

Original Research

Quantification of Fire Resilience in Urban Communities: Evidence from the City of Novi Pazar, Serbia

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Received: 7 April 2023

Accepted: 4 May 2023

Abstract

Large-scale fires in densely populated urban areas impose long-term consequences to different community levels. The main purpose of the presented cross-sectional research is to describe relations between demographic, socio-economic, organizational, infrastructural, psychological factors and citizens' resilience to fire incidents. The city representing the chosen case study has recorded severe fires in residential buildings with civilian fatalities, injuries and extensive material damage. The researcher applied linear regressions, correlations and binary logistic regressions in order to prove hypotheses. The research results have confirmed general and special hypotheses used in previous disaster management studies related to other types of hazards in urban communities. New perspectives have been opened for further consideration of social capital and the strength of religious faith in terms of citizen fire resilience. The specificity of this multicultural community-based research is reflected in the selective sampling of respondents who provided answers to significant and broad spectrum aspects of resilience, including pre-fire, immediate and post-fire phases of incidents.

Keywords: citizen resilience, residential fire, multicultural community, quantitative research

Introduction

Fire resilience has become an important part of urban security agenda. Rapid urbanization has increased fire risks due to the fact that growing population lives in small geographical areas. Large-scale residential fires inflict direct and indirect damage within urban community systems with far-reaching multisectoral and multidimensional consequences. The scope of the presented cross-sectional study is directed

towards citizens' fire resilience. The author applied quantitative research design to describe the impact of demographic, socio-economic, infrastructural, organizational and psychological factors on citizens' ability to act proactively, adequately respond to fire, absorb negative impacts, adapt to new conditions and recover without lasting consequences. In the frame of the research instrument, the citizens were asked to make a self-assessment of personal resilience through evaluation of pre-fire, immediate and post-fire phases of the fire accident.

A systematic literature review leads to a conclusion that conceptualization and operationalization of community resilience is not consistent among scholars.

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The consent among researchers is found in domains, scales and capacities in which resilience can be explored [1, 2]. Individual, organizational, infrastructural and community resilience can be assessed through the lenses of social, economic, psychological, institutional and other domains [1]. As noticed by some scholars, resilience is a holistic concept with popularity across a range of social science disciplines [3]. The resilience is composed of cascade, interconnected capacities [4] reflected through proactive measures, response to stressor and restoring prior state of system functioning. The above-mentioned capacities are commonly used in research as framework for better understanding and describing resilience as a predictive variable. The resilience is a tendency to survive and develop [5] and it refers a society's capacity to adapt to prior and post disaster challenges [1]. Experience with stressors such as fire, earthquake, floods or similar is essential for testing response, recovery phase and overall resilience of selected entity. Fire resilience is related to the function of recovery time and the extent and degree of fire damage [6]. In the context of the presented study, fire resilience was examined as the capability of citizens to act proactively, efficiently respond to fire, and recover without permanent consequences.

Methods

The methodology used in the presented study has been proven in previous research using a large scope of disasters, such as earthquakes, floods, hurricanes, and droughts related to climate changes in order to test fragments or systems overall resilience. Only a modest number of explorative studies have been conducted in order to study fire as a stressor for testing community resilience [7, 8]. The deficiency of the mentioned research studies imposes the need for further and deeper understanding of the citizens' fire resilience phenomenon.

Quantitative Research Instrument

The research was conducted in compliance with the main ethical principles in research – voluntary participation, respect for privacy, anonymity and confidentiality [9]. Informed consent was given by all adult participants prior to filling out the given questionnaire which was disseminated by the researcher in personal contact with the participants. By conducting empirical research, the researcher specifically wanted to examine the findings of previous studies that linked the resilience, social capital [10-12] and strength of religious feelings [13, 14]. With the aim of creating the research instrument, researcher used the 10-item Connor-Davidson Resilience Scale [15] (CD-RISC-10) and the Santa Clara Strength of Religious Faith Questionnaire [16] alongside with the

