected, also because the government response does not make me have hope. All of this can arouse fear, fear, restlessness, corporeal responses such as palpitations, tension, breathing or sleeping problems. Gastrointestinal problems are also common [53].

Stress and anxiety are part of the consequences of a natural disaster, particularly for those living in a shelter, for those still without power, for those trying to return to work without a transportation system, or for those who must deal with the insurance company or worse [54].

The intense anxiety and fear that often follow a disaster can be especially problematic for child survivors, especially if they have been direct victims of the disaster or have been separated from their families. Some children may regress and exhibit behaviors from earlier ages, such as thumb sucking or bedwetting.

They may be prone to nightmares and may be afraid of going to sleep alone. Their performance in school may also suffer. Other changes in behavior patterns may include throwing tantrums more frequently or becoming more isolated and reclusive [55].

Depression

After a natural disaster, it is normal to feel sad, angry, or guilty. You may have suffered considerable losses. If you feel like you can't take it anymore or have thought about suicide, seek help. Stay in touch with family and friends, find a support network, and talk to a counselor. Participating in activities with others can also help you [56].

No matter how well you prepare, you may feel dazed or numb after surviving a disaster. You may also feel sad, helpless, or

anxious. Despite the tragedy, you can simply feel happy to be alive.

It is not unusual to have bad memories or nightmares. You may want to avoid places or people that remind you of the disaster. You may have problems sleeping, eating, or paying attention. Many people have a bad temper and get angry easily [57].

It is the disorder most frequently associated with a disaster after PTSD. The severity and probability of appearance will depend on the presence of an affective disorder prior to the disaster.

These disasters are not only costly and deadly, but also affect people's mental health. Scientists say rates of depression, anxiety and post-traumatic stress disorder (PTSD) increase dramatically after disasters [58].

The person in a depression, with sadness, prolonged grief and a feeling that life is not worth continuing. Disturbances in sleep and appetite may appear. The mourner may have active fantasies of being reunited with the deceased and suicidal thoughts or attempts may occur.

Common symptoms of depression:

- i. Sadness.
- ii. Slowness of movements.
- iii. Insomnia (or hyperinsomnia).
- iv. Fatigue or loss of energy.
- v. Decreased appetite (or excessive appetite).
- vi. Difficulties concentrating.
- vii. Feelings of helplessness
- viii. Anhedonia (markedly a decrease in interest and pleasure).
- ix. Social withdrawal.
- x. Fault injuries.
- xi. Feelings of helplessness.
- xii. Concerns with loss and irritability [59].

Sleep disorder

Sleep disorders are common in the population and an important cause of morbidity. The objective of this review is to evaluate sleep disturbances in periods of emergencies and disasters by searching for updated information in the

literature, including the most recent in relation to pandemics.

People who have survived storms may experience nightmares, anxiety, or extreme concerns about safety from other storms. Insecurity can be especially pronounced in children, who may constantly feel insecure [60].

The population that has been affected by natural disasters or has experienced them closely is the most vulnerable to sleep disturbances, as they are afraid of it happening again. The expert pointed out that this disorder is a reaction of the body to a stressful and traumatic event that is accompanied by a feeling of loss of control and inability to face a specific threatening situation.

This disorder is a reaction of the body to a stressful and traumatic event that is accompanied by a feeling of loss of control and inability to face a specific threatening situation [61].

Changes in sleep, appetite, anxiety, depression, burn out or exhaustion syndrome have been observed in the affected population and health personnel; and in general, manifestations of post-traumatic stress syndrome.

The symptoms can be varied, depending on the vulnerability of the person: their experience prior to the event, social and family support, and the degree and duration of the impact. In general, unexpected events (earthquakes) and armed conflicts generate a prolonged stress situation; However, those of collective affectation have a greater impact on the population [62].

Duel

The shock period lasts a short time. This stage can lead to intense separation anxiety and overwhelming grief. The grieving person can search for their loved one, even if the person has died. Survivors may develop anger at their loved one for dying and leaving them alone, or anger at others if the disaster was caused by a person or could have been prevented.

At some point, the survivor may begin to focus their grief response on psychological ties to the deceased person and memories of their relationship.

Deaths caused by natural disasters and public tragedies can increase the risk of grief complications for survivors, as these deaths are often unexpected, traumatic, or may not allow the survivor to identify their loved one's body or verify

their death. Reliable [63].

There are late effects in survivors with pathological grief that must be treated psychologically to avoid their severe consequences: psychiatric disorders such as depression, adjustment disorders, manifestations of post-traumatic stress, abuse of alcohol and other addictive substances, and psychosomatic disorders. An increase in the suicide rate is also reported in the periods following the mass death of people as a consequence of disasters or war crimes.

In situations of war or long-term conflict, patterns of suffering, such as sadness, generalized fear, anxiety, are manifested physically, symptoms that often take on a serious and long-lasting character.

Complicated grief can lead to a depressive disorder, which is characterized by marked sadness, loss of the ability to be interested in and enjoy things, decreased activity level and exaggerated fatigue, decreased attention and concentration, loss of confidence. In oneself, feelings of inferiority, ideas of guilt, gloomy perspectives on the future, suicidal thoughts or acts, sleep disorders and loss of appetite [64].

From time to time, natural disasters such as earthquakes, floods or hurricanes take place on our planet, devastating countries, leaving thousands of victims in their wake. Without a doubt, this is news that impacts us all and, inevitably, makes us reflect on the psychological consequences that a tragedy like this has on the population.

In this article we will analyze the general characteristics of mourning after a natural disaster of such magnitude, what the survivors will face and what factors complicate or facilitate the development of the mourning process.

Victims of a natural disaster must face numerous losses in a short period of time, personal losses, material losses, losses of their environment, etc. This forces them to undertake an exodus full of uncertainty. Intense experiences of fear, shock, danger or disorientation are added to the pain of loss [65].

METHODOLOGICAL DESIGN

Type of study: A qualitative, phenomenological and cross-sectional research was carried out.

Qualitative: Because information will be obtained based on the coping and psychological impact on survivors of the Casita volcano landslide to analyze and understand the information obtained.

Phenomenological: It will be based on the study of life experiences related to coping and psychological impact with respect to an event, from the perspective of the universe under study.

Cross-sectional: Because the coping and psychological impact of the population under study will be described,

in which a cross-sectional section will be made in time, to measure the prevalence of an outcome in a population at a specific time.

Study area: Posoltega Communities, Chichigalpa, Chinandega department, Nicaragua; where the survivors of the Casita volcano are relocated.

Boundaries	
Posoltega:	Chichigalpa:
To the north: Chinandega.	To the north: Chichigalpa
To the south: Posoltega.	To the south: Quezalguaque.
To the east: Posoltega and Quezalguaque.	To the east: Telica and Quezalguaque
To the west: Corinto, El Realejo and Chinandega	To the west: Quezalguaque



The municipality of Posoltega, located in the border area of the department of Chinandega and León, comprises a total of 19,206 inhabitants, is made up of 15 regions and 4 neighborhoods, for a total universe of 72,535 inhabitants.

Universe or Population: Survivors of the Casita volcano landslide who are in the communities in Posoltega and Chichigalpa.

Sample: The sample was made up of survivors of the Casita volcano landslide who live in the areas belonging to the municipalities of Chichigalpa and Posoltega, with a number of 20 participants.

Sampling: Convenience sampling was carried out by selecting from the population, survivors of the Posoltega and Chichigalpa casita volcano, Chinandega department who are within our reach regarding the distance from their homes to be approached.

Source of information

Primary Source: The information was collected through in-depth interviews with survivors of the Casita volcano, obtaining the information verbally through open questions.

Secondary Source: books, websites, magazines, newspapers.

Inclusion Criteria:

- Adults over 40 years of age and older.
- Of both sexes.
- People who experienced the Casita volcano landslide disaster.
- People who wish to participate in this study.

Exclusion criteria

- People under 40 years of age.
- People who did not experience the Casita volcano landslide.
- People who survived the Casita volcano landslide who do not wish to participate}

Study variable**Dependent variable:**

- Casita volcano landslide.

Independent variable:

- Coping
- Psychological impact

Information collection method: Permission to access the confidential data of the study population was requested from the mayor's offices of Chichigalpa and Posoltega, in turn, support was requested from the political secretaries of the area who They had general knowledge of the location of the families who survived the landslide. Once authorized, the data collection instrument was applied to the study population.

