The dynamics of Community Resilience between routine and emergency situations

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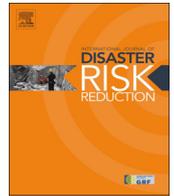Some of the authors of this publication are also working on these related projects:

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The dynamics of community resilience between routine and emergency situations

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1. Introduction

Recurrent escalation of security threat can put communities at risk, by stressing their ability to cope and the availability of their resources to the extent [1]. Resilience reflects the capability or capacity of a community to cope with such events. Broadly resilience describes the ability of a system to return to equilibrium after a displacement or change [2]. The current study aims to assess community resilience in response to security threats on civilian population and subsequently during calm periods. The populations' perceived resilience was assessed in order to better understand the dynamics of community resilience. While community resilience (CR) has been assessed in cross-sectional studies before, the current study examines CR (and its factors) at different points in time. Its' assessment, both pre-conflict and post-conflict, attempts to incorporate the temporal dimension into community resilience portrayal.

1.1. Community resilience

CR[1] is a multi-dimensional concept defined as the community's

ability to withstand crises or disruptions [3]. It is relevant to various aspects of human life (e.g. physical components, availability of services, the individual's perception of his community etc.).

CR is about the ability to 'bounce back', but can also suggest systemic change, adaptation and proactivity in relation to stress, changes and challenges [4–6]. The integration of concepts such as 'resilience', 'coping capacity', and 'adaptation' is common, and often the small differences between these terms are lost in the course of a growing multidisciplinary discourse [7,8]. Key components of 'resilient communities' include social (e.g. community engagement, social capital) [9,10], economic [11–13], and environmental/ecological features such as sustainability of urban infrastructure systems [14,15]. Research on CR is usually associated with stressful events [16,17], yet it is also concerned with the ability to function during routine times [18,19]. Periodic assessments of CR may contribute to preparedness and to better understanding of weakness among the different significant community factors, earlier identified as contributing to community' resilience and its ability to function [19,20]. It is thus important to measure CR both during emergencies and during calm periods.

CR is described here as the ability of a community, which has defined geographical boundaries [2] and/or is made up from social ties, to endure and survive crisis situations, with a practical demonstration of the community's adaptability to changing circumstances and its capability to respond effectively. The Conjoint Community Resiliency Assessment Measure (CCRAM) [3,19] is a comprehensive tool designed to measure aspects associated with CR, in a broader context than those appearing in earlier measures

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[1] Community resilience.

[1,21]. It was developed after iterative processes, where components of community resilience were identified using an expert panel, consisting of scholars in the disciplines of psychology, social work, sociology, public health, medicine, healthcare management, education and statistics as well as representatives from governmental ministries of health, social welfare and defense [22]. The CCRAM detected five factors of CR: *Leadership, Collective efficacy, Preparedness, place attachment* and *Social trust* [3]. These factors are well based in the scientific literature [23–27].

1.2. Development of community resilience

Studies in the field of life threatening situations such as terrorist attacks, highlight significant factors that can impact CR. Magis [5] asserts that the ability of communities to develop resiliency requires learning to live with constant change and uncertainty, and actively build the capacity to thrive in that context. Moreover, communities can develop resilience via their responses to crisis, which in turn can strengthen community bonds and resources [28]. Identifying the different factors that help build and reinforce CR is important for focusing interventions on issues that can enhance resilience. Kapucu, Hawkins and Rivera [18] suggest that collaborative efforts enhance the ability of communities to cope well in the post-disaster recovery phase. Hence, building and fostering these connections will potentially lead to increased CR.

Empirical data on the impact of emergency situations on the community suggests a complex pattern mitigated by different variables of risk and resiliency. Bonanno, Brewin, Kaniasty and La Greca's [17] review, indicates that numerous studies find acts of altruism in the community, featuring concepts of internal solidarity, sense of unity and even heroic action, in the aftermath of disasters. Kaniasty and Norris [29] studied the implication of a hurricane aftermath to find that disaster exposure, extent of resource loss and harm, was a strong predictor of help received and to a certain degree of help provided. In a later publication, the authors explain how difficult it is for elevated levels of solidarity and mutual support to last over long recovery periods [30].

