Original article

Community resilience in disaster risk reduction with Peruvian neighborhood leaders

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ABSTRACT

he article characterizes the existing resilience in two urban-marginal communities made up of poor and vulnerable populations, with the purpose of recognizing the potential resources for disaster risk reduction in the leaders of the social organizations of the neighborhoods El Independiente and Santa Isabel in the district of El Agustino. The research is qualitative, based on the Participatory Action Research methodological strategy. It was found that, in the context of crisis in times of COVID-19, a dynamic of knowledge construction was generated that contributed to the development of social capacities of autonomy, collective self-esteem, self-management, creative response and solidarity.

Keywords: Disaster prevention; Resilience; Community participation; Social capital.

Introduction

The research is significant because it provides insight into the social capacities developed by leaders residing in high disaster risk areas, their perspectives and involvement in initiatives as resources of social capital.

Studies and experiences on resilience in disaster risk reduction (Yncera 2019; Center for Disaster Studies and Prevention 2019; Acuña et al. 2021). recognize the role of vulnerable social groups as key actors, to face and overcome certain catastrophic

impacts, as well as to improve risk and vulnerability conditions. What is essential are the capacities conceived as strengths and at the same time as resources that communities have to face the crisis (Suarez, 2007, cited in Uriarte 2014), learn from it, adapt and manage change; these capacities are built on a day-to-day basis as a product of the interaction of individual, social, cultural qualities and external factors (García, 2017).

El Agustino is one of the 17 districts vulnerable to disaster risk in Metropolitan Lima, which is made up of two geographic zones: a flat area located at 180 m.a.s.l. and a high area (hills) located at 450 m.a.s.l. where communities are located characterized by their subvertical position with steep slopes, with low resistance soils and rocky escarpments that expose them to the fall of fractured rocks and stones. In this district, El Agustino hill is one of the most critical areas, due to the threat of soil collapse due to the existence of subway excavations of mining deposits (CENEPRED, 2020).

The El Independiente and Santa Isabel neighborhoods located on the slopes of El Agustino hill were built six decades ago, without considering technical criteria regarding the steep slopes and geophysical structure of the soil (Municipality of El Agustino, 2021). The National Institute of Civil Defense (INDECI, 2016) reports that 6187 inhabitants of these neighborhoods occupy 1257 houses of informal construction, built with technical deficiencies on unsafe pircas and cracked walls, have cracks and dampness in the walls due to leaks from water networks. The passages and stairways in both communities are narrow, making pedestrian and vehicular access difficult; in addition, there is a lack of free public spaces to be used as safety zones in the event of an emergency.

The vulnerability of the families living in both neighborhoods to any threat predisposes them to experience the impact of a natural phenomenon with loss of life and material goods, which would be difficult to recover from if the population's resilience capacities were not strengthened to reduce disaster risks. Therefore, this study provides an answer to the following question:

What potential resources related to community resilience capacity for disaster risk reduction do the leaders of social organizations in the neighborhoods of El Independiente and Santa Isabel in the district of El Agustino have?

Development

Through the qualitative method, we sought to understand the subjective world of the social actors in the study area and to identify their knowledge, skills, experiences, capacity to address the problems and needs faced. From the socio-critical - hermeneutic approach, the Participatory Action Research allowed the reflection of the key actors to value their knowledge and capacities in facing the threat in a disaster scenario in their community, due to the conditions of vulnerability.

The research was carried out in the neighborhoods of El Independiente and Santa Isabel in the district of El Agustino, from January to December 2022. The informants were: in a first approach, the leaders of six common pots and 20 neighborhood promoters against family violence; in this regard, 13 interviews were conducted until reaching the saturation point. In a second approach, two focus groups were developed with 17 leaders of two central boards of directors and zonal neighborhood committees. Finally, two participatory diagnostic workshops were conducted with eight leaders and 37 neighbors.

