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The Perception of Residents About the Performance of Local TV During the 2022 Flash Flood in Yazd, Iran

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ABSTRACT

Background: Flash floods can cause significant damage if people perceive them as low risk. Media plays a crucial role in improving risk perception. This study aims to survey the perceptions of residents in Yazd, Iran, about the performance of local TV during the flash flood in 2022.

Materials and Methods: This is a qualitative study using a content analysis method that was conducted on 22 residents (14 males and 8 females) who had a history of watching local TV programs during the 2022 flash flood in Yazd City. They were selected by purposive sampling method until data saturation. The data was collected through a semi-structured face-to-face interview using open-ended questions about the news received from local TV regarding the flash flood in the city. Qualitative data analysis was done using Colaizzi's seven-step method.

Results: Data analysis led to the emergence of one main concept (information quality), five themes (time of broadcasting news, content of programs, trust in the media, and ability to increase social sensitivity), 12 sub-themes, and 48 codes.

Conclusion: The effectiveness of local TV during the flash flood in Yazd is low due to incorrect weather predictions, insufficient risk emphasis, lack of prime-time broadcasts, generic messaging, and absence of news headlines. Addressing these issues can enhance people's perceived sensitivity and response to flood warnings from the local TV.

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Introduction

Natural disasters, such as earthquakes, floods, storms, dust phenomena, landslides, and droughts, annually cause high human and financial loses [1]. Floods are one of the most important natural disasters with meteorological and hydrological hazards [2]. Floods can destroy buildings and infrastructure [3]. They account for more than one-third of the damage caused by natural disasters in developed and developing countries [4]. According to the recent report of the intergovernmental panel on climate change (IPCC), the frequency and severity of floods will be increased due to continued climate change. Floods have affected human societies more than other natural disasters in the 21st century. In the last 18 years, since 2000, more than 121 million people have been affected by floods, ranking it first among the natural hazards worldwide. In terms of death rate, more than 8,000 people died by floods, putting it in the third rank [5]. Various studies have indicated that the lack of attention to the privacy of waterways and rivers has caused a dramatic increase in the frequency of floods and their damage [6, 7]. It is possible to reduce their harmful and destructive consequences with proper planning and perception of the facts related to floods [8]. In Iran, due to climatic and geographical conditions, floods occur almost every year and cause heavy damage. Although Iran is a dry country, more than half of its land is subject to floods [9]. On average, more than 170,000 people in Iran are affected by floods annually, and 242 people die [1].

Flash floods are the most dangerous kind of floods [10]. A flash flood can cause damage at any time and place without prior or partial warning [11]. Preparedness against floods, especially flash floods, requires officials and people to recognize and perceive the risks [12]. Risk perception is a subjective judgment of the likelihood of adverse events and the amount of future negative outcomes [13]. People's perception of the risks can be very helpful in disaster management [14]. Risk perception is an important subjective concept. In general, two exogenous variables in risk perception include subjective evaluation of the probability of an unwanted or adverse event and judgment about the severity of the adverse event if it occurred [15, 16]. Therefore, assessment of risk probability and people's judgment about the severity of risk is effective in people's decisions and preventive measures [17, 18]. How people behave in an emergency situation depends on their perception of the risk and evaluation of the level of outcome. The negative consequences of disasters are related to the low risk perception [16]. Flash floods can be identified and understood easily and accurately by the general population through observation [19]. Without a proper risk perception assessment, it is not possible to understand people's risk perceptions and reduce the risks [20]. There are significant differences between the perceptions of flood risk by experts compared to the perception of flood risk by people. Experts are more realistic in their approach to flood risk [21]. The perception of flood risk is an essential step for encouraging vulnerable people to engage in flood risk reduction [22]. Flash floods have recently occurred in many provinces of Iran [23, 24]. Despite the warnings of the Meteorological Organization about bad weather conditions and the possibility of flood, many people did not pay attention to these warnings and traveled to high-risk places [25]. Therefore, the knowledge of the factors that can help people understand the risk correctly is very decisive.

