




# Were we stressed or was it just me – and does it even matter? Efforts to disentangle individual and collective resilience within real and imagined stressors

Carin Molenaar<sup>1\*</sup> , Manpreet Blessin<sup>2†</sup>, Luise M. Erfurth<sup>3†</sup> and Roland Imhoff<sup>1</sup>

<sup>1</sup>Johannes Gutenberg Universität Mainz/ Johannes Gutenberg University Mainz, Germany

<sup>2</sup>Leibniz Institut für Resilienzforschung Mainz/ Leibniz Institute for Resilience Research Mainz, Germany

<sup>3</sup>Goethe Universität Frankfurt/ Goethe University Frankfurt, Germany

Although resilience is a multi-level process, research largely focuses on the individual and little is known about how resilience may distinctly present at the group level. Even less is known about subjective conceptualizations of resilience at either level. Therefore, two studies sought to better understand how individuals conceptualize resilience both as an individual and as a group. Study 1 ( $N = 123$ ) experimentally manipulated whether participants reported on either individual or group-based responses to real stressors and analysed their qualitative responses. For individual responses, subjective resilience featured active coping most prominently, whereas social support was the focus for group-based responses. As these differences might be attributable to the different stressors people remembered in either condition, Study 2 ( $N = 171$ ) held a hypothetical stressor (i.e., natural disaster) constant. As expected, resilience at the group level emphasized maintaining group cohesion. Surprisingly, the group condition also reported increased likelihood to engage in blame, denial, and behavioural disengagement. Contrary to expectations, participants in the individual condition reported stronger desire to seek out new groups. The combined findings are discussed within the framework of resilience and social identity and highlight the necessity of accounting for multiple levels and subjective conceptualizations of resilience.

Resilience is an essential component of the psychological exploration of stress and coping (for reviews: Davydov, Stewart, Ritchie, & Chaudieu, 2010; Fritz, de Graaff, van Harmelen, & Wilkinson, 2018). However, as with traditional stress and coping literature (e.g., Lazarus & Folkman, 1984), resilience research is limited by primarily focusing on individuals (Masten, 2007). This is a critical gap as groups also experience and navigate stressors

*This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.*

\*Correspondence should be addressed to Carin Molenaar, Johannes Gutenberg Universität Mainz/ Johannes Gutenberg University Mainz, \*Binger Str. 14-16 Room 01-121, 55122 Mainz, Germany (email: c.molenaar@uni-mainz.de).

<sup>†</sup>Contributed equally to the manuscript.

collectively (Drury, 2012). Collective stressors can strengthen, alter, or even disrupt long-standing or emergent groups. For instance, while the loss of a loved one clearly impacts individuals, the loss of a family member can bring the family – as a group – closer together through shared support or push them apart through lost contact or disputes over inheritance (see Patterson, 2002; Walsh, 1996). Nevertheless, empirical explorations of collective resilience are uncommon and it remains unclear whether different characteristics and dynamics of resilience are present at the group – or collective – level. Therefore, in this paper, we investigate both individual resilience and collective resilience within the context of meaningful real and imagined stressors to understand how resilience presents at both levels.

A second critical gap in resilience literature is the lack of a subjective understanding of individual or collective resilience within the context of stressful events (Bonanno, 2012; Jones & Tanner, 2017; Liu, Reed, & Girard, 2017; Ungar, 2004). Subjective resilience, perhaps more than traditional objective measures such as resilience scales, recognizes people as agentic and aware of what facilitates adaptation and transformation (Jones & Tanner, 2017). It can also capture critical aspects that researchers may not have considered. As such, this paper specifically focuses on expanding the exploration of resilience to include subjective conceptualizations of individuals and groups.

### **Collective resilience**

Growing interest in the group level (e.g., collective resilience; Drury, Cocking, & Reicher, 2009) represents an essential move towards understanding the multi-level resilience process (Cacioppo, Reis, & Zautra, 2011; Lyons, Fletcher, & Bariola, 2016; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008; Stoverink, Kirkman, Mistry, & Rosen, 2020). Presently, collective resilience is defined as ‘...a group’s ability, through a high level of agency and adaptability, to withstand or recover quickly from challenging events’ (Lyons et al., 2016; p. 66). It explores perceptions of group members to better understand resilience, as integral interactions may not be apparent to observers (Lyons et al., 2016), and benefits may not be visible for group members alone (Norris et al., 2008). Furthermore, collective resilience explores what membership means, how it manifests (Jetten, Haslam, Haslam, Dingle, & Jones, 2014), and if it persists following stress.

Collective resilience aligns closely with the also developing concept of community resilience. Community resilience similarly focuses on adaptive group processes, but with more emphasis on larger social-ecological levels. For instance, while political partnerships and organizational linkages and cooperation (see Norris et al., 2008) are critical to resilience processes at the community or societal level, they may be less salient or accessible for smaller groups such as families or friend circles. However, one factor which theoretically unites collective and community resilience is a focus on the role of social identity and social support (see Drury, 2018; Norris et al., 2008).

Despite relatively limited empirical explorations of how resilience manifests at the group level, extensive research exists on social identity and the benefits of group membership *for individuals*. For instance, making membership in groups salient to an individual facilitates persistence following negative feedback (Green, Rees, Peters, Sarkar, & Haslam, 2018), positive interpretations of events (Cruwys, South, Greenaway, & Haslam, 2015), offers of assistance to in-group members (Levine, Prosser, Evans, & Reicher, 2005), pain endurance, and cardiovascular recovery (Jones & Jetten, 2011). Further, a stronger sense of shared identity, even in experimental settings, increases social support and resistance to stressors (Haslam & Reicher, 2006). However, these studies only

highlight how *an individual* benefits from group membership when navigating stress, even when other members are absent (e.g., Green et al., 2018; Jones & Jetten, 2011). They seem to reflect the instrumentality of social support for individual resilience, rather than actual collective resilience. Instead of simply focusing on the well-being of individuals, collective resilience, as defined above, should include the group's continued existence and level of functioning.

To our knowledge, there are very few relevant studies which explore the continuation of groups following stress. For example, one which studies emergent groups (Ntontis, Drury, Amlôt, Rubin, & Williams, 2020) and one which focuses on civil society within a region (Forrest, Trell, & Woltjer, 2018). However, even these relevant studies focus on the community level. Such empirical investigations of collective resilience, which also encompass smaller groups (e.g., Lyons et al., 2016), are surprisingly scarce.

### **Individual resilience**

Presently, collective resilience draws from the understanding of individual resilience – a broad concept which has received considerable attention (Garmezy, 1987; Luthar, Cicchetti, & Becker, 2000; Masten, 2007, 2014). Within psychology, it is generally understood as ‘a dynamic process encompassing positive adaptation within the context of significant adversity’ (Luthar et al., 2000; p. 543). Resilience is viewed as common or ‘Ordinary Magic’ (Bonanno, 2004; Masten, 2001), as both experiencing distress and striving to positively adapt following adversity are expected (Drury, 2012; Norris et al., 2008). However, how common it is can depend on factors like the type of stressor or previous experiences navigating adversity (Infurna & Luthar, 2016; Rutter, 2012).

Furthermore, recent literature has identified multiple resilience factors – or factors within the resilience process which facilitate an increased capacity for individuals to achieve positive outcomes following adversity. Factors often highlighted by resilience literature include active coping, positive affect, and social support (Bengel & Lyssenko, 2012; Wu et al., 2013). Active coping refers to the ongoing effort to cope with specific events or adversity (Lazarus, 1993). Active coping strategies can be diverse and vary depending on aspects such as the type of stressor, context, or even personalities (Carver & Vargas, 2011; Wu et al., 2013). What matters is that there is an effort to pro-actively address adversity rather than endure or sit it out. Positive affect, or the regular experience of positive emotions such as contentment or joy, may also play a role in resilience as it is considered protective when navigating stressors (Bengel & Lyssenko, 2012). Finally, social support is multifaceted and can include the subjective integration of an individual into social networks, perceived availability of support, and interactions perceived as supportive (Holt-Lunstadt, Smith, & Layton, 2010; Swanson, Geller, DeMartini, Fernandez, & Fehon, 2018). It can be examined in terms of both quantity (e.g., number of friends) and quality (Bengel & Lyssenko, 2012). Taken together, the extant literature on resilience factors and on social identification suggests that individuals may recover more quickly from stressful events if they cope actively, have a generally positive affect, and perceive, receive, or recruit social support.

Yet, active coping, positive affect, and social support are potentially equally valid at the group level as groups may also better overcome threats to their collective existence if they actively organize against adversity, maintain high spirits, and utilize social support within and between groups. Social identity literature, although focusing on individuals, suggests that groups might even more effectively utilize some resilience factors such as positive affect (e.g., Cruwys et al., 2015) or social support (e.g., Haslam & Reicher, 2006; Levine

et al., 2005) than individuals. Additionally, social support at the group level, due to reciprocity, collective self-efficacy (Häusser, Junker, & van Dick, 2020), or even broader resources available through community-level factors such as political partnerships (Norris et al., 2008), may be distinct from social support at the individual level. Finally, group bonds may also strengthen following the experience of supporting each other and overcoming adversity together.

