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Rising Strong: Does Personal Resilience Drive Civic Engagement During Disasters?

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Abstract: Background: In the crucible of disasters, civic engagement emerges as a dynamic force that channels individual strength and collective willpower toward the common good. Although it has been recognized as a necessary precondition for community resilience, studies on the motivators for citizens' activities during disasters are relatively limited. This study underscores the interplay of personal resilience, risk perception, and coping strategies in the context of emergency-oriented civic engagement. It provides a robust framework for comprehending the cognitive and emotional processes that drive individuals' responses to threats and risks to improve knowledge about public behavior, psychological conditions, and mental health during man-made disasters. Method: an online survey was conducted with a sample of 1514 citizens in Israel. A model incorporating both moderation and mediation effects was proposed. Results: The results reveal a consistent positive relationship between personal resilience and emergency-oriented civic engagement and point to the importance of both the intervening role of risk perception and the moderating role of coping strategies. Conclusions: discuss the importance of resilience-building programs and the promotion of positive coping strategies which can empower individuals to navigate the complexities of risk perception and engage actively in civic activities during disasters.

Keywords: resilience; disasters; civic engagement; risk perceptions; coping strategies

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1. Introduction

Evidence of human excellence such as generosity, volunteering, and caring is particularly noteworthy when it becomes evident in situations characterized by significant adversity and challenge [1]. During emergencies, disasters, and crises, people often report experiencing feelings of sadness, anger, and fear, particularly in situations such as terrorist attacks and other man-made disasters [2,3]. Given the heightened emotional responses during these times, the importance of civic engagement becomes even more pronounced in providing support and assistance [4].

Civic (or community) engagement is generally characterized as an individual's active participation in efforts designed to improve the socioeconomic well-being of a community or to positively influence its future development [5]. This research paper focuses on the concept of emergency-oriented civic engagement, which signifies the collective effort of individuals within a community to respond effectively to man-made disasters. It encompasses a wide spectrum of activities, from volunteering in disaster relief efforts to participating in emergency planning and community support.

Disasters are occurring more frequently worldwide, exhibiting a consistent increase in transnational terrorism [6], with a greater number of countries than ever facing some form of terrorist incidents [7]. Previous research has sought to explain why certain individuals participate in civic activities while others do not [8]. The significance of emergency-oriented civic engagement cannot be overstated, as it serves as the linchpin in building community resilience, ensuring a coordinated response, and facilitating a speedier recovery [9].

On 7 October 2024, Israeli villages were attacked by Hamas, an Islamic resistance movement occupying the Gaza strip, and on 8 October the Israeli government declared

Swords of Iron (war on Hamas). This ongoing man-made disaster serves as an illustrative case study for this study. The Israeli population shows an extremely high level of civic engagement, and, according to social media and other reports, found that roughly half of all Israeli adults have taken part in a volunteering effort following the 7th October attacks. At the heart of this research lies a profound exploration of personal resilience, risk perceptions, and coping strategies (both positive and negative), and how these elements interconnect in effecting and shaping emergency-oriented civic engagement initiatives during man-made disasters using the case of the current existing war.

Resilience empowers individuals to navigate the challenges posed by disasters and equips them with the psychological tools to emerge stronger [10]. The resilience of individuals directly impacts the resilience of communities [11]. Hence, recognizing the role of personal resilience in emergency-oriented civic engagement is crucial for anticipating the active engagement of individuals during disasters, communities' preparedness, well-being, handling, and recovery from them. Previous studies found a significant relationship between civic engagement and resilience in relation to man-made disasters such as the 9/11 terror attack [12] or Christchurch terror attack in New Zealand [13]. The interplay between personal resilience and emergency-oriented civic engagement holds paramount significance, particularly in the context of crisis management and policy studies [14–16]. This research is driven by two primary objectives. The first goal is to propose a set of predictive measures for emergency-oriented civic engagement. The second goal is to assess the influence of individual-level factors such as resilience, risk perception, and coping strategies on community-level resilience following man-made disasters. The research is guided by the following research question—What factors contribute to variations in emergency-oriented civic engagement in response to man-made disasters, and how do they impact community resilience?—aiming to offer a comprehensive model for understanding and predicting emergency-oriented civic engagement initiatives during man-made disasters.

The subsequent sections present an empirical model and corresponding hypotheses. This model is evaluated using data obtained from Israel during October 2023, during ongoing wartime. Finally, we will examine the implications of our findings for theoretical understanding and practical applications.

2. Materials and Methods

2.1. Civic Engagement During Emergencies

Civic engagement, a cornerstone of democratic societies, has deep historical roots that extend far back in time [17]. At its core, civic engagement represents the active participation of individuals in their communities, with the overarching goal of shaping and influencing the public sphere [18]. This dynamic concept has its origins in ancient civilizations and has evolved over centuries, continually adapting to the changing needs and structures of society. As we explore the concept of civic engagement, it becomes evident that it not only reflects the pulse of a democratic society, but also carries the rich tapestry of history, tradition, and cultural diversity that has shaped its development [19].