Several studies have been conducted to investigate the flash flood risk perception of people, and different scales have been used to measure it [26-28]. Miceli et al. considered risk perception as a process with two cognitive (awareness, likelihood, etc.) and affective (feelings, perceived control, etc.) aspects [29]. Age, sex, proximity to the risk area, living near a river, awareness of floods, previous experience with floods, religion, perceived support from the authorities, media coverage, and trust in the media have been introduced as examples of factors affecting the perception of flood risk [4, 30, 31]. Mass media can greatly help with managing crises such as flash floods by broadcasting and increasing information and awareness [31-33]. In disaster-related studies, trust in the media has been identified as a significant factor in risk perception [31, 32, 34]. Understanding people's experiences with floods, their ease of access to information, and media use can be beneficial in improving risk perception. Therefore, this study aims to explore the perceptions of people in Yazd, Iran, regarding the performance of TV programs in informing about flash floods in the city. This city is located in the center of Iran (latitude: 31.90°, longitude: 54.29°, and altitude: 1237 meters above sea level). The average temperature in this city is 19.8 °C, with a relative humidity of 31% and an annual precipitation of 46.2 mm [35].

Materials and Methods

This qualitative study was conducted using the directed content analysis method. The study population consists of all residents of Yazd City who had suffered from flash floods. Participants (including office workers, residents, and local vendors) were selected from among those who

watched local TV programs and were affected by the flash floods. The sampling was done using a purposive method until reaching data saturation. Partticipants were selected based on their willingness to engage in the interviews and familiarity with local TV prorgams in Yazd. After explaining the study objectives and process to the participants and ensuring their confidentiality, a semi-structured interview was conducted to collect data.

The first interview question was "Please describe your experience with flash floods". After that, the interview continued based on the participants' answers using exploratory questions such as "What do you mean?" and "Please elaborate on this". There were also questions such as: "Do you watch local TV programs?"; "Did you receive any news about the flash flood? Can you explain more?"; "How much did you pay attention to the news on TV?"; "What is your opinion about the news reported on national or local TV programs? Can you explain more?" The interview questions also surveyed demographic characteristics of participants. The interview questions were sent to managers, professors, and experts in the field of disaster risk management, disaster health, and qualitative researchers to comment on their appropriateness. Their feedback was used to modify the questions. The interviews were conducted from December 2022 to February 2023 (seven months after the flood occurnce). Twenty-two participants were interviewed face to face in their place of residence. Each interview took 30-55 minutes. The interviews were recorded and transcribed verbatim.

Data analysis was done by Graneheim and Lundman's method [36]. The interview texts were read several times and the statements related to the experiences of flash floods were extracted and semantic units were created. After summarizing and integrating semantic units, coding was done. The codes were categorized based on similarities and differences. Finally, themes and sub-themes were extracted. MAXQDA 10 software was used for qualitative data analysis.

Lincoln and Guba's criteria [37] were used to ensure the trustworthiness of the data. The researcher allocated enough time to collect and analyze the data and a good relationship was established with the participants. Data diversity was used to give more depth to the data. Continuous comparison of data and review of codes by the research team was also done to ensure the credibility of the data. To increase the dependability, the stages of qualitative analysis and the different stages of the content analysis method were written and followed in full detail. To increase the confirmability of the data, a summary of interview texts was given to the participants at the end of each interview so that the researcher's correct perception of the interview can be confirmed. Also, during the data analysis and classification process, the extracted themes and codes were shown to some of the participants and their opinion was asked about their accuracy. To increase the transferability of the data, we tried to describe the culture, context, characteristics of the participants, the data collection method, and the data analysis method in full detail.

Results

Most of the participants were in the age group of 19-68 years (Mean age: 41±1.5 years). Four participants had primary education, four had lower than high school education, one had middle school education, four had high school diploma, two had associate degree, four had bachelor's degree, and three had master's degree. Table 1 shows other demographic characteristics of the participants.