However, without an explicit exploration of factors at different levels of the resilience process, it is difficult to understand potential distinctions between resilience for an individual – even one with multiple group memberships or social identities (Jetten et al., 2014) – or for a group. In other words, it remains unclear if it matters when or if types of stressors and resilience factors are perceived as ‘ours’ instead of ‘mine’. These distinctions are necessary for separating how social group membership benefits individuals from how collective resilience processes benefit both individual group members and the group itself. For example, to utilize social support within a resilience process, one needs a functioning group. Thus, the survival of the group is not only an end to itself but also potentially instrumental to resilience.

### **Current studies**

We conducted two studies to help address gaps in our understanding of whether collective resilience and individual resilience are distinct and to answer the calls for more subjective and contextually specific explorations of resilience (Bonanno, 2012; Jones & Tanner, 2017; Liu et al., 2017; Ungar, 2004). Specifically, Study 1 analysed qualitative responses produced by participants who were randomly assigned to recall a stressful event experienced either with a group or as an individual. Grounded within these stressors, both conditions were prompted to describe subjective conceptualizations of resilience. Study 2 built upon Study 1 and addressed the recognition that the differences between the individual and group conditions might simply reflect differences in the identified stressors instead of distinctions in subjective resilience. Thus, Study 2 held the type of stressor constant across conditions and added a quantitative analysis of resilience factors. Both studies were approved by the ethical commission at the first author’s institution (2019-JGU-psychEK-008).

## **STUDY I**

We randomly assigned participants to report a very stressful event they had experienced either as a member of a group or as an individual. They were then asked to describe what resilience in regard to the reported stressful event would look like for their group, or themselves, depending on the condition. We expected overlap in the type of stressors identified by individuals and groups, as a stressor (e.g., the loss of a family member) can personally impact an individual (e.g., the bereaved) as well as collectively impact a group (e.g., the family). Furthermore, individuals may primarily perceive group stressors (e.g., mass layoffs) as personally stressful. However, we expected that conceptualizations of subjective resilience would differ. For instance, following the loss of a family member, an individual may perceive resilience as coping through comforting personal hobbies (e.g., journaling) whereas the group may focus on sharing beloved memories or ensuring the continuation of family traditions.

## Participants

We recruited 123 participants via Amazon Mechanical Turk (MTurk) with the prerequisites that they were based in the United States, proficient in English, and have experienced a very stressful event in the past. Recognizing the importance of stress appraisal (Lazarus & Folkman, 1984), participants were allowed to personally define 'very stressful'. Participants, who have experienced traumatic events, were presently distressed, or currently seeking medical treatment for a serious condition were excluded from participating.

Participant age ranged from 19 to 64 years ( $M = 36.52$ ,  $SD = 10.96$ ). Participants self-identified as a female/woman ( $n = 66$ ), a male/man ( $n = 55$ ), and agender ( $n = 1$ ). Self-identified ethnicity included White/Caucasian ( $n = 93$ ), Afro-American/Black/African American ( $n = 13$ ), Hispanic/Latino ( $n = 7$ ), Multicultural ( $n = 3$ ), and International/Other ( $n = 5$ ). Self-identified sexual orientation included Heterosexual/Straight ( $n = 104$ ), Bisexual/Pansexual ( $n = 10$ ), Lesbian/Gay ( $n = 3$ ), and Asexual ( $n = 1$ ). Highest obtained education ranged from a high school/GED degree ( $n = 39$ ), bachelors ( $n = 72$ ), to postgraduate ( $n = 12$ ). Finally, annual household income ranged between < \$10,000-39,000 ( $n = 43$ ), \$40,000-69,000 ( $n = 34$ ), \$70,000-99,000 ( $n = 29$ ), and over \$100,000 ( $n = 17$ ).

## Materials

*Fletcher-Lyons Collective Resilience Scale* (FLCRS; Lyons et al., 2016) was developed to bridge resilience literature at the individual and group levels and to facilitate research on collective resilience. This 5-item, single factor, scale explores individual perceptions of the resilience of groups as reported by group members. Participants are asked to focus on their most important group to answer questions such as 'Our group bounces back from even the most difficult setbacks'. Items are measured on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). Scores are summed to create a single collective resilience score, ranging from 5 to 35. Higher scores suggest higher perceived collective resilience. An additional question was added, prompting participants to report what group they identified as most important. For this study, Cronbach's alpha was .90.

The *Very Stressful Event Essay Prompt* was developed based on methodology utilized by Tugade and Fredrickson (2004). Tomaka, Blascovich, Kibler, and Ernst's (1997) instructions for threat appraisal were also incorporated to prompt participants to identify 'very stressful' as opposed to 'challenging' events. The prompt is as follows: 'Please recall the most important past event or problem that (you/your group) found very stressful during your lifetime. This event should be something that was considered difficult to overcome, required effective and efficient performance, or was evaluated. Write about this experience in as much detail as you can. As you write, do not worry about grammar or punctuation. Really just focus on writing as much as you can about the experience'. The group condition was reminded to answer in regard to their most meaningful group. After completing the essay, participants responded to the following questions in relation to the stressor they identified:

1. How easy was it to recall this event? (7-point Likert scale),
2. How would you categorize this stressor: (list: relationship/interpersonal, financial, health-related, career/academic, grief/loss, other: please describe)
3. What was the significance of this event to (you/your group)?(open-ended)
4. What kind of sense can (you/your group) make of these circumstances? (open-ended)

The *Resilience Prompt* asked participants to consider a broad definition of resilience before responding to a series of questions. The statement was developed based upon multiple definitions (Bonanno, 2004; Lyons et al., 2016; Norris et al., 2008) and was intentionally broad to allow participants as much independence in generating responses as possible. The prompt is as follows: ‘Resilience is broadly understood as the ability to quickly “bounce back” following the experience of a stressful event. Resilience is a faster process than regular recovery and can include a return to “normal” daily functioning or even growth following a stressful event’. Participants were then asked the following questions:

1. What would resilience or ‘bouncing back’ look like for (you/your group) in regard to the event you described? (open-ended)
2. To what extent do you think (you/your group) were able to successfully ‘bounce back’ following the event you described? (7-point Likert scale)
3. Would you describe (yourself/your group) as resilient in regard to the event you described? (yes / no)

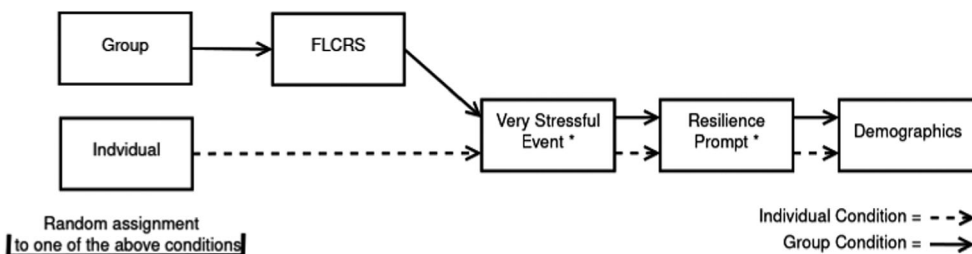
### Procedure

After consent, participants completed a 4-item Rule-Out questionnaire (Appendix S1) to confirm exclusion criteria, and participants were randomly assigned to one of two conditions: group ( $n = 58$ ) or individual ( $n = 65$ ). Only participants in the group condition completed the FLCRS. Next, all participants identified a meaningful stressful event and reported the corresponding subjective resilience, contingent on the condition to which they were assigned. Finally, participants provided demographic information (Figure 1).

### Coding of qualitative responses

Given the large amount of relatively concise qualitative data, responses were analysed and coded using Consensual Qualitative Research-Modified (CQR-M; Spanger, Liu, & Hill, 2012). The team was comprised of a postdoctoral research fellow and two Ph.D. students. To protect against bias, the team was blind to whether responses were from the group or individual condition during coding.

The team first explored whether categories would emerge for the stressful events that participants classified as ‘Other’ ( $n = 15$ ). One new category emerged as follows: Safety/



**Figure 1.** Visual depiction of the study procedure. \*indicates language adapted for individual / group condition.

Natural Disaster. This category included descriptions of experiencing physical (e.g., armed robbery), verbal (e.g., scams), or environmental (e.g., violent storms) threats. Two responses reported experiences of discrimination; however, given the social nature of the discrimination described, these responses were added to the Relationship/Interpersonal category. Reports of multiple types of stressors ( $n = 5$ ) were reviewed by the team who came to consensus on one primary category.

Using responses from the first 20 participants, team members independently developed initial category lists for subjective conceptualizations of resilience. For full initial lists, see Supplemental Information (Table S1). The team then met to discuss initial lists and come to consensus. This process was ongoing and allowed for adding and removing categories as needed to better fit the data as more cases were reviewed. The final subjective resilience list included 7 categories (see Table 1; Table 2 for frequencies).

## Results

Thirty-one participants in the group condition reported most strongly identifying with a social group (e.g., family, friends), 11 with a group based upon culture or belief system (e.g., religion, ethnicity), eight with work groups, three with formal organizations, three with location-based groups, and two with recreational groups (e.g., sports). The average FLCRS score was 28.83 ( $M$  for item response = 5.77; Table 3).

