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Perception and Knowledge of disaster risks and preparedness, the case of the city of Mohammedia Morocco

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Abstract: The city of Mohammedia in Morocco is one of the cities threatened by the risks of disasters in general, especially natural and technological. For this reason, this article shows the perception of these risks by the city population, how aware they are of them, and how willing they are to face them, and this article represents the first in the region to address this topic. To accomplish this, research was conducted with the population by filling out a form containing a set of questions related to the population's perception of risks and measuring their knowledge of them. In addition, it is important that people's perception of the risks existing in the region where they live helps a lot in the process of responding and mitigating damage. The results of this study show that there is a lack of great interest among the population in the subject of disaster risk in their city.

Keywords: Risk, Disaster, Perception, Knowledge, Mohammedia.

1. Introduction

The knowledge of risks and disasters associated with them is still severely hampered by the predominance of physical factors that influence the risk, without considering social aspects that are also fundamental. Despite the presence of various world programs, of which the most recent is the Sendai Framework for Disaster Risk Reduction, which insists on integrating the awareness dimension into the national programs and policies of countries, they are still slow to implement and do not receive the necessary attention [1]. In this context, Morocco has given special attention to some cities, including the city of Mohammedia is one of the most likely cities for natural, technological, environmental, and health [2] hazards in Morocco, due to the history of the occurrence of risks in it and the losses that caused them. In order to reduce the risk of disasters, work has been done to build infrastructure such as dams, barriers, and insurance against losses. Knowing that one of the disasters that threatens the city mainly is flooding, especially since the city is surrounded by two rivers, for example the river *Oued El Maleh*, which causes a flood that causes significant losses, and what increases the risk is its impact on the largest petroleum region in Morocco as it occurred in 2002 [3]. Another significant risk is that the city's coast is vulnerable to the tsunami, as studies have confirmed that the city has already been hit by a tsunami in previous centuries reaching a height of 8 meters [4].

Citation: Lastname, F.; Lastname, F.; Lastname, F. Title. *Proceedings* **2022**, *69*, x. https://doi.org/10.3390/xxxxx

Academic Editor: Firstname Lastname

Published: date

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Among all these dangers, people in the city of Mohammedia remain at risk. This is why the context of this study falls on the assessment of knowledge of the state of emergency preparedness and risk for residents within the community. As a fundamental question, how prepared are community members to respond to disaster risks? Because the human element is very important for several considerations, including that in cases of risk, the family, neighbors, or relatives are the first to rescue and rescue before the arrival of official government aid, and sometimes it does not arrive [5].

Another important factor is that this awareness and knowledge are often confined between workers and employees in the health and security sectors; this would reduce and slow down the response process due to the lack of effective communication between officials and people [6]. There is a big difference between knowledge and awareness in relation to danger, but they have an integrated role so that they produce for us the response of the population. Awareness of risk produces worry, and worry stimulates response and readiness to reduce disaster risk through various means available to people [7], so the state of worry is very important and natural if it appears in society, unlike science alone.

The city of Mohammedia is located between 7° 22 'and 7° 25' west longitude and 33° 41 'and 33° 43' north latitude [8]. It has a population of about 403,390 people, 49.2% males and 50.8% females. The population pyramid of the city of Mohammedia shows that the most age group is the group from the age of 20 to 34, with an important percentage of infants distinguishing the base and center of the pyramid, unlike the peak where the age ratios decline starting from the age of 54, while the life span reaches 75 years and more [9].

2. Methods

400 forms were filled out by the city population over a period of 3 months (09/03/2022-20/06/2022), in different formats either through direct interviews or through the link to the electronic form, and the samples were randomly identified provided that they were related to the city of Mohammedia, whether from the population or from its residents, respecting the distribution in the factor of age groups, gender, and residential areas of the city according to the administrative annexes.

