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Psychological Resilience Following Disasters: A Study of Adolescents and Their Caregivers

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ABSTRACT

Resilience, the process of successful adaptation to adverse circumstances, is traditionally studied as an individual characteristic. However, more recent multisystem perspectives underline the interrelatedness of systems, within and outside of the individual, in shaping coping and adaptation processes. This challenges the assumption that pathways to resilience are the same across the world, given the diversity in people's contexts globally. In light of the preponderance of resilience research being conducted in higher-income countries, this study taps pathways to resilience in survivors of the 2018 earthquake-tsunami-liquefaction disaster in Central Sulawesi, Indonesia. Guided by a social representations approach and using a novel free association technique, forty caregiver-adolescent dyads (N = 80) who survived the disaster were interviewed regarding their subjective experiences of coping and adaptation. Thematic analysis of their narratives demonstrated that survivors focused on *mutual support*, *religious beliefs* and *intrapersonal psychological resources* of seeking strength and calmness as routes for fostering psychological recovery. The results foreground group-specific aspects of such resilience: differences between caregivers and adolescents highlight how *social roles* and *life stage* shape resilience-related beliefs and practices. Moreover, the form their resilience takes is underpinned by sociocultural values of reciprocity and social cohesion. Thus, this paper points to similarities in resilience processes across contexts, but also to differences shaped by societal roles, developmental stage and cultural values.

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Introduction

Mass disasters such as earthquakes and tsunamis are extreme events with the potential to cause psychological harm to those who survive them. This includes post-traumatic stress disorder (PTSD), depression and anxiety

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(Neria et al., 2008; Norris et al., 2002). Nonetheless, most people exposed to mass disasters endure them without significant long-term mental health consequences (Bonanno, 2004; Bonanno et al., 2010). This process of successful adaptation to adverse circumstances is often referred to as resilience (Norris et al., 2008). Early studies approached resilience as an individual trait and focused on mapping intrapersonal factors such as personality traits (Bonanno, 2004) and capabilities (e.g., Folkman & Moskowitz, 2004; Troy et al., 2013) that promoted positive adaptation and mitigated detrimental psychological effects (Masten, 2021). However, as the study of resilience evolves, the influence of contextual and cultural factors has become evident. To capture the interactions between individual, social and cultural forces, more comprehensive models of resilience have been developed, including the influential multisystem perspective of resilience (Masten et al., 2021; Ungar & Theron, 2020).

The multisystem perspective of resilience posits that any system's capacity to adapt to challenges that threaten its functioning depends on the dynamics that operate between interconnected systems (Masten et al., 2021). Human resilience is a function of the interactions between systems within individuals (e.g. biological) and the larger systems they are embedded in (e.g. social and cultural) (Masten, 2019). Since systems of human development are heterogeneous (e.g. genetic makeup, environments, cultural values), manifestations of resilience are diverse (Masten, 2019, 2021; Ungar & Theron, 2020; Ungar et al., 2007).

This perspective decenters Western resilience scholarship as a reference point for other sociocultural contexts, given the differences in economic wealth, availability of resources and cultural values that shape people's everyday lives globally. This is crucial to the study of disaster resilience since people living in more hazard-prone areas are often those who are more marginalized socially and economically (Aldrich, 2012; Norris et al., 2008). Thus, failing to account for the role played by contextual and cultural variation in shaping resilience could lead to the design and implementation of interventions that do not address survivors' realities (Murphy et al., 2018).

The multisystem perspective of resilience: challenges and opportunities

There are points of convergence and divergence in resilience across groups (e.g. children, adolescents, families and communities) and cultural contexts. Resilience is fostered by factors such as *motivation to adapt*, *agency*, *quality of relationships*, *sense of belonging* and *positive views of the self and the collective* (Masten, 2018, 2021; Masten & Motti-Stefanidi, 2020). Furthermore, cultural values, beliefs, norms and practices play a major role in how

resilience manifests (Theron & Liebenberg; Ungar, 2006, 2014, 2015; Ungar et al., 2007). Spiritual practices, for example, play a major role in resilience in certain cultures (Masten, 2019).

The comprehensive approach to resilience that the multisystem perspective seeks to advance poses methodological and epistemological challenges (Ungar et al., 2023). Evidence on resilience in young people shows the mutuality of caregivers' resilience processes and those of their children (see Masten et al., 2021). Accordingly, in post-disaster settings, parents' mental health is positively correlated to that of their children (Juth et al., 2015). Nonetheless, despite increased efforts to assess the relationship of further individual and social variables, our current capacity to predict resilience outcomes remains modest (Bonanno, 2021). This can be explained by the heterogeneity of people's resources, which remain understudied due to the dominance of research in Western contexts (see Liebenberg & Theron, 2015; Zaumseil & Schwarz, 2014), as well as methodological limitations (Ungar et al., 2023), such as the predominant use of quantitative methods, which provide little insight into people's experience and subjectivity (Thin, 2018).

People's narratives provide inroads into sociocultural forces that guide their cognitive and affective processing. Qualitative or mixed methods research has the potential to uncover determinants and forms of resilience that existing scales may not tap (Ungar et al., 2023; Wright & Masten, 2015). Studies exploring subjectivity need to be underpinned by theories that can provide a framework for the interpretation of the dynamic interaction between individual, contextual and cultural forces. This paper proposes the use of Social Representations Theory (SRT) (Marková, 2012; Moscovici, 1961/1976; Moscovici & Marková, 1998) for this purpose.