In this current study, we sought out to measure CR prospectively during times of calm and emergency. Measurements were taken before, during, and after two recent escalations in security threats between Israel and Hammas in Gaza. Operation "Pillar of Defense" was launched on 14 November 2012 and lasted 8 days. During this period, over 1500 rockets were fired from Gaza into Israel [31]. The radius of the rocket targets ranged from 0 to about 75 km. The second operation, "Protective Edge" was launched on 8 July 2014, and lasted 50 days. During this operation, over twice as many rockets with twice the distance range were fired into Israel The studied community did not suffer any direct hits causing damage, but was subjected to frequent alarms and the sounds of blasting rockets nearby.

2. Theory

An extensive search of the literature found only few previous attempts to assess CR factors over time, all cross-sectional in nature. Kapucu [32] assessed communities' response to four consecutive Florida hurricanes that occurred over a period of six weeks in 2004. He compared the communities' responsiveness and awareness levels following each hurricane. Kapucu found a growing feeling of complacency (apathy) after three successive events, as evident by an increase in agreement with a statement such as "the public ignored evacuation orders". A recent comparative study, evaluated social cohesion and perceived community resilience in four different rural communities from Canada that experienced wildfires and flood at different times [33]. The

authors showed that the social cohesion-community resilience correlation is significant and of a moderate to strong magnitude, but this magnitude decreases with years following the disaster. Moreover, authors showed that perceived community resilience fluctuates with time following a disaster, showing high scores on the first year, and then a decrease on the second year, followed by increase at the 6th year, and subsequent decrease at the 10th year. These results, unfortunately, have generalization limitation as authors employed a 'between subjects' design and communities differed by background characteristics. Another study examined the influence of prior levels of social capital on community resilience, measured by the perception of community problems, assessed before and after the flooding of urban communities in Australia [34]. While the participants of that study completed scales highly related to CR factors, such as social cohesion and perception of local government, these scales were not assessed on the second assessment, and only before the flooding events.

Agreeing with previous studies, we assume that people will make rational decisions during crisis, based on the available information and time [35]. At a time of need they will gather their necessary resources and will seek information regarding hazard mitigation [36]. Hence, we hypothesized that during emergencies the perceived community resilience will be higher than in calm periods. In Elran's review [37] of the first escalation, he associates the people's strong stance against the adversities with the adequate function of local authorities and emergency services, and with the availability of shelters and the public's awareness to functioning during crisis. Thus, we hypothesized that of the CCRAM's five factors, the most significant change will be in terms of *leadership* and *preparedness*. Also, immediately following crisis there is usually a rise in mutual support and solidarity [38], therefore, we also hypothesized that we will find a higher perception of collective efficacy during emergencies. The current research presents two studies aiming to assess community resilience in response to security threats on civilian population and subsequently during calm periods. The aim of the first study (Study 1) was to portray the level of CR in the studied community during a period of four years, based on an annual and cross-sectional assessment of the factors contributing to the CR score. We then present an additional study (Study 2), employing a longitudinal design to enhance validity to CR fluctuation with time.

2.1. Study 1

2.1.1. Material and methods
2.1.1.1. Design. A quasi-experimental design was created by two periods of security threat to a civilian population, facilitating the measurement of CR at four points in time, two in times of calm and two in times of acute threat between 2011–2014.

2.1.1.2. Participants. 228 adult participants aged 22–78 ($M=53.45$, $SD=9.42$), took part in this study. The participants were approached by email based on a mailing list of residents available through the municipality and completed an electronic survey using Qualtrics, a web-based research suite (www.qualtrics.com). The survey was sent during four points in time (time 1: October 2011, time 2: November 2012, time 3: November 2013 and time 4: July 2014). Response rates varied throughout the study with a minimum of 19.5% and up to 27%. The participants in this study were distributed between measurements as follows: $N=44$ at the first time point (time 1), $n=66$ at the second time point (time 2), $n=67$ at the third time point (time 3) and $n=50$ at time 4.

