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Disaster risk management in secondary education teachers in Chincha Province, Peru

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Resumen

El objetivo de la investigación fue identificar los niveles de conocimiento en Gestión del Riesgo en los docentes de educación secundaria de la provincia de Chincha. Se realizó una investigación básica, de nivel descriptivo, corte transversal y diseño no experimental. La población estuvo constituida por docentes de las instituciones educativas de nivel secundario de la ciudad de Chincha. El tamaño de muestra se calculó probabilísticamente, quedando constituida por 298 docentes de siete colegios, entre Estatales y Particulares. Se aplicó un Cuestionario de treinta y tres preguntas. Los resultados evidencian un deficiente nivel de conocimiento sobre la prevención de riesgos de desastres entre los docentes de los colegios investigados. Se concluye que los niveles de conocimiento de los docentes frente a los terremotos no alcanzan niveles óptimos o adecuados, lo cual resulta muy preocupante, teniendo en cuenta que existe una alta probabilidad de ocurrencia de eventos sísmicos de magnitud elevada en el contexto de la Provincia de Chincha, al igual que en toda la Región Ica.

Palabras clave: Gestión de riesgos de desastre, docentes, educación secundaria

Abstract

The objective of the research was to identify the levels of knowledge in Risk Management in teachers of secondary education in the province of Chincha. Basic research was carried out, descriptive level, cross section and non-experimental design. The population was constituted by teachers of educational institutions of secondary level of the city of Chincha. The sample size was calculated probabilistically, being constituted by 298 teachers from seven schools, between State and Private. A Questionnaire with thirty-three questions was applied. The results show a deficient level of knowledge about the prevention of disaster risks among the teachers of the investigated schools. It is concluded that the levels of knowledge of teachers facing earthquakes do not reach optimal or adequate levels, which is very worrying, considering that there is a high probability of occurrence of seismic events of high magnitude in the context of the Province of Chincha, as in the entire Ica Region.

Keywords: Disaster risk management, teachers, secondary education

1. Introduction

The effects of a violent seismic event are visibly physical destruction; but they are also human, social and economic and even political; they are translated into deaths, social disturbance, destruction of infrastructure and require rapid reallocation of resources and alteration of priorities in national programs. The destruction of structures that constitute historical and cultural values,

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very difficult to recover, can even occur. It is logical the concern for the relevance and social effectiveness of public and private decisions, collective and individual, which are taken from past and present occurrences, against future circumstances over which there is no secure information, only indications of probability linked to the knowledge of natural phenomena, the behavior of the population and the stability of their institutions (Vega, 2011).

Since the 90s, there has been a significant change in the perception and approach of the problem of natural disasters worldwide (Gellert-de Pinto, 2012). This implies that the various approaches or models of disasters have changed their perspective of the problem and now focus on the risks that predispose or enable the occurrence of a disaster. Universities and organizations specialized in the subject constantly evaluate how the population is in terms of prevention of these natural disasters. In February 2016, the Deputy Minister of Institutional Management of the Ministry of Education inaugurated the "National Capacity Building Workshop for Disaster Risk Management, Climate Change and the El Niño phenomenon in the National Education System", emphasizing the need for advance in the culture of prevention, to maintain the provision of the service, with the aim of achieving a quality education for our children and young people (Silva, 2016).

Disaster risk management (DRM) is a process, that is to say, a set of systematic actions, whose purpose is to identify, analyze and define the probability of suffering losses caused by disasters, which allows formulating the pertinent corrective actions and coherent with the magnitude of the risks that have been experienced (Keipi and Bastidas, 2005). In this line of thinking, risk is seen from a markedly preventive approach, which allows the development of actions that facilitate mitigation and preparation, while also considering response and recovery actions in cases where the experimentation of disasters it can not be avoided (Dwyer et al., 2004). Disasters materialize as physical or biological events that affect man, his habitat and his present and future livelihoods; these are phenomena that go beyond the exclusively natural or physical, since they contain a relevant social and political character (Garcia, 2005, Lavell, 2006). Vulnerability is associated with the configurations and capacities of societies and governments, so that disasters are a function of social, economic and political decisions and processes (UNDP, 2013). As pointed out by Ávila et al. (2016), the idea of the DRM represents an elaborate way of thinking about reality, which provides a logic that induces the prospective and preventive vision that makes development sustainable, surpassing the immediacy orientation that is marked in the attention-centered approaches and the management of disasters, once they have arisen.
It is now accepted worldwide that emergency preparedness should no longer be limited to residents of certain areas. Any geographical area can suffer at any time a disaster situation such as floods, hurricanes, earthquakes and fires (Al-Rousan et al., 2014). The adoption of specific disaster preparedness plans that address the general and emergency needs of each social group is a worldwide problem that, given its magnitude, has been declared a global priority issue. by the World Health Organization (WHO, 2016).

