Paradigm

Public Perception and Attitude towards Evacuation Drills and Emergency Safety Awareness: A Survey of Romanian Citizens

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Abstract. Romania is exposed to a wide range of natural and man-made hazards, including earthquakes and floods, making public preparedness and evacuation awareness important components of emergency management. This paper examines how Romanian citizens perceive evacuation drills and emergency safety measures. The study is based on an online survey completed by 256 respondents through SurveyMonkey and distributed via social media and local community networks. The questionnaire explored participants' familiarity with evacuation procedures, previous participation in drills, perceived emergency risks, emotional reactions during drills and emergency situations, trust in public authorities and personal preparedness levels. The results indicate that although many respondents are generally familiar with evacuation procedures, fewer are able to identify evacuation routes or assembly points accurately. Most participants had previously taken part in evacuation drills, but levels of preparedness and information retention differed significantly between respondents. The study also identified emotional responses such as anxiety, irritation and indifference during evacuation exercises, suggesting that current drills may not realistically reflect emergency conditions. Furthermore, moderate levels of trust in authorities were identified, influencing respondents' willingness to comply with official evacuation guidance. The findings suggest the need for more practical and realistic evacuation training, clearer public communication and improved preparedness programs aimed at increasing community resilience and public safety in Romania.

Keywords: evacuation drills, emergency preparedness, public perception, Romanian population, community resilience.

Introduction

In the context of increasing natural disasters and man-made emergencies, effective emergency preparedness is essential for minimizing risks and enhancing community resilience (Chandra et al., 2010). Emergency evacuation drills are a critical component of preparedness initiatives, as they familiarize individuals with necessary procedures and reduce panic during actual emergencies (Drury & Cocking, 2007). Although evacuation drills are widely considered important, previous studies show that public awareness and participation vary considerably in public awareness and

DOI: 10.2478/picbe-2026-0291
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engagement, particularly in Romania, where cultural and contextual factors may influence perceptions of safety protocols.

Romania is highly susceptible to natural disasters, particularly earthquakes, floods, and wildfires, which pose substantial risks to the population and infrastructure. Earthquakes are a notable hazard, with Romania lying near the seismically active Vrancea zone, which produces some of Europe's most intense seismic activity. The 1977 Vrancea earthquake, for example, resulted in the loss of over 1,500 lives and substantial damage to infrastructure in Bucharest and surrounding areas. More recent seismic events in 2004 and 2020 have highlighted the ongoing vulnerability of Romanian communities to earthquakes (Apostol et al., 2023).

Floods are another recurrent threat, exacerbated by Romania's river systems and varied topography. In recent years, catastrophic floods impacted several counties, causing extensive damage and displacing thousands of residents (Pascu et al., 2016). Although flood risk management strategies have improved, localized flooding continues to cause significant disruption, particularly in rural regions. Meanwhile, wildfires, though less common, have increased in frequency and intensity in recent years due to climate change, with regions like Transylvania and the Carpathian forests being particularly affected.

The Romanian government and local authorities have introduced several measures aimed at improving emergency preparedness and reducing the impact of natural disasters. These include the establishment of the National Emergency Situations Committee (CNSU – Comitetul National pentru Situatii de Urgenta) and the revision of building regulations intended to strengthen seismic resistance. Despite these efforts, concerns remain regarding the organization of evacuation drills and the accessibility of evacuation information for the general public. Previous studies suggest that many citizens are unfamiliar with practical evacuation procedures and often underestimate the risks associated with major emergencies. In addition, limited trust in authorities and weak community-level involvement continue to affect the effectiveness of emergency response measures (Mihai, 2024).

This paper presents the results of the survey "Public Perception and Attitude Towards Evacuation Drills and Emergency Safety Awareness," conducted among 256 respondents from Romania. The questionnaire was distributed online through SurveyMonkey using social media channels and local networks. The study examined participants' awareness of evacuation procedures, familiarity with emergency protocols and attitudes toward evacuation drills. The aim of the research is to better understand current levels of preparedness and identify areas where public safety communication and emergency training could be improved.

Literature review

Emergency preparedness and evacuation behavior

Emergency preparedness involves the knowledge and practical abilities that help individuals and communities respond to hazardous situations effectively. Evacuation drills are commonly used to familiarize people with emergency procedures, improve coordination and reduce confusion during real events. Previous studies show that repeated and well-organized drills can improve evacuation performance and shorten pre-evacuation delays, which are often a major factor influencing total evacuation time (Ronchi & Nilsson, 2013). At the same time, the success of evacuation exercises depends on how realistic they are, how often they are conducted and whether participants clearly understand the instructions they receive (Lovreglio et al., 2015).