As outlined in the framework by Westheimer and Kahne [20], individuals may engage in civic activities during emergencies through personal responsibility, participatory involvement, or by adopting a justice-oriented approach. While a personally engaged citizen might offer immediate assistance by providing food, water, or shelter to disaster-affected individuals, a participatory citizen may take an active role in organizing a local emergency response team, helping to set up and manage emergency shelters, or participating in community-based disaster preparedness efforts. A justice-oriented citizen, however, goes beyond immediate relief efforts and focuses on addressing systemic issues contributing to disaster vulnerability. For example, they may advocate for more equitable disaster preparedness policies, pushing for changes that prioritize the needs of marginalized communities or highlighting the importance of climate action to mitigate the impact of future disasters.

Civic engagement during war and in the wake of terror attacks is the manifestation of human solidarity and shared responsibility. It is the embodiment of collective

strength, reflecting a society's ability to rally its resources, compassion, and unity in times of uncertainty [21,22]. The act of civic engagement extends beyond the boundaries of individual concerns, binding communities together for a common purpose. It provides an avenue for individuals to channel their energy and resources toward relief efforts, recovery, and reconstruction [23]. Other examples for the importance of during disasters were shown during the COVID-19 pandemic; community groups working alongside local authorities launched information campaigns to raise awareness among citizens about the significance of wearing masks and maintaining hand hygiene. These initiatives were instrumental in reducing the transmission of the virus and enhancing the overall health of the population.

At its core, personal resilience is an individual's capacity to confront and overcome challenges, drawing from their emotional, psychological, and social resources [24]. This psychological attribute is crucial in fostering the motivation and strength necessary for actively participate in community-level activities associated with disaster preparedness, response, and recovery [25]. Previous studies found a positive and strong relationship between civic engagement and resilience, mostly testing civic engagement's effect on resilience [26–28]. This logic was demonstrated when Hurricane Katrina struck the coasts of Texas and Louisiana, resulting in devastating floods and 1392 fatalities. In the wake of Hurricane Katrina, the assistance provided by the U.S. government proved to be insufficient for effective recovery. Consequently, citizens came together to collaborate and offer mutual support in their efforts to resume normalcy, independent of government interventions.

Some studies even tested the relationship between personal resilience and civic engagement in relation to terror attacks, showing that civic engagement plays a pivotal role in enhancing well-being amid man-made disasters [14]. In this research, the effect of personal resilience on civic engagement will be tested. The assertion posits that high personal resilience provides individuals with the confidence and capability to engage in civic activities that contribute to overall community resilience. Personal resilience is closely intertwined with emotional intelligence and empathetic abilities [25]. Resilient individuals can better comprehend the emotional needs of disaster-affected populations, offering support with empathy [29]. This emotional intelligence amplifies their civic engagement and aids in forging stronger community bonds.

The positive relationship between personal resilience and emergency-oriented civic engagement becomes even more pronounced during wartime. High personal resilience may enable individuals to cope effectively with the elevated stress and uncertainty that are inherent during turbulent times. In response, these individuals are more likely to engage actively in emergency-oriented civic activities, filling crucial roles in disaster response and community support. Based on this rationale, we present our first hypothesis:

H1: *Personal resilience and emergency-oriented civic engagement will be positively related.*

2.2. The Mediating Role of Risk Perceptions

The study of risk perception spans across both theoretical and practical disciplines. Research in disaster management has explored perceived risk in relation to various types of disasters, encompassing both human-induced events such as terrorism [30] and natural occurrences like tsunamis [31]. Additionally, perceived risk has been investigated within financial [32], physical [33], and health contexts [34]. Risk perceptions refer to the subjective evaluation of potential hazards and threats by individuals within a community [35]. These perceptions are shaped by a variety of factors, including past experiences, information access, and individual psychological traits [36]. High-risk perceptions can lead to increased fear and anxiety, potentially hindering the motivation and capacity to engage in civic activities during disasters [37].

Personal resilience plays a central role in shaping an individual's risk perceptions during man-made disasters. Resilient individuals tend to exhibit greater emotional stability, problem-solving skills, and self-efficacy, which enable them to view crises as challenges rather than insurmountable threats [38]. Consequently, they are more inclined to perceive

lower levels of risk or threat during disasters. This positive influence of personal resilience on risk perceptions forms the foundation of the proposed mediation of risk perception to the relationship between personal resilience and emergency-oriented civic engagement. The Health Belief Model (HBM) may be of use here [39]. The HBM is often applied to understand individuals' health-related behaviors, but its core principles can be adapted to the context of risk perceptions during emergencies. It posits that an individual's health-related behaviors are influenced by their perception of the following factors: Perceived susceptibility, which is the individual's belief about their susceptibility to a health problem or threat. Perceived severity refers to an individual's belief about the seriousness of the health problem or threat. Perceived benefits is the individual's belief in the effectiveness of a recommended health action. And finally, perceived barriers are an individual's assessment of the potential obstacles or costs involved in adopting the recommended health behaviors. These barriers may encompass physical, emotional, financial, or social factors. When perceived barriers are minimal, individuals are more likely to engage in the desired health behavior [40,41].