fragments of research instruments of several previously conducted surveys as part of PhD thesis research [17-19]. Supplementary questions were added in relation to the specificities of chosen study area, for example the aid received from diaspora and the questions related to the aid obtained from the people who belong to other religious affiliations. The anonymous questionnaire comprising 97 questions divided into two sections was created as a quantitative research instrument. The first section included questions related to demographic data and socio-economic status of participants. The second section was created for researching fire perception and fire resilience. The selective sampling of 324 adult participants was used in this study. The selection of participants was based on their direct and indirect experience with fires in the period from the year 2015 to the end of 2020 in urban areas of Novi Pazar, Serbia.

Hypotheses and Data Processing Methods

Linear regressions, correlations and binary logistic regressions were used for processing the collected data with the aim of testing one general and five special hypotheses used in previously conducted PhD research studies with similar topic [17, 11, 19].

The general hypothesis is:

- Fire resilience of urban communities is determined by demographic, socio-economic, psychological, organizational and infrastructural characteristics.

Special hypotheses:

- Demographic characteristics influence the resilience of urban communities prone to fire hazards.
- Socio-economic characteristics influence the resilience of urban communities prone to fire hazards.
- Psychological characteristics influence the resilience of urban communities prone to fire hazards.
- Organizational characteristics influence the resilience of urban communities prone to fire hazards.
- Infrastructural characteristics influence the resilience of urban communities prone to fire hazards.

Cascading resilience capacities such as fire prevention, absorption, adaptation and recovery were used as a framework for pre-fire, immediate and post-fire phases exploration. For the purpose of hypotheses testing, four separate capacity scores were created for each capacity. The preventive capacity is defined as a score of the risk assessment variable, the variable of preventive fire protection measures, the existence of protective equipment, as well as accessible evacuation routes. The absorptive capacity is a composite variable consisting of the following variables: material damage, assistance from local community members and humanitarian organizations. The adaptive capacity consists of the variable existence of post-fire support groups. The restorative capacity consists of the variable related to post-fire recovering ability.



Fig. 1. Geographical location of the study area [20].

Study Area

The city of Novi Pazar is situated in the southwestern part of the Republic of Serbia. The urban core of the city lies in the valley, while most of suburban and rural settlements are scattered about the rims of the surrounding hills (Fig. 1) [20].

According to the official statistical data, the city has 100,410 inhabitants¹. Demographic trends in the last decades showed significant influx of population from the nearby urban and rural areas. Centuries of rich historical dynamics created mixed national and religious environment in the city. Exploring fire resilience in the multiethnic, multicultural and multiconfessional diversities of the proposed urban community gives a possibility of generalizing research findings to the same class phenomena in the similar surroundings.

In the recent past, human negligence caused several severe residential fire accidents in the city of Novi Pazar [21-23]. Disturbing scenes of women burnt alive at a balcony created high intensity stress for all real time and subsequent video spectators. Loss of human lives, civilian injuries, extensive material damage and stress of citizens caused by fire qualified the city of Novi Pazar as a research base for testing the previously established hypotheses.

Results and Discussion

The gender structure of the total sample was determined with 42.9% male participants and 55.9% female participants, while the rest of the sampled citizens did not want to declare themselves. Out of the total sample, 268 participants had indirect experience

with fire in the immediate proximity of their home. The remaining part of the sample consisting of 56 participants had direct experience with fire recorded inside their homes.