Although evacuation drills are widely implemented, awareness of procedures does not always mean that people are fully prepared to respond in an actual emergency. Research indicates

that individuals may know basic safety recommendations while lacking detailed information about evacuation routes, assembly areas or their responsibilities during an evacuation (Bahmani et al., 2023). This gap between general awareness and practical preparedness continues to be an important issue in emergency management research.

Risk perception and emotional responses

Risk perception influences how people respond during emergencies and whether they adopt protective behaviors. Protection Motivation Theory suggests that preparedness is shaped by how individuals evaluate a threat and by how capable they believe they are of responding effectively (Maddux & Rogers, 1983). Emotional reactions such as fear or anxiety can encourage protective action, but in some situations they may also reduce decision-making efficiency, especially when people feel unprepared or uncertain about what to do.

Previous research indicates that personal experience with disasters or emergencies can increase perceived risk and influence preparedness behavior (Bubeck et al., 2012). People who have experienced emergency situations are often more attentive to safety measures and more likely to follow evacuation instructions. At the same time, prior exposure may also lead to stronger emotional reactions during evacuation drills or real emergencies.

Trust in authorities and compliance

Trust in public institutions is an important factor influencing whether people follow emergency instructions. Previous studies show that citizens are more likely to comply with evacuation measures when they view authorities as competent, reliable and transparent, particularly during situations involving uncertainty or time pressure (Siegrist & Zingg, 2014). Higher levels of institutional trust are also associated with greater participation in preparedness activities and increased willingness to follow official recommendations.

Trust between members of the community is also relevant during emergencies. In evacuation situations, people often observe the reactions of others before making decisions. Low levels of trust may slow evacuation or reduce compliance with official guidance, while stronger social trust can support cooperation, coordinated responses and mutual assistance between community members.

Romanian context and research gap

Romania is vulnerable to earthquakes, floods and other natural hazards, making emergency preparedness an important public safety issue. Although previous research has explored disaster management and public risk perception in Romania, fewer studies have examined multiple aspects of evacuation preparedness together, such as participation in drills, retention of evacuation knowledge, emotional reactions, perceived preparedness and trust in authorities.

In addition, limited research has focused on how these factors influence citizens' willingness to follow evacuation instructions during emergencies. A better understanding of these relationships could support the development of more effective preparedness programs and improve the organization of evacuation drills.

This study examines the relationship between awareness of evacuation procedures, participation in drills, perceived preparedness, emotional responses, trust in authorities and willingness to comply with official evacuation guidance among Romanian citizens.

Methodology

The study used a survey-based research approach involving 256 respondents from Romania between 2024 and 2025. The questionnaire was distributed online through SurveyMonkey and shared using social media platforms and local networks in order to reach participants from different demographic backgrounds. The survey contained 28 questions written in Romanian and was structured into several sections covering demographic information, awareness of evacuation procedures, previous participation in evacuation drills and emotional and behavioral reactions related to emergency situations.

Survey Structure and Question Types

The questionnaire included several types of questions in order to collect both quantitative and qualitative data:

1. *Mandatory Questions:* Questions related to age, gender, education level, field of work, awareness of evacuation procedures and previous experience with emergency situations were mandatory. These questions provided general demographic and background information about the respondents. Most were single-choice questions intended for statistical analysis.

2. *Optional Questions:* Some questions were optional, particularly those related to emotional reactions during drills or real emergency situations and personal preparedness measures, such as maintaining emergency supplies. Respondents could skip these questions if they did not wish to answer or did not feel sufficiently informed.

3. *Multiple-Choice Questions:* Several questions used predefined response categories based on previous emergency preparedness studies. These addressed topics such as awareness of evacuation procedures, participation in drills and trust in authorities responsible for emergency management. For questions related to emotions experienced during evacuations, respondents were allowed to select multiple answers.

4. *Likert Scale Questions:* A number of items used Likert scales (Likert & Rensis, 1932) to evaluate attitudes and perceptions. For example, respondents rated their level of trust in authorities and their perceived preparedness using scales ranging from low to high levels.

5. *Open-Ended Questions:* The survey also included open-ended questions intended to gather individual opinions and suggestions. Participants were asked about factors that could discourage immediate evacuation and possible ways to improve future evacuation drills. Out of the 256 respondents, 43 answered the question regarding evacuation deterrents, while 42 provided suggestions for improvement.