In the context of emergency-oriented civic engagement, personal resilience can be linked to an individual's perception of susceptibility and severity. Resilient individuals may perceive lower susceptibility and severity because their coping mechanisms and problem-solving skills reduce the perceived threat [35]. Risk perceptions then act as mediators between personal resilience and civic engagement. When risk perceptions align with the actual risks, individuals are more likely to engage in civic activities (perceived benefits outweigh barriers), while misalignment may deter engagement. In accordance, our next hypothesis is as follows:

H2: *Risk perceptions mediate the relationship between personal resilience and emergency-oriented civic engagement.*

2.3. The Moderating Role of Coping Strategies—Positive and Negative

In this study, coping is defined as responses to "situations of psychological stress that necessitate mobilization and exclude automatic behaviors and thoughts that do not demand effort" [42]. Coping strategies are frequently proposed as key factors in mediating the impact of stressors on mental and physical well-being [43]. A classification of coping strategies into engaged and disengaged coping has been proposed in past studies [44]. Engaged coping entails purposeful strategies directed at addressing stressors, such as seeking support, regulating emotions, accepting circumstances, and restructuring cognitive processes. On the other hand, disengaged coping strategies are centered on avoiding or escaping threats or related emotions, including denial, wishful thinking, and the excessive use of substances like alcohol. The employment of disengaged coping strategies is typically correlated with higher levels of distress and less effective adjustment., while engaged coping strategies consistently demonstrate links to reduced distress, improved physical health, and overall well-being [45].

Positive coping strategies, such as seeking support, emotional regulation, acceptance, and cognitive restructuring, may serve as moderators to the relationship between personal resilience risk perceptions and emergency-oriented civic engagement. Positive coping strategies are often associated with constructive problem-solving and emotional regulation [45]. Resilient individuals who employ these strategies may effectively leverage their strength to address challenges during disasters. As a result, their heightened ability to cope positively with stressors could intensify their motivation and capacity to engage in civic activities. Moreover, resilience fosters a sense of empowerment and control, and positive coping strategies amplify this effect [46]. Resilient individuals equipped with positive coping strategies may perceive their efforts as more meaningful and effective in contributing to civic engagement due to their emotional regulation, problem-solving skills, sense of self-efficacy, enhanced emotional connection with others, and their role in promoting community cohesion. Such individuals, buoyed by their resilience, serve as cat-

alysts for community mobilization, inspiring others to join efforts in activities that promote communal well-being, such as organizing relief efforts, advocating for humanitarian aid, or supporting fellow community members in need.

Conversely, negative coping strategies, such as denial, wishful thinking, and excessive use of substances, can also have a moderating role in the relationship between personal resilience, risk perceptions, and emergency-oriented civic engagement. However, in this case, the effect is generally counterproductive. While resilient individuals may possess personal strengths to endure and adapt, negative coping strategies can undermine their resilience [43]. Furthermore, previous studies indicate that coping strategies can significantly impact how effectively individuals adapt to stressful circumstances [47,48] and, hence, moderate the direct relationship between personal resilience and risk perception. The utilization of avoidance-based strategies may diminish their ability to effectively confront challenges during emergencies, thereby reducing their motivation to engage in civic activities. Additionally, negative coping strategies may incline individuals towards escapism and risk aversion [49], which can deter them from participating in civic activities during disasters. Resilience, when coupled with such strategies, may not necessarily translate into proactive civic engagement; instead, it could lead to withdrawal or avoidance behaviors. The majority of research on coping strategies during disasters has been carried out outside of Israel, often in distinct physical, social, and political contexts compared to man-made disasters. This necessitates a study of the means of coping for a specific Israeli subpopulation, a group characterized by a potentially greater familiarity with taking charge of behavioral choices owing to their exposure to man-made disasters and other emergency scenarios throughout the years. The next two hypothesizes are presented below:

H3: *Positive coping strategies moderate the relationship between personal resilience and emergency-oriented civic engagement.*

H4: *Negative coping moderate the relationship between personal resilience and emergency-oriented civic engagement.*

2.4. Model

The model depicts the relationships among four variables: emergency-oriented civic engagement as the dependent variable, personal resilience as the independent variable, risk perceptions as a mediator to the relationship between personal resilience and emergency-oriented civic engagement, and coping strategies (positive and negative) as moderators of the relationship between the independent and the dependent variables. We also controlled demographic variables (age, gender, education). Figure 1 illustrates the suggested model.

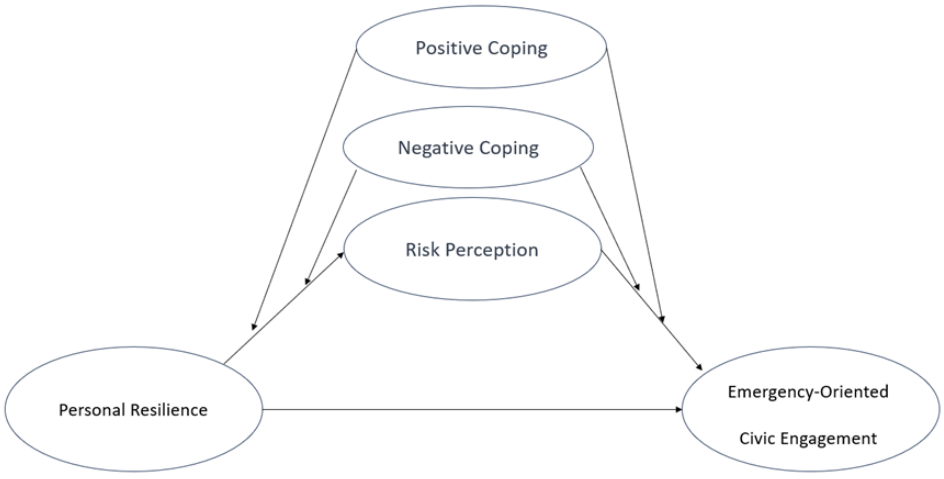


Figure 1. The research model.