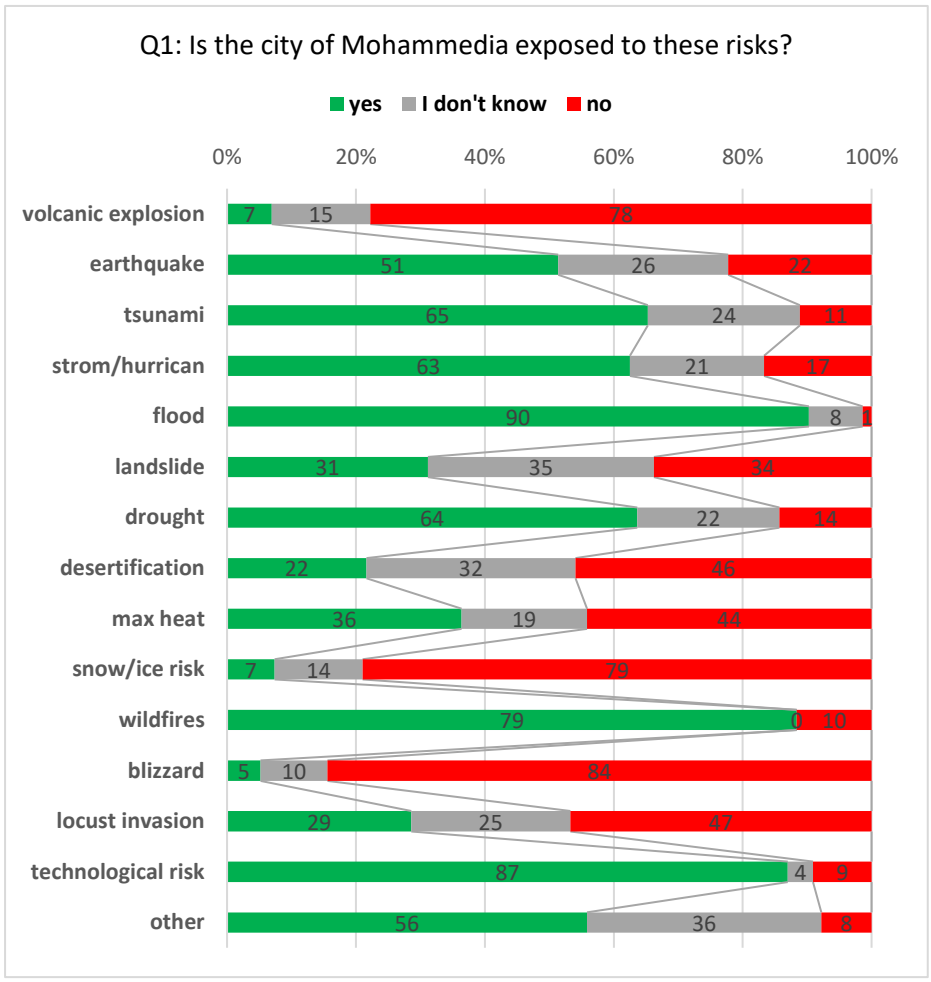
The form consists of 12 questions about the research topic, in addition to 3 questions about personal information, and this form has focused on answering 5axes.