The collected data were analyzed using descriptive statistics to identify general trends and inferential statistics to examine relationships between variables. Combining quantitative and qualitative responses helped provide a broader understanding of public attitudes toward evacuation drills and emergency preparedness in Romania.

Results and discussions

Demographics

The demographic profile of the respondents revealed a diverse participant pool. The majority (31%) of respondents were aged between 21 and 30 years, followed closely by the age category of 31-45 years (26%) and 46-64 years of age (24%). Approximately 14% of the respondents were aged 20 years or less. The smallest percentage of the respondents (5%) were in the age category of above 65 years old. Gender distribution indicated an evenness of females and males (49%), with a

percentage of 2% of the respondents refraining from answering. In terms of educational attainment, 36% held university degrees, while 44% completed high school, highlighting a generally well-educated demographic. Almost all respondents were Romanian citizens (only 6 respondents did not have Romanian nationality, most of them being from neighboring countries), and almost all were residing in Romania (97%), ensuring a focused examination of national attitudes.

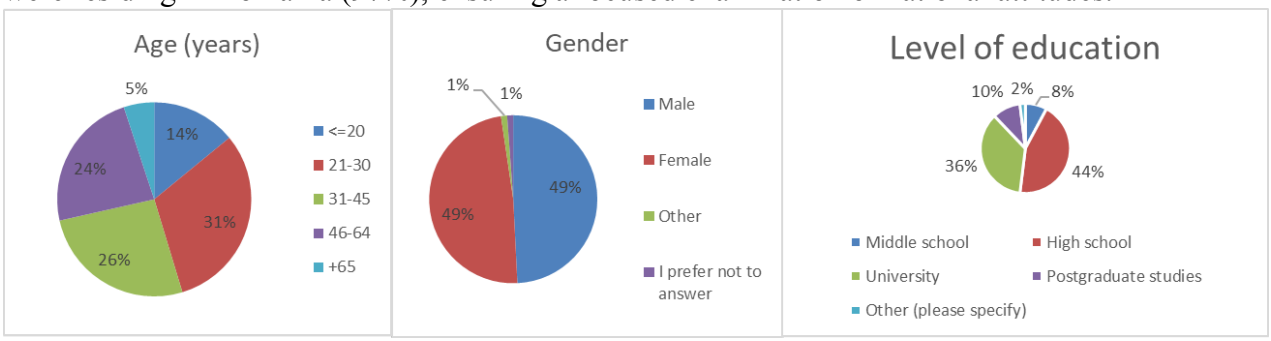


Figure 1. Demographics of respondents

Source: authors' own work.

Awareness and Knowledge of Evacuation Procedures

Among the respondents, 61% reported being familiar with standard evacuation procedures used during emergencies. However, knowledge of specific evacuation routes and assembly points appeared to be lower. Only 29% of participants considered their knowledge to be good, while 45% described it as moderate. These results suggest that general awareness of evacuation procedures does not always translate into detailed practical knowledge. Although many respondents are aware of the importance of evacuation measures, a considerable proportion may not know exactly how to respond during an actual emergency situation.

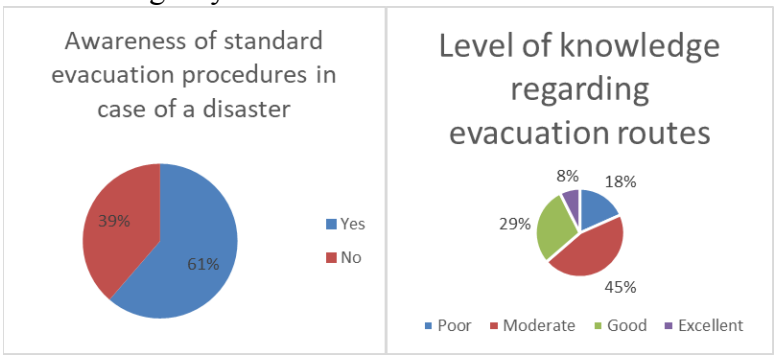


Figure 2. Awareness and knowledge of evacuation procedures

Source: authors' own work.

Participation in Evacuation Drills

The survey results showed that 73% of respondents had previously participated in evacuation drills. Among these participants, 67% stated that they could remember the evacuation steps they had been instructed to follow. The findings also suggest a relationship between previous drill participation and higher self-reported knowledge of evacuation procedures. Respondents who had taken part in drills generally reported greater familiarity with emergency procedures and preparedness measures.