Theoretical framework: Social representations theory

SRT was developed for the study of the formation, transformation and communication of common sense thinking in different groups (Moscovici & Marková, 1998). Within this framework, common sense can be equated to *social representations*, which are systems of beliefs, values and practices that guide identities, socio-cognitive processes and behaviors (Sammut & Howarth, 2014). Notably, a core tenet of the theory is that individual, social and cultural forces are mutually interdependent, hence social representations are the product of the interactions between these systems (Marková, 2012; Raudsepp, 2005). SRT allows researchers to examine people's everyday communications and conceptualisations. In doing so, it allows exploration of the dynamics that operate between the intrapersonal, interpersonal and cultural

forces that shape how people conceptualize psychosocial phenomena (Joffe, 1997), such as disasters.

SRT is compatible with the multisystem perspective of resilience since both recognize the diversity of environmental, societal and cultural properties that constitute people's realities. Accordingly, SRT has been widely used to advance knowledge on how different groups and cultures make sense of and react to risks, such as emerging infectious diseases (e.g. Idoiaga Mondragon et al., 2017), climate change (e.g. Smith & Joffe, 2013) and earthquakes (e.g. Joffe et al., 2013).

In this vein, the current study delves into social representations of psychological coping and adaptation in two groups that survived the 2018 earthquake and tsunami in Central Sulawesi: caregivers and their adolescent children. By using SRT, this investigation aims to advance knowledge of local conceptualisations and experiences of resilience in relation to surviving the disaster, as well as the sociocultural influences underpinning them.

Moreover, the comparison between two interrelated groups - adolescents and their caregivers – who inhabit different developmental stages and societal roles, will provide a more comprehensive picture of how sociocultural belief systems permeate different groups' representations. Social representations research has traditionally focused on adults. However, children and adolescents also play a key role in the creation, communication and expression of common sense (Aim et al., 2017). Thus, this paper utilizes SRT to examine how adolescents and their caregivers represent and transmit their resilience.

The current study

Children and adolescents are especially vulnerable after disasters (Norris et al., 2002; Peek, 2008) and are at heightened risk of experiencing PTSD and depression (Bonanno et al., 2010; Norris et al., 2002). Returning to school and regaining a sense of normality has proved to be crucial for the psychological recovery of adolescents (Masten & Obradović, 2008; Pacheco et al., 2022). However, gender-specific challenges, such as having to help with domestic work and care for others, as well as damage to the school's sanitation infrastructure (Garfias Royo et al., 2022), might prevent teenage girls from returning to school, potentially hindering resilience processes. Thus, this paper investigates the coping processes of female adolescents who survived the 2018 earthquake-tsunami-liquefaction disaster in Central Sulawesi. Moreover, we also examine the coping strategies of their caregivers, with the purpose of gauging the interrelatedness between systems and groups proposed by multisystem perspectives of resilience and SRT.

Foregrounding the voice of non-western populations who have experienced mass disasters, this paper seeks to answer the following research questions:

1. How do adolescents and their caregivers represent how they have coped with the 2018 earthquake-tsunami-liquefaction disaster?
2. Are there any differences in their social representations of coping?
   a. If existent, what underpins these differences?

Method

Research context

The present study was conducted in the Central Sulawesi region of Indonesia, which was severely affected by a seismic event registering 7.7 Mw that then resulted in a devastating tsunami, followed by liquefaction and landslides on 28th September, 2018. The disaster had major consequences, with 4,340 lives lost, 211,000 people displaced from their homes and 374 educational institutions severely impacted (Pemerintah Provinsi Sulawesi Tengah, 2019). Ongoing recovery efforts were hampered by the COVID-19 pandemic.

Cultural classifications (e.g. Hofstede, 2011; Schwartz, 2006; Triandis et al., 1988) are helpful in contextualizing research that seeks to account for cultural influences. Accordingly, Indonesia is classified as a predominately collectivistic culture, characterized by the conceptualization of the self as interdependent with others and the value of closeness, loyalty and social harmony amongst group members (Hofstede, 2011). Moreover, in addition to Indonesia's collectivist nature, as a prevalently Muslim country, Islamic values inform moral standards at a societal level (Otto, 2010).

Participants

Given the evidence that females face heightened risks in disaster settings (Garfias Royo et al., 2022; Tearne et al., 2021), a purposive sample of 48 female students aged 14 to 15 (M = 14, SD = .68) were selected from three school sites. For recruitment, the schools were asked to choose, at random, 48 students aged 14 to 16 and to contact them by phone calls to invite them and their caregivers to participate. This sample size was determined based on the precedent that it is divisible and large enough to look at trends amongst groups (e.g., Joffe et al., 2013), which allows splitting the sample into equal numbers of participants for comparisons based on the number of characteristics of interest (in this case "caregivers" and "their adolescents") (see Joffe & Elsey, 2014). Most of the selected students were

from low-income backgrounds, with 95% of the sample reporting a monthly household income below Indonesia's average wage (Wage Centre, 2023). Having selected the students, their primary caregiver was invited to participate in the study. This study only includes caregiver – adolescent dyads, hence, students whose caregivers did not participate are excluded[1]. The total sample of this study is therefore 80 participants, 40 female students (M_{age}= 14.5, SD=.67) and their 40 caregivers (M_{age} = 43.4, SD = 6.41). Further demographic details are included below (Table 1). The students were chosen from three mixed-gender educational institutions strategically selected due to their exposure to distinct facets of the disaster. School A was primarily affected by liquefaction, School B by the earthquake and School C by the tsunami. The structural integrity of School A and B was severely compromised, while School C was extensively damaged by flooding and sediment deposition. Following temporary closures, all three schools were eventually reestablished in relief tents, before returning to their original buildings[2].