To the people who wished to participate in the study, the terms and conditions that their participation entailed were explained, clarifying doubts and concerns, encouraging them to accept verbally and in writing, voluntarily granting their informed consent to begin the application of the data collection instrument.

Collection technique: Information collection was carried out through an in-depth interview with open questions containing:

- 4 items of sociodemographic data
- 4 items on coping with the landslide
- 4 items on the psychological impact of the landslide

Study instrument: The instrument used for data collection was the in-depth interview, which was structured with open questions that covered the independent variables.

Pilot test: The pilot test was carried out with 10% of the study population, corresponding to 1 participants. The participants will be from the northern Caribbean coast region (RACCN) of Nicaragua, survivors of the natural disaster.

Hurricane Julia, Félix, Iota, Oto, Eta. With the purpose of validating the instrument, not contaminating the sample and assessing the presence of biases.

Study plan

The analysis of the qualitative data was carried out through content analysis for the interpretation of texts, seeking to obtain, through systematic procedures, the objectives of content description that allow the inference of relative knowledge, coping and psychological impact obtained during the interview. , comprising three stages: pre-analysis, coding and categorization, subcategorization until information saturation was determined and a qualitative analysis model was carried out.

Once informed consent was given, both by the authorities and each of the participants in the sample, the in-depth interview was carried out, processing it through audio recording, using cell phones as a tool. Once the interview was applied, it was pre-analyzed to determine the saturation of the information and was recorded in written form in Microsoft Word, which was coded to avoid confusion of information and avoid analyzing the same interview twice.

In the same way, the study led to a categorization process where the information will be filtered according to the problem and variable studied, with the objective of having a study free of possible biases. Such processes will be carried out using smart phones and Microsoft Word.

Ethical aspects**Informed consent**

A written document was presented that contained a complete description of the researchers, the topic and objectives of the studies, what the instrument to be used consists of and the technique involved.

In addition, it was explained that their participation is completely voluntary and that they have the right to withdraw whenever they wish. Each participant signed a

document stating that their participation is entirely with their consent or own decision.

Respect: A conversation was established with the survivors, dealing only with the research topic with the purpose of enriching the study, not touching on any family topic or other topic that has nothing to do with the objective of the study.

Autonomy: It was explained that their participation will be voluntary and that they would have their right to autonomy, which is that they could have withdrawn at any time or also not respond if they so wish.

Anonymity: It was explained to the survivors who participated in our study that the answers and information they provided would be completely private, that only the participants who carried out this study and the guardian in charge would have access to the information, so they must have full assurance that the information provided will be solely for study purposes.

Beneficence: A space was provided in which participants feel comfortable when collecting data, in order to achieve maximum benefits and minimize the risks from which possible harm may arise.

RESULTS

In the qualitative and quantitative interview on the topic (Coping and psychological impact on survivors of the Casita volcano landslide in Posoltega and Chichigalpa communities, Chinandega) conducted with a population of 20 participants of which 16 were male and 4 female where 100% are urban aged between 40 and 88 years, all of them residing in urban areas.

It was found that 80% of the participants are married. In relation to education, the majority of those interviewed, 65%, reached primary school, 30% secondary school and 5% university. In religious terms, a predominance of the Catholic religion was observed, with 80% of those interviewed and the other 20% evangelical (Figure 1).



Figure 1. What was the most traumatic experience you witnessed during the landslide?

Regarding the traumatic experience, the participants expressed that the most traumatic thing was: fetal death, the flooding of the rivers, saving our lives, the overflows, death, also the lack of family communication, the current, the noise, the suffering, being unoccupied; It was also indicated:

consumed by mud; in turn obstruction of the airways, the detour, the avalanche, the various fractures, fleeing, the disappearance, trapped, the impact, collapse, worry, escape, corpses (Figure 2).

<p><i>"Feeling alone in a desert, seeing that I didn't have my wife, my children, or my grandchildren, well, nothing, I was alone there perched on a stick, so you see, it was more or less tall"...</i></p>	<p>Interview No. 5</p>
<p><i>"It was seeing my companions pass by who were already dead, I was holding on to a stick, some of them who were still alive were alive, but I could not at any time let go of a stick that I was holding, because I had my wife and my mother-in-law; You see, it made me very sad, I even cried out of sadness, because they went and I stayed and I couldn't hold their hands, I couldn't give them help"...</i></p>	<p>Interview No. 6</p>
<p><i>"She was headfirst in the mud, when I pulled her out I saw that she doubled over while traveling, then my wife told me: -Look, she's already dead, don't continue bothering her, and my mother-in-law was about ten yards away and was lying on a stick, beaten, then she told me: -Look Ronald, be satisfied because you have two children left, you and your wife, of the five there are four left. There are houses where none were left. Then I told him: that my girl was not going to die and I started to blow her up and it seemed like the trial, because the current was throughout the garden, and I grabbed water from the garden and washed her eyes and took mud out of her. the ears; I took mud out of her mouth and the thing that I spent about an hour fighting with my daughter and I got down on my knees asking God not to take her away from me, because she was the oldest, and I started to blow her up but I was already Giving up, I said I'm going to throw her up four more times, I said, I was sucking her nose, I was removing mud from her, because her nose was red and there, look what a beautiful thing for me, seeing her open her eyes. And he says to me: "Cute daddy!"</i></p>	<p>Interview No. 8</p>
<p><i>"I heard some noises in the mountain, we didn't know how to explain and at one point he passed us carrying clean water, then there was very high mud coming, it was a quagmire that he fell into at that moment, he didn't come out, he was trapped; A neighbor boy came, he died trapped there because no one could get him out because the mud was deep and we stayed there until three days later when they came to bring us by plane."</i></p>	<p>Interview No. 15</p>
<p><i>"The disappearance of my family, because 82 of my relatives died in the landslide, my mother, my father, my brothers, my children, nephews and cousins; "That is the number of people who died in my family."</i></p>	<p>Interview No. 16</p>

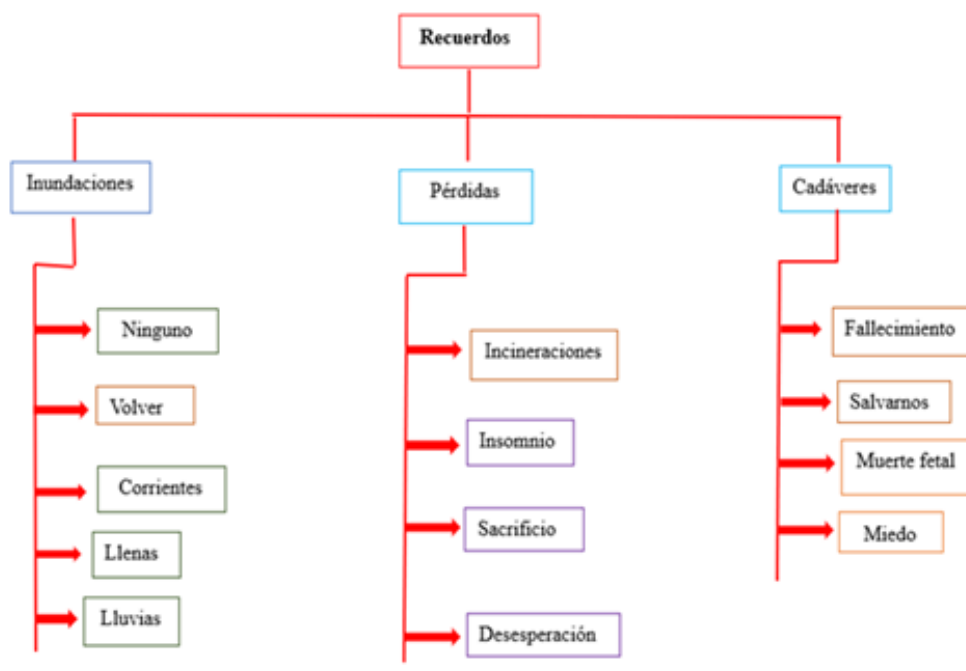


Figure 2. What memories have you wanted to eliminate from your memory related to the landslide?

In relation to the memories that the interviewees wanted to eliminate, they mentioned: fetal death, losses, corpses, one survivor indicates none; Other participants expressed: the floods, the currents, the crowds, the rains, the fear,

the insomnia, the sacrifice, the desperation, the deaths, the moment to save ourselves, the desire to return, the incineration.