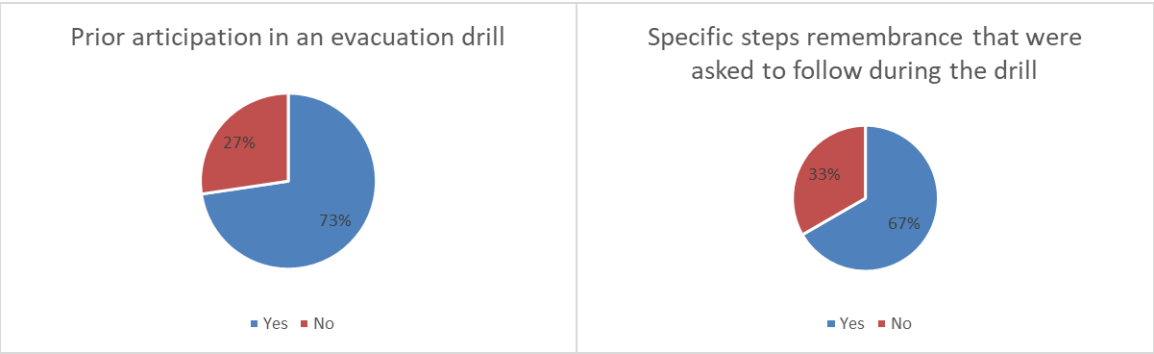


Figure 3. Participation in evacuation drills

Source: authors' own work.

Attitudes Towards Evacuation Drills

Respondents reported different attitudes toward evacuation drills. Approximately 36% stated that they took these exercises very seriously, while 54% described their level of seriousness as moderate or partial. Participants who viewed evacuation drills more seriously were also more likely to have participated in previous drills, indicating a possible connection between prior experience and attitudes toward emergency preparedness.

In addition, 67% of respondents considered evacuation drills to be too infrequent. This result suggests that many participants believe more regular training and simulation exercises are necessary to improve preparedness for emergency situations.

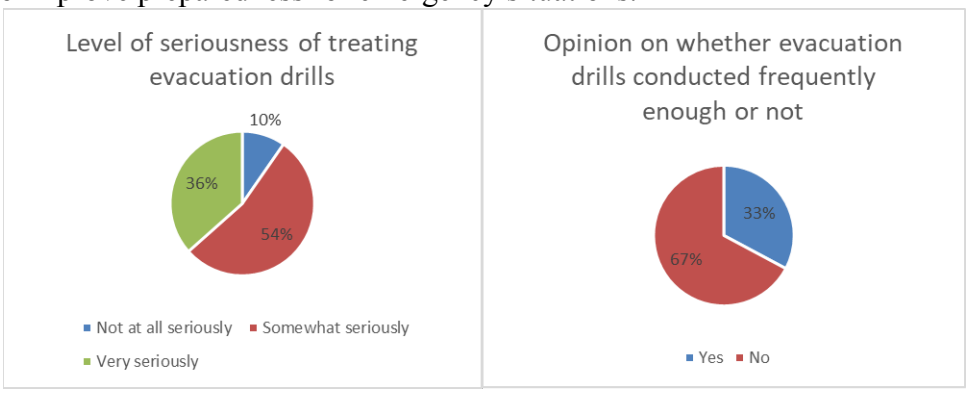


Figure 4. Attitude towards evacuation drills

Source: authors' own work.

Emotional Responses During Evacuation Drills

Participants reported a range of emotional reactions during evacuation drills. While 13% associated the drills with feelings of safety, other respondents reported emotions such as anxiety (23%), fear (21%) and indifference (15%). Respondents who experienced fear or anxiety were generally more likely to support the organization of more frequent and better-structured evacuation exercises. This may suggest that emotional reactions during drills influence how participants evaluate the effectiveness and necessity of emergency preparedness training.