Due to the anonymous nature of this study, matching of participants between time points was not possible. However, as the population is relatively homogenous, as confirmed by preliminary examinations (detailed in Section 2.1.1.5), each time sample is considered representative of the studied population.

Table 1
Community resilience factors and average community resilience score at three assessment period times (N=228).

Assessment period	Time 1		Time 2		Time 3		Time 4		F	η_p^2
CCRAM factor	M	SD	M	SD	M	SD	M	SD		
Leadership	3.21	0.68	3.75	0.76	3.44	0.89	3.63	0.72	4.47**	0.060
Collective efficacy	3.47	0.79	3.79	0.71	3.53	0.68	3.71	0.45	2.87*	0.037
Preparedness	2.70	0.66	3.37	0.90	3.05	0.84	3.39	0.75	7.83***	0.095
Place attachment	3.36	0.86	3.70	0.86	3.69	0.86	3.77	0.82	2.06	0.027
Social trust	3.54	0.68	3.74	0.89	3.55	0.82	3.74	0.77	1.24	0.016
Community resilience	3.24	0.58	3.68	0.72	3.44	0.70	3.64	0.57	4.93**	0.062[1]

[1] Effect size reported from one-way ANOVA is η^2 (Eta squared).
* = < 0.05, ** = < 0.01, *** = < 0.001

The participants were residents of one small town, of 6166 inhabitants [39], the majority of adults are 29–59 years old and earn a higher than average salary. The town is located between 20 and 30 km off Israel's border with Gaza strip, in the Southern district of Israel, thus was in the range of missiles in both military escalations between Israel and Hammas in Gaza (2012, 2014) within the study period.

2.1.1.3. Measures. The conjoint Community Resiliency Assessment Measure (CCRAM) was used to assess the perceptions of community members on various aspects of their community. The instrument comprises of two parts: Part A includes personal and socio-demographic data, information on preparedness and past experience; Part B includes 28 questions regarding various aspects of the community, rated on a 5-point Likert scale (1-*Strongly Disagree*, 5-*Strongly Agree*). Internal consistency found in a previous study using the tool was very good (α=.92) [3]. Cronbach's alpha, found in the current research ranged from .92 to .96 for Part B; Items in this questionnaire represent five factors of resilience (*leadership, collective efficacy, preparedness, place attachment* and *social trust*). Ranges of Cronbach's alpha for each factor in this study were as follows: .88 to .93, .57 to .87, .77 to .84, .77 to .82 and .78 to .88, for leadership, collective efficacy, preparedness, place attachment and social trust, respectively.

2.1.1.4. Procedure. Statistical Package for Social Sciences (SPSS; version 20) [40] was used to perform all data analysis. The five factors of CR recognized by the CCRAM tool were examined at each point in time using multivariate analysis of variance (MANOVA). Auxiliary analyses included univariate ANOVA and post-hoc tests, as well as trend analysis CR overtime using a polynomial cubic fit of the data.
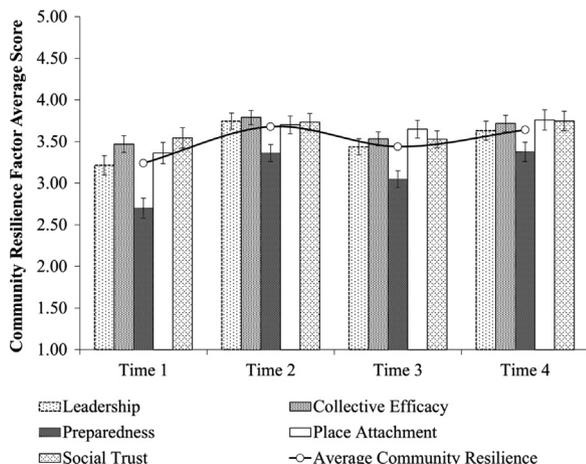

Fig. 1. Five CCRAM factors along with the average community resilience, over four periods of assessment: Time 1 (routine), Time 2 (emergency), Time 3 (routine), Time 4 (emergency).