<i>"To be honest, none of them, I have him alive, and I plan to keep him alive".</i>	Interview No. 5
<i>"Even if we want to, we have our mind like a computer, without forgetting anything, even if we want to, we don't forget anything".</i>	Interview No. 15
<i>"The most difficult thing is that none of the relatives who died were found, I did not have the opportunity to go or say here is my mother, here is my father or here are my children, my brothers, because they were all disappeared."</i>	Interview No. 16

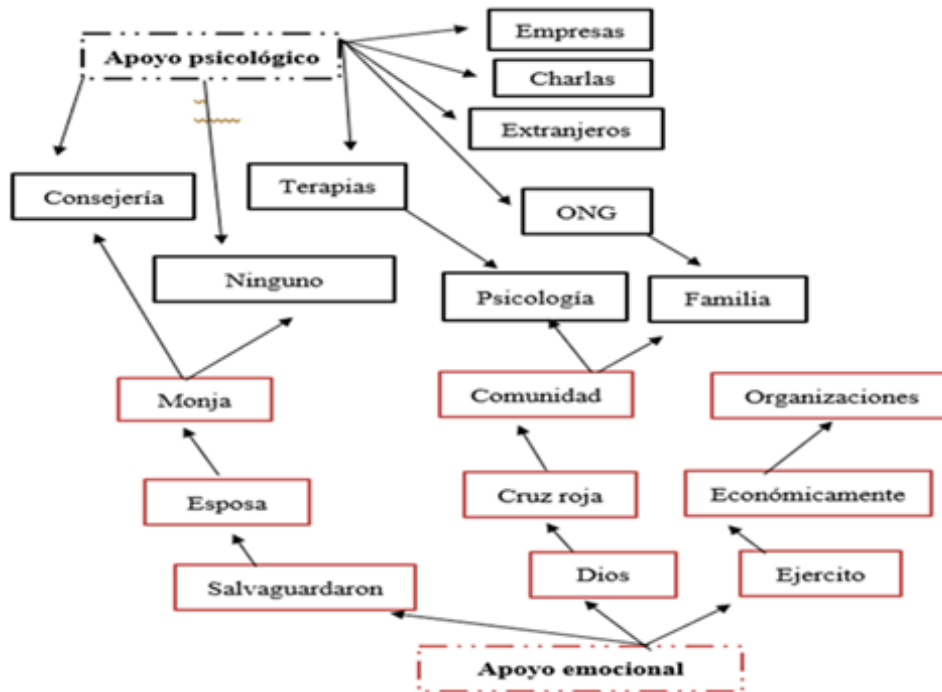


Figure 3. Have you received emotional support at any time and from whom? During the grieving process, did you receive psychological support? How has it helped you?

Regarding emotional support and psychological support, it was received through counseling, psychological care, from the family. Regarding psychological support, the respondents received: therapies, help from foreigners, through talks, some companies provided them with psychological help.

Based on Emotional Support: the survivors received it from the community, they provided financial help, help from a nun, from the red cross, army, from God, wife, some organizations, they safeguarded us (Figure 3).

Emotional Support

<i>"Never or never, for exactly no one, just me and my wife".</i>	Interview No. 4
<i>"A nun who came and told me: look, when they bring you something, don't look at the color of the flag."</i>	Interview No. 5
<i>"Well, imagine that not from a psychologist, because I have been understanding and had the confidence that I have had God, that He will always carry us forward".</i>	Interview No. 12

Psychological Support

<i>"Look, I don't think psychology is small, psychology is in you, the strength of your mind is psychology".</i>	Interview No. 5
<i>"Well, we received psychological support from some North American brothers, from the donors who gave us these homes".</i>	Interview No. 11
<i>"Yes, it helped us a lot because although we do not want to live in the moment, we are living it, so as psychologists they talk to us about all these things and that we have to overcome them because we are alive and by grieving we were not going to revive our loved ones, so all these talks were helping us".</i>	Interview No. 16
<i>"It is the past, but it is the past that cannot happen, it was horrendous and we will live remembering it; Notice that when I go to the farm, there are times when I talk and I just say: My God, nice if they were alive, it seems to me that my children are alive".</i>	Interview No. 20



Figure 4. What does it feel like to be part of the population that survived the landslide? Describe how you reacted when you were evacuated from the site where the landslide occurred.

According to the surviving and evacuation population, the participants indicated that: they suffered sadness. The surviving population expressed feeling: happy, grateful, somewhat happy, like a miracle, a way of being reborn alive, satisfied, like an opportunity, like a blessing. On the other hand, they indicated: horrible, unfortunately, painful, difficult.

Regarding the evacuation, the interviewees mentioned that the help came from the family, in an exciting way, to a safe place, they felt joy, transportation, a shelter, they felt calm, they evaluated themselves, they were strong, they had patrimonial attachment, a desert, without evacuation.

Surviving population

<i>"Well, I feel grateful to God because he allowed us to be alive and get out of that big problem".</i>	Interview No. 1
<i>"Partly because one feels happy and experienced because one brings one's experience to the new generations, well see, because I tell you this, you are going to learn it in books, but I didn't learn it in a book, it's overkill for me".</i>	Interview No. 4
<i>"It is unfortunate for the number of people who died, because that was sad because I was a participant the next day in going to see that catastrophe, where I found the most unfortunate thing for me, that I found a young girl of approximately 16 or 17 years old who one of The sticks that came in that landslide tore her baby from her womb and cut her belly open".</i>	Interview No. 11
<i>"The truth is that I feel like having died and being born again, seeing that not only me is left but my family, as there were many here, so I feel proud to still enjoy in harmony".</i>	Interview No. 17

Evacuation

<i>"Exciting, because we were in a desert place, completely deserted where there were only corpses".</i>	Interview No. 1
<i>"I was not evacuated at any time, we self-evacuated, neither the government nor the mayor's office came to support us, nor anything. It was every man for himself, whoever he wants".</i>	Interview No. 10
<i>"Well, I felt good because they took me out of there and I felt like I could have died. Another child who was with me was very sick and he told me and told me: - Mrs. Valina, when are you going to go to the doctor, I see you looking very bad. -Yes love when I get out of here. Child: -It's just that I looked at her very badly and saw that her face was very, very black all of a sudden. It was true because when I got to the hospital there was a little old mirror in the bathroom, there I looked at my face and what the boy told me was true and part of the bone in my face broke".</i>	Interview No. 15

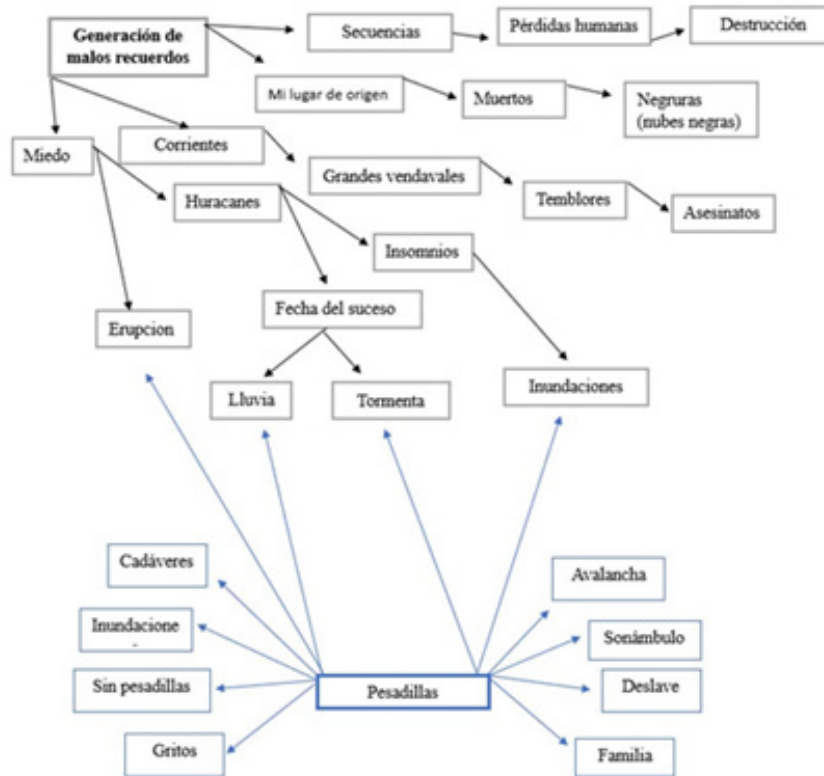


Figure 5. What situations or circumstances generate bad memories related to the landslide? Have you dreamed or had a nightmare related to the landslide, briefly comment on what it was like?