Analyzing the data led to the emergence of one main concept (information quality), five themes (time of broadcasting news, content of programs, trust in the media, and ability to increase social sensitivity), 12 sub-themes, and 48 codes (Table 2).

The first theme (time of broadcasting news) included two sub-themes of "devoting insufficient time to the topic" and "insufficient information". Special attention to daily needs of each province is one of the missions of local TV programs. Participants stated that if there is a possibility of flash floods in the province, all authorities should cooperate with each other. One of the participants stated: "There was a flood in the province, but it was only broadcasted once" (participant (P) 11). Another participant stated, "If There is a flooding in the province, we expect the local TV to pay special attention to it and inform people about it at any time" (P14). Another participant stated: "During floods, they should give priority to it and not limit it to reporting in the news shows and let people hear and provide their opinions at any time" (P21). Also, participants stated that a local TV should provide up-to-date and detailed information to people (P3 and P10).

The second theme (the content of news) included four sub-themes of "news with the same method of production," "neglecting the type of news," "message validity," and "lack of innovation." One of the reasons for not paying attention to local TV programs was the production of programs using the same method. Many participants perceived that the programs related to floods were like

Table 1. Demographic characteristics of the participants

Participant	Age (y)	Educational Level	Marital Status	Sex	Number of Children	Job Status	Time Spent Watching TV
1	19	Diploma	Single	Female	0	Student	Less than one hour
2	65	Lower than high school	Married	Male	4	Retired	2
3	44	Bachelor's degree	Married	Male	2	Employee	1
4	41	Primary education	Married	Male	3	Freelancer	2
5	58	Associate degree	Married	Male	5	Retired	2
6	45	Middle school	Married	Female	3	Housekeeper	2
7	54	Primary education	Married	Male	4	Worker	1
8	68	Primary education	Married	Male	5	Farmer	1
9	22	Diploma	Single	Male	0	Student	Less than one hour
10	35	Associate degree	Married	Male	1	Employee	Less than one hour
11	28	Bachelor's degree	Single	Female	0	Housekeeper	1
12	35	Master's degree	Married	Male	0	Employee	Less than one hour
13	52	Primary education	Married	Male	3	Freelancer	2
14	49	Master's degree	Married	Male	3	Employee	Less than an hour
15	40	Master's degree	Married	Female	1	Employee	Less than an hour
16	33	Lower than high school	Married	Male	2	Employee	Less than an hour
17	38	Lower than high school	Married	Male	2	Employee	1
18	21	Diploma	Single	Male	0	Student	Less than an hour
19	20	Diploma	Single	Female	0	Student	1
20	42	Lower than high school	Married	Female	5	Housekeeper	2
21	38	Bachelor's degree	Married	Male	2	Employee	1
22	42	Bachelor's degree	Married	Male	4	Freelancer	2

Table 2. The extracted themes, sub-themes, and codes

Theme	Sub-theme	Code
Time of broadcasting news	Devoting insufficient time to the topic	Reporting low news about the topic
		Incorporating important topics only in the news shows
	Insufficient information	Informing only in the news shows
		Informing in the afternoon and night
		Informing according to the importance of other issues
		Necessity of government readiness to help people
Content of programs	Programs with the same method of production	Bored by the type of weather news
		Inadequate ability of news presenter
		Repeated weather news
		Lack of expertise in reporting news
	Neglecting the type of news	Low perception of some topics
		Neglecting the type of news on TV
		Use of the same meteorologists
	Message validity	Low expertise of the meteorologists
		Repetition of meteorological news
	Lack of innovation	Neglect of meteorology
		Lack of innovation in reporting weather news for the province
Trust in the media	False news	False news in other programs
		False weather news
	Low proficiency	Low proficiency of weather presenter
		Not using a proficient expert for the province
	Poor programs	Poor prediction
		Poor programs
		Repeated programs in prime time at night
		Producing programs just to fill the time
		Not producing meteorological programs
	Routine programs on the local TV	Attention to floods only at the time of crisis
		Not producing programs for monitoring the organizations responsible for crisis management
		Taking advantage of the flood crisis
		Not producing preventive programs
		Lack of attention to floods in the local TV programs
Inability to increase social sensitivity	Showing the importance of news	Not reporting important news with subtitles
		Inability to show the importance of news
	Content production in different ways	Late weather news
		Not sending text messages to people about weather conditions
		Reporting important news in different ways