2.1.1.5. Results. Preliminary tests examined the homogeneity of study participants across the four assessment intervals. Samples did not differ by age, $F(3, 218)=1.36$, gender $\chi^2(3)=4.18$, family status (married versus other statuses) $\chi^2(3)=1.85$, level of income, $F(3, 216)=0.92$ (more than 87% reported an above average income), and education level, $\chi^2(3)=4.72$ (88% reporting having an academic degree). All p-values were found to be non-significant (p=n.s).

Fig. 1 depicts the five CCRAM factors over the study period along with the average CR.

In order to assess the changes in CR factors overs four periods of time a test of MANOVA was implemented. The MANOVA revealed a significant multivariate main effect for time, Wilks' λ=.841, $F(15, 546.99)=2.36, p < .01, \eta_p^2=.056$. Given the significance of the overall test, the univariate main effects were examined. Table 1 shows significant univariate main effects found for Leadership, $F(3, 202)=4.78, p < .01, \eta_p^2=.07$; and Preparedness $F(3,202)=7.07, p < .001, \eta_p^2=.10$; No significant univariate main effects were found for collective efficacy, place attachment or social trust.

Given the significance of univariate main effects, Post hoc analyses were performed using Tukey's HSD to identify where significant differences exist. Tukey's HSD comparisons indicated a significant difference between time 1 and time 2 and 4 ($p < 0.05$) for Preparedness. Another significant difference was found between time 1 and time 2 for Leadership. No significant difference were found between other pairs of assessments (p=n.s).

To measure change in the overall CR score over time, CCRAM scores were compared between the four periods of time using one-way ANOVA. The test revealed a significant difference, $F(3, 226)=4.93, p < .01$. Post hoc analyses using Tukey's HSD were performed in order to identify where significant differences exist. The analyses revealed that time 1 (calm period) is significantly lower ($p < 0.05$) than the times two and four (emergency periods). However, time 3 did not differ significantly from the other assessment times (p=n.s.), nor was there a significant difference between the second or fourth (two emergency) periods (p=n.s.). Nevertheless, a significant cubic effect was obtained, $F(1, 224)=9.32, p < .01, \eta^2=.039$, suggesting a cubic trend of overall CR overtime. Such significant trend was found also for leadership, $F(1, 224)=9.49, p < .01, \eta^2=.040$, preparedness, $F(1, 224)=12.83, p < .001, \eta^2=.050$, and collective efficacy, $F(1, 224)=7.45, p < .01, \eta^2=.071$.

3. Study 2

3.1. Material and methods

3.1.1. Design

As part of a larger ongoing study on community perceptions, a quasi-experimental, within-subject longitudinal design was employed, to assess CR in a community sample at three periods

Table 2
Community resilience factors and average community resilience score at three assessment period times ($N=44$).

Assessment period	Pre-conflict		During conflict		4-Month follow up		F^2	η_p^2
CCRAM factor	M	SD	M	SD	M	SD		
Leadership	3.82	0.69	4.13	.60	3.85	0.72	7.11***	0.142
Collective efficacy[1]	3.40	0.64	4.06	.59	3.42	0.82	6.93***	0.145
Preparedness	2.65	0.79	3.66	.66	2.78	0.94	36.16***	0.457
Place attachment	4.18	0.69	4.54	.67	4.13	0.65	11.36***	0.209
Social trust	3.75	0.69	3.94	.62	3.73	0.83	1.67	0.037
Community resilience	3.52	0.51	4.06	0.50	3.55	0.62	23.49***	0.353

Note:
[1] Estimates are presented based on ANCOVA with education as a covariate, df=2, Error df=82;
[2] df=2, Error df=86.
*** = < 0.001

around the 2014 Israel-Gaza conflict (also known as Operation Protective Edge).