Regarding the generation of bad memories and nightmares, those interviewed expressed the following: that they feel afraid, when there are manifestations of nature such as hurricanes, currents, eruptions, large gales, tremors, and darkness (cloudy sky), this causes them to remember human losses, death by murder, visiting the place of origin and date of the event that still remain in reminiscence which leads to

destruction and consequences.

Based on the nightmares, the interviewees report that they have dreamed of storms, rain, floods, avalanches, landslides, with corpses and this causes them insomnia, sleepwalking and screams when they see their family dying, unlike others, who commented that they have never had nightmares.

Bad memories

“A mí lo único es ver, que como quedó esa gente, ahí me duele, me duele, cuando llueve yo digo ¡a la púchica!, pero cuando llueve yo estoy listo toy arisco digamos, eso que ‘pasamos nosotros fue duro.”

Interview #3

“¡Hay si! cuando llueve esos es doloroso por que mire, si llueve en la noche, si llueve dos tres horas yo no me duermo, me despierto y ahí me estoy sentada, yo siento que si pongo la cabeza en la almohada siento que el agua ya la tengo dentro de mi cuarto, uno queda traumatado de oír ese ruido de la corriente”.

Interview #12

“Por ejemplo esos temblores, sucesos de los cerros que uno vive, y también eso de armas ahora, escuchar y ver en la tele muerto por bala, ver a alguien que murió te ponen los pelos de punta como decían los señores antes, porque recuerdas a las personas que murieron en ese entonces”.

Interview #15

Nightmares

“Yes, seeing the corpses there of children, well it hurt me to see the children there. The children without skulls, because that was still coming, blew smoke on their heads because that was coming hot”.

Interview # 1

“Yes I have already dreamed that it is full even last night I dreamed about that, yes”.

Interview # 3

“If you imagine that when it rains and rains, that perhaps the rain has passed and I dream at night, and I have woken up with my heart in my mouth. When I’m dreaming I see that the current is coming and I don’t know where to turn”.

Interview # 15

“I have dreamed a lot, in fact, I have even fallen out of bed where I get up sleepwalking, as they say, dreaming while running, and saying, get off, get off! that the hill, that the hill collapsed again. I have had it not for one occasion but for several times, I have dreamed that my deceased family calls me, that my brothers call me”.

Interview #17

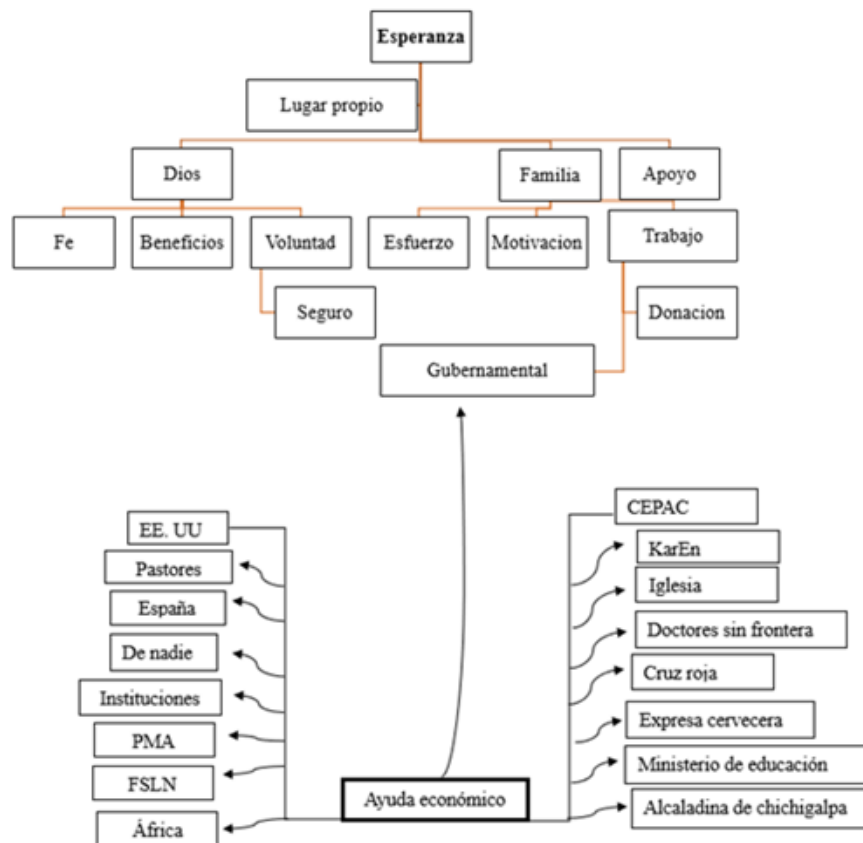


Figure 6. What situations have generated hope for you or what attitudes have helped you overcome this event? Were there institutions or organizations that provided financial aid to you or your family? Which is it?

Regarding the situations that have generated hope and financial help, the interviewees affirm: having obtained their own place, trust and faith in God, will, effort, motivation and having the support of family and donations received, benefit and secure work. Regarding economic aid, the interviewees reported that they received a lot of financial aid from foreign countries such as: the US, Spain, African countries, as well as national institutions: PMA, KarEn, CEPAC.

Nicaraguan Brewery Company, pastors of evangelical and Catholic churches, the ministry of education, the mayor of Chichigalpa, the government that at that time was the FSLN helped them a lot with supplies and houses, doctors without borders and the red cross that was there at that time. Another part of those interviewed commented that they did not receive support from anyone, that they themselves struggled to get ahead (Figure 6).

Hope

“Well, the hope of having a place of our own that we didn’t have, the government, at that time, helped us to have this little house, we were affected, we had six months in a small school here in Chichigalpa in ninety-eight in in two thousand, they gave us these homes and we are grateful to the government that was there that year”.

Interview #1

“My family eh, yes my family,”

Interview # 7

“Faith in God and the effort you make is also the people who support you.”

Interview # 9

“Ideasy! What I can tell you is that one of the two things that made me face life and think about moving forward was my two children, because at that time my children went through that experience with me; well, I was even one of those who traveled to Costa Rica to work there and I had to stop going because I no longer had support from my family, nor from my children’s family, so I was a father and mother to my children, that’s why my children today proudly tell me that they have had a good father”.

Interview # 11

Financial assistance

<p>"Yes, the World Food Program arrived, the municipal mayor of Chichigalpa arrived, institutions came to help us with groceries, quilts, mattresses, and well, they helped us in that way".</p>	Interview # 1
<p>"Yes, the Ministry of Education gave us help as a teacher, but if a teacher I had at the university named Carlos Fon, I don't know if he has died, he sent me a box of clothes with shoes and they sent me 200 or 300 dollars, the He helped me a lot and the teachers at the institute, as I said, provided me with provisions and gave me everything. Thank God, he has never abandoned us".</p>	Interview # 6
<p>"Well, thank God, he sent us a lot of support, many people joined and from abroad we received food aid, food and economic support. I don't know if they gave my father but food, yes, so well, from the United States they sent quite a few things from Spain from many countries because they sent things, and the heads of sectors were the ones who collected them and then called everyone, all those who were under control, and they went to the places to, to give them the help that was coming, food help and also with clothing and everything is helped us."</p>	Interview # 7
<p>"From the mayor's office, the government, from other institutions, even from Africa, I received support for food to maintain both the shelters and the food of the dignified and they even sent me rials to buy a land of salvation, Africa sent that money to buy that land"</p>	Interview # 18
<p>"If, for example, the state helped, not the state, but the Sandinista front at that time, because in reality they were not the ones who were there, true, but if the front supported this a lot, CARE supported us also, it also supported this world vision this this other CEPAC also supported us with food quite a bit"</p>	Interview # 19

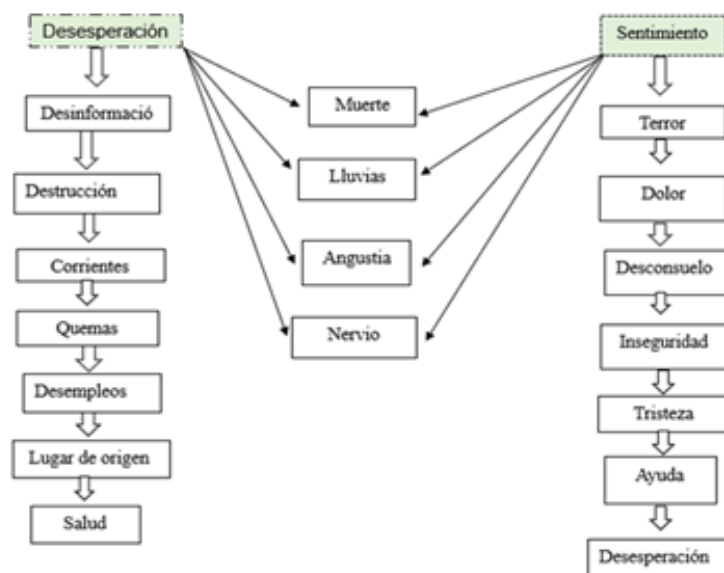


Figure 7. Have you experienced a feeling of suffocation, despair, or restlessness? due to what event or natural phenomena? What feeling or emotions did you experience in the first months after the landslide occurred?