The data collection techniques were the semi-structured interview, the focus group and the workshop. The selection of informants was based on the following criteria: being male or female between 20 and 35 years of age, residing for more than three years in the study areas, being a leader of a common pot, a promoter of prevention against family violence or a leader of territorial organizations in the study area, having expressed their willingness to participate and accepting the terms of the informed consent form.

Social skills identified in the leaders of common pots and neighborhood promoters against family violence.

The context of economic and health crisis generated by the COVID-19 pandemic that impacted our society, made it possible to visualize and understand the response capacity of women who subsist in conditions of poverty and vulnerability. As evidenced in the study areas, where women mobilized by the urgency of addressing needs felt by the families in their community, such as the lack of resources to feed and care for the health of their members, in addition to family tensions and conflicts, took the initiative to form common pots and reactivate the neighborhood advocacy against family violence.

Faced with the risk of contagion and death, families living in poverty were the most affected by COVID-19, due to labor informality (without social protection),

precariousness in which they lived, family overcrowding, among other risk factors of a physical, emotional and social nature. In relation to the above, the leaders express: "The pandemic brought us much sadness and pain, due to the death of family members, friends and acquaintances...many neighbors had no money and many of these people were single mothers and elderly adults" (leader of La Carretera common pot, Santa Isabel). "Many of my neighbors were psychologically abused by their husbands" (leader of a common pot, Children's Park, Santa Isabel).

Despite the conditions of poverty, vulnerability, feelings of sadness and individual and family fear, the women leaders of both communities decided to confront the demands that threatened the life, health, individual and collective wellbeing of their families. They, on their own initiative, organized the common pots and reactivated the neighborhood advocacy against family violence, which in times of pandemic was established as one of the most critical problems, mainly for women, as they say: "The central leader called the seven leaders, most of them women, to a meeting to discuss what could be done because many neighbors had no money or work, the first common pot began" (leader of the common pot, "Children's Park", Santa Isabel).

As can be observed, in these neighborhoods there is a territorial bond and cultural identity in which the previous experiences of collective work present in their imaginary are valued; these capacities constitute important resources to face the crisis situation that challenges them in the face of two new situations that affect the life and wellbeing of their families, such as the death threat by COVID-19 together with the worsening of family violence in the homes. This situation constitutes a new meeting point in which they devise as a strategy to face collective consumption and the reactivation of the family promoter.

The experience developed contributes to the generation of awareness to make visible the most vulnerable groups in their community and thus recognize the greater fragility of the living conditions of the elderly and people with disabilities, as well as the existence of sexual violence against children in their homes, about which they express: "I learned to support people in need, who cannot walk, the elderly make me feel sorry for them and I try to help them with what we have" (Common pot, La Carretera Santa Isabel).

The operation of the common pots not only went through material difficulties, but also faced conflicts and opposition from some neighbors. However, the women sought collectively to solve the difficulties presented, sustained in the spirit of solidarity,

commitment, cooperative and responsible work with their neighbors, as they refer: "The greatest difficulty was that we had no supplies for cooking, we felt helpless because we could not collect enough" (leader of the common pot Mujeres Vencedoras (Women Winners), El Independiente). "We did not have water at the site where the common pot was operating, we had to carry water from the central location, then we gathered from sunrise to sunset to buy a hose and bring water" (leader of the common pot Las Nazarenas, El Independiente).

The experiences of tension were also present, which is related by the leader of the common pot La Carretera, Santa Isabel "people were not satisfied with anything we were giving them, when donations began to come they wanted raw water and only personal portion, we decided not to respond and move on". The emerging disagreements in crisis situations are also referred to by Ruano et al. (2022) who found that in the process of building community resilience in the community of Mapachico-Colombia, the desire to move forward despite adversities and tensions in organized groups are present.