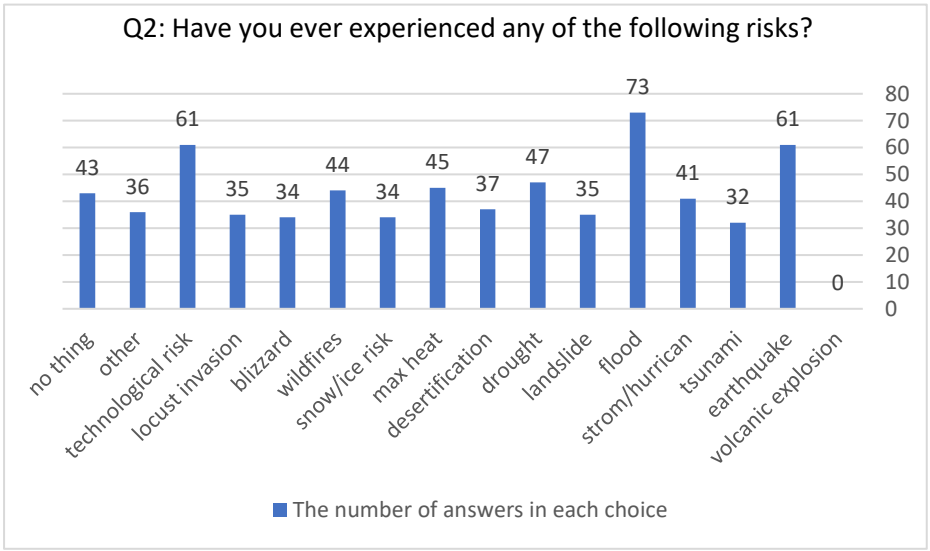
3. Results and Discussion

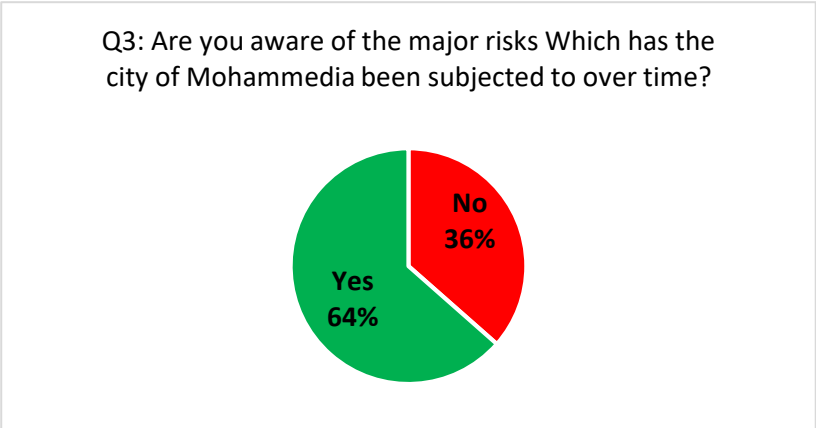
The gender component of the respondents is distributed in general equivalence, as the percentage of males questioned is 53% and the percentage of females is 47%. The ages included different ages divided by: 18 years or younger: 1.3%; 19–25 years: 27.6%; 26–35 years: 42.1%; 36–45 years: 18.4%; 46–55 years: 9.2%; 56 years and above: 1.3%. The places inhabited by the interrogators varied and included all seven neighborhoods of the city.

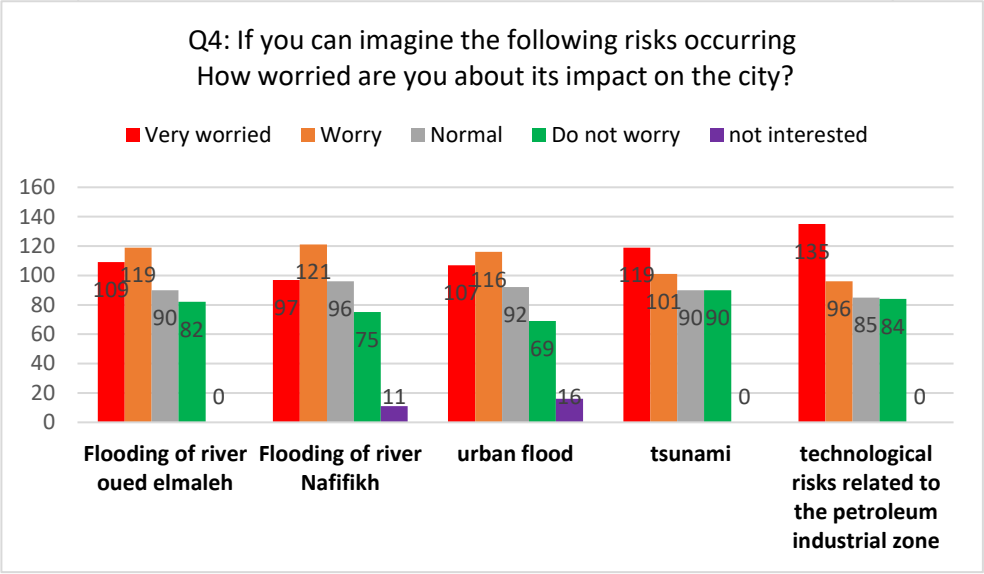
From the results of the form, we can draw a set of indicators that indicate the category respondents in relation to the following axes:

Visualize exposure to risks in the city of Mohammedia in general, and the risks that threaten it especially.



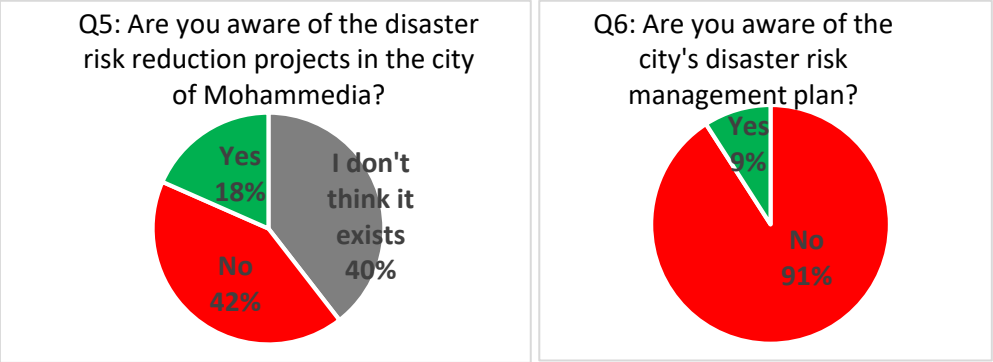






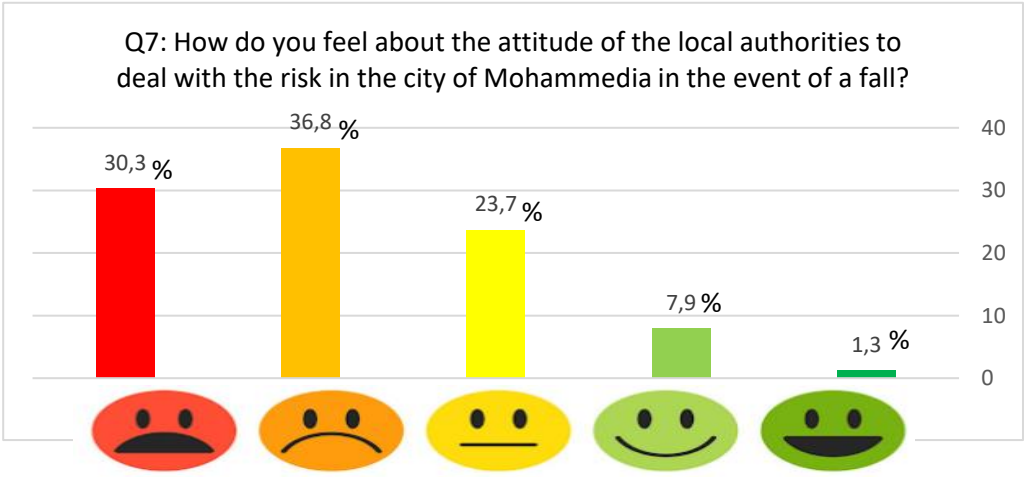
This axe was specific to questions No. (1-2-3-4), which focused on the knowledge of the respondents about the dangers facing the city of Mohammedia, their previous experiences with it, and the extent of their concern in the event of some serious potential risks . Through question No. 1, it was found that the respondent group knows the potential risks in the city of Mohammedia, by 46.13%, and 33.6% answered no, regardless of whether the answer is correct or not, but the percentage that drew attention is the group that answered that it does not know, which is 19.4%. This category is the one that must be sensitized in order to know the dangers facing the city of Mohammedia. In other words, question No. 3 came explicitly about knowledge of the major risks to which the city was exposed, as the results showed that 64% know the major risks that occurred previously, compared to 36% who do not know them. The conclusion from this question is that historical memory plays a role in remembering previous events, as the more the population remembers these incidents, the more prepared and aware they are [10]. Question No. 4 shows the extent to which the population is concerned about some risks, and this would show the extent to which the population is aware of caution, anxiety, and attention to these risks, and the focus has been only on those that threaten the city, and the results came that the technological risks related to the petroleum zone of the city, and the risks of the tsunami have gained the attention of the respondents, and expressed to them that they are very worried in the event of their occurrence, and to a lesser extent the flood of river *Oued El Maleh*, and what is also noticeable is the presence of a category of questioned who did not react to these risks and answered That she will be in such a normal position that she does not have to worry in case of risk.