According to desperation and feelings, the interviewees commented the following: that they felt desperate, anguished, nervous, due to all the destruction that there was and currents of water, rains, burning, which led to the death of many people and the health of people being harmed. Others and leave their place of origin and be unemployed.

Based on their feelings, they commented that everything

was a terror that they would never want to live again. This causes them pain when they lose many people, sadness and desperation. They wish it was all a dream and they are disconsolate knowing that all of this happened. They tend to have insecurity. Living in places vulnerable to any manifestation of nature, many sought help to deal with the chaos (Figure 7).

Despair

"You feel, you always remember your moment of living, that life ended because you look at it too and you live it again, that's sad. I look at those people who lose their homes, poor thing, poor people, how they are on the street. , to those whose house is burning, poor thing, a carelessness on their part but it is sadness, those people really cry in the street, sadness, I am there twice as I say twice and already twice one feels that you are on the street it is sad."	Interview # 9
"Yes, when there is heavy rain, when it extends a day for three days, because it was through the heavy rain that it happened and that is why when there is heavy rain the memory comes and when we see the strong currents it brings us a memory of what it was given.	Interview # 16
"It didn't take long for that to happen, and we still remember that today, it's sad you hear, Ideay losing my two young children, my children, the eldest and one of the youngest, and one of the sons, the youngest, was studying to be a doctor there and it killed him. He grabbed the two boys there, my four grandchildren and my wife who died here, but she already died because my wife was left with that psychotic nerve."	Interview # 10

Feelings

"Well, I have that feeling of, of moving forward and knowing that so many people lost their lives there, without being able to save themselves because they caught us asleep, eh and, and that feeling of, of very, very very hard, very hard."	Interview # 1
"Well there are many emotions, sadness, fear, desperation, anguish and I wanted to return to the place where I lived but I couldn't because of that."	Interview # 7
"There are those moments that I don't even want to remember or even imagine because just imagine that the father of your children, your children, your grandchildren and your family, your friends dies, it is something that one does not see as normal"	Interview # 15

DISCUSSION

1. The results identified that the interviewees suffer from traumatic experiences; such as: River flooding, overflowing, flight and death. As defined by Moreno Martin They are typical responses to traumatic events and disasters, especially in the first days afterward. Both shock and denial are normal protective reactions. So it is recognized that the overteeth of the landslide did present traumatic experiences directly associated with the event.
2. As for the memories that the surviving population wanted to eliminate, in relation to the landslide they were mainly the losses, the corpses, the floods, the currents, the flooding of the rivers, the rains and fear. They are generally associated with the continuous memory of events and the re-experiencing of the situation experienced, recurring dreams and also the almost obsessive prevention of situations. The memories generated in a tragic event such as a natural disaster overwhelm the majority of the population permanently; For this reason, survivors may express wanting to eliminate many memories related to the disaster in order to continue a functional and normal life.
3. In relation to psychological support, respondents reported receiving support through therapies, help from foreigners, talks, companies provided psychological help. As determined by the world health organization (2019). Psychologists help people at the scene of a disaster develop their resilience skills and thus go from feeling like hopeless victims to survivors with a realistic view of their prospects. Psychological support is fundamental and essential because people who suffer from any psychological alteration can trigger problems such as depression, stress or suicidal ideation.
4. Regarding the emotional support provided to the survivors, mainly from the community, they were given financial help, help from a nun, from the Red Cross, the national army and from God. So as The Universe clarifies, vital emotional help in cases of disaster. The survivor must be reassured that the strong emotional reactions that he has experienced or that exceed him are common and are normal reactions that are triggered after a catastrophic event. In this way, it is observed that the community is willing to support the affected people and the degree of empathy and solidarity is evident when a group of people can organize.
5. Regarding the results of the survivor population category, they expressed feeling happy, grateful, somewhat happy, like a miracle, a way of being reborn, satisfied, like an opportunity, like a blessing. This is how Raquel Cohen, a health psychiatrist, defines it. The survivor tries to find ways to adapt, for example, through denial, avoidance,

religious beliefs, or resignation. In essence, these processes are efforts to maintain the stress load within functional limits and try to adapt to the painful reality. The surviving population suffers constantly, at the same time they maintain a resilient behavior, since they have moved forward despite having lost a family member, material resources, and have learned to overcome difficulties without collapsing.

6. Based on the results of the evacuation of the survivors, those interviewed expressed that the help came from the family, that it was exciting, that they were taken to a safe place, they felt joy, there were means of transportation and they were welcomed in a shelter. This is how Fondino Rojas describes it Costa Rican magazine of social work. Social protection, by guaranteeing basic levels of income and access to social services (health, education and housing, among others) and promotion, strengthens prevention and response capacity and reduces vulnerability. Evacuation is essential when a disaster occurs, since there lies hope for the surviving people.
7. Regarding the generation of bad memories, the result was that survivors remember the disaster when it happens: large gales, tremors, and blackness (cloudy sky), when someone dies or when visiting their place of origin. This is what MedlinePlus says. It is not unusual to have bad memories or nightmares. Survivors often avoid places or people that remind them of the disaster. You may have problems sleeping, eating, or paying attention. Due to traumatic events, when survivors are exposed to a similar situation, they often develop bad memories that take them back to the moment of the catastrophe, thus causing deep sadness, fear and a feeling of insecurity.

CONCLUSION

According to the study carried out, it can be concluded that:

According to the sociodemographic data, the participants surveyed had an average age of 68 years, the majority were of the Christian Catholic religion, with a prevalence of 80% in urban areas and 80% of the hunted predominated.

With respect to coping with survivors of the Casita volcano landslide, it was demonstrated that the majority of survivors have been able to cope with the dramatic event they have experienced, such as floods, overflows, flight and death. It

is common for people to react with shock and denial in the first few days after these events, as a form of protection. It is recognized that the survivors of the landslide suffered traumatic experiences directly with the disaster and that they will be marked forever.

In relation to the landslide, they mainly refer to the losses, the corpses, the floods, the currents, the flooding of the rivers, the rains and fear. These memories are associated with the continuous recollection of events, the re-experiencing of the situation experienced, recurring dreams and an obsessive prevention of similar situations. These memories are generated by the emotional and psychological impact caused by a tragic event like this.

Regarding the psychological impact on survivors of the Casita volcano landslide, the people interviewed expressed that; They experienced a series of emotional and psychological impacts. Some of these may include post-traumatic stress, depression, anxiety, fear of new flare-ups, loss of loved ones, loss of property, and problems rebuilding a normal life.

Based on emotional support from the community also plays a vital role in survivors' recovery. It is comforting to know that people have provided financial aid and religious support to those who have been affected by the disaster. It is important to note that each person may experience and handle these impacts differently. Some may seek support from mental health services, such as therapy or counseling, while others may find support in their personal support networks, such as family and friends.

RECOMMENDATIONS

To political leaders of the municipality of Chichigalpa and Posoltega

- Strengthen training methods and capacity for empirical first aid personnel, this will allow coverage to be improved and care for victims.
- Take advantage of previously taught knowledge and always promote mental health in emergencies.
- Train people in the high-risk area to help people in the event of a natural disaster
- Strengthen emergency communities with knowledge since Posoltega and Chichigalpa are high-risk municipalities in the event of a natural disaster.