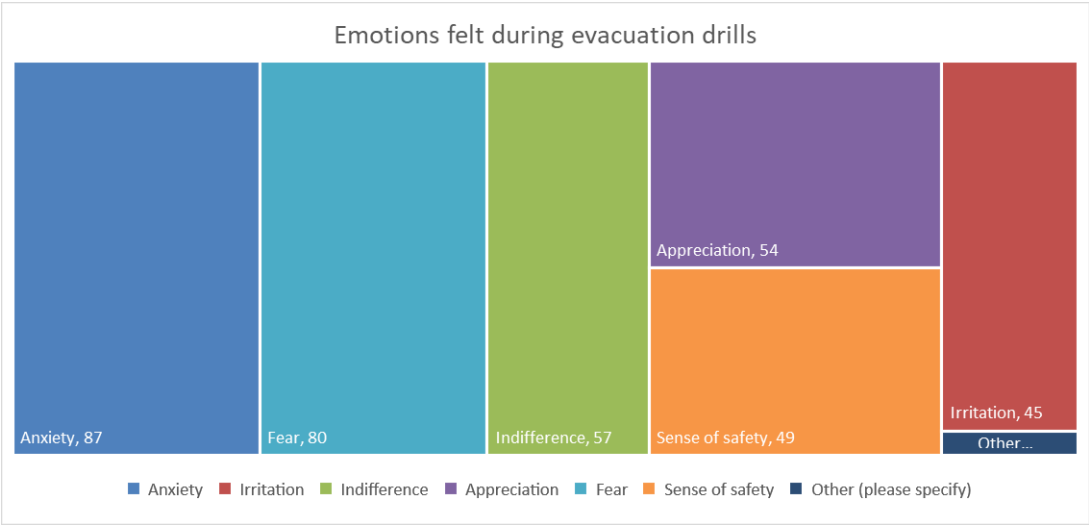


Figure 5. Emotional responses during evacuation drills

Source: authors' own work.

Perceived Risk of Emergencies

When asked about the likelihood of experiencing a hazardous situation that could require evacuation, 42% of respondents considered the risk to be moderate. In comparison, 22% rated the risk as high and 7% as very high. Participants who perceived a higher level of risk were generally more likely to express the need for better preparedness measures and clearer communication from local authorities. These findings suggest that risk perception may influence interest in evacuation training and emergency preparedness activities.

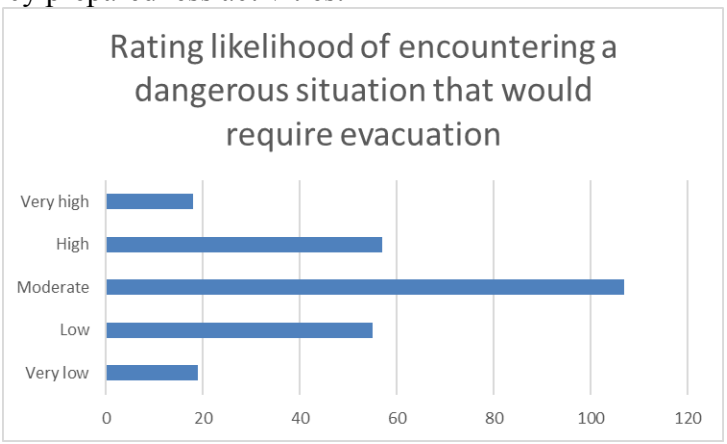


Figure 6. Perceived Risk of Emergencies

Source: authors' own work.

Preparedness and Emergency Supplies

Regarding personal preparedness, 48% of respondents stated that they felt somewhat prepared for an unexpected evacuation, while only 26% considered themselves adequately prepared. In contrast, 16% reported that they did not feel prepared at all. Similar patterns were observed regarding emergency supplies, with 46% indicating that they possessed basic emergency materials or supplies.

The findings also suggest that respondents who had previously participated in evacuation drills were more likely to report higher levels of preparedness and to maintain emergency supplies. This may indicate that participation in drills contributes to greater awareness and readiness for emergency situations.