### Type of stressor

Participants appraised a wide variety of events as very stressful (e.g., loss of child/loved one, eviction/destruction of home, systemic discrimination, divorce, university/work assignments). We compared the frequency of the respective stressors between conditions but did not include Grief/Loss and Safety/Natural Disaster in the analysis due to the infrequency of responses (Figure 2). Contrary to our hypothesis, the frequency of type of stressor differed between conditions with medium effect size (Cohen, 1988),  $\chi^2$  (3,  $N = 104$ ) = 9.57,  $p = .02$ , Cramer's  $V = 0.30$ . Relational and interpersonal stressors were more salient from a group viewpoint whereas stress in the workplace or academic settings was more salient to individuals. Ease of recall of the stressor did not differ across conditions,  $t(121) = -.88$ ,  $p = .38$ , with an average report that it was 'easy' ( $M = 6.00$ ).

### Subjective resilience

As expected, the frequency of type of subjective resilience described differed between conditions,  $\chi^2$  (4,  $N = 116$ ) = 14.19,  $p = .01$ , Cramer's  $V = 0.35$  (Ambiguous and Blocked categories were not reported frequently enough to be included; Table 2; Figure 3). Resilience from the group perspective often involved getting back to 'normal' (i.e., normal daily functioning) and finding strength through social support and relational cohesion whereas resilience from the individual perspective frequently involved taking action (i.e., active coping). Across conditions, when social support was identified, the emphasis was often on cohesion rather than on giving or receiving assistance. For descriptive purposes, the frequency of subjective resilience described by type of stressor is displayed in Supplemental Materials (Figure S1). The extent to which participants viewed their groups or themselves as resilient in the context of the identified stressor did not differ,  $t(121) = .30$ ,  $p = .77$ , with the average response being 'successful',  $M = 5.92$ ,

**Table 1.** Final category lists for subjective resilience

Category Title	Definition	Study 1 Example	Study 2 Example
Active Coping	Taking specific and intentional action above and beyond what is typical in order to overcome the stressful event or right the situation. Includes processes, such as intentionally allowing self to grieve.	<p>'For us, resilience was immediately coming up with a plan of attack, and brainstorming for solutions to our problem'.<sup>†</sup></p> <p>'Finding a place of my own to raise my son and start my life over as a single person'.</p>	<p>'...dealing with the problems directly. Getting things done, planning the best use of resources and efforts and simply making the best use of what is available'.<sup>†</sup></p> <p>'...taking action and collecting what I can from the rubble, securing a place to stay, and working through the insurance process to get my life back in order'.</p> <p>'Bouncing back for me would look like me moving forward'.</p>
Ambiguous	Unclear or missing responses.	'Every day is a process to regain trust'.	
Blocked	Perception of how or why resilience was either not present or possible.	<p>'... Our group ended up weaker, not stronger'.<sup>†</sup></p> <p>'There are so many things I have missed out on already this year and looks as if I will continue to be absent'.</p>	
Fighting Through	Focus on not giving up and/or persisting through chronic distress. A sense of pushing through despite difficulty identifying specific steps forward (e.g., planning, actively coping).	<p>'Resilience for our group was showing up every week regardless of the threats'.<sup>†</sup></p> <p>'For me it would mean simply not giving up'.</p>	<p>'We would adapt to the situation, and persevere until the situation was better'.<sup>†</sup></p> <p>'I think it would mostly consist of me realizing what was done can't be undone and trying to move on. Even if trying fails a few times'.</p>
Normal Daily Functioning	Intentional effort to return to everyday life and to cope through a maintenance of normal routines. A return to homeostasis.	<p>'Daily life, back to normal. Not forgetting the sacrifice of these dead individuals, but also not letting it hinder our lives to the point where we can't function normally'.<sup>†</sup></p> <p>'Bouncing back would look like us getting back into our regular habits and schedules'.</p>	<p>'...getting back to a regular routine as soon as possible, even if repairs are still on going'.<sup>†</sup></p> <p>'I would try to normalize the event by doing the things that I love and being around those I love the most. I'd try to get some routines going so that I'd feel back to normal as soon as possible'.</p>
Positive Mindset	Intentional effort to focus on positive emotions or maintain hope and calm.	'Once we were back in [location] we tried to forget about it and move on with our lives and	'It would be looking at the bright side of things and trying to find the light'. <sup>†</sup>

Continued



Table 1. (Continued)

Category Title	Definition	Study 1 Example	Study 2 Example
Social Support	Effort to self soothe, meditate, and/or process distress. Reframe the stressor as an opportunity for growth.  Intentionally coming together with others to overcome the stressor. Can include all forms of support from personal relationships to groups based on shared beliefs or culture (e.g., religion). This category included three qualifiers: 1. Given: Offering support to others 2. Received: Accepting offers of support 3. Cohesion: Reciprocity in both giving and receiving support. Focus on increasing and/or strengthening bonds in order to more swiftly overcome distress.	<p>tried to enjoy the present moment and focus on the positive things we were experiencing'.<sup>†</sup></p> <p>'It would be able to claim small victories and focus more on the positive aspects of the situation'.<sup>†</sup></p> <p>'Being happy again was what I think bouncing back meant to me'.</p> <p>'Resilience would be to find a peace of mind that I am not at fault for what happened'</p> <p>(1) 'My father was also very helpful in being there for her all the time. I tried to help by checking in and lightening the mood whenever possible'.<sup>†</sup></p> <p>'I tried to bring some of my professional expertise to the hospital and be there when my family would meet with doctors'.</p> <p>(2) 'finding the right people to repair the neighborhood'.<sup>*</sup></p> <p>(3) '... we knew we had one another's backs, we had all worked equally as hard as anyone else'.<sup>†</sup></p> <p>'The resilience I had is that when this was going on I still managed to go to school and have relations with friends'.</p>	<p>'I think that would look like being positive no matter the circumstances and making sure the group continues to help focus on the efforts of the communities'.<sup>†</sup></p> <p>'I would stay as optimistic as possible, I will only push happy thoughts into my mind and think of any and all positives that can come out of this situation'.</p> <p>'For me, it would be finding ways to calm myself. I get my peace of mind through exercise, so I would do a lot of this to take my mind off of things'.</p> <p>(1) 'In this event my resilience would take form in my doing my best to help my neighbor. Putting in a helping hand with physical needs if they need shelter, food, etc., and then also be there as a friend to listen and help them through it'.</p> <p>(2)</p> <p>'I would rely heavily on my family and friends to help get me through this event'.</p> <p>(3) '... coming out on top of the issue by banding together and being there for each other'.<sup>†</sup></p> <p>'... when we are all able to focus and help one another... In doing so, it would strengthen the bonds in our group and would allow us to pull through and get past this traumatic event'.<sup>†</sup></p>

Direct quotes are in italics.

<sup>†</sup>For participants in the Group condition

**Table 2.** Frequency of reported stressors and categories

Title	Total	Group	Individual
Study 1: Type of stressor			
Career/Academic	33	9 (15.56)	24 (17.44)
Financial	26	11 (12.26)	15 (13.74)
Grief/Loss*	10	3 (4.72)	7 (5.28)
Health related	13	8 (6.13)	5 (6.87)
Safety/Natural disaster*	9	7 (4.24)	2 (4.76)
Relational/Interpersonal	32	20 (15.09)	12 (16.91)
Study 1: Subjective resilience			
Active coping	47	14 (22.28)	33 (24.72)
Ambiguous*	4	1 (1.89)	3 (2.11)
Blocked*	3	2 (1.41)	1 (1.58)
Fighting through	14	7 (6.64)	7 (7.3)
Normal daily functioning	12	10 (5.68)	2 (6.31)
Positive mindset	17	8 (8.06)	9 (9.94)
Social support	26	16 (12.33)	10 (13.67)
Cohesion	15	9	6
Given	7	5	2
Received	3	1	2
Study 2: Subjective resilience			
Active coping	50	18 (22.96)	32 (27.04)
Ambiguous*	10	5	5
Fighting through	20	5 (9.18)	15 (10.82)
Normal daily functioning	33	17 (15.15)	16 (17.85)
Positive mindset	19	8 (8.72)	11 (10.28)
Social support	37	25 (16.99)	12 (20.01)
Cohesion	25	22	3
Given	10	2	8
Received	2	1	1

Expected frequencies are in parentheses.

\*Reported too infrequently to be included in analyses.

$SD = 1.04$ . Nearly all participants ( $n = 118$ ) stated 'Yes' when asked if they considered their group/themselves resilient.