Procedure

Informed consent was obtained from the schools, participating pupils and their caregivers. Data was collected between January and November 2022, facilitated by three Indonesian researchers who conducted the interviews via Zoom due to Covid and travel restrictions. To ensure technical and emotional support, a local research assistant was physically present, also providing access to a tablet. This enabled the researchers to take advantage of the benefits of online interviewing, including scheduling flexibility for the research team, while simultaneously counteracting potential pitfalls such as technological disparities (Keen et al., 2022).

The research team consisted of one Indonesian clinical psychologist, one mental health specialist local to Palu, one Indonesian who is both a

Table 1. Participants' demographic information.

	Caregivers (N = 40)	Students (N = 40)
Age (years)	M = 43.4	M = 14.5
Marital Status	98% Married 2% Divorced	N/A
Gender	93% Female 7% Male	100% Female
Highest education completed	8% Elementary School 18% Junior High School 60% Senior High School 3% Undergraduate Degree 13% Postgraduate Degree	N/A
Religion	90% Muslim 10% Christian	90% Muslim 10% Christian
Household income (per month) in Indonesian Rupiah (IDR)[3]	3% No Income 73% Less than IDR 4 Million 20% IDR 4–6 Million 0% IDR 6–8 Million 3% IDR 8–10 Million	N/A

sociologist and an anthropologist, one Indonesian academic psychologist and four academic psychologists from the UK, including the Principal Investigator (PI). Prior to commencing the interviews, the research team participated in a comprehensive training led by the Principal Investigator (PI), who developed the methodology (Joffe & Elsey, 2014). The team met on Zoom for one hour weekly over a 3-month period.

Furthermore, the PI provided personalized feedback, on one pilot interview of each researcher, concerning their adherence to the method. Ethical clearance for this study was granted by the University College London research ethics committee (Project ID 280,898).

Data collection

The Grid Elaboration Method (GEM) (Joffe & Elsey, 2014) was employed to gain in-depth insight into the perspectives and experiences of the participants. GEM is a novel free association technique that has been used extensively to reveal individuals' subjective thoughts and feelings regarding a specific social issue (e.g. Idoiaga Mondragon et al., 2023; Keen et al., 2021; Moore et al., 2023). The data collection process involves an initial free association task followed by an interview designed to elicit naturalistic responses with minimal researcher influence. Participants are presented with a grid containing four empty boxes with an instruction at the top of the page. The instruction asks them to write or draw in each box one image, word, or feeling that comes to mind when they hear/think of the topic of the study. Designing a suitable prompt is a crucial step to successfully elicit material relevant to the research question. Accordingly, an initial similar prompt was piloted with three participants from the same community, before minor modifications led to the final prompt used in this study.

In line with the method, students and caregivers were provided with an A4 sheet containing four boxes arranged in a grid. Above the grid, the written prompt stated: *"Please write or draw your first thoughts and feelings regarding how you have coped since the 2018 earthquake"*[4]. Participants were instructed to give one response per box and reassured there were no right or wrong answers. Examples of completed grids are provided in Figure 1. All materials were translated into Bahasa Indonesian and the prompt was piloted and then examined by local experts to ensure its clarity after translation. As per the method, following participants' completion of the grid, participants were asked in an interview to expand upon the content of each box in turn. Lastly, all participants completed a survey containing psychometric scales (not reported in this paper) and demographic questions. The entire interview process was facilitated by Indonesian researchers and lasted approximately one hour[5].

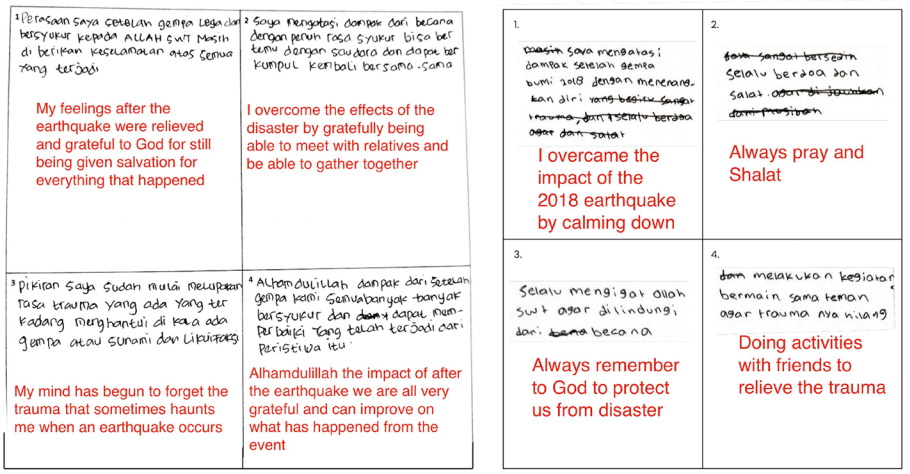


Figure 1. Example of completed grids (left: caregiver, School C, right: student, School B).

Data analysis

Interview audio recordings were transcribed verbatim and translated into English. A thematic analysis was then conducted on the interview transcripts to identify and analyse prevalent themes, or patterns of meaning, within the data (Braun & Clarke, 2006), following the steps outlined by Joffe & Yardley (2004) and Joffe (2012). This approach focuses on analytical transparency and systematicity and limits the interpretative capacity of the researcher using a coding frame that can be consistently applied to all the data.