The experience shows moments of reflection to overcome the difficulties encountered in meeting the demand for prepared food, and so they decided to reorganize and improve the structure and functioning of their work in the common pots and serve the COVID-19 patients who lived in the upper zone, about which they say: "We noticed that what the first common pot produced did not supply the entire area and we decided to divide ourselves: high zone-common pot Parque Infantil, middle zone-common pot La Carretera, low zone-common pot Erasmo Rodríguez (leader common pot pot Children's Park, Santa Isabel).

These findings coincide with Acuña et al. (2021) in affirming that one of the fundamental elements for the conformation of strategies within the Dignity-Chile Camp, hand in hand with female leaderships and their articulation with solidarity networks external and internal to the territory, has to do with community management, whose central axis are ethical principles such as care and solidarity.

In relation to the development of the individual capacities of the women leaders, it is observed that the quality of the interactions in the experience developed, contributed to consolidate a special bond with their families and neighbors: "We always saw each other and greeted each other, but now we talk and we have managed to form a united group among us and I would not like that to end, that we continue together telling each

other our problems and helping each other" (common pot Erasmo Rodriguez, Santa Isabel).

Another learning developed within the organizations is related to the strengthening of collective self-esteem, they learned to value their involvement in meeting the needs of the families in their community, to believe in themselves, to affirm their will and transform it into joint strength for solidarity assistance; about this they express: "I know that I can take the initiative and continue helping...I learned that together we can solve any difficulty" (neighborhood promoter, Santa Isabel).

The aforementioned coincides with the finding of Flores and Sanhueza (2017) when they argue that, based on collective experiences, the women leaders of the Tumbes cove build a network of cultural meanings that are incorporated into the individual and collective memory, useful for the development of social capacities in the face of adversities.

Since the health crisis, the leaders have maintained an organized participation in community networks and with certain institutions, among them Educational Services El Agustino (SEA), Qali Warma, church, municipality, companies; the same that interact with the community to find common welfare.

Role assumed by the leaders of neighborhood organizations for disaster risk reduction.

In the individual and collective memory of the representatives of the central board of directors and zonal committees of the referred neighborhoods, there is present social knowledge built that constitute important referents for the implementation of collective solidarity actions in the attention of their needs. Prior to the pandemic, in both communities, the development promotion committee functioned as a space for the articulation of decentralized actions carried out in each zonal committee, which shows their capacity for self-organization.

A common representation present in their imaginary is to associate prevention with the practices of earthquake drills carried out four years ago, which mobilized the population of the upper, middle and lower zone in which various institutions participated, by referring: "Many evacuation studies were made, the drills, in which middle zone downwards and middle zone upwards participated, bringing the injured, where to arrive and where to evacuate, many drills were made with the gentlemen of the SEA and Civil Defense, with young people who were injured" (leader committee nine, Santa Isabel).

The learning derived from the participation in the drills led them to develop actions with their families: where to be located, how to protect themselves and provide water. Only some of them are aware of the areas of the community where they should move to in the event of an earthquake; in this regard, they say: "I am the leader of committee nine, of all the work that was done previously, those of committee eight and nine, when an earthquake happens during the day, one goes up and the other goes down" (leader of neighborhood committee nine, Santa Isabel). They recognize that their capacity to respond to disaster risk situations is evidence of a lack of foresight: "And what we have also seen are fires and it is curious because we do not have a fire plan. Here we have a neighbor whose house burned down and no one had the firefighters' cell phone recorded" (leader of the central board of directors, Santa Isabel).

The vast majority of representatives state that since the Covid-19 pandemic, they have not developed activities for disaster risk prevention; however, the leaders show sensitivity to the need to prepare themselves to face disasters, and express their willingness to be present at the training sessions on how to organize themselves and know how to act in the event of a disaster, in order to replicate it with their neighbors: "I belong to committee 1, I would call all my committee, I would summon them and we would start talking with them about the tremors, earthquakes, talk if they have families, how many children and we would talk about the backpacks we should have ready; and so, all the committees should do to be able to support us. (leader of neighborhood committee one, Santa Isabel). A strength existing in the neighborhood leaders of both neighborhoods is the capacity to articulate with local institutions to make proposals feasible, in this case, related to disaster prevention and coping; in their collective memory the SEA institution is present when referring to "when one takes a work plan we have to see the strengths and weaknesses, for the strengths we have SEA and the municipality at hand" (leader of neighborhood committee nine, Santa Isabel).