To the people who live on the slopes of the Casita volcano

- Develop mental health work at a preventive level, encourage working collectively and with commitment.
 - Form a local communication and prevention program against the dangers that exist when being part of the communities surrounding the event that occurred.
 - Identify areas where you can improve your preparation and response to future events. Learning from experience can help you be better prepared and protected.
7. Mapas Interactivos de Vulnerabilidades y Amenazas Naturales, (Gobierno de la República de Nicaragua 2018. Available at: <https://www.ineter.gob.ni/geoportales/vulnerabilidades-amenazas/index.html#:~:text=Los%20mayores%20niveles%20de%20riesgo%20a%20deslizamientos%20se%20han%20identificado,que%20estas%20poblaciones%20sean%20altamente>.

To future researchers

- Use this document as a reference in your studies in order to consolidate knowledge about the events in the field of the natural disaster at the Casita volcano and obtain a broader and enriching expectation.
- Conduct research with the support of research with greater statistical analysis of the variables relating to coping and psychological impact in survivors of the Casita volcano landslide in the communities of Posoltega and Chichigalpa.

REFERENCES

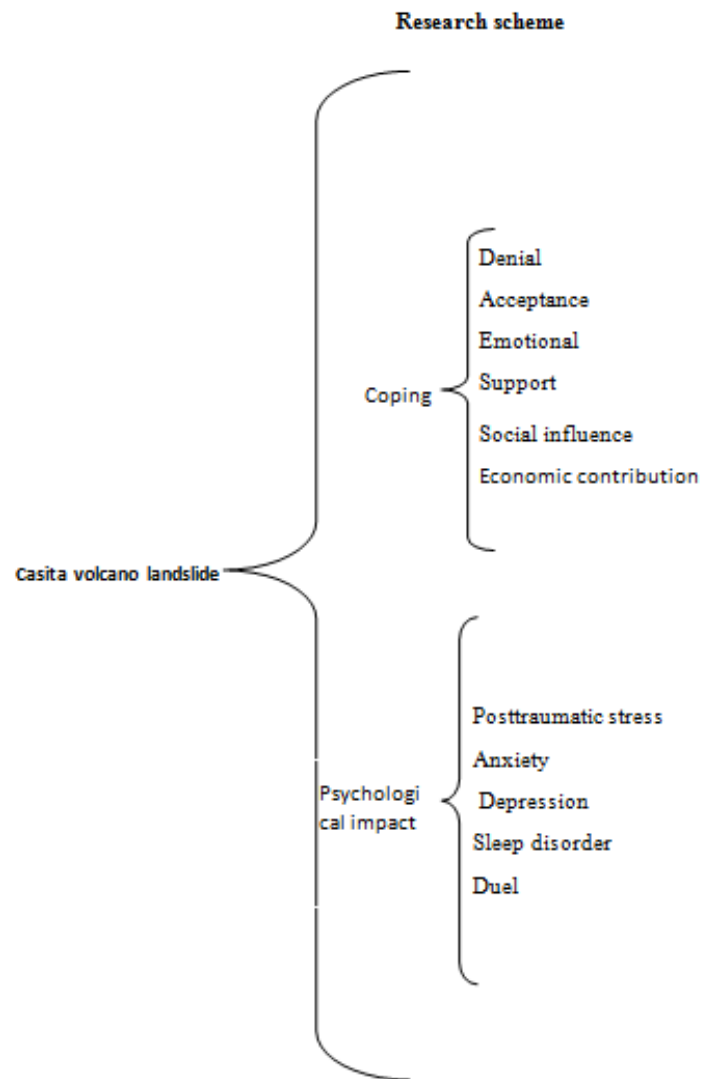
1. Definición de desastre (05 de Febrero de 2021). Available at: <https://conceptodefinicion.de/desastre/>.
2. Scutti S. Salud mental: Las secuelas psicológicas de los desastres naturales (20 de Septiembre de 2017). Available at: <https://cnnespanol.cnn.com/2017/09/20/las-secuelas-psicologicas-de-los-desastres-naturales/>.
3. agencia de la ONU para refugiados.Cambio climático y desplazamiento por desastres. Available at: <https://www.acnur.org/cambio-climatico-y-desplazamiento-por-desastres>.
4. Organización de los estados Americanos, Washigton D.C (1991). Available at: <https://www.oas.org/dsd/publications/unit/oea57s/ch004.htm>
5. Los deslizamientos, deslaves o revenidos. Available at: <https://www.eird.org/deslizamientos/pdf/spa/doc12575/doc12575-1n.pdf>.
6. Castillo Houston, Centro America Nicaragua: Deslave provocado por huracán Iota deja 9 muertos y desaparecidos (19 de Noviembre de 2020). Available at: <https://www.vozdeamerica.com/a/centroamerica-nicaragua-deslave-provocado-por-huracan-iota-deja-9-muertos-y-desaparecidos/6069523.html>.
7. Mapas Interactivos de Vulnerabilidades y Amenazas Naturales, (Gobierno de la República de Nicaragua 2018. Available at: <https://www.ineter.gob.ni/geoportales/vulnerabilidades-amenazas/index.html#:~:text=Los%20mayores%20niveles%20de%20riesgo%20a%20deslizamientos%20se%20han%20identificado,que%20estas%20poblaciones%20sean%20altamente>.
8. Wilfried S. Volcano network, deslave en el volcán casita (Managua, Domingo, 01 de noviembre, 1998. Available at: <https://webserver2.ineter.gob.ni/boletin/1998/10/huracan-mitch9810.htm>
9. Sheridan MF, Siebe C. Sobre la avalancha y el flujo de agua con sedimentos, en el Volcán Casita, Nicaragua, disparados por el huracán Mitch Managua, 14 de noviembre de. Available at: <https://webserver2.ineter.gob.ni/vol/casita/rep-sheridan-es.html>.
10. Hernández MP. Estudio correlacional entre las estrategias de afrontamiento individual y familiar ante desastres ambientales ocasionados por derrames de hidrocarburos en el municipio de Santiago de Tolú, departamento de Sucre, Colo (03 de Mayo de 2018). Available at: https://us.docworkspace.com/d/cGjHu07PAb_VoaMG?sa=S3&st=0.
11. Facultad de humanidades y ciencias jurídicas coordinación de trabajo social, Familias ante desastres naturales. Estudio de dos casos, miembros de dos familias, del Albergue la Menem, y su integración al nuevo contexto: Barrio Villa Dignidad, en el distrito VI del municipio de Managua, durante el período 2010-2012. Available at: https://us.docworkspace.com/d/cIM_Hu07PAfHqnqMG?sa=S3&st=0.
12. López Fajardo L, Reyes Burgos J. (2018). trastorno por estrés postraumático en sobrevivientes de la avalancha ocurrida en mocoa- putumayo. Available at: <https://us.docworkspace.com/d/cIBzHu07PAZ3YoaMG?sa=S3&st=0>.
13. GarridoYS,VallejoJP.(2018).Laresilienciacomoestrategia de afrontamiento en población víctima de desastres ambientales. Available at: <https://us.docworkspace.com/d/cIPvHu07PAY7aoaMG?sa=S3&st=0>.
14. Responsabilidad social, Empresarial y sustentabilidad, Desastres naturales: que son, definición, tipos,