The average age of the participants was $M = 45.31$, $SD = 16.295$. Out of total number of people, 24.4% declared they did not have children, and 74.4% of participants said they had children. To the question "How long have you lived in the local community?", 1.9% of participants answered that they had lived there for less than 6 months, 1.5% of participants answered that they had lived there from 6 months to one year, 7.4% of participants answered that they had lived there from one year to five years and 88.9% of the participants answered that they had been living in the local community for more than 5 years. Regarding the ownership of their homes, 44.8% of the participants own the property, 45.1% of the participants live in a property owned by a family member and 9.6% of the participants live in rented apartments. The average number of household members participants live with is $M = 4.09$, $SD = 1.645$, so it can be concluded that there are, on average, 4 people per household. In the examined sample, 89.8% of people declared that there was no person with a disability in their family, while 9.9% of participants said that there was, which makes a total of 32 participants. Of the total number of participants, 57.1% own a car, while 41.7% do not. Furthermore, 34.9% of participants play sports recreationally, 1.2% professionally, while 63.3% do not play sports at all; 20.1% of participants suffer from chronic diseases, while 79.9% do not. Of the total sample, 47.2% are not employed, while 44.1% are employed and 8.6% of participants did not want to answer this question. The percentages do not add up to 44.1%, given the fact the participants who said they were unemployed circled part-time work and volunteering as their status, even though they said they were unemployed. Regardless of the fact that this information is important to note, it does not change the results of the research.

Previously conducted research confirmed relation between low- and middle-income countries and fire related injuries and deaths [8]. The majority of participants who answered the question regarding the level of income received between 20,000 and 80,000 Serbian dinars (170-620 €) per month.

Religion in this research was studied as a unique psychological variable, without an intention of the researcher to single out particular religious affiliation. The purpose of the questions related to nationality and religious beliefs was to represent the multicultural structure of participants. Therefore, data processing on questions related to religiousness and strength of faith was performed on the entire sample. The questions about religion and nationality were answered by all participants; 89.8% of the participants declared that they belonged to the Bosniak nationality, 9.6% that they belonged to the Serbian nationality, while one participant, i.e. 0.3% of the sample, declared that they

¹ Census of population 2022: Data by municipalities and cities <https://publikacije.stat.gov.rs/G2023/Pdf/G20234001.pdf> (Accessed 08 June 2023).

were Albanians or other nationalities. Furthermore, 89.5% of the participants declared they belonged to Islam, 9.3% they belonged to the Orthodox religion, 0.6% of participants, i.e. two of them declared that they were atheists, and 0.4%, i.e. one participant declared that they were agnostic or otherwise. In the sample, 96.6% of participants said they had friends of other religions, while 3.4% said they did not. Also, out of the total number of people who answered the question (319), 80.3% declared that they were close to their neighbors, while 19.7% declared that they were not close to their neighbors. The overall average on all questions is $M = 4.228$, $SD = 1.093$, while the standardized skewness is -11.474 , and the standardized kurtosis is 5.481 . The limits for the normal distribution of answers are $+1.96$, that is $+2.58$, and all the parameters indicate that the participants mostly gave high-graded answers, according to the five-point Likert scale, indicating that the sample was highly religious. As noticed by some authors, the multicultural communities give positive impetus in the process of building resilience due to pluralities of ideas and social cohesion, but could also create vulnerability due to different risk interpretation [24].

Furthermore, when analyzing the questionnaire examining attitudes about the relationship with one's local community, the result appeared similar to the scale examining religiousness, i.e. the arithmetic mean $M = 3.756$, $SD = .985$, while the standardized skewness and kurtosis are respectively $zSk = -3.622$, $zKu = -2.022$. Therefore, the standardized kurtosis is within the limits of normality, while the standardized skewness indicates a negative asymmetry of the response distribution, indicating that the feeling of community belonging is high in this sample. The participants were asked questions about psychological resilience or the ability to deal with unpredictable situations. The average score on this scale is $M = 4.221$, $SD = .789$. The participants gave high scores on how willing they were to face various situations that would potentially be undesirable for them. The majority of the surveyed population uses print media in order to be informed about current events; the Internet comes second, while television is on the third place, with radio coming last as a source of information. The average number of hours spent on the Internet is between three and four hours a day ($M = 3.65$, $SD = 3.169$). A computer is used by 48.5% of the surveyed population and a smartphone by 83.5% of the surveyed population. The majority of research participants answered that there was no information from the local authorities regarding procedures in case of fire. The participants stated that they did not know whether there was ventilation in public buildings. In addition, the participants think public buildings are not regularly maintained. Accordingly, the majority of participants declared that they were afraid of fire. The questions related to efficiency of public health institutions and the efficiency of firefighting units had the average answer