2.5. Measures

We utilized established measures that have been previously tested and validated [9,18,44,50]. Emergency-oriented civic engagement was measured using 16 items divided into 3 categories: (1) Attitudes toward engagement during an emergency were measured using 5 items ($\alpha = 0.88$). Participants were asked to indicate the degree to which they agreed with statements such as "I believe that every citizen has a responsibility to his community, especially during an emergency" on a 6-point Likert-type scale ranging from 1 = strongly disagree to 6 = strongly agree. (2) Competence to engage was measured using six items ($\alpha = 0.89$). Participants were asked to indicate how much they agreed with statements such as "I feel responsible towards my community in an emergency" on a 6-point Likert-type scale ranging from 1 = strongly disagree to 6 = strongly agree. (3) Behavior during emergencies was evaluated using five items ($\alpha = 0.82$). Participants were requested to express the extent to which they agreed with statements on a 6-point Likert-type scale ranging from 1 = never to 6 = always. Based on previous studies [4,9] emergency-oriented civic engagement dimensions may be composed as one variable, as they are strictly interconnected ($\alpha = 0.90$).

Personal resilience was measured by 10 items based on CD-RISC [50]. Participants assessed the items using a 5-point scale, with scores ranging from 0 = not at all to 4 = almost all the time, based on their feelings in the past month (for example, "Can deal with whatever comes", "Best effort no matter what"), with higher scores indicating better resilience. The overall Cronbach alpha for the three constructs was 0.83.

Risk perceptions were measured using six items measuring the perceived war likelihood (one item), perceived war severity/consequences (two items), and perceived dread (three items) [51–53]. Participants rated the items using a 6-point scale ranging from 1 = very unlikely to 6 = very likely, with higher scores reflecting greater chance or likelihood. The overall Cronbach alpha for the three constructs was 0.80.

Coping strategies were measured by using the 16-item coping strategies from the Brief COPE [13]. Twelve items reflect engaged coping strategies (e.g., "seeking advice on how to act"), while four items represent disengaged coping (e.g., "giving up and ceasing efforts to handle with the situation"). Participants rated these items on a 4-point scale from 0 = not at all to 3 = very much, with higher scores indicating more frequent use of the coping strategy. The Cronbach's alpha for engaged coping was $\alpha = 0.84$, and $\alpha = 0.81$ for disengaged coping.

2.6. Setting, Process and Sample

Data were gathered from 1514 Israeli citizens who participated in an online survey conducted during wartime. The participants came from a large survey company in Israel with over 80,000 members. The overall distribution duration was 24 days between October and November 2023, and the software used to administer the survey was Qpanel. Participants in this panel respond to profiling surveys that include questions across various consumer-related domains and provide demographic information such as educational background, income level, and marital status. In accordance, the sample was designed to represent the Israeli population in most dimensions. Israel stands as a distinctive and significant locale for research into civic engagement, personal resilience, risk perception, and coping strategies, owing to its complex geopolitical landscape and historical context. Situated near regions marked by longstanding conflicts and security threats, Israel offers a valuable platform for studying how individuals respond to ongoing emergencies, disasters, and crises. For example, during the current war, a significant amount of citizens were involved in initiatives such as rescuing people on 7 October 2024, initiatives to distribute food and supplies, find apartments for displaced people, offer mental health care, fix bomb shelters, etc. The time for filling out the survey ranged from 17 to 24 min, and participants could answer in English or Arabic in accordance with their native language (the main two languages spoken in Israel). Anonymity was assured; participants did not receive incentive for completing the survey, but did receive credit points in accordance with the survey company's policy. The response rate was 61% and was achieved in the following way: profiling questions allowed the survey company to choose the relevant research population to this

and distributed it to a chosen number of participants from each category that was relevant to the initial profiling request by the researcher. It should be noted that in this study, participants were given the option to skip questions to ensure their comfort, particularly given the sensitive nature of some items. This approach was intended to reduce the potential for respondent fatigue or distress, which could compromise data quality, especially in the context of a survey conducted during a time of war. We conducted a chi-squared test to verify that the sample accurately represents the broader Israeli population in terms of demographic variables (gender, age, income, education, living area, and ethnic origin). The test indicated a good fit ($p > 0.05$). It was important to control for living area and ethnicity due to the ongoing war that is mostly happening in the south of Israel. Throughout the analysis, we accounted for education and ethnicity to determine if these factors biased the results. To confirm that our study had adequate power to detect a potential mediation effect, we used G*Power version 3.1.9.7 [54]. The results showed that with four predictors, a power level of 0.95 could be reached with fewer than 400 participants. Therefore, our sample of 1514 Israelis was sufficiently powered.