According to PAHO/WHO (2016), the region of the Americas is the second region most affected by disasters after Asia. Nearly a quarter (22.9%) of all the disasters that occurred in the world between 2006 and 2015 took place in the Americas, which caused 254,508 deaths and damages amounting to approximately US $ 43.6 billion.

As Vega Centenoa points out, information on the phenomena, the organization of the population and the stability of their institutions play an important role on the greater or lesser vulnerability, both in terms of decisions and previous behaviors, and during and immediately afterwards. a

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destructive event occurred. All this constitutes the prevention that, although it does not neutralize a violent or extreme event, can reduce or mitigate the effects on the population, its life and subsistence conditions. In this regard, the United Nations Educational, Scientific and Cultural Organization, UNESCO, issues the guide Teachers' Guide on Disaster Risk Reduction. Safe and prepared. This Teacher's Guide is structured around the four steps necessary to become an educator for disaster risk reduction. (UNICEF, 2014).

At the level of all of Peru, the Public Education and Private Education sectors have significant exposed values in built areas, if earthquakes or earthquakes occur in the country. This underscores the importance of having properly trained teachers in prevention and response to earthquakes, as these are the highest risk natural disasters in the Peruvian territory. The Ministry of Education of Peru issues the Methodological Guide for the participatory elaboration of the Disaster Risk Management Plan in educational institutions - Ministry of Education. The objective of this methodological proposal is to promote a participatory process in the development of the Disaster Risk Management Plan of the Educational Institution (MINEDU, 2015).

The Regional Management of Natural Resources and Environmental Management of the Regional Government of Ica and the Regional Committee of Civil Defense have prepared the Regional Plan for Disaster Prevention and Attention in the Ica Region (GRI, 2009). This technical document defines the objectives, strategies and programs that guide the institutional and / or inter-institutional activities for the prevention, risk reduction, the preparations for the reduction of emergencies and the rehabilitation in cases of disasters, allowing to reduce the damages, victims and losses that could occur as a result of a natural phenomenon or generated by the potentially harmful man. The Provincial Municipality of Chincha and the Provincial Committee of Civil Defense-COPRODECI, present the Provincial Plan of prevention and attention of disasters of the province of Chincha - Ica Region 2009-2019. Technical document, prepared in light of the analysis of the risk scenario of the department of Ica, which is the area where the probability of occurrence of most of the natural and technological hazards occurring at the level of Peru occurs (MChincha, 2009).

The Department of Ica is the space where the probability of occurrence of most of the natural and technological dangers occurs at the country level, which exposes it permanently to risks and threats (COPRODECI, 2009). However, the lack of foresight is a constant, as could be seen when the earthquake of August 15, 2007 occurred. COPRODECI, with the support of the Pan American Health Organization-PAHO, prioritized the formulation of the of the Disaster Prevention and Attention Plan, which combines strategic and operational planning in its content, to initiate and intensify actions and projects aimed at generating a culture of prevention in civil society and its authorities, and to strengthen its capacity to respond to the occurrence of natural or anthropic hazards. The analysis of the risk scenario in the Peruvian territory shows that it is the Ica Region, the region that presents the probability of occurrence of most of the natural and technological hazards at the level of this country, which exposes it permanently to diverse risks and threats. Despite this reality, the lack of foresight against natural disasters is perceived daily, which is very likely to originate significant.

2. Materials and Methods

The study of non-experimental design quantitative cross-sectional approach whose objective was to evaluate the knowledge in Disaster Risk Management in teachers of Secondary Education of the Province of Chincha (Peru), under the conceptual framework of the United Nations

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International Strategy for Disaster Risk Reduction and the Sendai Framework for Action 2015-2030.