In synthesis, since the creation of the communities under study, the leaders of social organizations have not included disaster risk reduction in their agenda as a collective need, in their imaginary there are practices and proposals for action that are framed in the reactive approach to disaster risk management.

Proposals for strengthening the capacity to respond to disaster risk situations, as a result of the participatory assessment.

Perception of disaster risk

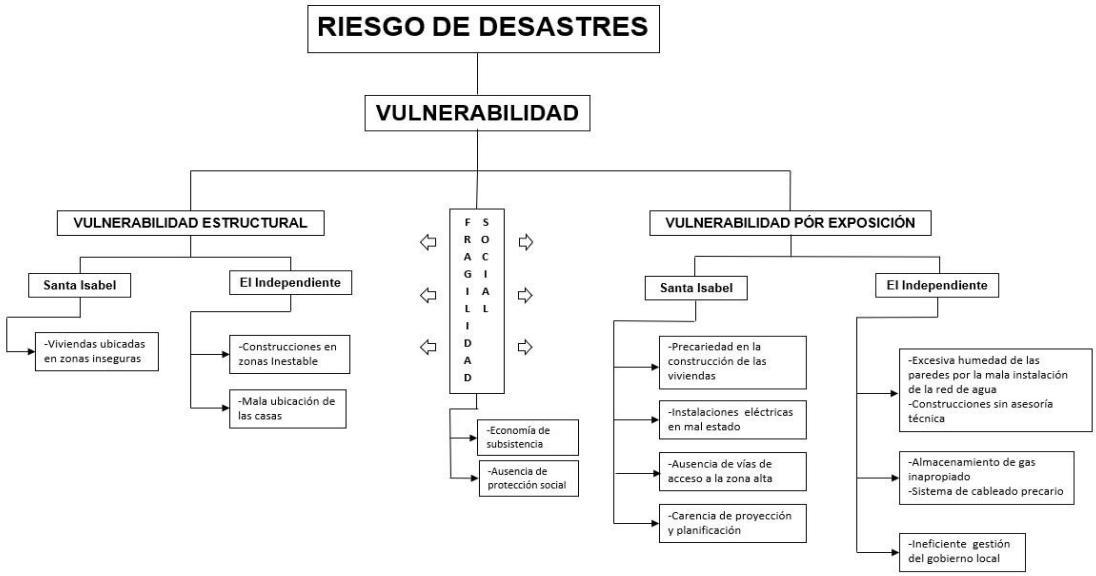
From the point of view of the residents of the communities under study, the perception of risk based on individual and collective experiences is related to geological (earthquakes, rock falls), hydro-meteorological (heavy rains), biological (Covid-19 pandemic) and anthropogenic (fire) hazards, which were illustrated in the disaster risk map prepared during the participatory diagnostic workshops.

In the first place, they recognize the risk of an anthropic phenomenon (fire) in the lower middle and upper zone of Santa Isabel and in the middle and upper zone of El Independiente; in second place, a greater risk of disaster due to falling rocks in the upper zone of the two neighborhoods; and, in third place, the risk of disaster due to a seismic event in the middle and upper zone of both communities.

In the situations of danger experienced, anguish, desperation and uncertainty are present: "I wanted to run to my house because I was worried about my children who were upstairs" (neighbor).