3.1.2. Participants

44 Adult participants aged 17–61 ($M=38.52$, $SD=11.20$), were included in this study. 63% of the participants were married, 76% secular, and approximately 43% had an above than average income. All participants were drawn from a larger longitudinal study which took place during that time, and explored people's attitudes toward their community. Participants completed an electronic survey using the same methodology, described above. The survey was sent during three points in time (time 1: June 2014, time 2: July 2014, time 3: December 2014). Out of 162 participants who began the study, only 44 (27%) had valid data for three assessment points. Participants were recruited via social media sponsored and targeted advertisements, inviting them to participate in the study. The participants were residents of a small city, of 44,779 inhabitants [39]. The town is located on the Israeli coastal plain approximately 10 km inland of the Mediterranean Sea, in Central Israel. During the military escalations in July 2014, the town was in the range of missiles and suffered several hits in its area. For their ongoing participation in the study, participants who filled in the third survey took part in a lottery for monetary coupons. The study was approved by the ethical committee of the Faculty of health sciences at BGU.

3.1.3. Measures

The Conjoint Community Resiliency Assessment Measure (CCRAM; [3]) was used to assess the perceptions of community members on various aspects of their community. Cronbach's alpha, found in the current research ranged from .89 to .93 for overall CCRAM scale; Ranges of Cronbach's alpha for each CR factor in this study were as follows: .86 to .87, .73 to .82, .75 to .80, .62 to .67 and .75 to .88, for leadership, collective efficacy, preparedness, place attachment and social trust, respectively. Item 14 from the factor of place attachment was excluded from analysis as it reduced internal-consistency.

3.1.4. Procedure

Statistical Package for Social Sciences (SPSS; version 20) [40] was used to perform all data analysis. A within-subject, repeated measures ANOVA, with Time (3 levels: one month before the conflict, during the first week of the military operation, and at 4-month follow up) X CR Factor (5 levels: 5 resilience factors) was

tested. Pairwise comparisons were calculated with Bonferroni adjustment. In addition, an average CR was examined similarly via ANOVA repeated measures, and trend analysis was examined by within-subjects contrasts test.

3.1.5. Results

Repeated Measures ANOVA revealed a significant main effect for Time, $F(2, 86)=21.27$, $p < .001$, $\eta^2=.331$. An average estimate of Time 2 ($M=4.06$, $SD=.07$) significantly was higher than Time 1 ($M=3.56$, $SD=.08$) and Time 3 ($M=3.58$, $SD=0.10$). In addition, a significant within-subject quadratic effect was obtained for Time, $F(1, 43)=60.79$, $\eta^2=.586$. A significant effect for Factor was revealed as well, $F(4, 172)=68.13$, $p < .001$, $\eta_p^2=.613$. An overall estimated average score for place attachment ($M=4.29$, $SD=.08$) was significantly higher than the other factors, and preparedness was significantly lower than the other factors ($M=3.03$, $SD=.10$). Finally, a significant Time X CR Factor interaction effect was revealed, $F(8, 334)=10.29$, $p < .001$, $\eta_p^2=.193$. Changes in CR and CR factors were not related to gender, age, and length of residency or level of education. An exception is the negative correlation between education and change in collective efficacy from pre-conflict to conflict time, $r(43)=-.38$ (the lower the education, the higher the change and vice versa). Within-subjects Time effects for each CR factor were examined using repeated measures ANOVA to explore the source of the significant interaction effect, and repeated measures ANCOVA was performed for collective efficacy with education as a covariate. Table 2 shows CR factors and average CR score at three assessment period times.

Significant Time effects for four out of five CR factors were found for *leadership*, $F(2, 86)=7.98$, $p < .001$, $\eta_p^2=.142$, *collective efficacy*, $F(2, 82)=6.93$, $p < .001$, $\eta_p^2=.145$, *preparedness*, $F(2, 86)=36.16$, $p < .001$, $\eta_p^2=.457$ and *place attachment*, $F(2, 86)=11.36$, $p < .001$, $\eta_p^2=.209$; No significant Time effects were found for *social trust*. Overall CR showed significant Time effect as well, $F(2, 86)=23.49$, $p < .001$, $\eta_p^2=.353$. All effects also showed significant quadratic within-subject contrast effects, and post-hoc pairwise comparisons using Bonferroni correction indicated that average estimates of CR factors and overall CR scores at Time 2 were significantly higher than estimates at Time 1 and Time 3 (see Fig. 2).

4. Discussion

Much has been written and said about community resilience, yet the opportunity to scientifically explore community resilience to political conflict in an actual pre and post setting is rare.