The total number of educational institutions in the Province of Chincha is 75, of which 34 are state and 41 private. The number of high school teachers in state schools amounts to 881 and secondary teachers in private schools are 437. The result of the size of the sample of secondary teachers is 298.

Table 1. Schools selected for the sample

School name	Percentage distribution of total teachers	Number of teachers for the sample
Andrés Avelino Cáceres	22.03	65
Chinchaysuyo	7.41	22
John F. Kennedy	22.75	68
José Pardo y Barreda	18.08	54
Juan C. de Mora	4.14	12
Santa Ana	22.53	67
Ada A. Byron	3.06	9
Sample size	100	298

The instrument was used: Scale Knowledge about disaster risk management. The instrument consists of 33 items and four dimensions: General knowledge, Prevention of disasters, Action to be developed during the disaster and Action to be developed after the disaster. It was measured with the ordinal scale of Lickert (high, medium and low level). For validation of the instrument and reliability, it was carried out through expert judgment and pilot test. For expert judgment, the participation of professionals specialized in the subject was requested. For the validation of the instrument, the researchers initially carried out coordinations with a group of 30 people who have similar characteristics with the population under study, in order to obtain the consent and facilities for their participation. Then, we proceeded to the application of the instrument solving the doubts and concerns that could be generated by the teachers. The doubts and concerns and understanding of the questions that could be generated regarding the development of the instrument, were resolved during and after the application by the researchers considering the ethical aspects. All the aforementioned was carried out after the approval of the Directors of the national and private educational institutions of the Ica region.

For the application of the instrument, the informed consent was given to the teachers so that they accept to participate in said investigation. The application of the survey was carried out in the educational centers, the duration of the application of the instrument had an average of 20 minutes per teacher. The data were entered into a database designed in excell. The results were analyzed in the statistical program SPSS version 22. The Chi square test was used to approve the relationship and association between the study variables.

3. Results

According to Table 2, 55.7% and 35.6% of the teachers that make up the sample studied have a high and a half level of knowledge, respectively, on Disaster Risk Management.

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Table 2. Level of knowledge of teachers on Disaster Risk Management

Knowledge about disaster risk management	Absolute frecuency	Relative frequency(%)	Accumulated relative frequency (%)
Low	26	8,7	8,7
Medium	166	55,7	64,4
High	106	35,6	100,0
Total	298	100,0	

According to the results, a little more than two thirds of all teachers define a natural disaster, but of this total only 35.6% gives a correct definition. 76% of teachers know how to identify their causes, while 24% do not indicate the causes of natural disasters. In terms of the effects they produce, 42% only identifies the loss of human lives. 96.3% perceive that natural disasters are a major problem in Peru.

The 58.15 teachers mentioned that the main natural disasters in the province of Chincha are earthquakes, hurricanes and tsunamis, only 20.5% identified earthquakes or earthquakes as the most important disaster in Chincha. 51.7% were able to explain what the expression "Disaster risk management" means. 88.3% of teachers reported that their educational institutions have a Disaster Risk Management Plan and 80% that there is a Contingency Plan. In relation to Teacher Training on "Disaster Risk Management", 70% of teachers indicate that they have received this type of training; Of these, 94% state that they have attended one or two trainings, the 47% that the last trainings were in 2015 and 2016. 71% mention that the training activities were carried out by the Ministry of Education and 17% that were given by Civil Defense and the Ministry of Education.

The results show that in Chincha there is a representative percentage of teachers of Secondary Education who do not identify earthquakes as the largest natural disasters in this province and 30% who have not received training on disaster risk management.

Level of knowledge of teachers about prevention measures applicable before an earthquake occurs.

Table 3. Level of teacher knowledge preventative-before an earthquake

Knowledge of preventive measures	Absolute frecuency	Relative frequency(%)	Accumulated relative frequency (%)
Low	15	5,0	5,0
Medium	222	74,5	79,5
High	61	20,5	100,0
Total	298	100,0	

Table 3 shows the distribution of teachers according to their level of knowledge about preventive measures before an earthquake occurs. It can be seen that only 20.5% of the total is located in the high level, while 74.5% is in the middle level.