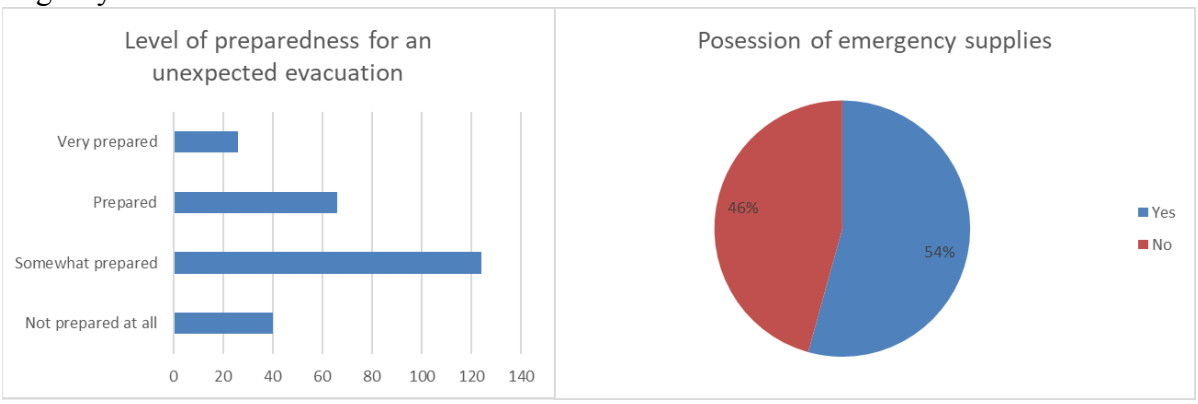


Figure 7. Preparedness and Emergency Supplies

Source: authors' own work.

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Factors Discouraging Evacuation

When respondents were asked to identify factors discouraging immediate evacuation, 42 participants provided open-ended responses, highlighting concerns such as:

- Family & pets (responsibility for dependents)
- Panic, chaos and crowding during emergencies
- Fire, smoke & other disasters on the route
- Unaccounted family members

These responses suggest that emotional and social factors play an important role in evacuation decisions. Participants who had previously experienced real emergency situations (27%) also reported higher levels of fear and anxiety, which may affect their willingness or ability to evacuate quickly.

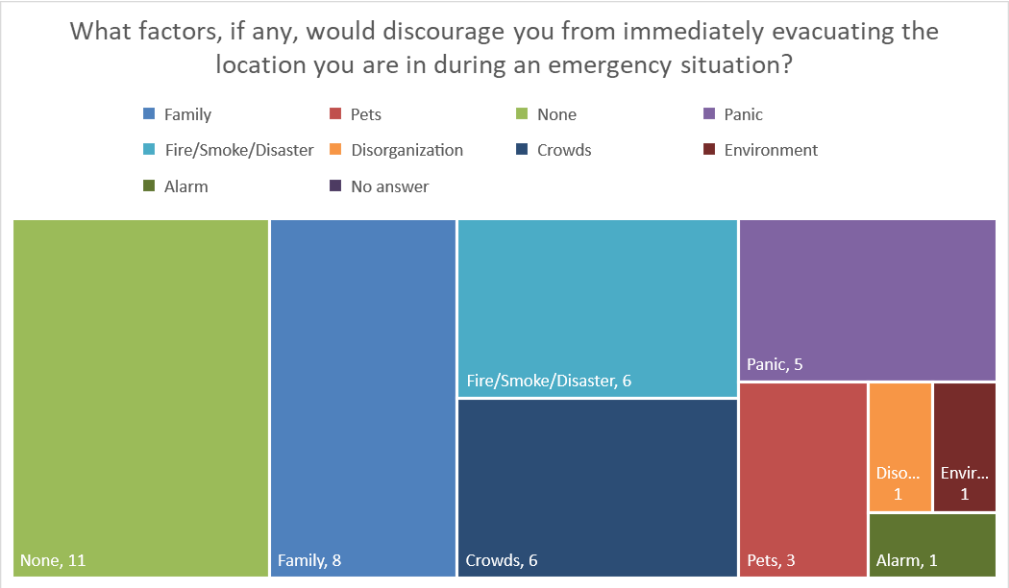


Figure 8. Factors Discouraging Evacuation

Source: authors' own work.

Trust in Authorities and Community

The survey also examined respondents' trust in local authorities regarding evacuation management. Approximately 42% reported a moderate level of trust, while 24% indicated lower levels of trust. In addition, 44% of participants stated that they would be highly willing to follow evacuation instructions provided by local authorities. Respondents with higher levels of institutional trust generally also reported feeling better prepared for emergency situations, suggesting a possible connection between trust and compliance during evacuations.

Trust between community members was also evaluated. Around 46% of respondents reported moderate trust in fellow citizens during evacuation situations, while 70% stated that they would be willing to help others during an emergency. These findings indicate that cooperation and mutual assistance may play an important role in evacuation behavior and community response during emergencies.