### Discussion

In contrast to expectations, the results of Study 1 indicate that the type of most significant past stressor experienced with a group differs from those experienced as an individual. This assertion is strengthened by the diversity of stressors identified, mirroring previous resilience literature which ranges from daily hassles to potentially traumatic events (e.g., Drury et al., 2009; Hou, Lai, Hougén, Hall, & Hobfoll, 2019). While this does not mean certain stressors are only perceived either collectively or individually, it does suggest that some stressors are more often seen as impacting groups (i.e., Relationship/Interpersonal) whereas others are more salient for individuals (i.e., Career/academic). As hypothesized, subjective resilience also differed, suggesting that groups perceive collective resilience differently than individuals perceive their own resilience. Here, when the stressor was interpersonal – it was often the case that the conceptualization of resilience was also

**Table 3.** Descriptive statistics

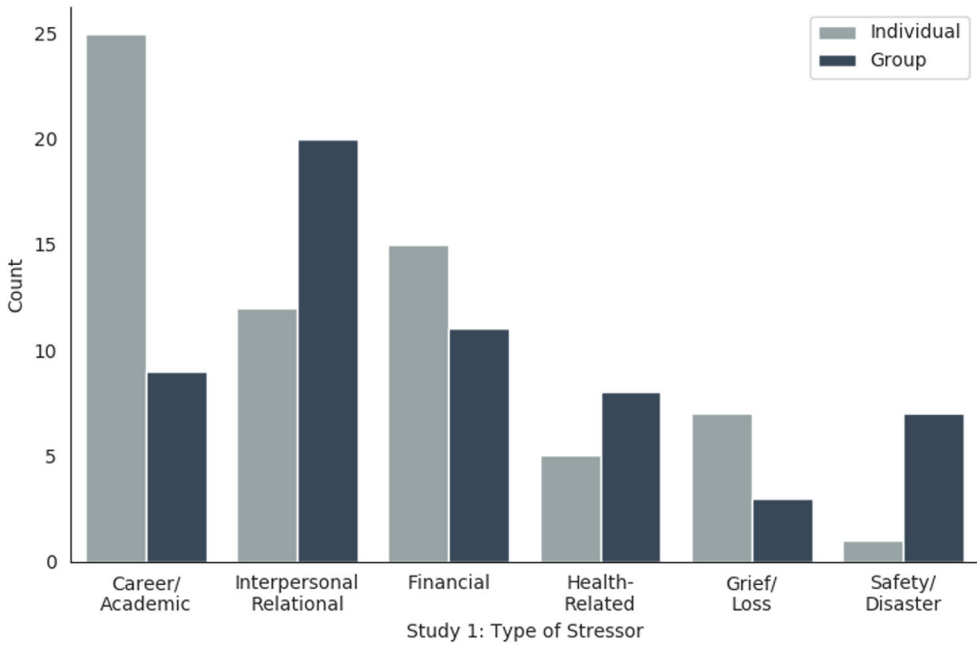
Study 1			Group		Individual	
	M	SD	M	SD	M	SD
1. FLCRS	28.83	4.16	28.83	4.16	-	-
2. Ease of Recall	6.01	1.32	6.11	1.29	5.90	1.45
3. Extent	5.92	1.04	5.89	1.03	5.94	1.05
Study 2			Group <sup>‡</sup>		Individual <sup>‡</sup>	
	M	SD	M	SD	M	SD
1. FLCRS	29.27	3.86	28.74	4.38	29.71	3.33
2. BRS	3.70	0.84	3.74	.84	3.66	.83
3. Extent	6.07	0.89	6.12	.74	6.03	1.00
EXITS						
4. Before	17.28	5.76	16.94	5.94	17.88	5.46
5. After	22.54	4.03	23.18	3.33	22.91	3.22
6. New*	18.94	4.90	18.14	4.60	20.35	4.30
COPE						
7. Distraction	4.70	1.60	4.45	1.64	4.65	1.47
8. Active Coping*	7.06	1.35	6.95	1.43	7.54	0.81
9. Denial*	2.83	1.28	2.92	1.25	2.35	0.71
10. Substance Use	2.87	1.45	2.86	1.34	2.50	1.13
11. Emotional Support	5.88	1.69	6.03	1.61	5.72	1.80
12. Instrumental Support	6.35	1.45	6.43	1.40	6.30	1.53
13. Behavioural Disengagement*	2.85	1.45	3.04	1.47	2.04	0.20
14. Venting <sup>†</sup>	4.87	1.50	4.76	1.45	4.69	1.39
15. Positive Reframe	5.13	1.83	5.13	1.69	5.22	1.91
16. Planning*	7.12	1.29	6.96	1.44	7.55	0.88
17. Humour	4.27	1.95	4.51	1.92	3.96	1.98
18. Acceptance <sup>†</sup>	6.67	1.14	6.50	1.25	7.00	0.99
19. Religion	4.37	2.15	4.43	1.88	4.18	2.41
20. Blame*	2.89	1.39	2.95	1.33	2.38	0.84
PANAS						
21. Positive Affect	28.86	7.72	28.09	8.43	29.51	7.06
22. Negative Affect	24.67	7.61	23.96	7.03	25.26	8.05

Note: FLCRS = Fletcher-Lyons Collective Resilience Scale, Ease of Recall = Responses to the question 'How easy was it to recall this event?' (1 = extremely difficult to 7 = extremely easy); Extent = Responses to the question 'To what extent do you think (you/your group\*) were able to successfully "bounce back" following the event you described?' (1 = not at all to 7 = completely successful), BRS = Brief Resilience Scale, EXITS = Exeter Identity Transitions Scale, COPE = Adapted Brief Cope Inventory, PANAS = Positive and Negative Affect Schedule.

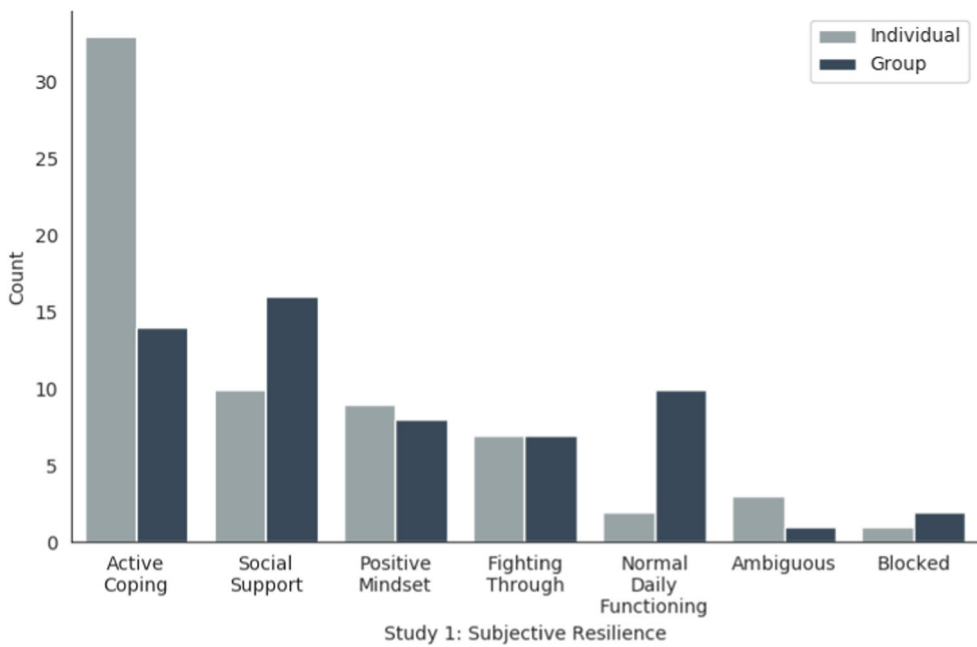
\*Significant differences found between Group and Individual conditions; <sup>†</sup>Excluded from analyses due to unsatisfactory internal consistency; <sup>‡</sup>Does not include extreme outliers identified by R package (rstatix; Kassambara, 2020).

interpersonal. In contrast, when the stressor was individual, the focus was on actively coping to address or overcome the stressor.

Study 1's findings present significant considerations when exploring collective or individual resilience, as some stressful contexts appear more relevant to the group level



**Figure 2.** Type of stressor identified by condition. Note. Safety/Natural Disaster and Grief/Loss were not included in analyses.



**Figure 3.** Type of subjective resilience reported by condition. Note. Blocked and ambiguous were not included in analyses.

than to the individual level. Furthermore, these results support the recognition that, depending on perspective, some conceptualizations of resilience are emphasized over others (e.g., Ungar, 2008; Ungar & Liebenberg, 2011). These distinctions cannot be accounted for by participants more readily recalling an individually stressful event, or selectively recalling events they successfully navigated, as ease of recall or perception of resilience demonstrated did not differ. It is possible that distinctions in subjective resilience could simply stem from the different types of stressors emphasized in each condition. Participants in the individual condition may also have had more past stressors to choose from. Therefore, to control for the type of stressor and better answer our question of whether individual and collective resilience differ, Study 2 was developed.

## STUDY 2

Building on Study 1, Study 2 held the type of stressor constant while exploring both subjective resilience and more traditional resilience factors (i.e., active coping, social support, and positive affect; see Bengel & Lyssenko, 2012; Wu et al., 2013). We expected that the distinctions between subjective conceptualizations of resilience would be consistent with the findings from Study 1, such that the group condition would emphasize social support and a return to normal daily functioning whereas the individual condition would focus on active coping and instrumental social support. We also expected that participants in the group condition would express higher levels of positive affect, greater intentions to utilize emotional social support and seek new group memberships in addition to stronger belief that their memberships would persist following an imagined stressor.

### Participants

Recruitment and inclusion criteria were the same as Study 1. After removing participants who failed attention checks ( $n = 7$ ), the total sample was 171. Utilizing the *pwr* package in R (Champely, 2020), a sample this size has 78% power to detect medium effects of 0.45 or larger (Cohen, 1988), which is empirically the average effect size across 100 years of social psychology research (Richard, Bond, & Stokes-Zoota, 2003). Age ranged from 20 to 65 years ( $M = 34.74$ ,  $SD = 9.09$ ). Ninety-eight participants self-identified as a male/man and 73 as a female/woman. Participants predominately self-identified as White ( $n = 125$ ) and heterosexual ( $n = 149$ ). Regarding ethnicity, participants also self-identified as Black ( $n = 17$ ), Latino ( $n = 12$ ), Asian ( $n = 11$ ), and Multicultural ( $n = 6$ ). Regarding sexual orientation, participants also self-identified as Gay/Lesbian ( $n = 7$ ), Bisexual ( $n = 5$ ), or Diverse/Other ( $n = 10$ ). Education level ranged from high school ( $n = 59$ ) to bachelors ( $n = 98$ ) and masters ( $n = 14$ ). Annual household income ranged between <\$10,000–39,000 ( $n = 59$ ), \$40,000–69,000 ( $n = 59$ ), \$70,000–99,000 ( $n = 31$ ), and over \$100,000 ( $n = 22$ ).