Two of the authors read the entire data set multiple times before collaboratively developing an initial coding frame inductively, prioritising the subjective perspectives and voices of participants and allowing for unexpected themes to emerge. The coding frame was then subjected to an intercoder reliability evaluation to ensure its systematicity and transparency (O'Connor & Joffe, 2020). For this purpose, six interviews were independently double-coded by the authors using the codes and descriptions outlined in the coding frame. This showed that the coders assigned the same codes to a given excerpt 78%[6] of the time, which is considered a sufficient percentage of agreement (O'Connor & Joffe, 2020). Before the complete dataset was coded, discrepancies were reviewed and rectified so that an optimal, clear coding frame could be applied to the entire dataset. The coding procedure entailed adding labels from the coding frame to the data using the qualitative software Atlas.ti. After determining where patterns lay in the data with the support of the software, themes that addressed the research questions were developed by the first author. All themes were then revised by the rest of the authors to check for cultural accuracy and overall quality of the analytical process.

Results

Three central routes to resilience were identified in both the caregivers' and adolescents' interviews: (1) mutual support, (2) religious faith and (3) intrapersonal strategies. Although most representations were similar between groups, the differences found are highlighted. Theme prevalence in each group is presented in Table 2.

Theme 1. Mutual support: "Gotong royong"

80% of caregivers and 68% of adolescents.

Mutual support was the mechanism mentioned by most respondents to deal with the effects of the disaster: social networks were fundamental sources of both instrumental and psychological assistance.

Survivors relied heavily on friends and family to cope with the negative psychological effects of the disaster. Adolescents and their caregivers deemed the 2018 earthquake and tsunami an event that left them with lingering psychological distress, and disruption to their everyday lives. However, companionship and togetherness attenuated such effects:

> (I overcame the fear by) gathering with others at that time, there were many of us, we could look after each other with friends, we could also give each other strength, support each other. (Caregiver, School A)

> Overcoming (the effects of the disaster) by going to a friend's house when there is free time can be quite healing. Because if I just stay at home, my mind will always be there (in the disaster). (Adolescent, School B)

Rather than explicitly asking for emotional support, adolescents and adults found relief in sharing stories with other survivors, doing daily tasks in their company, staying in touch with family members and attending community gatherings:

> I didn't ask for help, only when I met friends, we often shared experiences, like when there was an earthquake, what did you do, where were you during the earthquake, how did it happen… so just share it, but if you ask about seeking for help to get rid of trauma, until now, there is no (help). (Caregiver, School C)

> I asked my friends how it was after earthquake because some of our friends survived but some didn't, so when we started interacting, there were friends who told jokes and made us laugh. In the end, we forgot our feelings of fear. (Adolescent, School A)

Table 2. Theme prevalence in each of the groups.

Theme	% of caregivers	% of adolescents
Mutual support	80%	68%
Religious faith	70%	55%
Intraindividual psychological resources	60%	60%

Overall, connecting with others eased rumination about the disaster, buffered negative feelings, elicited positive affect, strengthened social cohesion and helped survivors to move past the effects of the disaster:

> We communicated with each other and strengthened each other. (Caregiver, School A)

> The last time I remembered the 2018 incident was in December. Lately, I've been out with friends more often, so I don't think too much about it. (Adolescent, School B)

In addition to the social activities mentioned above, the adolescents often referred to playing with others as a coping and healing strategy. During the days after the event, with the closure of schools and displacement caused by the damage to their homes, adolescents found themselves with nothing to do, which led to boredom, rumination about the event and negative feelings. Thus, playing with others was a pleasurable way to pass the time and distract themselves from difficult thoughts and emotions:

> I am an introverted type of kid, if someone invited me to play, I just wanted to stay home, but (after the disaster) not anymore. When someone invited me to play, I joined, when I was by myself, I would have flashbacks of 2018. (Adolescent, School B)

> I played because I have a sister (…) the city was destroyed, all the buildings were destroyed, so maybe the way to deal with it was by playing. Because if I stayed at home, I would feel depressed. (Adolescent, School B)

Moreover, damage to buildings and fear of being indoors led adolescents to spend much of their time outdoors, which prompted them to engage in activities and sports, such as running around, cycling and playing ball games with other children in the area:

> I played with friends to get rid of the trauma. Playing with friends was delightful, full of laughter (…) playing in the field, badminton, baseball, hide and seek (…) we were playing because it was boring if we just stayed still in the shelter. (Adolescent, School B)

Furthermore, playing with others helped adolescents to face uncertainty and adapt to changes in their lives as new situations such as attending a temporary school, staying at shelters and moving in with family members were appraised as opportunities to make new friends and have more people to play with:

> (I was) looking for something to do. Chat with new people. There were many, many people who had fled. Many brothers and sisters came, socialising. (Adolescent, School C)

> (I tried to adapt) by trying to find new friends, could get information about how to learn the language there. (Adolescent, School A)

Importantly, girls recognized and consciously used play as a strategy to *"get rid of the trauma"* and care for others' wellbeing (e.g. younger siblings), given that play not only elicited positive affect but also kindled a sense

of normality, *"like if the earthquake hadn't happened."* Nonetheless, the beneficial effects of play were not always long-lasting, as illustrated by some girls who mentioned returning to feeling sad and scared whenever they went back home after spending time playing with friends:

> After playing, I went home. But when I came home, I was sad again. (Adolescent, School B)

Beyond mutual psychological support, family, friends and the broader community provided much of the practical support (e.g. provision of basic necessities and reconstruction of homes) required during the immediate and medium/long-term aftermath of the disaster:

> There was no financial aid (…) so my nephew who was in Jogja told me to pick up 25 kilos of rice, medicines and diapers and to distribute them to people in Lasoani. I also asked my daughter to donate her clothes to children in Lasoani. (Caregiver, School B).