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Among the questions answered by teachers in this section is the one referring to the guidelines and actions to be developed in the school in order to be adequately prepared for the risk of an earthquake. In this regard, 33% of the teachers mentioned the following actions: locate security zones, identify evacuation routes, perform earthquake drills, train first aid brigades, include education in disaster risk management in the curricular development, organize a Commission for Disaster Risk Management, develop a Contingency Plan and reinforce the weak structures of the educational infrastructure. 21% mentioned four of the previous activities and another 21% only performed earthquake drills.

Regarding the safest places in the educational institution, 57.4% only mentioned internal security zones, and 31% internal and external security zones. 39% of teachers interviewed indicate that the frequency with which they talk to their students about disaster prevention is weekly and 32% is monthly. The specific guidelines they provide and the activities they carry out with their students are for 47% of teachers to provide knowledge about disasters, their causes, dangers, consequences; 21% in addition to the above provides knowledge on the procedures to follow at the beginning of an earthquake; and 15% report that they also perform earthquake drills with the students. Also asked about the preventive activities implemented by the school, 21% indicated the drills of earthquakes, 19% added that safe areas and evacuation routes are identified, 20% added having included topics in the curriculum. prevention and management of earthquake risk, and, another 20% in addition to the previous activities referred to the training of first aid brigades. 60% of teachers mentioned that the frequency with which they perform drills is monthly and that the entire educational community participates. For 81% of the teachers the simulations of earthquakes are very important because they allow to be prepared and know how to face the earthquakes, as well as to form the habit of acting correctly before these events. 77% of the teachers reported that in their educational institutions the infrastructure has been totally improved so that it is not severely affected by an earthquake. As for the actions that are regularly carried out by the Committee responsible for Disaster Risk Management of its Educational Institution. Regarding this last aspect, 52% mentioned that the Committee draws up plans and organizes brigades.

Teachers' knowledge about actions to be carried out during an earthquake.

Table 4. Teacher knowledge level on how to act during an earthquake

Knowledge on how to act during an earthquake	Absolute frecuency	Relative frequency(%)	Accumulated relative frequency (%)
Low	123	41	41
Medium	135	45	86
High	40	14	100
Total	298	100,0	

Table 4 shows the distribution of the teachers investigated according to their level of knowledge of the actions to be carried out during an earthquake. It has been found that 86.6% have low or medium knowledge, a worrisome result that expresses their medium or poor preparation to face these disasters.

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In this variable, teachers were asked about the orientations they give their students when an earthquake occurs and all the actions they must develop with their students during the seismic movement. A low percentage of teachers, 13.4% pointed out the diversity of activities that a teacher must meet in front of his students at the time of an earthquake. The vast majority only referred to the students leaving orderly from the classroom.

Knowledge of teachers about the actions to be carried out after an earthquake.

Table 5. Distribution of teachers according to Level of knowledge of the post-earthquake stage

Knowledge about the post earthquake stage	Absolute frecuency	Relative frequency(%)	Accumulated relative frequency (%)
Low	75	25,2	25,2
Medium	195	65,4	90,6
High	28	9,4	100,0
Total	298	100,0	

In Table 5 we find the distribution of the teachers investigated according to their level of knowledge in the post-earthquake stage. It is seen that 65.4% of teachers have an average knowledge and only 9.4% have a high level of knowledge about how to act after the earthquake occurs. In this variable the teachers were asked about the actions that they should carry out at the end of an earthquake, 64% said: attend to the injured with more serious injuries, check the school to determine if the debris or any part of the structures they could cause harm to people during aftershocks, teach them to control their emotions and take care of their physical integrity. 66% of the teachers reported having basic notions of first aid and 53% stated that the Safe School Program is not developed in the school where they work.

4. Conclusions

- The level of disaster risk prevention in teachers of secondary education in the province of Chincha is poor, this is evident because more than 60% of teachers in the seven secondary schools studied have medium or low levels of knowledge in risk management of disasters.
- Knowledge to deal with earthquakes among teachers in high schools in Chincha are intermediate or low. 77.2% of teachers have the levels of knowledge indicated above.
- Only in 7.4% of the teachers studied, very adequate skills were observed during the earthquake drills.
- The risk profile of the Province of Chincha shows that earthquakes constitute the most important danger or threat in this province and that the population is not well prepared to face this type of natural disasters, and its occurrence with a high level of Intensity is possible at any time.
- Teacher training in relation to disaster risk management has not been successful, given that the results of this study have shown that there are no positive results.

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