Previous studies on Community Resilience suggested that "particular attention [in future research] should be paid to the chronological and process nature of resilience itself" [41]. The current study is thus of great importance to the field of CR; as reality created a quasi-natural experiment design and facilitated the first research to assess community's resiliency score in a longitudinal design that included both times of calm and threat in the same community. The current research presents two separate studies. While the first study contributed important knowledge in an assessment "under fire", it is still cross-sectional in nature, a study approach that has been taken before. Through the second study we were able to make a pioneering contribution to the scientific literature as such a longitudinal design is much more powerful from statistical point of view and we were not familiar with it being demonstrated in this field anywhere in the literature. As both studies showed similar results, our confidence has grown that the results obtained both from cross-sectional (between subjects) and longitudinal (within-subjects) verify and fortify each
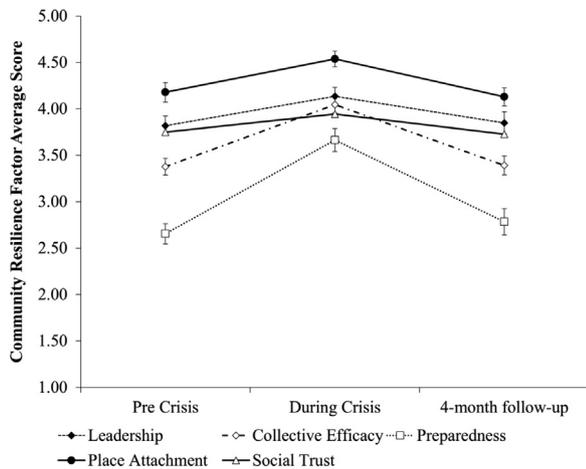
Fig. 2. Community resilience factors at three assessment periods: before, during the Israel-Gaza conflict, and at 4-month follow-up ($N = 44$) Note: Error bars denote standard error of the mean.

other and reach similar conclusions.

In these studies, the average CCRAM score and its' five factors of CR *(leadership, collective efficacy, preparedness, place attachment and social trust) were* investigated during times of pre-conflict (e.g. calm) and tense security periods (e.g. emergency). Based on previous assumptions [5,36], we hypothesized that during emergency, higher resilience trends will emerge. The results supported our hypothesis in both studies. In study 1, significant enhancement in perception of overall CR was found during the first security escalation (second time point), and in study 2, the increase in overall resilience occurred from pre-conflict to conflict time. Current findings from the trend analysis supported our hypothesis as well: CR is better explained as a pattern in which its' levels are higher during times of emergency and lower in times of calm. The increase in CR might fit well with existing phase models of community reactions to disaster [42], and reflect the "heroic" and "Honeymoon" phases following a disaster, characterized by enhanced community cohesion.

The overall non-linear (cubic) trend in study 1 might reflect a resilient community that can endure threats and not collapse following a crisis. One possibility of such recurrent events could have been an attrition of the community ability and despair, however, based on the current research we are of the opinion that community that manages to elevate its resilience, as in our first study during the first escalation point (between the first and second time point) can maintain its resilience through time. The overall non-linear (quadratic) trend in study 2, reflects an inverted u-shaped pattern of CR and CR factors. Such trend can describe community mobilization of resources during times of stress, similarly to Conservation of Resources (COR) theory [43]. Both trends support previous conceptualization of CR, which include individuals' sense of the ability of their own community to deal successfully with the ongoing political violence [1] and the ability to find previously unknown inner strengths and resources in order to cope effectively [44].