Knowledge of projects and plans developed for disaster risk reduction in the city of Mohammedia



The extent to which the population knows about the projects and plans developed to reduce disaster risk is a positive indicator in the process of risk management in the event of an occurrence, as it makes it easier for the population to know the appropriate behavior to take, as explained by questions No. (5–6) on the knowledge of the population of projects and plans. The results of these questions came as follows: the percentage of respondents who are aware of the projects completed to reduce disaster risk in the city of Mohammedia is 18%, and those who are not aware of these projects are 42%, while 40% replied that they do not believe in the existence of these projects at all. Question No. 6. 9% said they knew the city's disaster risk management plan, while 91% of respondents said they did not know. This is such a negative indicator that a very large percentage do not know how to behave or where to go in the event of danger in a city.

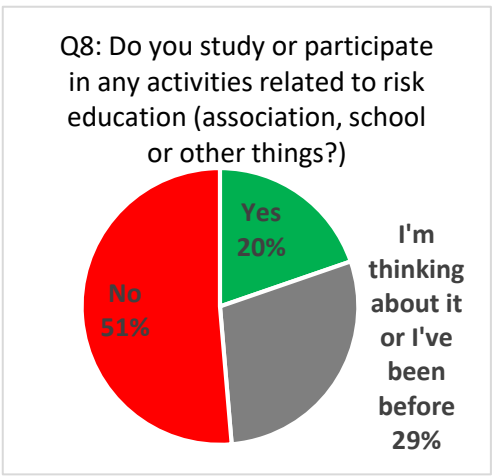
Feeling confident and safe towards the responsible authorities about dealing in case of risk.



The feeling of confidence and security on the part of the population towards the local authorities dealing with the risks is one of the most important factors of stability, spreading reassurance and not worrying the population. Thanks to this trust disappears a set of negatives may occur, such as panic, chaos, and bad organization [11]. This is what is stated in question No. 7, where the respondents expressed how they felt about the behavior of the local authorities to deal with the dangers in the city of Mohammedia in the event of an occurrence, and most of the results were largely negative: 30.3% answered that they felt very bad, 36.8% answered that they felt bad, while 1.3% said that they felt very good, and 7.9% said that they felt good at the disposal of the local authorities in the event of risks in the city. This negative feeling of respondents, representing 74.3%, is a negative