### Materials

*Brief Resilience Scale* (BRS; Smith et al., 2008) is a 6-item measure of resilience (e.g., ‘I tend to bounce back quickly after hard times’). Items are scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Three items are reverse coded prior to calculating a mean. Higher scores indicate an increased ability to recover following the experience of stress. Cronbach’s alpha was .90.

*Fletcher-Lyons Collective Resilience Scale* (FLCRS; Lyons et al., 2016) was also used in Study 2. Cronbach's alpha was .89.

*Stressful Event Prompt* was developed based upon responses from Study 1. Depending on their randomly assigned condition, participants were asked to read a statement and imagine that either they or their group were experiencing it (e.g., 'Please read the following statement and imagine that your group is experiencing it. While imagining how your group would navigate this stressful event, please respond to the following series of questions'). The event used in this study is as follows: 'Your neighborhood was hit by a violent storm/natural disaster which destroyed the general area. Most homes sustained a large amount of damage and are uninhabitable'. A natural disaster prompt was selected as it was the least common type identified in Study 1, reducing the risk of prompting participants to reflect on previous lived-experiences. To prompt participants to consider the hypothetical event, they were asked to write at least 100 words on how it would impact them or their group. The hypothetical event was visible on each page of the survey following feedback from the pilot.

*Exeter Identity Transition Scales* (EXITS; Haslam, Jetten, Postmes, & Haslam, 2008) was developed with the goal of exploring group membership before and after an event. It consists of three factors: before (e.g., 'Before the event I had friends who were members of lots of different groups'), after (e.g., 'After the event, I would still be friends with people in the same groups as I was before the event'), and new memberships (e.g., 'After the event, I would join one or more new groups'). Each factor has four items. Responses are provided on a 7-point Likert scale (1 = do not agree at all to 7 = agree completely). Instructions asked participants to respond related to the hypothetical Stressful Event Prompt. Cronbach's alpha ranged from .87 (after) to .94 (new memberships).

*Brief COPE Inventory* (Brief COPE; Carver, 1997) is a 28-item shortened version of the original COPE scale (Carver, 1989). It includes 14 subscales that focus on specific types of coping (e.g., active coping, denial, humour). Items are scored on a 4-point Likert scale (1 = not at all to 4 = a lot) and summed for each subscale. Instructions were adapted to ask participants how likely it would be that they would engage in types of coping following the Stressful Event Prompt. Language was also adapted to reflect condition (e.g., 'I/We would take action to try to make the situation better'). Acceptable alpha for the subscales ranged from .63 (distraction) to .89 (substance use). Unacceptable subscales were not included in analyses (i.e., venting = .54 and acceptance = .27).

*Positive and Negative Affect Schedule* (PANAS; Watson et al., 1988) is a 20-item scale which includes two ten-item subscales: positive affect (e.g., attentive, determined) and negative affect (e.g., jittery, nervous). Items are scored on a 5-point Likert scale (1 = very slightly or not at all to 5 = extremely). Scores from each subscale are summed, with possible scores ranging from 10 to 50. Higher scores suggest higher levels of the respective affect. Instructions prompted participants to respond to how they would imagine they would feel following the Stressful Event Prompt. Cronbach's alpha was acceptable (positive affect  $\alpha = .84$ ; negative affect  $\alpha = .87$ ).

The *Qualitative Resilience Prompt* was the same as in Study 1. However, the questions were altered to reflect the hypothetical scenario (e.g., 'What would resilience or "bouncing back" look like for (you/your group) in regard to the described event?'). Question 3 was not asked, as it was less relevant to a hypothetical event.

## Procedure

After consent, participants completed an exclusion criteria questionnaire similar to Study 1 (see Appendix S1). Participants were randomly assigned to one of two conditions: group ( $n = 76$ ) or individual ( $n = 74$ ). All participants first completed the BRS. Then, in the group condition, participants completed the FLCRS and were asked to focus on a single group that they strongly identify with and to consider this group as they continued. Participants in the individual condition completed an adapted version of the FLCRS, where questions reflected only the individual (e.g., 'I am adaptable'). All participants then read through the Stressful Event Prompt and were asked to imagine this event as they completed the rest of the survey. Then, the Brief COPE, EXITS, and PANAS were presented in a counterbalanced order before participants completed the Qualitative Resilience Prompt. Participants in the individual condition then completed the genuine FLCRS. See Figure 4.

Qualitative methodology was the same as in Study 1 and was completed by the same team. No new categories emerged. The blocked category was not found in Study 2, given the event was hypothetical.

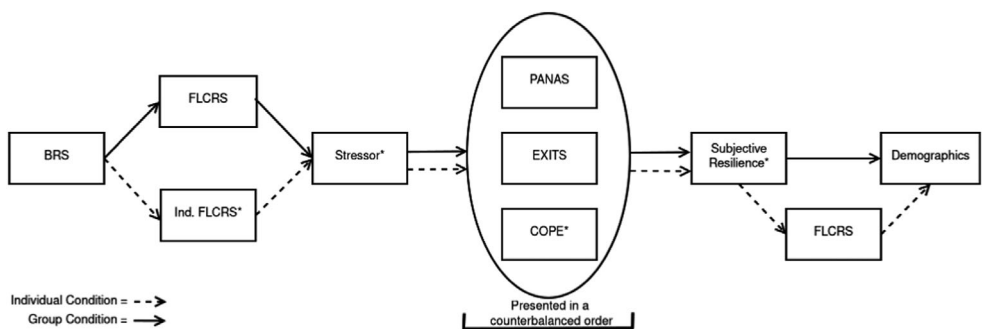
## Results

### Descriptive statistics and preliminary analyses

The majority of participants reported most strongly identifying with social groups (e.g., friends or family;  $n = 81$ , group  $n = 33$ ), 30 identified with groups at work (group  $n = 23$ ), 27 with groups based upon shared culture or beliefs (group  $n = 9$ ), 14 with location-based groups (e.g., city; group  $n = 3$ ), nine with formal organizations (e.g., political party; group  $n = 5$ ), and nine with recreational groups (e.g., sports; group  $n = 5$ ). One participant in the individual condition did not identify a group.

Univariate normality for the full sample was assessed, and acceptable skewness and kurtosis were found (Curran et al., 1996; see Table 3). Multicollinearity was also acceptable except between the planning and active coping subscales of the COPE (Leech et al., 2011; see Supplemental Information for correlation table; Table S2).

Independent samples t-tests were used to determine that scores did not differ significantly between group and individual conditions for the BRS ( $t(169) = -.61$ ,  $p = .542$ ) or for the FLCRS,  $t(169) = 1.64$ ,  $p = .104$  (Table 3); therefore, these were not controlled for during analysis. Furthermore, no significant differences were found



**Figure 4.** Procedure for individual and group conditions.\* language altered to reflect experimental condition.

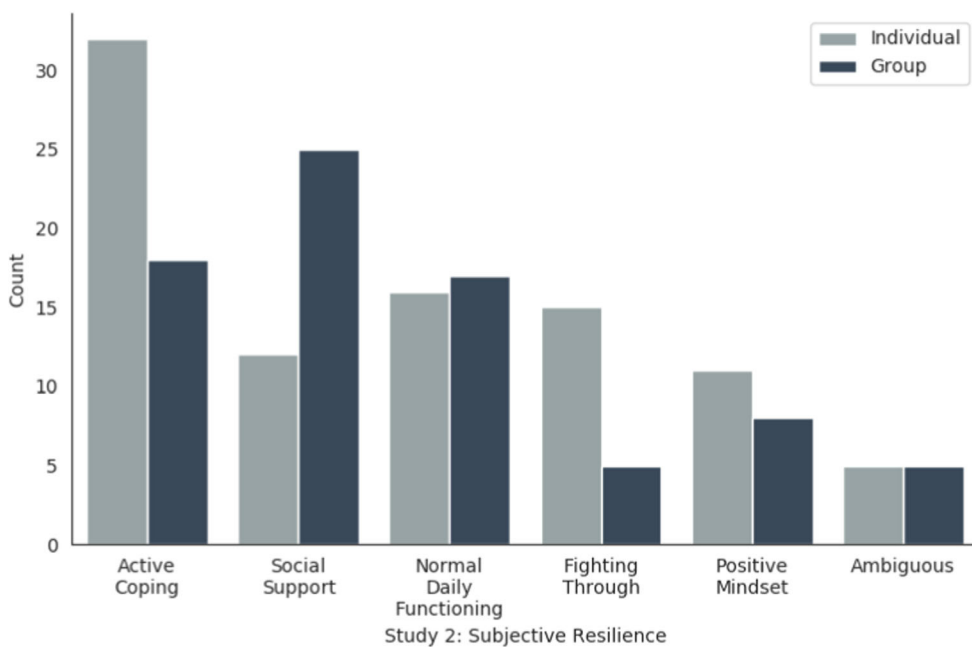
between conditions regarding the extent to which they believed they/their group would be able to successfully ‘bounce back’ following the stressful event,  $t(169) = -.61$ ,  $p = .542$ . Both conditions reported an average belief that they/their group would be ‘successful’ ( $M = 6.07$ ,  $SD = 0.89$ ).