The knowledge built on these experiences allows them to be aware of the physical fragility of the houses, to understand that this is associated with social fragility, the effects that would be generated by an earthquake and how it would affect them: "But unfortunately what happens upstairs, I do not know what happens to people who are building two, three and four-story houses and right behind me, the walls are wet and it is really scary if it falls on you" (leader of the central board of directors). The condition of vulnerability in which the families subsist, mainly structural fragility and exposure, can be identified in the participatory appraisal, as shown in Figure 1.

Figure 1: Vulnerability as a disaster risk factor, El Independiente and Santa Isabel neighborhoods, District of El Agustino.



The residents of Santa Isabel and El Independiente state that their homes, in structural terms, are located in unstable, unsafe and fragile areas; they were built without technical advice, there is excessive humidity due to the deterioration of the drainage network, which increases the exposure to the risk of disaster in the event of a seismic event.

The second potential danger recognized was the occurrence of a fire generated by informal wiring and precarious electrical installations, as well as inadequate gas storage conditions and informal sales. They also point out the poor management of the local government, not having planned the development of both neighborhoods in safe areas with access roads and social services necessary for the welfare of their families.

Social fragility as a dimension of vulnerability is recognized when they refer to the structural and circumstantial conditions faced to feed their families:

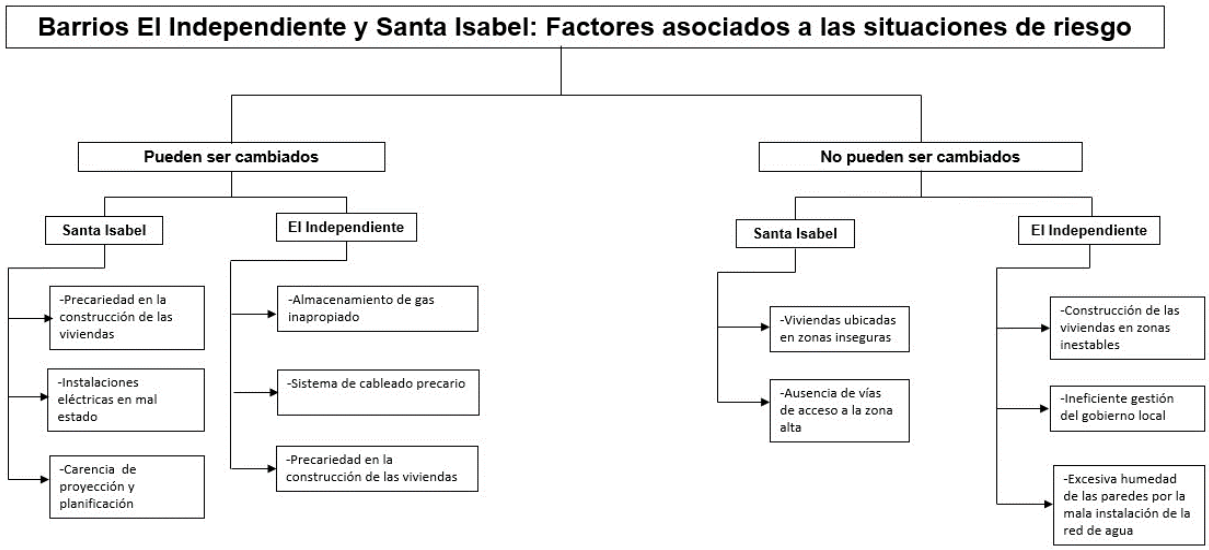
"There are people who are quite vulnerable, houses with a lot of overcrowding, that is the most dangerous thing there can be. In addition, the pipes are cracked and as they go down the hill, they dampen the walls and are weakening them little by little. There are rustic constructions that do not have columns but are crossed only with the same sand or cement, practically, with a strong earthquake, like a cookie it goes to the ground... here there are families that are of scarce economy, they do not have, they just scrape together from sunrise to sunset to be able to buy their food or to be able to subsist" (neighbor).

Factors associated with identified disaster situations.