To better understand the change in overall resilience score, each CR component was examined separately. We hypothesized that the factors contributing most to CR will be preparedness and leadership [37]. Indeed, we found in both studies a significant change for these two factors. Changes in the perceptions of community emergency preparedness were the most powerful compared to the other factors, probably being one of the influential factors contributing to overall changes in CR. These results might reflect an active coping behavior, in which the public seeks information about proper functioning during crisis. Also, in turn,

during these times, the media outlets might provide more practical information on hazard mitigation [45,46]. Alternatively, the sense of preparedness could be explained by the accumulated emergency exposure, as research suggested that previous experience might also contribute to the perception of preparedness [47–50]. In study 1, we did not find significant change between the two emergency assessment time periods points. A possible explanation is that preparedness efforts were "stored" following the first emergency period, only to be released during a new emergency. The results of this study are not consistent with the literature as studies often report that despite considerable allocation of resources towards hazard mitigation, such as public education, levels of perceived preparedness remain low during routine times [51,52]. However in the current study the gap in time between emergencies was rather short and that might have contributed to the employment of the acquired knowledge and skill and its sustainability.

As for leadership, a significantly stronger perception of leadership was found during emergency compared to routine. The capability to function and affirm the public by the authorities might be better put to the test during emergency circumstances [35]. We therefore hypothesize that the fact that the public perceived the local leadership to stand up to the occasion in the first incident maintained this level of appreciation despite small and insignificant fluctuation in this category over the three assessment times following baseline.

Our final hypothesis regarding enhanced collective efficacy scores in the midst of crisis was also supported, as study 1 showed significant cubic trend for collective efficacy, suggesting that this CR factor averages scores changes directions twice – first, it increases from routine to emergency period (time 2), decreases during routine (time 3) and again tends to increase in the second emergency time. In study 2, collective efficacy showed significant increase during conflict time, as well as the inverted u-shaped pattern, indicated by the significant quadratic effect. Our results go in line with other studies, where higher levels of mutual assistance and solidarity prevailed during emergencies [17].

Sense of *place attachment* showed conflicting results as it had no significant change in study 1 but showed significant and large effect study 2. A possible explanation for these findings may be due to the homogeneity of the studied town in study 1, in terms of ethnic diversity and socio-economic status. Lewicka [53] found that these factors significantly contributed to a strong sense of place attachment. It is noteworthy that most of the town's inhabitants chose to live in this place as it is perceived as a nice and prestigious place to live in, thus place attachment might have been a significant factor in the first place. In study 2, the increase in place attachment can be attributed to the overall increase in CR. It was previously suggested that enhancing CR means strengthening people-place connections [54]. An alternative explanation considers attachment to place as a strong driver of adaptation [55], influencing people' commitment to place during emergencies.

Furthermore, in both studies no significant change was found for social trust. In agreement with our previous line of thought, it is possible that social trust levels were initially high and established for the studied community, which is still a traditional type with strong history of clan and family orientation, thus, no significant change was perceived. Social trust literature identifies countless variables that might effect trust between residents (e.g. town size, crime rates, close friends, voluntary behavior, status, anxiety etc.), and there is considerable variance and often discrepancies between western countries [56]. Therefore, more precise assessment of the relative contribution of social trust predictors will be feasible with broader and comprehensive research of the studied town. Nevertheless, it is possible that social trust is an inherent property of cohesion as a factor of resilience, as

suggested by the link between social capital and resilience [57]. In this case, this factor may have developed through the long-term social construction of the community and may be latent within. As such, social trust is not just activated upon danger, it is not an episodic feature of community resilience, but rather a constant trait as the data shows.

Taking into account this study's methodological limitations, these quasi-natural experiments represent a unique opportunity to describe fluctuations in CR perceptions during calm and security unrest. Future research in this field should generalize the results to other vulnerable communities by periodical observation and assessment of resilience factors. The present research was conducted in two communities, leaving the generalizability somewhat limited and its implications to be verified in future research. Such research should consider all different types of communities and ethnic sectors in the society, possibly revealing unique patterns and trends of CR.

5. Conclusions

This pioneering research in the field of longitudinal CR studies suggests that during emergency times, at least three factors of CR-preparedness, leadership and collective efficacy, consistently tend to increase in the community members' perception. We suggest that this kind of resource mobilization enables the community cope effectively with the various challenges posed by an emergency or disaster.

As social trust remained constant over time, we suggest that future studies further explore the relationship of this factor with perceived community resilience taking into account societal type such as traditional vs. modern, urban vs. rural. It is possible that the conclusion maybe that social trust and social cohesion are engrained in the term Resilience.

Acknowledgments

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