- características y prevención (20220. Available at: <https://responsabilidadsocial.net/desastres-naturales-que-son- definicion-tipos-caracteristicas-y-prevencion/>.
15. López Vásquez E, Marván L. (2004). Validación de una escala de afrontamiento frente a riesgos extremos. Available at: https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0036-36342004000300011.
 16. Organización panamericana de la salud, Cómo hacer frente al impacto psicológico de un desastre natural (2019). Available at: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=15411:how-to-cope-with-the-psychological-impact-of-disasters&Itemid=0&lang=es#gsc.tab=0.
 17. Keylin RT. (2018). Así descubrí el volcán Casita, Nicaragua. Available at: <https://niu.com.ni/asi-cubri-el-deslave-del-%20volcan.casita/#:~:text=El%2030%20de%20octubre%20de,Rolando%20Rodr%C3%ADguez%20y%20El%20Porvenir>.
 18. Viva Nicaragua canal 13. (2018). Inhumanidad del gobierno liberal acrecentó las pérdidas durante deslave de las casitas. Available at: <https://www.vivanicaragua.com.ni/2018/10/30/sociales/inhumanidad-del-gobierno-liberal-acrecento-las-perdidas-durante-deslave-del-casitas>.
 19. Nicas en el exterior News. 1998 Posoltega, Chinandega. Volcán Casita deslave. Available at: <http://nicasnews.com/efemerides/1998-posoltega-chinandega-volcan-casita-deslave/>.
 20. Manejo de cadáveres en situaciones de desastres. Organización Panamericana de la salud- organización mundial de la salud, 2004 (serie manuales y guías sobre desastres. Available at: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1607-050X2005000300012.
 21. CIENCIA ergo-sum, Revista Científica Multidisciplinaria de Prospectiva. (2020). Afrontamiento y síntomas de estrés postraumático en niños mexicanos después del sismo 2017. Available at: <https://cienciaergosum.uaemex.mx/article/view/10056/10113>.
 22. Prepárate con la cruz roja, seguridad contra deslaves. Available at: <https://us.docworkspace.com/d/clFrHu07PAemMpKMG?sa=S4&st=0>.
 23. Sociedad española para el estudio de la ansiedad y el estrés, afrontamiento. Available at: <https://ansiedadyestres.org/que-es-el-afrontamiento/>.
 24. Instituto nacional del cáncer, sobrevivientes. Available at: <https://www.cancer.gov/espanol/publicaciones/diccionarios/diccionario-cancer/def/sobreviviente>.
 25. Javier MJ. Cestona Itzia Madrid Salud, el impacto emocional de la pandemia por COVID-19, una guía de consejos psicológicos (2020). Available at: <https://us.docworkspace.com/d/clCvHu07PAemUpKMG?sa=S3&st=0>.
 26. Miriam G. (2020). estrategias de afrontamiento y trastornos psicológicos entre los trabajadores de la salud afectados a la pandemia del sars-cov-2. Available at: <https://us.docworkspace.com/d/cIFXHu07PAY-ZpKMG?sa=S3&st=0>.
 27. Flores Espinoza C. (2015). El 19 por más victorias, Conmemoran 17 años del deslave en el Volcán Casitas. Available at: <http://cidbimena.desastres.hn/docum/crid/Volcanes/pdf/spa/doc13101/doc13101-3.pdf>.
 28. Moreno M, Martín A. impacto psicológico de los desastres. Available at: <http://cidbimena.desastres.hn/docum/crid/Volcanes/pdf/spa/doc13101/doc13101-3.pdf>.
 29. American psychological, Association Manejando el estrés traumático Consejos para recuperarse después de un desastre u otro acontecimiento traumático (2011). Available at: <https://www.apa.org/topics/disasters-response/consejos-desastres#:~:text=La%20negaci%C3%B3n%20consiste%20en%20no,o%20desconectado%20de%20la%20vida>.
 30. La mente es maravillosa La negación, nos protege y nos daña (2022). Available at: <https://lamenteesmaravillosa.com/la-negacion-nos-protecte-y-nos-dana/>.

31. Allan LT. ciencias sociales y desastres naturales en américa latina: un encuentro inconcluso. Available at: <https://www.desenredando.org/public/libros/1993/ldnsn/html/cap7.htm>.
32. Cohen E. (2008). Raquel, revista peruana de medicina experimental y salud pública. Available at: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1726-46342008000100013.
33. Organización mundial de la salud. (2019). Cómo hacer frente al impacto psicológico de un desastre natural. Available at: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=15411:how-to-cope-with-the-psychological-impact-of-disasters&Itemid=0&lang=es#gsc.tab=0.
34. American Psychological Association. (2012). Qué hacen los psicólogos en los lugares afectados por una catástrofe. Available at: <https://www.apa.org/topics/disasters-response/desastre>.
35. García Silgo M. (2014). El apoyo psicológico en catástrofes, crisis y emergencias. *Sanid mil.* 70(3):142-143.
36. El universo. (2016). Ayuda emocional, vital en casos de desastres. Available at: <https://www.eluniverso.com/vida-estilo/2016/04/23/nota/5538915/ayuda-emocional-vital-casos-desastres/>.
37. Fernandez I, Martin Beristain C, y Paez D. (1999). Emociones y conductas colectivas en catástrofe, ansiedad y rumor; miedo y conductas de pánico. Available at: <https://us.docworkspace.com/d/cIDrHuO7PAaPg3qQG?sa=S5&st=1>.
38. Fandiño Rojas D. Trabajo social e intervención en desastres. Available at: <https://us.docworkspace.com/d/cIKDHuO7PAavDpKMG?sa=S3&st=0>.
39. Fondino Rojas D. Revista costarricense de trabajo social, trabajo social e intervenciones en desastres. Available at: <https://us.docworkspace.com/d/cIFDHuO7PAZWvpqMG?sa=S3&st=0>.
40. Protección social de la infancia frente a los desastres. (2018). Available at: <https://www.cepal.org/fr/node/42045>.
41. Centro para el control de la prevención de enfermedades, recurso de respuestas para líderes. (2018). Available at: <https://emergency.cdc.gov/es/coping/leaders.asp>.
42. Rodríguez Velázquez D. (2014). Políticas de viviendas postdesastres en América Latina, El derecho a la vivienda y fallidas estrategias posdesastre en México. Available at: <https://journals.openedition.org/bifea/5917>.
43. Red interamericana de mitigación de desastres (washington dc may, 2006). Available at: <https://us.docworkspace.com/d/cIGjHuO7PAYXJpqMG?sa=S3&st=0>.
44. Cernuda M. (2012). Impacto de los desastres en la salud mental. Available at: https://digibuo.uniiovi.es/dspace/bitstream/handle/10651/3987/TFM_CernudaMartinez.pdf?sequence=3.
45. Amenero DL, Victoria JH. (2019). Salud mental en situaciones de desastres. *Horiz Med (Lima)*. 19(1):73-80.
46. Carlos S. (2010). Revista chilena de neuro-psiquiatría, Desastres y salud mental. *Rev Chil Neuro-Psiquiat.* 48(1):7-10.
47. Correa R. (2018). Trastorno que detona el temor, Estrés postraumático en personas expuestas a fenómenos naturales. Available at: <https://www.gaceta.unam.mx/estres-postraumatico-en-personas-expuestas-a-fenomenos-naturales/>.
48. Marthe CP. (2002). Revista mensual de análisis de Nicaragua y Centroamérica, Sociedades traumatizadas que aprenden a sanar. Available at: <https://www.envio.org.ni/articulo/1179>.
49. Trantornos de estrés postraumáticos. (2018). Available at: <https://httptept.wordpress.com/>.
50. Pérez A. (2020). Larios FontalvoI vonne Karina, salud mental, ansiedad existencial y estrés postraumático en una muestra de adolescentes vacunadas contra el vph en el municipio de el carmen de bolívar. Available at: <https://us.docworkspace.com/d/cIHnHuO7PAYGAp6MG?sa=S3&st=0>.
51. Escobar MJ, Miguel U. (2014). Avance en psiquiatría desde un modelo biopsicosocial. Available at: <https://medicina.uniandes.edu.co/es/publicaciones/avances-en-psiquiatria-desde-un-modelo-biopsicosocial>.

52. Roldán SC. (2022). Estrategias para manejar la ansiedad tras un desastre natural. Puerto Rico: Es mental. Available at: <https://www.esmental.com/estrategias-para-manejar-la-ansiedad-luego-de-un-desastre-natural/>.
53. Del almo A. (2018). Universidad del Valle de México, Guías, Proyectos, Investigaciones de Bioética, efectos y alcances de las emergencias ambientales acciones adecuadas para la atención médica de la población afectada. Available at: <https://www.doccity.com/es/universidad-del-valle-de-mexico-2/5900846/>.
54. Anayati A. (2012). Cable News Network, 7 formas de manejar el estrés durante un desastre. Available at: <https://cnnespanol.cnn.com/2012/11/01/7-formas-de-manejar-el-estres-durante-un-desastre/>.
55. American psychological association. (2010). Los desastres naturales y los niños. Available at: <https://www.apa.org/topics/children/ninos>.
56. Centro para el control y la prevención de Enfermedades. Cómo manejar la depresión y las tendencias de suicidio después de un desastre natural. Available at: <https://www.cdc.gov/es/disasters/psa/suicide.html>.
57. Información de Salud para usted. Enfrentarse con desastres. Available at: <https://medlineplus.gov/spanish/copingwithdisasters.html>.
58. León-Amenero D, Huarcaya-Victoria J. (2019). Salud mental en situaciones de desastres. *Horiz Med (Lima)*. 19(1):73-80.
59. Consecuencias de Salud Mental del Desastre. UNAVISIÓN GENERAL D E LAS CONSECUENCIAS PSICOLÓGICAS DEL DESASTRE. Available at: <http://cidbimena.desastres.hn/docum/crid/Mayo2006/pdf/spa/doc15002/doc15002-1.pdf>.
60. Revista médica clínica las condes. (2021). Trastornos del sueño en emergencias y desastres. Available at: <https://www.elsevier.es/es-revista-revista-medica-clinica-las-condes-202-articulo-trastornos-del-sueno-emergencias-desastres-S0716864021000833>.
61. El universal. (2018). Trastornos del sueño, comunes por estrés postraumático: especialista. Available at: <https://www.eluniversal.com.mx/ciencia-y-salud/salud/trastornos-del-sueno-comunes-por-estres-postraumatico-especialista/>.
62. Asociado Salud mental en desastres naturales. (2011). Bambarén Alatriza Celso. Available at: <https://revistas.upch.edu.pe/index.php/RPH/article/view/2066/2058>.
63. Cómo sobrellevar las tragedias públicas y catástrofes naturales. Available at: <https://espanol.vitas.com/family-and-caregiver-support/grief-and-bereavement/coping-with-grief/coping-with-public-tragedies-and-natural-disasters>.
64. García CC. (2005). El respeto al duelo en la recuperación de un desastre. [Manejo de cadáveres en situaciones de desastre. Organización Panamericana de la Salud-Organización Castro García Cecilia, Mundial de la Salud]. *Desacatos*. 19:181-188.
65. Fundación Mario Losantos del Campo. (2022). El duelo de las víctimas de una catástrofe natural. Available at: <https://www.fundacionmlc.org/duelo-catastrofe-natural/>