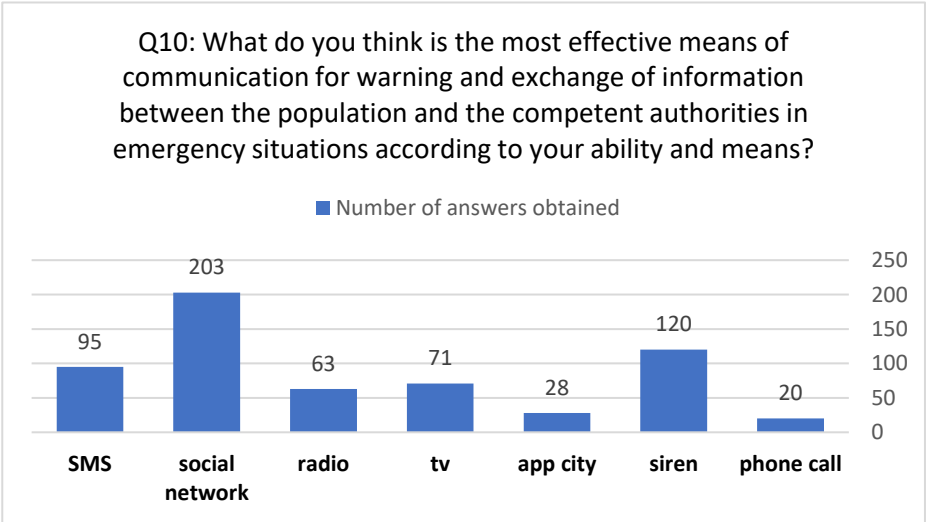
indicator, and indicates that any notification that may occur may not help regulate or calm the situation.

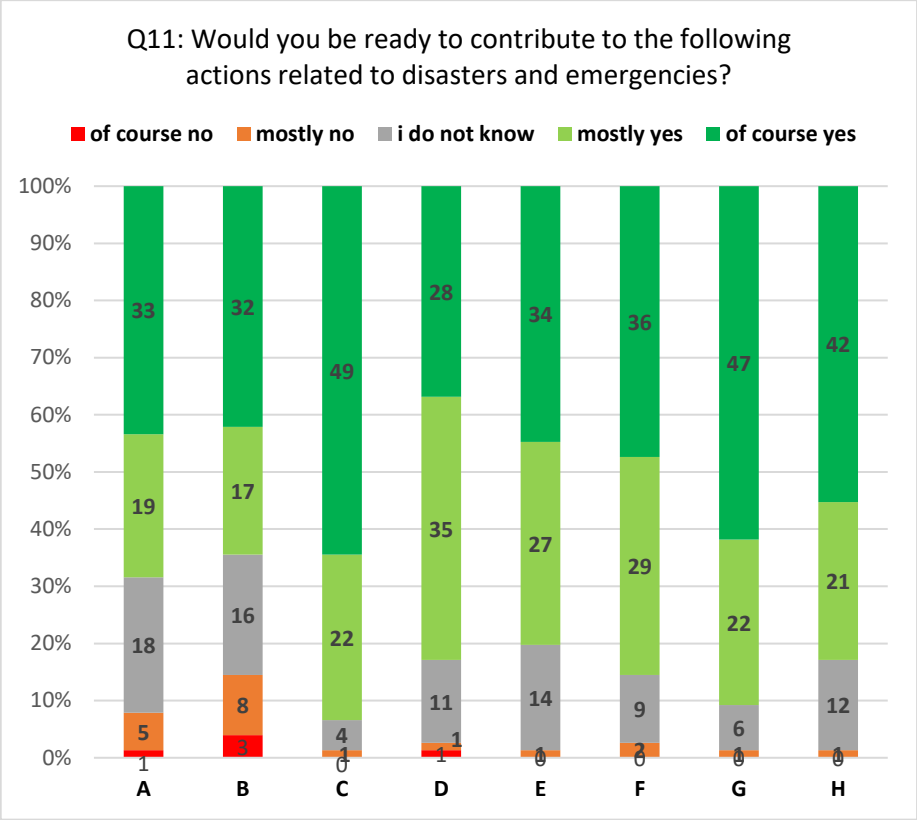
Participate in awareness activities about risks.