Thus, individual and community recovery reflected a collective effort guided by a principle of mutual support – *"gotong royong"*[7], where everyone helped others with the means available:

> We went to the neighbour to ask for drinking water, everything was (for) free. The neighbours were really kind, we were very grateful. (Caregiver, School B).

This included the adolescents, who frequently mentioned supporting their family by helping with domestic tasks such as cooking and looking after younger relatives or members of the community:

> I helped my mum cook or joined my dad queuing for gasoline using a jerry can. (Adolescent, School B)

Such collective support was seen as crucial for survival, given that official aid (i.e., provided by the government) was often deemed inefficient, inaccessible and/or insufficient:

> Finding the assistance was a bit difficult because there were many rules. Some asked for household cards, some asked for ID cards, while we were still confused with neighbours whose houses were lost in the tsunami, maybe the ID cards were all gone (Caregiver, School C).

Accordingly, members of the community who had connections with local authorities played a particularly important role in the provision and distribution of aid, as they were able to request and mobilise support for people in need without the bureaucracy entailed when making formal requests to government:

> In Lassoani during the first evacuation period we didn't get any help. Luckily, the village head is my relative, he is my cousin. When he visited, I told him we didn't

> receive any aid, not even drinking water… he said okay and brought us rice, instant noodles but even with all that, we were still lacking supplies. (Caregiver, School B)

In sum, mutual support played a key role in the adolescents' and their caregivers' coping with the detrimental effects experienced. In times where governmental aid was not available, adolescents and their caregivers felt that family, friends and the broader community supported one another with the provision of necessities and organized further aid. Moreover, the adolescents and their caregivers felt that psychological trauma was eased by sharing stories with other survivors and spending time with family and friends, either by conducting everyday activities with companions or by gathering for the sake of being together. Although mutual support was experienced similarly in both age groups, adolescents added playing with others as vital for recovery, as it elicited positive affective states and distracted them from difficult thoughts and feelings.

Theme 2. Coping through religious faith

70% of adults and 55% adolescents.

Praying and having faith in God was the second most prevalent strategy mentioned in dealing with the negative psychological effects of the disaster. From the moment of the disaster onwards, adults and adolescents used prayer to manage panic, appease negative feelings and find composure:

> Usually, in order to be a bit calmer, I did the recitation. I usually cried remembering the incident, but I returned it entirely to the One above (God), all according to his will. (Caregiver, School B)

> When we finish praying, we will definitely be calm. If we pray to God, God will surely listen, so we feel calm. (Adolescent, School A)

The soothing effect of prayer was underpinned by beliefs associated with interviewees' predominantly Islamist faith. In a moment of extreme uncertainty and anguish, survivors found in God a superior power that could grant protection to themselves and others. They derived relief and calmness by conceptualizing the disaster as *"God's will."* Thus, anxieties concerning survival and others' wellbeing during the disaster were eased by praying to Allah for safety – this was especially salient in adolescents who mentioned prayer as a way to endure psychological distress:

> At the time, I prayed to be granted safety: "Oh Allah, please give me and my family salvation from this disaster. (Adolescent, School C)

> (I) calmed my heart and mind so I didn't panic and be restless and got closer to Allah SWT[8] and indeed it was only to Allah that we prayed for safety. (Caregiver, School A)

Moreover, feelings of helplessness, vulnerability and fear during and after the disaster were alleviated by surrendering to God's will and trusting *"his plan,"* as he *"knows best."* This was especially salient in caregivers:

> We gave up, prayed, we left it to God. If it was about the time, we would give it up. (Caregiver, School B)

> We have to surrender whatever it is that will happen in the future. We must believe that God's plan is real. (Adolescent, School B)

Furthermore, surviving the event strengthened interviewees' faith in God. For many, although more prevalent in the adult sample, surviving elicited feelings of gratitude for being given *"another opportunity."* Gratitude was especially prevalent in those who thought of the disaster as *"doomsday"* or a *"test"* of their faith:

> Even though the fear is still there until now, with the approach to Allah SWT, little by little it will disappear and we are very grateful that we are still given the opportunity to breath fresh air. (Caregiver, School A)

> We were told by teachers we have to pray to Allah in order to get protected by Allah from disasters. Usually, we were shown some videos about being grateful. (Adolescent, School B)

Therefore, many expressed that experiencing and surviving the disaster gave them the motivation to be more diligent concerning religious practices and values and to instigate the same for their children:

> (We came closer to God) by having recitations… we had religious practices, bringing ourselves closer to Allah, surrendering to Allah. (Caregiver, School A)

> I worship more often and always go to sleep regularly so I can wake up in the morning (to pray). (Adolescent, School B)

Moreover, religious diligence was also seen as a way to prevent future disasters, as it would encourage God to listen to people's prayers for safety:

> I always prayed to God to not be given something like that again, asking for God's protection. (Caregiver, School C)

> I always prayed to be protected by Allah. Hopefully the past disaster in 2018 won't happen again. (Adolescent, School B)

In sum, for adolescents and their caregivers religious faith was a key way to deal with the negative psychological aftermath of the experience of the disaster. Adolescents and their caregivers engaged in prayer to relieve fear and anxiety, as praying made them feel calmer. Prayer was also used to increase the sense of safety, particularly by adolescents: they wanted God to protect them and ensure their wellbeing. Among the adults, prayer was more frequently associated with surrendering to God's will and trusting that everything was part of God's plan, which eased their sense

of helplessness and vulnerability. For many adolescents and caregivers, surviving the earthquake and tsunami strengthened their religious faith as they were grateful for being given another opportunity. Hence, survivors sought to practice religion more diligently and pray for the prevention of future disasters.