other programs. They want local TV to produce programs related to floods in different ways so that they can better emphasize the importance of the crisis. A 19-year-old lady said, "I watched TV several times the day before the flash flood, but I did not see news about the possibility of flooding. They reported it half an hour after the occurrence! Of course, flood management methods were not reported in this program" (P1). P16 stated, "I saw the flash flood news on Channel One. I also saw it on the local channel. Simple and incomplete news was broadcast several times during the flood. It was very poor". Another sub-theme was the lack of attention to the type of news. One of the participants stated, "It is not possible to differentiate between flood news and other news. I think that they should pay more attention to floods" (P7). Another participant argued, "I was watching a local channel; the flood-related news was being reported among other news. I did not pay attention to it. It was like other news. They did not tell us about the actions needed to be taken" (P11). Poor expertise was included in the sub-themes related to the programs. A number of participants did not consider the experts' statements to be very accurate. Therefore, they felt that the meteorologists were not so familiar with modern methods or perceived that the experts might not have expertise; otherwise, their predictions would be better. One of the participants stated, "I think the meteorologist gives conflicting opinions. I have heard several times that his statements do not match reality. Therefore, I don't pay much attention to it" (P15). Another participant said, "I think the meteorologist provides information similar to what he said in the previous nights! I don't pay much attention to him anymore, and I don't consider his words important" (P4). Lack of innovation was the last sub-theme. Many participants stated that the news related to floods should be presented differently to increase the audience's sensitivity. Participant No. 8 stated, "I didn't understand this news well. If this news was told in a different way, maybe I would have understood it better". Another participant expressed: "The TV only shows that clouds increase in a region and that a flood might come. It would be better if the presenter provided more details and more simply (P4).

Trust in the media was the third theme with the following sub-themes: False news, weak proficiency, poor programs, and repeated programs on the local TV. One of the factors that can reduce trust in news or programs is not being close to reality and their weak predictions. The participants had experienced wrong news and predictions, especially in weather forecasting. A 21-year-old student stated his experiences as follows: "I don't think the news related to the weather of the province is correct. Whenever they said that we would probably have rain in the province tomorrow, there was no rain, or the weather was favorable; there was only a dust weather! Do you think anyone can trust in this news?" (P18). A 33-year-old man argued: "I don't trust in weather news much. Out of three pieces of news, one piece of news is fake. I believe a solution should be considered for it" (P16). Regarding the poor performance of local TV programs, a participant (P15) expressed that the quality of programs was not at a high level and that society did not pay special attention to the programs. If people feel that the local TV programs are produced with high quality, their views can be changed, and they will pay more attention (P20). Regarding the repeated TV programs, which are not attractive or are used only for free hours, one of the participants stated: "Every time I want to watch a local TV channel, I see the rebroadcast of TV series! If news is supposed to be presented at the provincial level, they should pay special attention to it on local TV. I am so disappointed with the local channel" (P7). P13 argued: "I expect that a crisis like flooding in the province should receive more attention and the performance of responsible organizations should be monitored and controlled; one of the provincial plans should be assigned to this topic. Whenever there was heavy rain in Yazd, floodwaters could be found on roads and bridges, and traffic would be disrupted for several days".