of $M = 2.93$, $SD = 1.230$ ($zSk = .888$, $zKu = 2.61$) for the first question and $M = 2.71$, $SD = 1.338$ ($zSk = 2.185$, $zKu = 3.73$) for the second and the distribution was normal, so the answers were distributed evenly. Most people gave neutral answers, so the satisfaction was moderate. The average score of readiness to respond to fire was $M = 3.11$, $SD = 1.324$, and it could be concluded that the participants were moderately prepared to respond in case of fire. Also, the majority of participants thought that the risk of fire was moderate to low ($M = 2.77$, $SD = 1.033$), which is in line with the results of the fear analysis as well as the response readiness results. Based on the relevant questions, the participants believe that the main factors for the outbreak of fires are human factors and faulty technical devices. The participants answered that there was mostly an adequate approach of firefighters in their surroundings, that usually there was a hydrant, but that there was no fire-fighting equipment and that there was no evacuation plan. However, among the 65 participants who declared that there was equipment in their immediate environment, the most dominant was the fire extinguisher, while there were almost no sprinklers and smoke detectors at all. When asked whether the participants take fire protection measures, 76.9% of them said that they did, 22.8% that they did not, and 0.3%, i.e. one respondent did not make a statement. The participants in the research stated that they mostly relied on public fire extinguishers. The majority of participants did not participate in fire drills, did not have a prepared first aid kit, did not know safety procedures in the event of fire, did not participate in fire recovery assistance groups, but declared that there were no such groups and they did not receive informal notifications about the fire. Out of the total sample, 56 participants experienced a fire in their home, while 288 participants experienced a fire in their immediate surroundings. Out of the total number of participants who had a fire in their home (56), 11 of them (19.6%) said that their household members were injured and 45 (80.4%) said that there were no injuries. Also, 40 participants had to leave home (71.4%), and 16 (28.6%) did not. Out of the total number of people who left their home, 22 (55.0%) left their home for less than a day, 11 (27.5%) for one to ten days, three (7.5%) for 10 to 30 days and four (10.0%) for 30 days to 6 months. Answering the question: "Did you encounter an obstacle during the evacuation?", 22 of the 52 participants answered yes, while 30 respondents answered no. The majority of participants gave the answer "because I did not feel my life was endangered" as the reason for staying at home and refusing to be evacuated. Due to the smaller sample of people who directly experienced fire, further results will be presented in the form of frequency and percentage. Out of the total number of participants who experienced a fire in their home, 47 respondents (83.9%) stated that there was a power outage in their home (9/16.1% stated that it was not), and the power went out on average in homes from