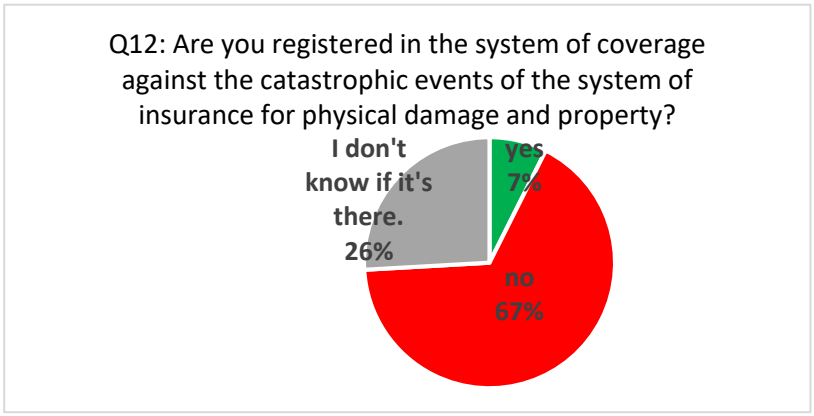
Awareness and knowledge of the appropriate behavior to follow during a disaster is one of the most important factors of survival, saving lives, and reducing material damage, this is what is included in questions No. (8-9), the respondents replied in relation to the study or participation in activities related to risk awareness that they are not studying or participating in it, which is 51%, compared to 20% who participate or study risk education, while 29% responded that they are thinking about it or were previously engaged in activities on risk education. As for the current awareness of the population, its results were divided into multiple sections, the first of which was that a small percentage of the population has awareness and knowledge of the potential risks, and about the appropriate behavior to follow, by 70%, followed by 16% who answered definitively that the population does not know how to behave or the potential risks, which in itself is another negative indicator that indicates that the culture of awareness of risks and how to behave in the city of Mohammedia, according to the respondents, is weak.

Methods of communication, exchange of information and static readiness in case of risk





A : Participation in training Preparedness and volunteering - B : Collection of risk control data - C : Report risk - D : Report a simple case - E : share information about safe spaces and available resources - F : share information about safe and appropriate behavior to act - G : Exchange of useful information with citizens - H : Blood donation, lunch and shelter of affected people.



Questions no. (10-11-12) showed the extent to which the population is prepared to face risks, and what methods it prefers to use to communicate in critical cases. It can be a suggestion as to what the population prefers, so that the respondents preferred social networking sites in the first place, and then sirens, and this is what the local authority can work on to achieve effective communication and warning. One of the positive indicators that was drawn in this questionnaire is solidarity and readiness to help among the population in case of danger, so that 70% of the respondents replied that they are fully prepared to participate in training, preparedness, exchange of information, donation, etc. While only 9% were unwilling to participate in any of the proposals put forward, 21% did

not know what they could or could not participate in. With regard to insurance against catastrophic events, 7% of respondents replied that they have it, unlike 67%, and we can integrate with them the 26% who replied that they were not aware of its existence, which poses the following problem: Is the population aware of the existence of this insurance system or not?.

4. Conclusion

This study is important due to the subject studied, although it does not address several levels such as gender, social, economic, and educational level. However, through the results, many indicators have emerged showing the extent to which the city population understands the risks of disasters facing them. Therefore, in order to value these results, we recommend paying attention to the knowledge and awareness aspect for a population regarding knowledge first of the risks, and then secondly of working to teach appropriate actions in case of risk. This does not come in a short period, but it is a strategic plan that intersects with all levels, whether in the educational, health, security, and infrastructure sectors within the city of Mohammedia. Therefore, the responsible authorities must take into account a set of observations, especially the negative, which showed the great work expected to improve and raise the culture of risks among the population, especially in some axes such as knowledge, behavior, methods of communication and exchange of information in situations of risk.

Acknowledgment

The author is very grateful to the students and friends who helped him distribute the forms, and also to the inhabitants of the city of Mohammedia, who welcomed him and gave her time for the general benefit of the city.

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