3. Results

The demographic characteristics of the sample closely aligned with those of the population. Participants were evenly distributed by gender; 52.9% were women (M = 1.53, SD = 0.499) and were predominantly middle-aged (40.5 + 14.76), with a medium educational level; 54.6% of them hold a high school degree (M = 3.99, SD = 1.31). Table 1 presents the descriptive statistics, zero-order correlations, and Cronbach's alpha for the research variables. These results hold for the independent and mediating variables that we used in the model. As shown in Table 1, the majority of inter-correlations align with the expected directions, with all independent variables exhibiting correlations with the dependent variable (emergency-oriented civic engagement) at the level of r = 0.14–0.26; $p < 0.05$. Citizens' emergency-oriented civic engagement was medium (mean = 3.62; S.D = 0.87), and a similar mean was noted in citizens' risk perception levels (mean = 3.62; S.D = 0.75). Personal resilience was also medium (mean = 3.48; S.D = 0.86), and so were positive (mean = 3.04; S.D = 0.51) and negative coping (mean = 3.29; S.D = 0.77).

Table 1. Multiple correlation matrix (Pearson's r) and descriptive statistics for the research variables (Cronbach's alpha in parentheses).

Variable	Mean (SD)	1	2	3	4	5	6	7	8	9
1. Emergency-oriented civic engagement	3.62 (0.78)	(0.90)								
2. Personal resilience	3.48 (0.86)	0.26 ***	(0.83)							
3. Risk perception	3.62 (0.75)	0.14 ***	0.13 ***	(0.80)						
4. Positive coping	3.04 (0.51)	0.16 *	0.40	0.37 **	(0.83)					
5. Negative coping	3.29 (0.77)	−0.21 **	0.00	0.02 *	0.23 ***	(0.81)				
6. Gender (1 = male)	1.53 (0.499)	0.02	−0.01	0.16 ***	0.00	0.03				
7. Age	40.5 (14.76)	−0.03	0.00	−0.03	0.02	0.00	−0.14 ***			
8. Education	3.99 (1.31)	0.04	0.04	0.03	0.01	0.02	−0.07	0.01		
9. Income (low = 1–5 = high)	2.84 (1.48)	0.01	−0.06 **	−0.04	0.03 *	0.01	−0.07 *	0.12 ***	0.18 ***	
10. Religion	1.20 (0.42)	0.17 ***	−0.07 **	0.02	−0.07 **	−0.06 *	0.07 **	−0.15 ***	0.03	−0.26 ***

N = 1314–1514; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

The association between the independent variables and online emergency-oriented civic engagement was examined through an ordinary least squares (OLS) hierarchical regression analysis. Throughout this regression analysis, it was observed that the variance inflation factor (VIF) values remained below 5, and the tolerance indexes did not approach

zero nor exceed 1, which ruled out any concerns about multicollinearity. Table 2 presents the results of the tested OLS regression (standardized and non-standardized coefficients). Personal resilience was directly related to emergency-oriented civic engagement (β = 0.27; $p < 0.001$), supporting H1. In addition, risk perception was also found to be significant and positively related (β = 0.11; $p < 0.001$) to emergency-oriented civic engagement, partially supporting H2 (additional analysis was conducted and is presented below). Coping strategies were tested separately (positive and negative coping). Both were not directly related to emergency-oriented civic engagement. The analysis indicated that 9.9% of the variance in emergency-oriented civic engagement can be accounted for by the four predictors, collectively, F (4, 1305), $p < 0.01$. Furthermore, none of the demographic control variables were found to be significantly related to emergency-oriented civic engagement.

Table 2. Mediation analysis (PROCESS Model #4) of the mediation effect of risk perception on the relationship between personal resilience and emergency-oriented civic engagement (H2).

Coefficient	Risk Perception	Emergency-Oriented Civic Engagement
Constant	R^2 = 0.016 ***	R^2 = 0.33 ***
	3.24 ***	2.35 **
Personal Resilience	0.111 ***	0.241 ***
Risk perception	-	0.119 ***
Int_PR_RES*RiskP		0.013 ***
		Confidence interval of the mediation: risk cognition. LLCI = 0.0051; ULCI = 0.0243

N = 1391; NS, not significant. ** $p < 0.01$; *** $p < 0.001$.

PROCESS model n.4 [55] was employed to test the mediation of risk perceptions on the relationship between personal resilience and emergency-oriented civic engagement. The full model comprises two regression sub-models. The first model entails regressing the mediator's risk perceptions onto the independent variable, personal resilience. The results show that there is a direct relationship between personal resilience and risk perception (β = 0.02; $p < 0.001$), as the confidence interval is above zero (LLCI = 0.0655, ULCI = 0.1577). The second step tests the mediation of risk perception to the direct path between personal resilience and emergency-oriented civic engagement. The model that tested the mediation was also statistically significant, $R = 0.275$, F (1, 1389) = 113.670, $p < 0.001$, supporting H2, and is presented in Table 2.