Extreme outliers were identified using R package (rstatix; Kassambara, 2020) and removed prior to analyses (affect  $n = 0$ ; group membership  $n = 10$ , Coping  $n = 24$ ). As multivariate normality was violated, three series of t-tests were conducted to test our hypotheses with Bonferroni-adjusted  $p$  values for multiple comparisons (affect  $p < .025$ ; group membership  $p < .016$ ; coping  $p < .004$ ). Welch’s t-tests were used when assumption of homogeneity of variance was violated. Assumption tests, analyses, and depictions were completed using the following Python packages: pandas (McKinney, 2010), researchpy (Bryant, 2018), scipy (Virtanen et al., 2020), statsmodels (Seabold & Perktold, 2010), and seaborn (Waskom et al., 2017).

### Primary analyses

#### Qualitative data

As expected, type of subjective resilience differed between conditions,  $\chi^2(4, N = 159) = 13.02$ ,  $p = .01$ , Cramer’s  $V = 0.29$  (ambiguous was not included). Consistent with the findings of Study 1, the group condition focused on social support with an emphasis on cohesion. Participants in the individual condition focused again on active coping. However, in contrast with Study 1, normal daily functioning did not appear to be more of a focus in the group condition than in the individual (Tables 1 and 2; Figure 5). It



**Figure 5.** Type of subjective resilience reported by condition. Note. Ambiguous was not included in analyses



is possible that this discrepancy may be in part due to participant's difficulty relating to the theoretical nature of the natural disaster.

### Affect

Unexpectedly, participants in the group condition reported similar expectations for positive affect,  $t(169) = 1.20$ ,  $p = .234$ , following the hypothetical stressor. Negative affect was also explored and did not differ between conditions,  $t(169) = 1.11$ ,  $p = .268$ .

### Group membership

Group memberships prior to the hypothetical event did not differ across conditions,  $t(159) = -0.52$ ,  $p = .603$ . In contrast with expectations, the group condition did not report significantly stronger beliefs that their group memberships would persist following the stressor,  $t(159) = 1.04$ ,  $p = .302$ . They also did not report greater intention to join new groups. Instead, the opposite was found, such that participants in the individual condition expressed significantly greater intention to seek new groups,  $t(159) = 3.14$ ,  $p = .002$ , Cohen's  $d = .50$  ( $M = 20.35$ ,  $SD = 4.30$ ) than those in the group condition ( $M = 18.14$ ,  $SD = 4.60$ ).

### Coping

As hypothesized, participants in the individual condition reported significantly higher responses for the active coping, Welch's  $t(120) = 3.13$ ,  $p = .002$ , Cohen's  $d = .51$ , and planning, Welch's  $t(125) = 3.06$ ,  $p = .003$ , Cohen's  $d = .50$ , subscales of the COPE. Surprisingly, no significant differences were found between group and individual intentions to utilize emotional support,  $t(148) = -1.11$ ,  $p = .27$ , or instrumental support,  $t(148) = -.57$ ,  $p = .57$ .

The remaining COPE subscales were also explored. Participants in the group condition expressed significantly greater intention to engage in denial, Welch's  $t(119) = -3.44$ ,  $p < .001$ , Cohen's  $d = -.56$ , behaviourally disengage, Welch's  $t(78) = -5.86$ ,  $p < .001$ , Cohen's  $d = -.95$ , and blame, Welch's  $t(127) = -3.15$ ,  $p = .002$ , Cohen's  $d = -.51$ , than participants in the individual Condition. No significant differences were found between group and individual responses to the distraction,  $t(148) = .79$ ,  $p = .43$ , substance abuse, Welch's  $t(145) = -1.76$ ,  $p = .08$ , humour,  $t(148) = -1.74$ ,  $p = .08$ , positive reframe,  $t(148) = .29$ ,  $p = .77$ , or religion, Welch's  $t(138) = -.73$ ,  $p = .46$ , subscales (Table 3). Differences between scores on the venting and acceptance subscales were not considered due to the unsatisfactory alpha scores for this sample.

### Discussion

The results of Study 2 indicate that, when controlling for the type of stressor, the resilience processes of groups and individuals are similar in several ways. These findings create a framework for the future application of individual resilience factors at other levels. For instance, anticipated positive and negative affect were not significantly different between conditions, nor were there differences in expected social support or anticipated group membership prior to or after an event. Furthermore, both conditions expressed similar expectations to cope using instrumental or emotional support, humour, using substances, or positively reframing the experience.

In addition to the aforementioned similarities, several notable differences were found. Participants in the group condition expressed significantly higher intentions to blame, engage with denial, and behaviourally disengage. It is interesting that, despite similar expectations of utilizing instrumental or emotional support across conditions, participants in the group condition more frequently subjectively conceptualized resilience as social support. The group condition's emphasis on cohesion within social support highlights how maintaining the integrity of the group becomes a focus when navigating a stressor together. These findings support assertions that social support at the group level is perceived distinctly from the individual level (e.g., mutual social support; Häusser et al., 2020). In contrast, participants in the individual condition expressed significantly greater intentions to seek out new group memberships following the event than those in the group condition. This was not due to increased belief that previous group memberships would deteriorate after the event. The individual condition also expressed significantly higher expectations to cope actively and develop a plan. This was mirrored by qualitative data, which found that participants in the individual condition emphasized active coping in their subjective conceptualizations of resilience. Instead of discussing these findings in detail here, we will come back to them in the general discussion.

Combined, Study 2 highlights the importance of future researchers not assuming that all aspects of resilience identified at the individual level are relevant to groups or larger communities. Overall, these similarities and differences cannot be accounted for by different expectations regarding successful navigation of the stressor, as this was similarly high across both conditions. Furthermore, beliefs about the resilience of personally meaningful groups did not differ across conditions.

## GENERAL DISCUSSION

Together, these studies contribute to a growing understanding of collective resilience (e.g., Lyons et al., 2016) by exploring potential distinctions between how individuals subjectively conceptualize and experience resilience within the context of real (Study 1) or hypothetical (Study 2) stressors faced as either an individual or a collective. The combined results consistently demonstrated that whether a stressor is perceived as 'mine' or 'ours' matters when it comes to understanding resilience. Study 1 found that both the type of stressor and conceptualization of resilience are distinctly emphasized between conditions. Although it was possible that the distinctions in subjective resilience could be accounted for by the stressor itself, similar patterns emerged even when the stressor remained the same (Study 2). Critically, both studies demonstrate how – when navigating a stressor collectively – the survival of the group becomes paramount.

Furthermore, the assertion that resilience is common (e.g., 'Ordinary Magic'; Masten, 2001) and that generally, otherwise healthy, populations are likely able to navigate very stressful events (Bonanno, 2004) is supported by both studies at both the individual and group levels. Here, participants overwhelmingly perceived (Study 1) or expected (Study 2) the successful demonstration of resilience. Nevertheless, the finding that resilience processes were common in these studies is not meant to minimize structural or systemic disadvantages or to blame individuals or groups for not achieving positive outcomes. Instead, as Norris et al., (2008) suggested, future resilience literature may ask why, in certain circumstances, the resilience process is inhibited or blocked – instead of only exploring when resilience is demonstrated.

### **Collective resilience**

Although the group condition subjectively emphasized social support, perceived quality of social support – defined as intentions to use instrumental and emotional support – did not differ across conditions. Here, the qualitative sub-category helps shed light on this subtle distinction. Within social support, the emphasis in the group condition was often on cohesion – or maintaining social ties – as opposed to either receiving or giving support. This suggests that, when encountering a stressor as a group, the survival of the group and maintenance of cohesion become a focus of collective resilience instead of simply a factor to be utilized for better personal outcomes (i.e., instrumental/emotional support.). The emphasis on cohesion may also help explain why they reported less of a desire to seek new memberships, as they were focusing on maintaining pre-existing groups. These findings are critical to understanding collective resilience, as they demonstrate how maintaining the existence and functioning of the group becomes a focus when navigating a stressor collectively.

However, it appears troubling that Study 2's participants in the group condition expressed more intention to cope through denial, blame, and behavioural disengagement. There are several potential reasons for why these results were found. For instance, denial in response to danger can play many roles (e.g., denial of implications) and members may try to comfort one another by downplaying the severity of the experience (see Wiebe & Korbel, 2003). Blame may serve to solidify group ties in line with the well-known adage 'misery loves company'. Finally, when seeing the impact on other group members, groups may – at some level – more effectively recognize the lack of control over a natural disaster and lack of perceived control has been previously linked to disengagement coping (Dijkstra & Homan, 2016).