a minimum of one hour to a maximum of five days. The situation is somewhat different with the interruption of the telecommunications network – 27 (48.2%) participants stated that such an interruption did not occur, while 29 (51.8%) said that it did. The minimum interruption of telecommunications lasted for 2 hours, while the maximum lasted for two days. To the question, “During the threat of fire, were you able to count on help of fellow citizens belonging to other religious communities?”, 49 (87.5%) respondents said yes, while 7 (12.5%) said no. When asked about the change in behavior after the fire, 37 participants stated that they changed their behavior and became more cautious in handling electrical appliances. Seven participants were related to increased depression while 3 were sensing increased religious feelings. Behavioral changes did not occur in 19 participants. The arithmetic mean of the question related to the ability to adapt to new circumstances immediately after the fire is $M = 3.71$, $SD = 1.057$. Most people think that the ability to adapt after the fire is high. Only 9 (16.1%) participants volunteered in actions related to the fire and 40 participants (71.4%) stated that immediately after the fire they could count on help of members of their own religious community. Most participants declared that they did not receive help from members of other religious communities, and the most common help they received was the shelter in the case of evacuation. As for the aid of state authorities after the fire, five participants declared that they received aid for the purpose of material damage reparation. The average score for state authority aid is $M = 1.77$, $SD = 1.505$. Fourteen participants received help from the local community, mostly monetary aid, and the mean rating of the aid from the local community was $M = 2.62$, $SD = 1.460$. Six participants received humanitarian aid, and the average rating of humanitarian aid was $M = 2.56$, $SD = 1.867$. The average score on the item regarding the increase in religiousness is $M = 3.29$, $SD = 1.652$, so the majority of participants answered that religiousness increased, while the average score for the question about doubting the existence of God was $M = 1.18$, $SD = .667$. Doubt about the existence of God after the fire did not occur in this sample. Further analysis concerns the entire sample consisting of 324 participants. The majority of participants stated that they were satisfied with the efficiency of the fire brigade, while the participants who stated that they were not satisfied with their efficiency stated the passage of time from the moment of notification to the arrival of the fire-rescue unit at the site of the fire was the dominant reason for dissatisfaction. In the context of the assessment of local self-government bodies during the reconstruction process, the assessment of local ($M = 2.88$, $SD = 1.572$) as well as the assessment of republican authorities ($M = 1.72$, $SD = 1.202$) is low. The majority of participants believe that greater investment in fire-rescue units, as well as the organization of fire drills, would lead to strengthening

of the community’s capacity to deal with fire hazards. The participants rely mostly on neighbors, followed by friends and relatives. The average score on the question of recovery from the consequences of the fire is $M = 3.99$, $SD = 1.304$. It can be concluded that the participants mostly answered that they had fully or almost fully recovered from the consequences of the fire.

Linear Regressions

In order to test the first hypothesis, two linear regressions and one correlation were performed, that is, one regression for each of the capacities. The predictor variables were socio-economic, while the criterion variables were capacities. The variables that were categorical were binarized in order to be able to perform the regression. The predictor variables are found in Table 1 and Table 2. The first linear regression (Table 1, $F(3) = 5.911$, $p < .001$, $R^2 = .071$) shows that the level of income, marital status and proximity to neighbors predict well the preventive capacity. Other socio-economic variables do not contribute to the prediction of this type of resilience capacity. Although two of the mentioned three variables (marital status and income) are not statistically significant, they have a joint interactive contribution to the regression.

Furthermore, the correlation between material damage and adaptive capacity is $r = .011$ $p = .848$, it is not significant and is low, so there is no connection between material damage and adaptive capacity. This result may be due to the fact that the majority of participants said that they had fully or almost fully recovered from the effects of the fire, and property damage varied, and it was not possible to determine regularity between these two variables. The second linear regression (Table 2, $F(3) = 6.771$, $p < .000$,

Table 1. Results of linear regression between socio-economic variables and preventive capacity.

	Beta coefficient	t statistic	t-statistical significance
Income	-,011	,101	,859
Marital status	,086	-,062	,181
Neighborhood relationships	,246	2,976	,000

Table 2. Results of linear regression between socio-economic variables and restorative capacity.

	Beta coefficient	t-statistic	t-statistical significance
State authorities aid	-,022	-,402	,688
Humanitarian aid	-,239	-4,305	,000
Support groups	-,024	-,429	,668

R2 = .061) in Table 2 shows that state authorities aid, humanitarian aid, and the existence of post-fire support groups are good predictors of restorative capacity scores.

As much as 6.1% of the variance of restorative capacity can be explained by these three variables. The negative Beta ponder for republican and humanitarian aid indicates that in this sample the ability to recover from a fire is negatively related to these types of aid, which may be due to the fact that the participants did not generally receive this aid, therefore not receiving aid gave higher scores on the recovery item. Therefore, we can conclude that the first hypothesis is confirmed and we can see in the tables which socio-economic factors constitute the resilience of urban communities. As for the demographic variables, i.e. the number of household members, the level of education and chronic diseases, they predict preventive capacity well (Table 3, F(3) = 3.417, p<.05, R2 = .064).