We used PROCESS model n.58 [55] to test the moderation of coping strategies to the suggested mediated relationship between risk perception, personal resilience, and emergency-oriented civic engagement. We tested this model twice, once for positive coping and once for negative coping. The first model entails regressing the moderator's positive coping to the relationship between risk perception and the independent variable, personal resilience. The results show that the interaction between personal resilience and positive coping with risk perception is not significant (β = 0.04; N.S). However, the interaction between risk perception and positive coping with emergency-oriented civic engagement was significant (β = 0.084; $p < 0.01$), as the confidence interval is above zero. The conditional direct effect of personal resilience on emergency-oriented civic engagement at low, medium, and high positive coping remained positive and significant. The explained variance of the overall model raised from R^2 = 0.30 to 0.39. This indicates that our third hypothesis (H3) was partially supported. The second model entails regressing the moderator's negative coping to the relationship between personal resilience and risk perception. The results show that the interaction between personal resilience and negative coping with risk perception is not significant (β = 0.02; N.S). In the second step, the moderator of negative coping was tested for the direct path between risk perception- and emergency-oriented civic engagement. This moderation was not significant (β = 0.03; N.S). While the interaction was not significant, the overall model remained significant; this indicates that our fourth hypothesis (H4) was rejected. Additional information regarding the two models is presented in Table 3.

Table 3. Moderation analysis (PROCESS Model #58) of the moderation effect of negative and positive coping with the mediation relationship between personal resilience, risk perception, and emergency-oriented civic engagement (H3).

	Negative Coping			Positive Coping	
Coefficient	**Risk Perception**	**Emergency-Oriented Civic Engagement**		**Risk Perception**	**Emergency-Oriented Civic Engagement**
Constant	R^2 = 0.001 3.24 ***	R^2 = 0.009 3.629 ***	Constant	R^2 = 0.017 1.67 ***	R^2 = 0.090 3.629 ***
Personal Resilience	0.111 ***	0.241 ***	Personal Resilience	0.111 ***	0.241 ***
Risk perception	-	0.121 ***	Risk perception	-	0.117 ***
Neg_Coping	0.02 ^{NS}	−0.019 ^{NS}	Pos_Coping	0.05 ^{NS}	0.19 **
Int_PR_RES*Neg_Coping	0.03 ^{NS} Confidence interval: Neg_Coping. LLCI = −0.0682; ULCI = 0.0479	0.030 ^{NS} Confidence interval: Neg_Coping. LLCI = −0.0390; ULCI = 0.0999	Int_PR_RES*Pos_Coping	0.03 ^{NS} Confidence interval: Pos_Coping. LLCI = −0.0556; ULCI = 0.1231	0.08 ** Confidence interval: Pos_Coping. LLCI = 0.0314; ULCI = 0.1321

N = 1391; NS, not significant. ** $p < 0.01$; *** $p < 0.001$.

4. Discussion

The primary objective of this study was twofold. The first aim was to assess to what extent a series of both established and unestablished predictors of emergency-oriented civic engagement were predictive during a man-made disaster. Second, to evaluate the impact of individual-level resilience, risk perception, and coping strategies on community-level resilience in the wake of disasters, aiming to not only establish the effectiveness of the proposed model, but also to assess its broader implications for bolstering societal resilience in response to persistent and ongoing man-made disasters.

The diverse array of threats that Israel has faced, ranging from terrorist attacks to military conflicts, presents researchers with a unique opportunity to delve into the multifaceted nature of personal resilience, risk perception, and civic engagement. The nation's diverse population, comprising various cultural backgrounds and differing levels of personal resilience, allows for an examination of how these variables may fluctuate across demographic groups. Moreover, Israel's strong tradition of civic engagement, particularly in matters of security and emergency preparedness, underscores its suitability as an environment for exploring how personal resilience influences active participation in civic activities during disasters and crises.

Data collected during a military conflict holds immense value due to the practical insights it offers within a real-world context. Wartime conditions create a natural laboratory for the examination of these variables, allowing for a comprehensive understanding of how they manifest in the face of heightened risk and adversity. The emotional intensity inherent in wartime—featuring emotions like fear, anxiety, and unwavering determination—facilitates the exploration of how these feelings influence coping strategies, risk perception, personal resilience, and civic engagement. The dynamic and ever-evolving nature of wartime scenarios challenges individuals' coping mechanisms and adaptive capabilities, shedding light on how personal resilience is tested and how it shapes emergency-oriented civic engagement. Furthermore, to develop interventions and strategies focused on strengthening personal resilience and promoting civic engagement, not only in Israel, but also in similar settings around the world.

The findings supported most of our hypotheses. Personal resilience was found to be positively and directly related to emergency-oriented civic engagement, supporting H1. As most studies point to the reverse effect of civic engagement on resilience [56,57], our results confirm the crucial role of personal resilience during man-made disasters on emergency-oriented civic engagement and enrich the field of psychology and civic behavior by shedding light on the psychological mechanisms behind civic engagement. Studies in the field of emergency management, which focus on various forms of resilience, such as public knowledge about emergencies, show that government communication strategies that effectively address public concerns and deliver clear, timely information can increase public engagement and adherence to emergency guidelines, ultimately fostering a more resilient

community [37,58]. This study offers insights into how personal resilience, as a psychological asset, can promote well-being, community cohesion, and a sense of purpose, even in the face of adversity [59]. Resilient individuals possess a heightened ability to navigate the distressing and disorienting circumstances that frequently accompany man-made disasters [60]. This heightened resilience acts as an internal resource, empowering individuals to confront and adapt to adversity. As a consequence, they are not only better equipped to withstand the psychological toll of disasters but are also more inclined to channel their inner strength toward meaningful civic engagement endeavors.