Theme 3: Intraindividual psychological resources

60% of adults and 60% of adolescents.

This last theme captures intraindividual psychological resources used to cope with the earthquake-tsunami-landslide. Despite some overlapping elements, the caregivers' intrapersonal resources differed from those of their adolescents.

For caregivers, being strong, courageous and brave were prevalent ways in which they faced the events of late 2018. Several adults mentioned that dwelling on the disaster and thinking too much about it was unhelpful, as it prevented them from undertaking activities essential for survival such as working or going grocery shopping. Therefore, being *"strong"* and *"brave"* in order to resume everyday activities and responsibilities allowed them to overcome the paralysis associated with being *"traumatised"* and *"scared"*:

> Palu has to recover… we have to be strong, like it or not, so whether we want it or not, I had to go out shopping. That's when the courage grew. A lot of people started going out, usually (if) there was some mild shaking, the fear would reappear, I would calm down at home, but it was still there. (Caregiver, School B)

> In the future, we can't be afraid all the time, we can't be traumatized like that… then we won't be able to work again later, can't move, can't do anything so don't focus too much on the earthquake…start thinking about daily activities. (Caregiver, School C)

Likewise, caregivers frequently referred to their children's wellbeing as the main motivation for embracing a more positive and enthusiastic mentality. They explained that to support their children's recovery, they needed to demonstrate a confident and reassuring stance, given that if parents appear anxious and scared, their children will feel the same:

> I'm a mother of two children who must be able to give off positive vibes to my two children (…) I had to stay strong because if I was weak, I felt sorry for my children, because overcoming the aftermath of the earthquake was not easy. (Caregiver, School B)

> If we were scared or anxious, (my child) would be more traumatized. (Caregiver, School B)

Strength and courage were also found when thinking of the disaster as a collective experience that everyone in Palu was recovering from. Hence, seeing other survivors going out and resuming activities encouraged others to do the same. Moreover, some adults mentioned that witnessing others who were more seriously affected by the disaster (such as having

experienced the death of close family members or the complete loss of their homes) put their own experience in perspective. This helped them to shift toward gratitude and more positive mentalities and encouraged them to take action to support community recovery:

> My husband said we should be thankful for what we have, we still have a salary even only 1 or 2 cents. That's what we pay for food. We don't beg for people's help. When we have more, we give to people. (Caregiver, School B)

> It is possible to get rid of the trauma if we look at something worse. It means we have to be grateful because our place was still safer than their place, so we didn't panic too much and didn't become too traumatised. Maybe they were stronger than us who were less impacted compared to them. (Caregiver, School C)

By way of contrast to the *"keeping strong"* adage of the caregivers, among the adolescents, "*keeping calm*" was a prevalent strategy to cope with negative feelings and thoughts. At the time of the disaster, this meant not panicking by being patient and remaining still and quiet. After the disaster, *"keeping calm"* was mostly associated with efforts to not react to situations that made them feel as if another earthquake was happening, such as loud sounds and shaking of the ground caused by lorries on the road. Apart from play and prayer, adolescents regulated their fear and anxiety using strategies such as taking deep breaths, drinking a sip of water or reminding themselves that *"not everything is an earthquake":*

> After the earthquake, there was trauma. Keep calming down. Calming myself down, until the trauma was gone. Whenever I heard a loud sound on the roof, I thought there was an earthquake. (Adolescent, School B)

Further intrapersonal resources in the adolescents were varied and individual. Some girls mentioned having learned from the experience and having more knowledge on what to do if another earthquake was to occur. Others mentioned having a *"positive mentality,"* which meant hoping that no disaster would happen again, whilst a few talked about accepting what had happened and focusing on being grateful for surviving:

> In my heart (I said), "I hope it doesn't happen again, hopefully nothing else happens" and I became calm. (Adolescent, School A)

> What I did to overcome the impact of the disaster was to accept what had happened and be very grateful that I was still able to survive. (Adolescent, School C)

This theme encompasses intrapersonal strategies that helped caregivers and their adolescents to cope with negative thoughts and feelings associated with the disaster. Overall, adults embraced being courageous, strong and brave to be able to resume everyday activities and to reassure their children and assuage their feelings of fear and anxiety. Meanwhile, the adolescents mostly sought to "*keep calm,*" which meant engaging in

strategies that allowed them to self-regulate potential panic during situations that triggered the feelings associated with experiencing the disaster.

Discussion

The results of this qualitative analysis provide insight into subjective representations of coping and adaptation in survivors of the 2018 earthquake and tsunami in Central Sulawesi. Thematic analysis of participant's experiences identified three main dimensions supporting their resilience: mutual support, religious faith and intrapersonal strategies of seeking courage and calmness.

Research question 1: How do adolescents and their caregivers represent how they have coped with the 2018 disasters?

Adolescents and their caregivers relied heavily on mutual support for psychological coping and recovery. The central role that close, nurturing, supportive relationships have on resilience has been consistently found across cultural contexts previously (Masten, 2021; Masten & Motti-Stefanidi, 2020; Raccanello et al., 2023; Ungar, 2006). However, the Indonesian survivors' representations and experiences of support indicate culture-specific, relational dynamics that point to community-level mutuality and reciprocity.