These findings also bear resemblance to Haslam and Reicher's (2006) study exploring how groups, formed within an experimental context, countered stress. Specifically, that different group responses to stress depend on the group's level of shared social identification. Low social identification was associated with less trust, support, and communication between group members and more negativity, disorganization, and perceived collective inefficacy. Moreover, when analysing group behaviour related to stress, low levels of social identification were associated with denial, avoidance, and withdrawal from the group (Haslam & Reicher, 2006). Although these findings appear to mirror the results of Study 2 well, it is surprising given that participants in the group condition were allowed to select a group that was personally meaningful to them. This suggests the potential that there may be varying levels of social identification with a group – even if the group itself is meaningful. Moreover, DeMarco and Newheiser (2019) found that meaningful groups can also have a negative influence on the individual, and their identification with the group, if group esteem is low. Therefore, it is possible that participants expecting more denial, blame, and disengagement either belonged to groups with low social identification or that the level of social identification was not high enough to be able to collectively overcome the stressor in a resilient way. However, this is not reflective of the reportedly high perceived collective resilience from participants in the group condition in Study 2. Without a more focused exploration of these findings in future studies, it is difficult to draw conclusions.

### **Individual resilience**

Mirroring previous literature connecting active coping and resilience for individuals (see Bengel & Lyssenko, 2012; Wu et al., 2013), participants in the individual condition

focused more on active coping and planning when both conceptualizing subjective resilience (Study 1 & 2) and reporting how they might cope with a natural disaster (Study 2). Notably, participants in Study 2's individual condition expressed significantly greater intention to seek out new groups following the natural disaster. This supports recent findings that describe how new groups, without prior ties, emerge to navigate stressors collectively (i.e., flooding; Ntontis et al., 2020).

Although the individual condition generally focused less on social support, participants emphasized giving support to others when it was discussed. While these findings can be an overestimation of one's personal ability to cope, it may signify a way of securing goodwill with others and serve as a method of developing or solidifying new, emergent, connections (Ntontis, Drury, Amlôt, Rubin, & Williams, 2019). Although such emergent groups are mainly found to be short-lived – only existing as long as the stressor is salient – the increased community solidarity is meaningful and individuals report an urgent need to help out as much as they can (Ntontis et al., 2019, 2020). In this way, both studies support previous literature, which emphasizes how individuals may benefit from their social identity and group memberships even when perceiving a stressor as an individual (Green et al., 2018; Jones & Jetten, 2011).

### **Limitations and future directions**

There are several limitations to these studies. First, although participants in the group conditions were asked to consider stressful events encountered with a meaningful group, the findings rely on the perception of one group member (i.e., individually perceived group identification; Häusser et al., 2020). Although group members still have more insight into their community than an external researcher (Lyons et al., 2016; Ungar, 2004, 2008), it is possible that other members have conflicting perspectives regarding the significance of the event, the experience navigating the stressor, the conceptualization of resilience, or even whether resilience was demonstrated at all. It is also of note that the reliance on self-reported past events, individual imagination, and questionnaires limits the ability to capture the dynamic collective and individual resilience processes which may be present in real-world events. Future research would benefit from exploring collective resilience through the perspective of multiple members of groups within real-life contexts and by focusing on specific types of groups or stressors.

Finally, it is possible that sample size limited the ability to detect small effect sizes. However, given the novel nature of these studies, small effects were of less interest than substantial differences. Furthermore, although the participants in these studies represented a wide range of life stages, they were relatively homogeneous and based in the United States. Additionally, exclusion criteria – ethically important for protecting participants from potential psychological discomfort (e.g., re-living traumatic events or focusing on current distress) – were applied. This limits generalizability to populations from other cultural contexts or from those who may presently benefit from resilience processes. Future research is necessary for understanding resilience processes in diverse individuals and groups. Such studies will benefit from striving to understand complex factors like subjective conceptualizations of resilience (see Walsh-Dilley & Wolford, 2015).

### **Conclusion**

Both studies described above found that, while there may be considerable overlap between resilience at the group and individual level (e.g., positive affect), there are critical

distinctions (e.g., types of stressor, subjective conceptualization, active coping, blame). Furthermore, although social support is essential to individual and collective resilience – the maintenance of the group itself is uniquely critical at the group level. Therefore, to achieve a robust understanding of resilience, it is essential to account for both the individual and group – or collective – level in future research. In particular, it is necessary to consult Social Psychology when looking at the resilience processes of group dynamics. Specifically, the social identity approach may shed light on negative coping mechanisms in groups with low levels of social identification or negatively evaluated groups (e.g., DeMarco & Newheiser, 2019; Haslam & Reicher, 2006). Future research must continue to focus on both the individual and group levels to tease apart the meaning of multi-level resilience processes following diverse stressors.

## Acknowledgements

These studies were funded as part of a Leibniz Collaborative Excellence (Leibniz-Kooperative Exzellenz) project titled 'Resilience factors in a diachronic and intercultural perspective' (# K83/2017). We thank Prof. Dr. Rolf van Dick for providing helpful feedback on our manuscript.

## Conflict of interest

All authors declare no conflict of interest.

## Author contributions

Carin Molenaar, Ph.D. (Conceptualization; Formal analysis; Methodology; Writing – original draft; Writing – review & editing) Manpreet Blessin (Formal analysis; Writing – original draft; Writing – review & editing) Luise Erfurth (Formal analysis; Writing – original draft; Writing – review & editing) Roland Imhoff (Conceptualization; Formal analysis; Funding acquisition; Methodology; Supervision; Writing – original draft; Writing – review & editing).

## Data availability statement

The qualitative data from Study 1 are not publicly available due to privacy or ethical restrictions. The data, separated from demographic information, that support the findings of Study 2 are available from the corresponding author upon reasonable request. This will not include data from participants who requested to have data deleted within two years of analysis.

## References

- Bengel, J., & Lyssenko, L. (2012). *Resilienz und psychologische Schutzfaktoren im Erwachsenenalter: Stand der Forschung zu psychologischen Schutzfaktoren von Gesundheit im Erwachsenenalter*. Köln: BZgA Bundeszentrale für Gesundheitliche Aufklärung.
- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59(1), 20–28. <https://doi.org/10.1037/0003-066X.59.1.20>

- Bonanno, G. A. (2012). Uses and abuses of the resilience construct: Loss, trauma, and health-related adversities. *Social Science & Medicine*, *74*, 753–756. <https://doi.org/10.1016/j.socscimed.2011.11.022>
- Bryant, C. (2018). *Researchpy*. Retrieved from <https://researchpy.readthedocs.io/en/latest/>
- Cacioppo, J. T., Reis, H., & Zautra, A. J. (2011). Social resilience: The value of social fitness with an application to the military. *American Psychologist*, *66*(1), 43–51. <https://doi.org/10.1037/a0021419>
- Carver, C. S., & Vargas, S. (2011). Stress, coping, and health. In H. S. Friedman (Ed.), *Oxford library of psychology. The Oxford handbook of health psychology* (pp. 162–188). Oxford, UK: Oxford University Press.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*, 92–100.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267–283.
- Champely, S. (2020). *pwr: Basic Functions for Power Analysis*. R. package version 1.3-0. <https://CRAN.R-project.org/package=pwr>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, *6*(1), 65–74. <https://doi.org/10.1177/1948550614543309>
- Davydov, D., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review*, *30*, 479–495.
- DeMarco, T. C., & Newheiser, A. K. (2019). When groups do not cure: Group esteem moderates the social cure effect. *European Journal of Social Psychology*, *49*, 1421–1438. <https://doi.org/10.1002/ejsp.2594>
- Dijkstra, M. T. M., & Homan, A. C. (2016). Engaging in rather than disengaging from stress: Effective coping and perceived control. *Frontiers in Psychology*, *7*(1415), 1–12. <https://doi.org/10.3389/fpsyg.2016.01415>
- Drury, J. (2012). Collective resilience in mass emergencies and disasters: A social identity model. In J. Jetten, C. Haslam & S. A. Haslam (Eds.), *The social cure: Identity, health, and well-being* (p. pp.). Hove, UK: Psychology Press.
- Drury, J. (2018). The role of social identity processes in mass emergency behaviour: An integrative review. *European Review of Social Psychology*, *29*(1), 38–81. <https://doi.org/10.1080/10463283.2018.1471948>
- Drury, J., Cocking, C., & Reicher, S. (2009). The nature of collective resilience: Survivor reactions to the 2005 London bombings. *International Journal of Mass Emergencies and Disasters*, *27*(1), 66–95.
- Forrest, S., Trell, E.-M., & Woltjer, J. (2018). Civil society contributions to local level flood resilience: Before, during and after the 2015 Boxing Day floods in the Upper Calder Valley. *Transactions of the Institute of British Geographers*, *44*, 1–15. <https://doi.org/10.1111/tran.12279>
- Fritz, J., de Graaff, A. M., van Harmelen, A. L., & Wilkinson, P. O. (2018). A systematic review of amenable resilience factors that moderate and/or mediate the relationships between childhood adversity and mental health in young people. *Frontiers Psychiatry*, *9*, 1–17. <https://doi.org/10.3389/fpsyg.2018.00230>
- Garmezy, N. (1987). Stress, competence, and development: Continuities in the Study of Schizophrenic Adults, Children Vulnerable to Psychopathology, and the Search for Stress-Resistant Children. *American Journal of Orthopsychiatry*, *57*, 159–174. <https://doi.org/10.1111/j.1939-0025.1987.tb03526.x>
- Green, J., Rees, T., Peters, K., Sarkar, M., & Haslam, S. A. (2018). Resolving not to quit: Evidence that salient group memberships increase resilience in a sensorimotor task. *Frontiers in Psychology*, *9* (2579), 1–12. <https://doi.org/10.3389/fpsyg.2018.02579>

- Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2008). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology, 58*(1), 1–23. <https://doi.org/10.1111/j.1464-0597.2008.00379.x>
- Haslam, S. A., & Reicher, S. (2006). Stressing the group: Social identity and the unfolding dynamics of responses to stress. *Journal of Applied Psychology, 91*, 1037–1052. <https://doi.org/10.1037/0021-9010.91.5.1037>
- Häusser, J. A., Junker, N. M., & van Dick, R. (2020). The how and the when of the social cure: A conceptual model of group- and individual-level mechanisms linking social identity to health and well-being. *European Journal of Social Psychology, 50*, 721–732. <https://doi.org/10.1002/ejsp.2668>
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Med, 7*, e1000316. <https://doi.org/10.1371/journal.pmed.1000316>
- Hou, W. K., Lai, F. T. T., Hougen, C., Hall, B. J., & Hobfoll, S. E. (2019). Measuring everyday processes and mechanisms of stress resilience: Development and initial validation of the sustainability of living inventory (SOLI). *Psychological Assessment, 31*, 715–729. <https://doi.org/10.1037/psa0000692>
- Infurna, F. J., & Luthar, S. S. (2016). Resilience to major life stressors is not as common as thought. *Perspectives on Psychological Science, 11*, 175–194. <https://doi.org/10.1177/1745691615621271>
- Jetten, J., Haslam, C., Haslam, S. A., Dingle, G., & Jones, J. M. (2014). How groups affect our health and well-being: The path from theory to policy. *Social Issues and Policy Review, 8*(1), 103–130. <https://doi.org/10.1111/sipr.12003>
- Jones, J. M., & Jetten, J. (2011). Recovering from strain and enduring pain: Multiple group memberships promote resilience in the face of physical challenges. *Social Psychological and Personality Science, 2*, 239–244. <https://doi.org/10.1177/1948550610386806>
- Jones, L., & Tanner, T. (2017). 'Subjective resilience': Using perceptions to quantify household resilience to climate extremes and disasters. *Regional Environmental Change, 17*, 229–243.
- Kassambara, A. (2020). *rstatix: Pipe-Friendly Framework for Basic Statistical Tests*. R Package Version, (6). Retrieved from <https://CRAN.R-project.org/package=rstatix>
- Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. In R. S. Lazarus (Ed.), *Fifty years of the research and theory of RS Lazarus: An analysis of historical and perennial issues* (pp. 366–388). Mahwah, NJ: Laurence Erlbaum Associates Inc.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Leech, N. L., Barrett, K. C., & Morgan, G. A. (2011). *IBM SPSS for intermediate statistics: Use and interpretation* (4th ed.). London, UK: Routledge/Taylor & Francis Group.
- Levine, M., Prosser, A., Evans, D., & Reicher, S. (2005). Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shape helping behavior. *Personality and Social Psychology Bulletin, 31*, 443–453. <https://doi.org/10.1177/0146167204271651>
- Liu, J. J. W., Reed, M., & Girard, T. A. (2017). Advancing resilience: An integrative, multi-system model of resilience. *Personality and Individual Differences, 111*(1), 111–118. <https://doi.org/10.1016/j.paid.2017.02.007>
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Childhood Development, 71*, 543–562. <https://doi.org/10.1111/1467-8624.00164>
- Lyons, A., Fletcher, G., & Bariola, E. (2016). Assessing the well-being benefits of belonging to resilient groups and communities: Development and testing of the Fletcher-Lyons Collective Resilience Scale (FLCRS). *Group Dynamics: Theory, Research, and Practice, 20*, 65–77. <https://doi.org/10.1037/gdn0000041>
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*, 227–238. <https://doi.org/10.1037/0003-066X.56.3.227>

- Masten, A. S. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, *19*, 921–930. <https://doi.org/10.1017/S0954579407000442>
- Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, *85*(1), 6–20. <https://doi.org/10.1111/cdev.12205>
- McKinney, W. (2010). Data structures for statistical computing in Python. Proceedings of the 9th Python in Science Conference, *445*, 56–61
- Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, *41*, 127–150. <https://doi.org/10.1007/s10464-007-9156-6>
- Ntontis, E., Drury, J., Amlôt, R., Rubin, G. J., & Williams, R. (2019). What lies beyond social capital? The role of social psychology in building community resilience to climate change. *Traumatology*, *26*, 253–265. <https://doi.org/10.1037/trm0000221>
- Ntontis, E., Drury, J., Amlôt, R., Rubin, G. J., & Williams, R. (2020). Endurance or decline of emergent groups following a flood disaster: implications for community resilience. *International Journal of Disaster Risk Reduction*, *45*, 101493. <https://doi.org/10.1016/j.ijdr.2020.101493>
- Patterson, J. M. (2002). Understanding family resilience. *Journal of Clinical Psychology*, *58*, 233–246. <https://doi.org/10.1002/jclp.10019>
- Richard, F. D., Bond, Jr, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, *7*, 331–363. <https://doi.org/10.1037/1089-2680.7.4.331>
- Rutter, M. (2012). Resilience as a dynamic concept. *Development and Psychopathology*, *24*, 335–344. <https://doi.org/10.1017/S0954579412000028>
- Seabold, S., & Perktold, J. (2010). “statsmodels: Econometric and statistical modeling with python.” Proceedings of the 9th Python in Science Conference. 92–96
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*, 194–200. <https://doi.org/10.1080/10705500802222972>
- Spangler, P. T., Liu, J., & Hill, C. E. (2012). Consensual qualitative research for simple qualitative data: An introduction to CQR-M. In C. E. Hill (Ed.), *Consensual qualitative research: A practical resource for investigating social science phenomena* (pp. 269–283). Washington, DC: American Psychological Association.
- Stoverink, A. C., Kirkman, B. L., Mistry, S., & Rosen, B. (2020). Bouncing back together: Toward a theoretical model of work team resilience. *Academy of Management Review*, *45*, 395–422. <https://doi.org/10.5465/amr.2017.0005>
- Swanson, A., Geller, J., DeMartini, K., Fernandez, A., & Fehon, D. (2018). Active coping and perceived social support mediate the relationship between physical health and resilience in liver transplant candidates. *Journal of Clinical Psychology in Medical Settings*, *25*, 485–496. <https://doi.org/10.1007/s10880-018-9559-6>
- Tomaka, J., Blascovich, J., Kibler, J., & Ernst, J. M. (1997). Cognitive and physiological antecedents of threat and challenge appraisal. *Journal of Personality and Social Psychology*, *73*(1), 63–72. <https://doi.org/10.1037//0022-3514.73.1.63>
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, *86*, 320–333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Ungar, M. (2004). A constructionist discourse on resilience: Multiple contexts, multiple realities among at-risk children and youth. *Youth & Society*, *35*, 341–365. <https://doi.org/10.1177/0044118X03257030>
- Ungar, M. (2008). Resilience across cultures. *British Journal of Social Work*, *38*, 218–235. <https://doi.org/10.1093/bjsw/bcl343>
- Ungar, M., & Liebenberg, L. (2011). Assessing resilience across cultures using mixed methods: Construction of the child and youth resilience measure. *Journal of Mixed Methods Research*, *5*, 126–149. <https://doi.org/10.1177/1558689811400607>



- Virtanen, P., Gommers, R., Oliphant, T. E., Haberland, M., Reddy, T., Cournapeau, D., ... van Mulbregt, P. (2020). SciPy 1.0: fundamental algorithms for scientific computing in Python. *Nature Methods*, *17*, 261–272.
- Walsh, F. (1996). The concept of family resilience: Crisis and challenge. *Family Process*, *35*, 261–281. <https://doi.org/10.1111/j.1545-5300.1996.00261>
- Walsh-Dilley, M., & Wolford, W. (2015). (Un)defining resilience: Subjective understandings of 'resilience' from the field. *Resilience*, *3*, 173–182. <https://doi.org/10.1080/21693293.2015.1072310>
- Waskom, M., Botvinnik, O., O’Kane, D., Hobson, P., Lukauskas, S., Gemperline, D. C. ... Qalieh, A. (2017). *mwaskom/seaborn: v0.8.1 (September 2017)*. Zenodo. <https://doi.org/10.5281/zenodo.883859>
- Wiebe, D. J., & Korbel, C. (2003). Defensive denial, affect, and the self regulation of health threats. In L. D. Cameron & H. Leventhal (Eds.), *The self-regulation of health and illness behavior* (pp. 184–203). New York: Routledge.
- Wu, G., Feder, A., Cohen, H., Kim, J. J., Calderon, S., Charney, D. S., & Mathé, A. A. (2013). Understanding resilience. *Frontiers in Behavioral Neuroscience*, *7*, 1–15. <https://doi.org/10.3389/fnbeh.2013.00010>

Received 22 July 2020; revised version received 26 April 2020

### Supporting Information

The following supporting information may be found in the online edition of the article:

**Appendix S1.** Supplemental Information.

**Table S1.** Full initial category lists for qualitative data.

**Table S2.** Study 2 correlation table.

**Figure S1.** Study 1 Subjective resilience category by type of stressor identified.