The final theme (i.e. Inability to increase social sensitivity) included 2 sub-themes of "showing the importance of news" and "content production in different ways". One of the things that can affect the community is to create sensitivity to news. In this regard, due to the importance of flood-related news, the presentation method needs to be taken into account. Many participants did not perceive that the news related to the flood or possible rain could warn them. Therefore, they did not take any special measures to address the possible risks of flash floods. They stated that they were not so excited about the news and did not feel threatened. They stated that presenting the news with a different method and a better warning system would have had a greater impact. One of the participants said, "I watched the news, but it had no considerable impact on me" (P16). Participant No. 10 said, "I didn't care much about the news. It would be better if it was broadcast in another way". Another participant mentioned: "I watched the news related to the flood; it was like other news. If the consequences of the flood and prevention methods were added to the news, it would have a greater impact" (P17).

Discussion

During flash floods and crisis management, there is a higher need for help from related organizations. One of the determining factors in risk perception is the news from reliable sources. One of these sources is the TV program. Considering the TV programs' ability to increase the awareness and attention of people, it would be beneficial to broadcast flood news on TV [38]. Devoting enough time to the news can affect people's risk perception. Providing insufficient information about floods by the local TV was one of the reasons for people's lack of attention to this disaster. According to Bloom's hierarchical model of learning, a person needs to be exposed to the message to pay attention to it. Therefore, wide coverage of news increases the probability of perceiving the message [38]. Many participants in this study reported that they do not pay special attention to the news and programs on the local TV. The mentioned reasons included the programs with the same production method, neglecting the type of news, message validity, and lack of innovation. Therefore, if special attention is paid to the content of programs and news, or if they the programs and news are matched to the needs of people and the conditions of the society, or are designed based on innovative educational and psychological methods, better results will be obtained. The content of news should catch the audience's attention. It play an important role in changing the attitude and behavior of people towards the crisis [39]. One of the indicators of the effectiveness of educational content is its attractiveness to the audience [40]. Therefore, the programs should be designed based on the target groups and their interests. In this study, participants perceived local TV's lack of attention to community needs and a lack of innovation in reporting the news.

Lack of trust in the media was another theme extracted in this study, with sub-themes of false news, low proficiency in presenting news, poor programs, and broadcast of routine programs on the local TV. One of the influential factors related to media influence is media credibility, which refers to the believability of news or sources. The credibility issue had not received much attention from local TV, manifested in the form of using experts with low proficiency and lack of effort in producing high-quality programs, which is similar to the results of a recent study [30]. One of the problems mentioned by the participants was the broadcast of routine programs that led to a lack of interest in watching the news and paying attention to the program. In past studies, this issue has not been directly reported [41]. However, it is obvious that if new TV programs are produced based on people's needs, they will develop a more positive attitude towards local TV, which can increase their attention to the programs or news.

The inability to increase social sensitivity was the last theme. To create a proper risk perception while stimulating the risk level and creating perceived sensitivity, basic guidelines for reducing the level of risk are recommended [7]. Risk perception guidelines can help people take the flash flood risk more seriously. If they believe that the flash flood is a serious risk, the probability of proper responses and measures for crisis prevention and management increases [42].

Conclusion

Time of broadcasting news, content of programs, trust in the media, and ability to increase social sensitivity were extracted as the factors affecting the performance of local TV programs in informing about flash floods in Yazd. Reporting important news and warnings about flash floods on various channels, employing innovative production methods, and increase the pubic trust by using credible and accurate news can play a pivotal role in enhancing the performance of local TV in Yazd. Interviewing people about their experiences of an event depends on the importance of the topic to them. In addition, some people may not remember the details of the event. Due to this limitation, only those who had a good memory of floods were interviewed in this study.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Education, Research, and Technology Division of the Iranian Red Crescent Society (Code: IR.RCS.REC.1402.023). A written consent form was obtained from the participants before the study. They all were free to leave the study at any time, and their information was kept confidential.

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Authors' contributions

The authors equally contributed to preparing this article.

Conflict of interest

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