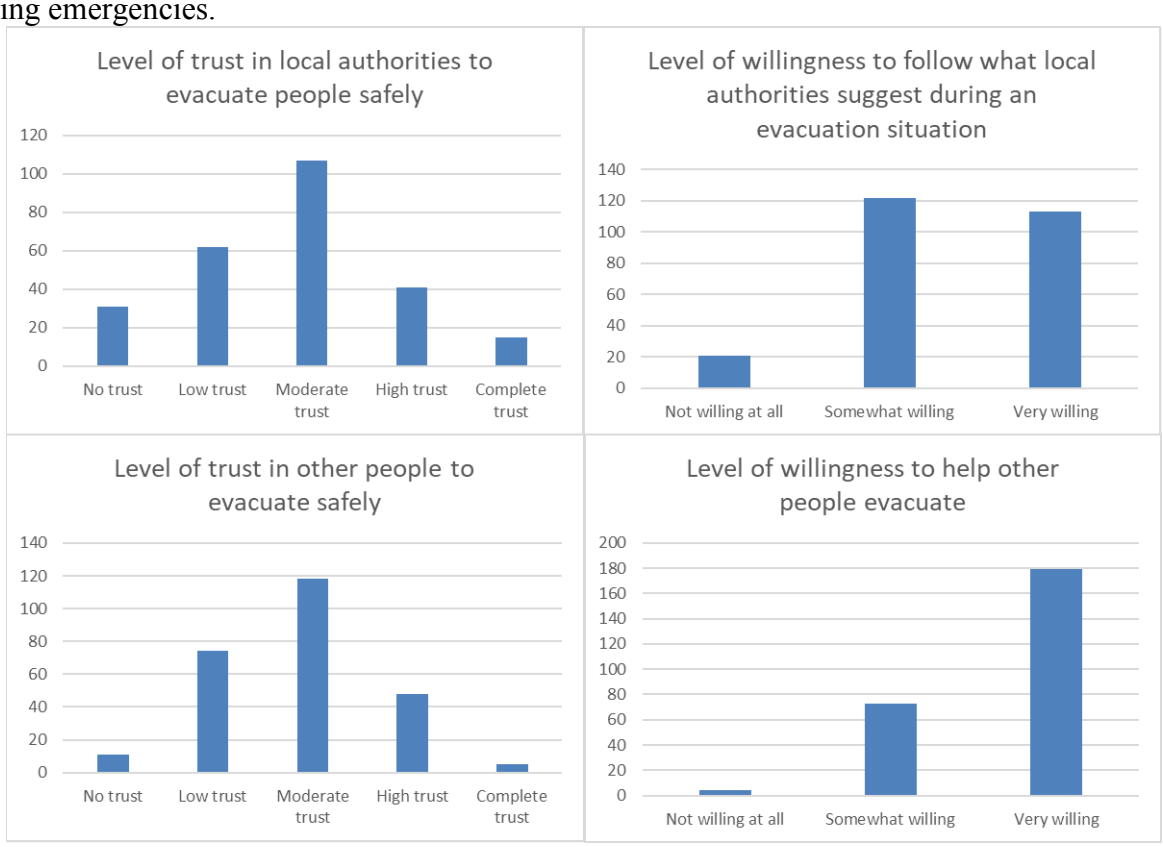


Figure 9. Level of trust in authorities and community

Source: authors' own work

Improvements for Future Evacuation Drills

Respondents were asked to provide suggestions for improvements to future evacuation drills and emergency preparedness initiatives. Among the 42 responses, key recommendations included:

- More frequent simulations
- Awareness raising
- Individual preparedness raising
- Participation to authentic drills

Respondents who supported more frequent drills were often the same participants who reported lower levels of preparedness. This may indicate that individuals who feel less prepared

believe that additional training and clearer communication could improve their confidence and readiness during emergency situations.

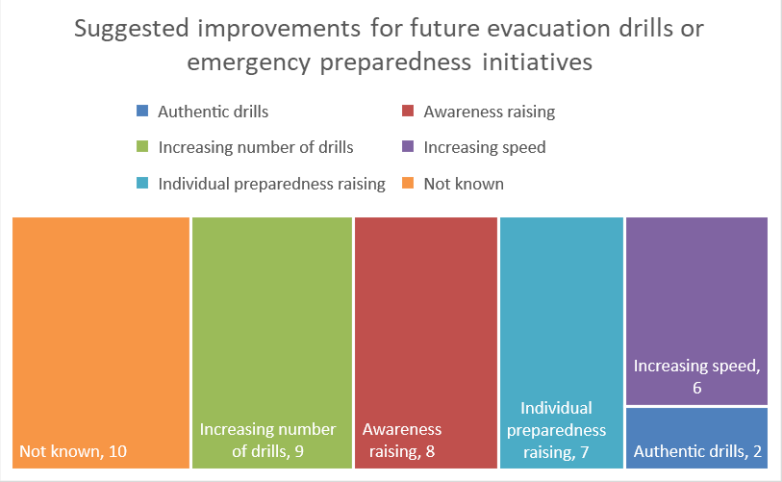


Figure 10. Improvements for Future Evacuation Drills

Source: authors' own work

Conclusion

The survey results provide an overview of Romanian citizens' perceptions of evacuation drills and emergency preparedness. Although 61% of respondents reported being familiar with general evacuation procedures, only 29% considered their knowledge of evacuation routes and assembly points to be good, while just 8% rated their knowledge as excellent. These findings indicate that general awareness does not necessarily correspond to detailed practical knowledge required during emergencies.