In the participatory assessment, it was recognized that structural and exposure vulnerability exposes them to disaster risk in the event of a natural and/or anthropogenic

phenomenon; in their opinion, four of the factors identified can be changed by the community, while the other four cannot be modified, as shown in Figure 2.

Figure 2: El Independiente and Santa Isabel neighborhoods, district of El Agustino: factors associated with disaster risk according to the possibility of modification by the community**.**



In both neighborhoods they recognize that the construction of houses without technical advice and the poor state of the wiring system can be modified. For El Independiente, it is possible to generate conditions to address the precariousness and insecurity of the storage of gas cylinders, while for Santa Isabel there is the possibility of correcting the lack of urban development projection and planning in their community.

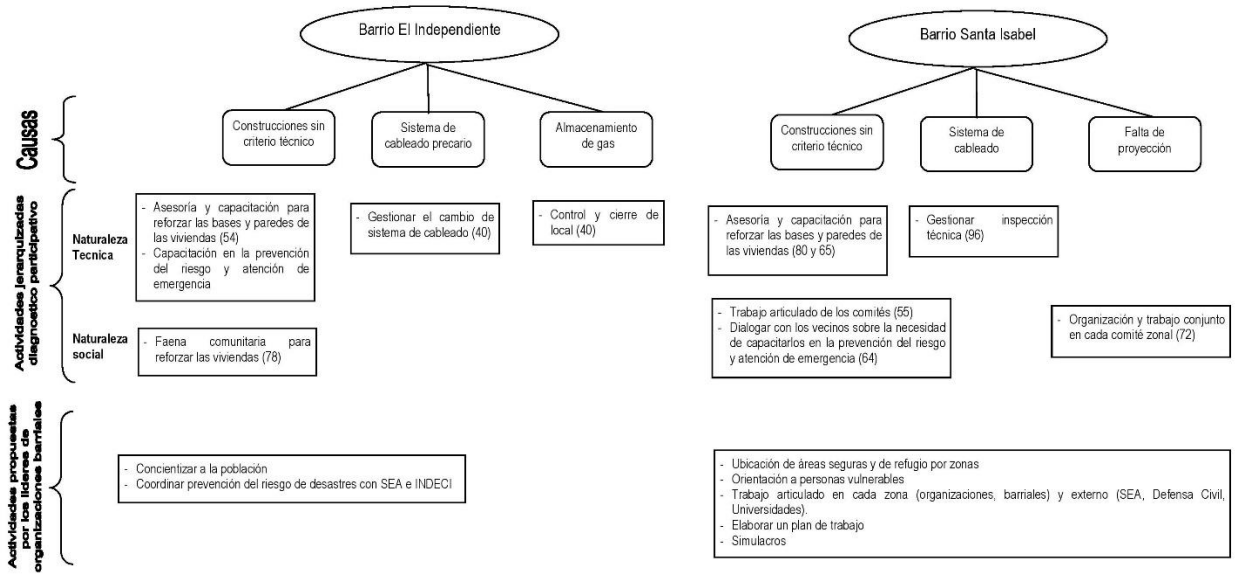
On the other hand, they indicate that the middle and upper zones of their neighborhoods are not safe areas due to the morphological characteristics of the soil type. In the case of Santa Isabel, the widening of the passageways and access roads in the upper zone would imply affecting the houses, which is not feasible. Meanwhile, El Independiente considers that the fragility due to exposure is the result of inefficient management by the local government, which does not exercise its authority or make viable the renewal of the water network self-built by the founders of the community; the permanent water leakage in different areas not only wets the soil, but also the walls of the houses, accentuating their fragility.

Proposal of actions for the modification of disaster risk factors.

The ranking of the activities presented below was based on the following evaluation criteria: a) it has the support of institution(s)-up to 25 points; b) the community has the resources to finance it-up to 25 points; c) the effect of the activity is favorable in the short term-up to 10 points; d) the community can continue with the activity in the future (sustainable)-up to 25 points; e) the effect of the activity is favorable in the long term-up to 15 points.