After the disaster, basic necessities and shelter were provided by members of the community, despite everyone having been affected. Survivors often referred to this as the principle of "mutual support," which meant helping others in need with whatever they could provide to collaboratively rise from the disaster. This reflects the cultural resource of "*gotong royong*" (mutual assistance), a manifestation of the valuing of social harmony, togetherness and collective action for the common good, found within Southeast Asian cultures (Schwarz, 2014). In our study, "*gotong royong*" encapsulated a motivation to endure adverse circumstances and recover, corroborating previous evidence showing its importance in fostering post-disaster resilience in similar cultural contexts (Taylor & Peace, 2015). Villagers affected by the 2006 earthquake in Java, Indonesia, for example, coped with the aftermath by working together to rescue buried victims, distribute food, clean debris, and rebuild infrastructure – responsibilities that were not considered a burden but a facilitator of individual and collective coping (Schwarz, 2014). Furthermore, our findings show that "*gotong royong*" is instigated from a young age, as children and adolescents were active participants in familial and communal coping and recovery activities.

Whilst the emergence of spontaneous networks of support and altruistic behavior amongst victims of a disaster has been well-documented in the

literature, evidence from individualistic cultures suggests that help between victims declines as they feel less identified with other survivors due to the reestablishment of previous identities and the perception of inequalities in post-disaster treatment (Ntontis et al., 2020). Nonetheless, "*gotong royong*" does not refer to a temporary or situational reaction, but a life principle deeply rooted in the cultural valuing of interdependence.

Beyond instrumental support, the cultural valuing of togetherness and companionship was also reflected in survivors' motivation to spend time and connect with others as a healing mechanism. Sharing stories was a prevalent resource that eased psychological distress. Although some evidence suggests that storytelling can re-trigger trauma and invoke negative feelings (e.g. Nurser et al., 2018), storytelling can also help people to make sense of their experience (Koenig Kellas & Trees), rebuild their identity (van de Ven, 2020) and regain a sense of control (Park, 2010). Our results suggest that the exchange of stories helped survivors to represent the disaster as a shared experience that could be grieved and coped with collectively, which further promoted social identification, social cohesion and mutual support. Accordingly, evidence from the 2006 earthquake in Java shows that sharing stories with other survivors fostered feelings of solidarity, increased mutual understanding and encouraged collective action (Schwarz, 2014). Thus, openness to sharing personal experiences with others could be a specific cultural pathway for resilience, since in other cultures, individuals might be more hesitant to disclose negative personal circumstances and events due to the vulnerability associated with exposing the self (Nurser et al., 2018).

Overall, the first theme reveals sociocultural nuances related to mutual support. Collectivistic conceptualisations of the self as part of a larger group and the cultural valuing of harmony, cooperation and togetherness shaped coping and recovery as a collective process. Arguably, "*gotong royong*" is a powerful cultural resource to foster resilience as it taps into factors that have proven to be beneficial regardless of context, such as having supportive social connections (Masten, 2021; Ungar, 2006).

Nonetheless, communities have limited capacities to self-sustain resilience processes, therefore in the aftermath of mass disasters, coping and adaptation strongly depend on the aid mobilized and distributed by larger systems such as governments and NGOs (Masten, 2021; Masten & Motti-Stefanidi, 2020). In our study, official aid was deemed insufficient and inaccessible, which hindered survivors' recovery. Moreover, although most of our sample talked about having support networks, without official aid, those who were less well-connected (e.g., people living in more remote areas, those who did not practice the dominant religion and immigrants) were particularly vulnerable. Hence, the strength of "*gotong royong*" needs to be paired with the provision of sufficient and timely external aid if communities are to recover resiliently.

Another prevalent theme was coping via religious faith. Praying, having faith in "God's plan" and surrendering to "God's will" helped survivors deal with negative emotions. Moreover, reframing survival as "*being given another chance,*" strengthened religious faith and diligence. Thus, overall representations of God were of an omnipotent figure that knew best. There is evidence that religious coping - the use of religious or spiritual beliefs and practices to manage stress and cope with adversity - is associated with positive psychological outcomes when God is conceptualized as benevolent. However, appraising adversity as a punishment from God is detrimental for psychological wellbeing (Pargament, 1997).

In the context of disasters, religion has often been regarded as a barrier to disaster preparedness, mostly due to its association with fatalism: some research indicates that greater religiosity is associated with higher PTSD (Massazza et al., 2019). However, other research indicates that religion is experienced as helping disaster survivors make sense of the event, encouraging mutual support and facilitating emotional recovery (Islam, 2012; von Vacano & Schwarz, 2014). In line with these more advantageous properties of religious coping, our results show that by attributing the disaster to God, survivors were able to give meaning to their experiences and to process circumstances outside of their control. Subsequently, such religious beliefs were experienced as promoting their resilience efforts. This aligns with the acceptance-surrender-effort framework previously identified within Indonesian cultures (von Vacano & Schwarz, 2014). The framework refers to the belief that divine omnipotence overrides human understanding and capacities, which turns acceptance and surrender to God into pathways to attain calmness. Arguably, this theme highlights the relevance of scrutinizing sociocultural nuances related to religious beliefs, as some coping mechanisms that are maladaptive in one context, may be beneficial in others (Ungar, 2015).