Participation in evacuation drills was relatively common, with 73% of respondents reporting previous involvement in such activities. However, only 67% of those participants stated that they could remember the specific evacuation steps they had been instructed to follow. This may suggest that drills are not conducted frequently enough or that information retention decreases over time.

Emotional reactions reported during evacuation drills and real emergency situations also varied. During drills, respondents most commonly reported anxiety (23%) and fear (21%), while only 13% associated drills with feelings of safety. In real-life emergency situations, fear (21%) and determination (15%) were among the most frequently reported emotions. These differences may indicate that evacuation drills do not fully reproduce the emotional pressure experienced during actual emergencies.

Trust in local authorities was another important aspect identified in the survey. Only 16% of respondents reported high trust in authorities responsible for evacuation management, while 6% expressed complete trust. Although 44% stated that they would be very willing to follow official evacuation instructions, many respondents reported only partial willingness to comply. This suggests that stronger communication and increased public confidence in authorities could improve cooperation during emergency situations.

Statistical Correlations and Analysis

The analysis of survey responses identified several relationships between previous emergency experience, preparedness, and evacuation behavior. Respondents who had experienced real

emergency situations generally reported higher levels of preparedness and a greater willingness to help others during evacuations. Overall, 70% of participants stated that they would be willing to assist other people during an emergency, with higher willingness reported among those with previous evacuation experience.

Differences were also observed across educational backgrounds. Participants with post-university education levels tended to report greater familiarity with evacuation procedures compared to respondents with lower levels of formal education. This may suggest that public awareness campaigns and preparedness programs should be adapted to reach individuals from different educational backgrounds more effectively.

The results also showed a relationship between trust in local authorities and willingness to follow evacuation instructions. Respondents who reported moderate or high levels of trust in authorities were generally more willing to comply with official recommendations during emergencies. These findings indicate that public trust and communication may play an important role in evacuation compliance and emergency preparedness.

Recommendations for Improvement

Based on the survey results, several measures could improve emergency preparedness and public awareness in Romania:

1. *More frequent and realistic evacuation drills:* Many respondents indicated that evacuation drills are not organized often enough. Increasing the frequency of drills and introducing more realistic scenarios could improve knowledge retention and help participants become more familiar with evacuation procedures.

2. *Clearer communication from local authorities:* The findings suggest that public trust in authorities influences willingness to follow evacuation instructions. Providing clear and consistent information about emergency procedures and public safety measures may help strengthen public confidence and improve cooperation during emergencies.

3. *Targeted Educational Campaigns:* The survey identified differences in preparedness and evacuation knowledge across educational backgrounds. Public awareness campaigns could therefore be adapted for different demographic groups through schools, community programs, online resources, and public information campaigns.

4. *Greater community involvement:* Community participation may improve preparedness and cooperation during emergencies. Local initiatives such as neighborhood safety activities, volunteer programs, and peer-led training sessions could encourage stronger community engagement and mutual assistance.

5. *Promotion of emergency preparedness kits:* Only 54% of respondents reported having emergency supplies available. Public information campaigns could help increase awareness about the importance of preparedness kits and the basic items recommended for emergency situations.

Overall, the survey results indicate that Romanian citizens are generally aware of evacuation procedures, but important gaps remain regarding preparedness, practical knowledge and trust in authorities. Improving evacuation training, communication and public engagement could contribute to more effective emergency responses and stronger community preparedness.

Acknowledgement

This study was co-financed by the Bucharest University of Economic Studies during the PhD program. The work is also supported by a grant from the Romanian Ministry of Research,

Innovation, and Digitalization, project CF 178/31.07.2023—'JobKG—A Knowledge Graph of the Romanian Job Market based on Natural Language Processing'.

During the preparation of this work, the authors utilized ChatGPT 5.5 to enhance readability and language clarity. Following the use of this tool, the authors meticulously reviewed and revised the content as necessary and assume full responsibility for the final content of the publication.

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