In the context of this study, the Health Belief Model (HBM) was used to elucidate how perceived susceptibility and perceived severity mediate the relationship between personal resilience and emergency-oriented civic engagement. This model has long been utilized in the context of health behaviors [39,40]. The Health Belief Model (HBM) has been widely applied in previous studies to understand various health-related behaviors. For example, it has been used to explore factors influencing vaccination uptake, such as perceived susceptibility to and severity of diseases like influenza and COVID-19 [61,62]. These studies demonstrate how individuals' beliefs about health risks and the benefits of specific actions influence their engagement in health-promoting behaviors, providing a strong foundation for its application in the context of emergency-oriented civic engagement. This study extends its application to the domain of psychology and emergency response, illustrating how individuals' perceptions of risk mediate the influence of their personal resilience on their engagement in civic activities, supporting H2. The adaptation of the two dimensions of the model, namely perceived susceptibility and perceived severity, explains this mediation. In the proposed model, personal resilience is positively associated with individuals' perceived susceptibility to the risks and challenges posed by man-made disasters. Resilient individuals, owing to their adaptability and heightened awareness, are more likely to recognize their susceptibility to adverse consequences during disasters [39]. They acknowledge the potential threats and vulnerabilities facing them, a key aspect of perceived susceptibility [12]. This acknowledgment stems from their psychological strength, which allows them to confront the harsh realities of emergencies with a clear perspective. Studies based on the recent COVID-19 disaster concluded that individuals' perceptions of their personal risk regarding COVID-19 may influence their levels of compliance and engagement [63]. That is because this emotional regulation contributes to a more accurate and balanced risk perception. Consequently, individuals with greater personal resilience tend to perceive themselves as more susceptible to the adverse effects of disasters, which is a fundamental component of the HBM. Moreover, resilient individuals, due to their psychological adaptability and capacity to navigate adversity, have a deep understanding of the potential severity of disaster-related outcomes. Their psychological adaptability allows them to recognize risks more readily, which, in turn, influences their risk perception. Their resilient outlook equips them to recognize the gravity of the challenges and crises that could arise during disasters, constituting their perceived severity. They appreciate the serious implications of these situations, considering the physical, emotional, and social consequences, which are integral to the HBM's perceived severity construct. Individuals' risk perceptions, as demonstrated by Grothmann and Reusswig [64], including their levels of fear, sense of threat, and perceived severity, positively influence their motivation to protect themselves from floods. Resilient individuals thus perceive the disasters as more severe, making them more prone to engage in emergency-oriented civic activities, as they recognize the magnitude of the threat and its potential impact on their community and society as a whole.

Regarding the moderating role of coping strategies, it becomes evident that positive coping strategies exhibit a more distinct pattern of moderation than negative coping strategies. While positive coping strategies do not emerge as moderators in the relationship between personal resilience and risk perception, they do play a vital moderating role in the connection between risk perception and emergency-oriented civic engagement, partially supporting H3. This outcome can be attributed to the inherent nature of personal resilience.

Resilient individuals, by definition, possess a proclivity for adaptive coping strategies as a core component of their psychological makeup [65]. In essence, their high level of personal resilience inherently inclines them towards utilizing positive coping mechanisms when faced with risks and challenges. As such, the interplay between personal resilience and positive coping strategies is deeply intertwined, with the former naturally nurturing the latter. This intrinsic relationship renders the introduction of external moderators, such as positive coping strategies, being less influential and hence non-moderating in the relationship between personal resilience and risk perception. Conversely, the moderating effect of positive coping strategies becomes evident in the connection between risk perception and emergency-oriented civic engagement. Risk perception holds a pivotal role in shaping one's motivation to engage in civic activities during emergencies [35]. However, the transition from perceiving risks to taking concrete actions is contingent upon the employment of coping strategies, particularly positive ones. Positive coping strategies function as an intermediary, facilitating the translation of risk perception into tangible civic engagement. They empower individuals to address and respond constructively to the perceived risks, enhancing their motivation and capacity to participate in civic activities during man-made disasters.

Negative coping strategies, encompassing maladaptive and unconstructive approaches to dealing with adversity, were found to be insignificant moderators of the relationship between personal resilience and risk perception, rejecting H4. That indicated that the relationship between personal resilience, risk perceptions, and emergency-oriented civic engagement remains relatively unaffected by the moderator, perhaps because negative coping strategies often lead to avoidance, denial, or disengagement [43], hindering individuals' capacity to address the perceived risks constructively and engage in civic activities. As a result, negative coping strategies are incongruent with the proactive and constructive engagement required during man-made disasters and, therefore, do not emerge as an effective moderator in this relationship.