The only statistically significant predictor is education and Beta for education is negative, so the higher the education, the lower the score on preventive capacity will be. In one qualitative study, caregivers and their children stated that education had an impact in raising awareness of fire safety [25]. Some scholars tried to explain relation between the level of education and critical attitude towards the environment [26] but it needs to be explored deeper in some further research studies. However, the second hypothesis was confirmed. Furthermore, the third hypothesis was examined, which concerned psychological variables in relation to resilience capacities. In order to determine

relationships, three regressions and one binary logistic regression were performed. The first regression (Table 4, F(4) = 17.758, p<.000, R2 = .185) showed that religiousness, relationship with people of other religions, fear of fire as well as perceived risk of fire predicted preventive capacity well.

The best predictor is risk perception, which makes sense because the better people perceive risk, the better fire prevention is. The second regression (F(6) = 2.838, p<.05, R2 = .053) indicates that immediate help after a fire by members of the local community (neighbors, friends, members of their own and other religions, as well as family) affects absorptive capacity (Table 5).

The third regression is a binary logistic one showing the relationship between adaptive capacity on the one hand and ability to respond, readiness to respond, help from members of one's own and other religious communities (Table 6, $\chi^2(4) = 13.690$, p<.05).

The model explained 6.2% of the variance in adaptive capacity and correctly classified 73.1% of cases. In Table 6 it can be seen how many times (column Exp(B)) it is more likely to receive aid from a religious community if the community has higher scores on the scale of adaptive capacity. In other words, the higher a community scores on adaptive capacity, the more likely it is to have members who rely on the aid of members of the same religious community. The regression model concerning the relationship between restorative capacity and psychological variables is not significant (F(3) = .874, p = .455, R2 = .009). In other words, changing the degree of religiousness as well as relying on neighbors who belong to the same religion does not affect the restorative capacity. Nevertheless, the second hypothesis was also confirmed. Given that the model is not significant, it is not meaningful to insert a table with regression coefficients. In order to examine the fourth hypothesis, that is, the relationship between organizational variables and resilience, four regressions were performed, three of which were linear and one was binary logistic. Regressions examined the relationship between organizational variables and the resilience capacity of urban communities. The first

Table 3. Results of linear regression between demographic variables and preventive capacity.

	Beta coefficient	t-statistic	t-statistical significance
Number of household members	,060	,767	,444
Education	-,208	-2,633	,009
Chronic diseases	,145	1,834	,069

Table 4. Results of linear regression between psychological variables and preventive capacity.

	Beta coefficient	t-statistic	t-statistical significance
Religiousness	,037	,718	,473
Friendship with other religion believers	,016	,309	,758
Fear of fire	,069	1,346	,179
Perceived fire risk	,413	8,008	,000

Table 5. Results of linear regression between psychological variables and absorptive capacity.

	Beta coefficient	t-statistic	t-statistical significance
Neighbors assistance	-,077	-1,298	,195
Friends assistance	-,001	-,020	,984
Assistance of other religion believers	,055	,904	,367
Assistance of own religion believers	-,082	-1,354	,177
Diaspora assistance	,108	1,807	,072
Family assistance	,169	2,860	,005

Table 6. Results of binary logistic regression between psychological variables and adaptive capacity.

	Wald	Significance	Exp (B)
Adaptation capability	,085	,770	,949
Preparedness capability	8,437	,004	1,350
Assistance of own religion believers	1,637	,201	1,666
Assistance of other religion believers	,933	,334	1,314

regression (Table 7, $F(3) = 9.347$, $p < .000$, $R^2 = .082$) shows that participating in fire drill demonstrations, having first aid in case of fire evacuation, and knowledge of fire safety procedures predicts preventive capacity scores. The second regression (Table 8, $F(4) = 32.731$, $p < .000$, $R^2 = .308$) represents the ratio

Table 7. Results of linear regression between organizational variables and preventive capacity.