Figure 3 presents the activities prioritized by the population of the neighborhoods under study aimed at transforming the existing disaster risk factors in their community.

Figure 3: El Independiente and Santa Isabel neighborhoods: prioritized proposals to change factors associated with disaster risk.



Note: The figure shows what was proposed in the participatory appraisal and in the group interview with the leaders of both neighborhoods.

As can be seen, in the El Independiente neighborhood, the first group of proposed activities are of a technical nature; training in disaster prevention and emergency situations reaches 90 points, an activity that coincides with the proposal formulated by the leaders of the neighborhood organizations in emphasizing preventive actions to raise awareness among the population. The second activity focuses primarily on technical aspects to reduce the fragility of housing in structural terms; the score assigned was 54 points.

A second group of activities proposed by this neighborhood are of a social nature, as is the case of the communal work that involves organized, cooperative and articulated work of the managers with the population to reinforce the structures of their homes (78 points).

In correspondence with the above, the community proposed six (6) activities to reduce the risk of disasters. Their execution involves the different organizations of the different zonal committees of the community; the NGO SEA as a strategic ally, INDECI, Municipality of El Agustino and Federico Villarreal National University.

Similarly, the first group of activities suggested by the population of the Santa Isabel neighborhood are also of a technical nature, with the highest score being the request for a technical inspection by the company providing the electricity service, to evaluate the deterioration of the wiring system that exposes them to fire (96). Next, the need for advice and training for the reconstruction of houses is recorded as a proposal focused primarily on technical aspects to overcome the existing fragility in structural terms, the score assigned ranged from 65 to 80 points.

A second group consists of activities of a social nature, such as the joint work of the committees and the dialogue with neighbors to sensitize and train them on how to strengthen the structures of their homes, the reduction of the danger that exposes them to disaster risk and the attention to emergency situations, to which they assign 55 to 64 points. They also emphasize the importance of developing organized, cooperative and coordinated actions for disaster risk prevention (72 points); these activities are also present in the actions proposed by community leaders.

Accordingly, the population considered four activities for disaster risk reduction. Strategically, they propose reactivating COPRODE as an articulating entity of the central board of directors with the zonal committees. This community also recognizes SEA as a strategic ally to promote initiatives and accompany the disaster risk reduction process; likewise, they identify INDECI, the Agustibarrio Strategy, the medical post and the Federico Villarreal National University as institutional resources.

By way of summary, the experience of coping in a crisis context due to the COVID-19 pandemic has made visible the possible impact of the occurrence of an earthquake with the collapse of their homes and the imminent loss of lives, which motivates the interest of leaders and neighbors to work in an organized manner on the preventive component. In this process, the interest and willingness of the leaders to get involved in

strengthening capacities that contribute to community resilience stands out, which constitutes a potential resource for disaster risk reduction, to be taken into account by the local government of the district of El Agustino.

In this regard, Torres et al. (2018) state that, in the response to emergency situations before a disaster, women in Talcahuano-Chile assume a key role for the coordination of actions in the distribution of food to families, care of the sick and vulnerable population in their communities; due to previous capacities, built in collective experiences and practices developed in crisis situations.

Hence the importance of considering that a population well informed about the risks to which it is exposed, with collective self-esteem, organizational assets and solidarity practices, is capable of contributing with creative responses and assuming levels of commitment to disaster risk reduction.

Conclusions

The information presented in this article allows us to recognize that among the potential resources existing in the neighborhoods of El Independiente and Santa Isabel in the district of El Agustino are cultural identity, territorial ties, improvement of collective self-esteem and the organizational structure based on solidarity practices developed mainly by women leaders in times of COVID-19, which constitute social knowledge and values to face the adversity imposed by a crisis. However, despite recognizing the structural fragility and exposure of their dwellings, which places them in a situation of social vulnerability to disaster risks, the social actors have not included this component in their community management.