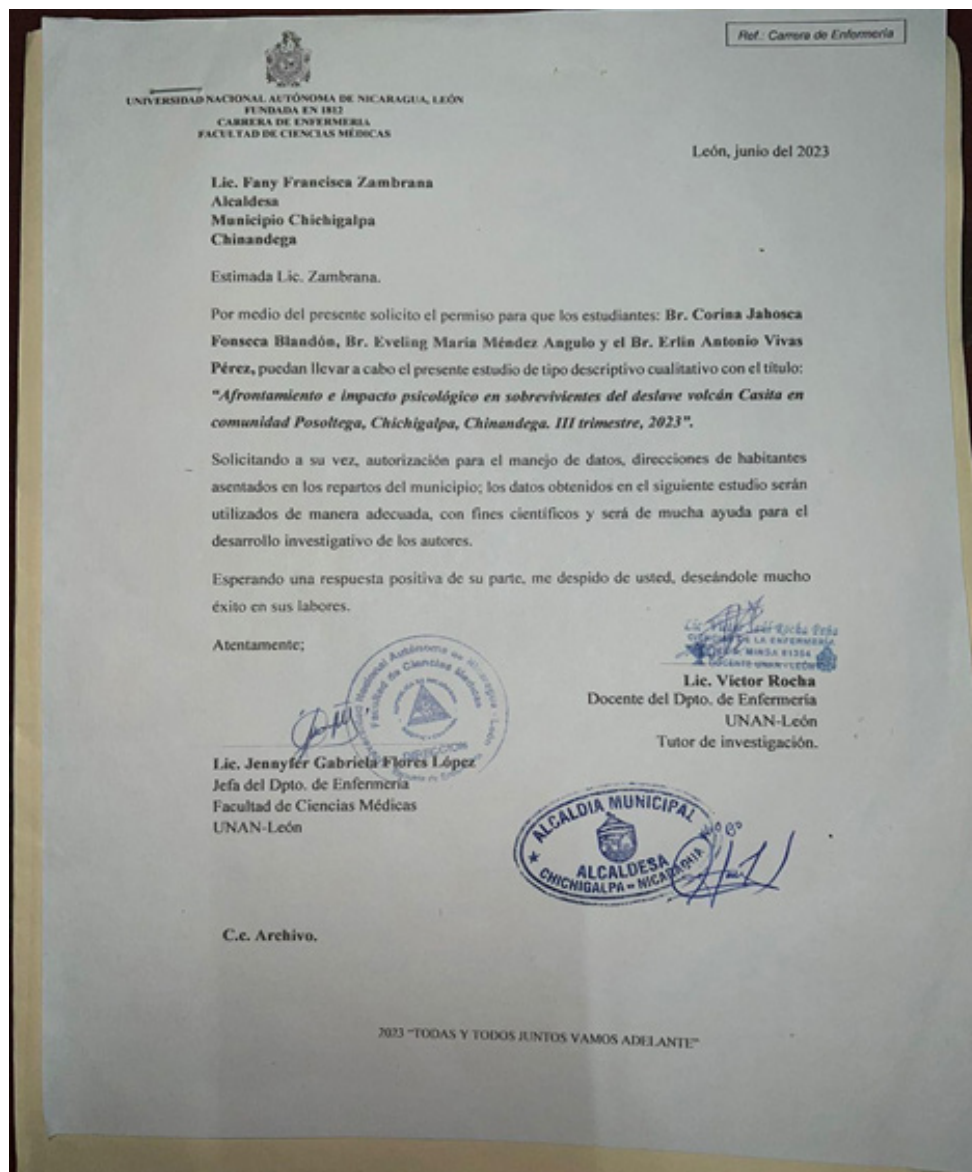
ANNEXS



Schedule of activities

Activities	Mar	Apr	May	Jun	Jul	Agt	Oct	Tutorships
Theme selection	28							28/03/23
Scheme, objectives, approach	30							30/03/23
Improvement of scheme, objectives, approach		05						05/04/23
Introduction, background, justification		13						13/04/23
Introduction improvement, background, justification		15						15/04/23
Theoretical framework		22						22/04/23
Theoretical framework review		29						29/04/23
Improvement of theoretical framework			06					06/05/23
Methodological design			13					13/05/23
Design Review methodological			27					27/05/23
Design improvement methodological				03				03/06/23
Research protocol				10				10/06/23
Review of the protocol investigation				17				17/06/23
Interview with Chichigalpa					29			06/07/23
Postoltega Interview						05		15/08/23
Result and scheme							10	13/09/23
Discussion							25	27/09/23
Discussion Review							28	28/09/23
Conclusion							29	30/09/23
Recommendation							01	05/10/23
Summary							03	05/10/23
Final protocol							05	07/10/23

Permit letter



National Autonomous University of Nicaragua-León

Faculty of Medical Sciences

Nursing department

Informed consent

Research Team:

- Br. Corina Jahosca Fonseca Blandón
- Br. Eveling María Méndez Angulo
- Br. Erlin Antonio Vivas Pérez

Dear participant:

Receive a cordial greeting from us. We are IV year students of the Nursing degree. Hereby, we request your participation

in the research study that we are carrying out, whose objective is to describe the coping and psychological impact on survivors of the Casita volcano in the Chichigalpa and Posoltega communities. Chinandega III Quarter 2023

The questionnaire is anonymous, which means that your participation will not affect your personal or family identity. Your collaboration is voluntary, that is, you have the freedom to decide not to participate. We ask you to answer honestly

and if any questions arise, do not hesitate to ask us, since the veracity of the research results depends on this, which will be used only by researchers for academic purposes.

If you agree to participate please sign below. We thank you in advance for your participation.

Signature

Interview

Age:

Origin:

1) Rural: 2) Urban:

Civil status:

1) Single woman 2) Married 3) Widower 4) Union by facts

Academic level:

1) Primary 2) Secondary 3) University

Religion:

1) Catholic 2) Evangelical 3) Jehovah's Witnesses

1. What was the most traumatic experience you witnessed during the landslide?
2. What memories have you wanted to eliminate from your memory related to the landslide?
3. What does it feel like to be part of the population that survived the landslide?
4. Have you received emotional support at any time and from whom?
5. Describe how you reacted when you were evacuated from the site where the landslide occurred.
6. Were there institutions or organizations that provided financial aid to you or your family? Which is it?
7. What situations or circumstances generate bad memories related to the landslide?
8. Have you experienced a feeling of suffocation, despair, or restlessness? due to what events or natural phenomena?
9. What feeling or emotions did you experience in the first months after the landslide occurred?
10. Have you dreamed or had nightmares related to the landslide, briefly comment on what it was like?
11. During the grieving process, have you received psychological support? How has it helped you?
12. What situations have generated hope in you or what attitudes have helped you overcome this event?

Images of the Casita volcano landslide

Aerial view of the Casita volcano on October 30, 1998



Current images of the volcano



People killed by landslide in Casita volcano. October, 1998.



Research team visiting Casita Volcano Memorial Park Forolaga.