	Beta coefficient	t- statistic	t-statistical significance
Demonstrative fire drills	-,029	-,482	,630
First aid	,218	3,839	,000
Knowledge of fire safety procedures	,151	2,501	,013

Table 8. Results of linear regressions between organizational variables and absorptive capacity.

	Beta coefficient	t-statistic	t-statistical significance
I thought that my life was not endangered	-,515	-10,456	,000
I was waiting for formal fire brigade instructions	-,229	-4,629	,000
I didn't want to leave my property	-,067	-1,378	,169

Table 9. Results of binary logistic regression between organizational variables and adaptive capacity.

	Wald	Significance	Exp (B)
Local community aid	2,718	,099	2,460
Providing humanitarian aid	1,656	,198	,602
Support groups participation	9,656	,002	26,592
Receiving humanitarian aid	,070	,791	,858
Volunteering	1,042	,307	2,206

of the reasons for not evacuating and the absorptive capacity. Those predictor variables explain 30.8% of the variance of the absorptive capacity. The third regression is a binary logistic showing the relationship between adaptive capacity and humanitarian assistance, local community assistance in case of fire, participation in a support group, participation in humanitarian actions, as well as volunteering in the community after the fire (Table 9, $\chi^2(5) = 25.998$, $p < .000$). The model explained 20.7% of the variance of adaptive capacity and correctly classified 61.7% of cases. In Table 9, it can be seen how many times (column Exp (B)) it is more likely to receive humanitarian aid, as well as how much more likely it is that people volunteer if the community has higher scores on the scale of adaptive capacity. In other words, the higher a community scores on adaptive capacity, the more likely it is to have members who rely on humanitarian aid or volunteer. Finally, the last regression representing the relationship between firefighter performance satisfaction, evaluation of humanitarian and state aid is not significant ($F(3) = 1.113$, $p = .354$, $R^2 = .071$). Regardless of that, the fourth hypothesis is confirmed. The fifth hypothesis concerns the relationship between infrastructural variables and resilience capacity. As adaptive, restorative and absorptive capacities were operationalized through qualitative variables, statistical analysis of correlations was performed for preventive capacities. The correlation between the variable - passability of roads for firefighters in case of fire and preventive capacity is $r = .552$, $p < .000$. This analysis also confirmed the last hypothesis. By reviewing the analysis itself, it can be concluded that the general hypothesis has been confirmed.

Conclusions

In the context of growing local and global interdependence, the importance of building fire resilience in urban communities has broader implications. Urban communities stakeholders should consider research findings and accordingly adopt tailor-made strategies for fire prevention, response, adaptation and reconstruction in order to build citizen's fire resilience. The scarcity of previously conducted studies related to fire resilience of urban communities limited the possibility of results comparison. The presented empirical study confirmed the hypotheses formed in the previous disaster resilience research with similar topics and revealed a necessity for deeper investigation of research phenomena in different analysis levels, such as institutional. The results of this study are applicable to the similar multicultural urban communities with approximate inhabitants number. The overall citizen fire resilience was highly scored in the urban community selected as a case study in the presented research. The research findings emphasized the importance of strength of faith and social capital attributes in the form of neighborhood closeness and the sense of community belonging on citizen's fire resilience. Further exploration of the mentioned variables is required in urban communities with higher population numbers.

Acknowledgments

The author would like to thank Ms. Jelica Miložićić for her assistance with data analysis. Gratitude is also expressed to the survey participants and local informants who provided essential help during the research.

Conflict of Interest

The presented research is an integral part of the study conducted with the aim of completing PhD thesis. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The author had no known competing financial interest or personal relationships with research participants that could have appeared to influence the research findings reported in this paper.

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