This research has several practical contributions. To foster more resilient communities, policymakers, and emergency responders, governments should encourage the development of community-level resilience programs that foster strong social networks and support systems. Communities exhibiting higher levels of personal resilience are more likely to collaborate and respond effectively during disasters [66]. Moreover, they should consider not only the cultivation of personal resilience, but also the management of risk perceptions. Strategies aimed at mitigating the overwhelming impact of heightened risk perceptions and ensuring balanced resource allocation may be instrumental in promoting civic engagement during disasters. Moreover, efforts to provide accurate, timely, and non-sensationalized information to the public can help lead to more effective community resilience and engagement during disasters.

While this research has made valuable contributions, it is essential to acknowledge several limitations. Firstly, this study focuses on civic engagement during disasters. Therefore, future research could adopt a longitudinal perspective, monitoring emergency-oriented civic engagement both before and after acute disasters. Secondly, this study specifically pertains to man-made disasters; therefore, it is crucial to validate the results in an alternative setting involving a different type of disaster. Thirdly, the examination primarily revolves around the citizens' perspective, yet it is equally valuable to explore the perceptions of other key stakeholders such as policymakers, local leaders, and additional relevant parties. Fourthly, while panel surveys offer numerous advantages, they also present certain drawbacks, including panel selection bias and attrition. To address these issues, the sample was structured to ensure it accurately reflects the Israeli population across various dimensions. Another bias that was noted is common source bias. The researcher carefully crafted the questionnaire to minimize the overlap between items measuring different constructs, used clear and concise language, avoided double-barreled questions, and randomized the order of items to reduce the influence of response order effects. Finally, due to the limitations imposed by the small number of observations, the model included only a few select exoge-

nous variables. Future research could examine additional factors, such as the effectiveness and efficiency of government responses during disasters, citizens' participation in decision-making processes, their trust in public sector organizations and emergency services, and their perceptions of leadership quality and self-efficacy. Future studies are recommended to address these issues.

5. Conclusions

This research yields several noteworthy findings that shed light on the complex relationships between personal resilience, risk perception, coping strategies, and emergency-oriented civic engagement. Firstly, this study establishes a robust and positive direct relationship between personal resilience and emergency-oriented civic engagement. Individuals exhibiting higher levels of personal resilience are more inclined to engage actively in civic activities during man-made disasters. Secondly, the findings unveil a mediation effect of risk perception on the direct relationship between personal resilience and emergency-oriented civic engagement. Risk perceptions act as a key mediator in this pathway, elucidating the process through which personal resilience influences civic engagement during disasters. Additionally, positive coping strategies have been shown to play a crucial moderating role in the relationship between risk perceptions and emergency-oriented civic engagement. These constructive coping mechanisms amplify the impact of risk perceptions, intensifying motivation for emergency-oriented civic engagement. In contrast, negative coping strategies were not found to significantly moderate the mediated relationship, indicating their limited influence within this complex framework.

This research contributes to the fields of psychology, disaster management, public health, and community resilience by offering insights that can inform policies and interventions designed to enhance civic engagement and disaster response. Understanding the dynamics between personal resilience, risk perception, and coping strategies enriches our knowledge of how individuals and communities respond during a specific disaster. To build upon these findings, future research should delve deeper into the long-term effects of resilience and civic engagement across various disaster contexts. Specifically, investigating how different types of disasters—natural, technological, or sociopolitical—shape the durability and evolution of resilience at both individual and collective levels would offer valuable insights. Longitudinal studies are particularly recommended to assess whether better risk cognition indeed is a successful tool to improve the coping mechanisms and civic engagement promoted during disasters lead to sustained engagement and improved outcomes in future emergencies. Therefore, for governments aiming to enhance their capacity to manage future crises, foster resilience, and build robust networks and partnerships with citizens, it is essential to identify the groups or individuals who are most inclined to participate in collective action and potentially lead these initiatives.

Practically, this research underscores the importance of resilience-building programs and the promotion of positive coping strategies which can empower individuals to navigate the complexities of risk perception and engage actively in civic activities during disasters. These implications are of particular relevance to emergency response agencies, policymakers, and community leaders. By fostering personal resilience and nurturing positive coping strategies, we can bolster societal readiness for crises and improve overall emergency response. This could be achieved, for example, by establishing resilience centers currently located is areas that are known to suffer more frequently from man-made disasters. These resilience centers should implement a proactive community-based approach that emphasizes strengths, resources, a culture of preparedness, and mutual assistance. They should collaborate with governmental agencies and local or neighborhood resilience and emergency teams composed of volunteers who hold key roles within the community. Furthermore, understanding the mediating role of risk perception and the moderating role of positive coping strategies can guide the development of targeted interventions and educational initiatives aimed at fostering community resilience in the face of man-made disasters.

In conclusion, this study reinforces the idea that personal resilience is not only a personal attribute, but a driving force behind community resilience. By equipping individuals with the tools to manage risk perceptions effectively and employ positive coping strategies, there comes the potential to strengthen communities and enhance our collective capacity to respond to and recover from man-made disasters. As the world faces ongoing challenges, this research reaffirms that a resilient, engaged, and well-prepared society is better equipped to navigate the uncertainties of our ever-changing world.

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