The last theme pertains to intraindividual psychological resources that support resilience. A large body of evidence identifies individual factors such as self-efficacy, optimism, autonomy, sense of control and hardiness as significant predictors of resilience in both children and adults (Hobfoll, 2002; Masten, 2021). These psychological constructs were found across our participants; however, our results expand the literature by showing that these resources manifest differently in caregivers and adolescents. Further discussion of the differences between groups is presented in the next section.

Research question 2: Are there differences between the adolescents and their caregivers?

Although the overarching coping dimensions (i.e. mutual support, religious coping and intrapersonal resources) were the same in both samples, there

were differences in prevalence and nuance. In the adolescent sample, *playing* was a group-specific way to socially connect, mutually support each other and thereby to cope. Adolescents associated the experience of the disaster with fear, uncertainty and disruption to their daily routines. However, through play, adolescents fostered positive feelings, social connection, adaptation to changes in social and physical environments and kindled a sense normality. This supports previous research showing the paramount role of play as an adaptation tool that fosters social development and supports cognitive, emotional and behavioral regulation (Capurso & Pazzagli, 2016). Playing during the aftermath of the disaster is not always possible, as trauma, caregivers not giving permission to play, changes in the physical environment, loss of friends and changes in routines act as barriers to play and therefore to attaining its positive effects (Chatterjee, 2018). However, adolescents in Central Sulawesi were able to embrace playing as a way to care for their own psychological wellbeing and that of younger family members, as they recognized that it helped to distract them and thereby made them feel better emotionally. They predominately referred to playing with other children rather than on their own, which aligns with the valuing of social connection and collective coping styles within Indonesian culture.

There were also differences in terms of religious coping. Adolescents often turned to prayer to gain a sense of *safety* for themselves and their loved ones. Contrastingly, prayer in caregivers was predominately associated with *surrendering to God* and *trusting "his" plan*. In both groups, prayer helped with emotional regulation: adolescents gained a sense of control by summoning God's omnipotence for protection, while adults found calmness in accepting a lack of control over their circumstances. Moreover, this dimension was the one with the largest difference in prevalence between the adolescents and caregivers, possibly signaling that the adolescents use religion less than their caregivers to cope with adversity.

Moreover, there were notable differences between the intrapersonal resources of adolescents and caregivers. Adults mostly referred to being *strong, courageous and brave* to resume everyday activities and engage in collective recovery efforts. Although regaining functioning at work/home has been identified as part of a resilience trajectory across contexts (Norris et al., 2008), this heightened urge to restore normality after the experience of a disaster has been found previously in Indonesian populations (Schwarz, 2014). Schwarz argues that Javanese 2006 earthquake survivors' agency was fostered by norms and roles that facilitated social order and harmony. This, in turn, motivated them to focus on action and prevented them from dwelling on sadness. Agency and a sense of control are important psychological resources to build psychological resilience after a disaster (Masten, 2021) and such capacities are underpinned by broader sociocultural values.

Adults' motivation to be strong also derived from the concern for their children's wellbeing. Caregivers worried about transmitting their fears and anxieties to their children, which prompted them to demonstrate a confident and reassuring stance. Although the paramount role of caregivers in fostering resilience in children after disasters has been well-documented in the literature across cultures (Masten, 2018; Masten et al., 2021; Osofsky & Osofsky, 2018; Ungar & Liebenberg, 2011), our results point to a considerably less studied line of enquiry – the influence of children on parents' resilience processes.

A quantitative study exploring the interdependent adjustment of parent-child dyads following exposure to an earthquake in Indonesia found that parents' post-traumatic stress (PTS) symptoms were significantly associated with their children's general psychological distress. However, children's PTS symptoms did not correlate with their parents' more general psychological distress, suggesting a unidirectional relationship from parents' post-disaster mental health to their children's (Juth et al., 2015). The authors propose that this could be explained by the limited capacity of parents to be attentive to their children's difficulties whilst attending to post-disaster demands and challenges. Our results suggest that caregivers were attuned to their children's emotional states but made an effort to model a positive attitude to their children. Ensuring children's wellbeing is a salient parental obligation in Indonesia, especially for mothers (Schwarz, 2014). Hence, it can be argued that the cultural importance of fulfilling social roles, the valuing of calmness and the assumed interrelatedness amongst groups, provided caregivers with a strong motivation to adapt and keep distracted from psychological challenges; they saw this as supporting their resilience processes (Masten, 2018).

Lastly, further illustrating the tradition of "*gotong royong*" (mutual assistance), caregivers also found strength in seeing other members of the community taking action to return to normalcy. The representation of the disaster as a collective experience rather than an individual misfortune prompted adults to endure negative feelings and play their part in the recovery of the community. Moreover, witnessing people who were affected more severely elicited feelings of gratitude and motivation to support those in need. Previous literature on the effects of social comparison suggests that comparing oneself to others who had worse experiences (i.e. downward comparison) could be beneficial for psychological wellbeing, whereas comparing to others that are perceived to have been less affected or more capable of facing adversity could prompt negative feelings and evaluations about the self (Taylor & Lobel, 1989). In our sample, upward comparisons were scarce, which could be partly explained by Indonesian cultural principles of modesty, humility and the orientation to focus on gains rather than losses (Schwarz, 2014). Moreover, feelings of gratitude, which are less

documented in social comparison research, could have been salient in our sample because of caregivers' representations of survival as God giving them another chance to become a better person.

Whilst caregivers' agency and self-efficacy were mostly focused on resuming their everyday activities, the adolescents' psychological resources were mostly used for *emotional regulation*. Children often referred to feeling traumatised after the disaster, which meant living with fear and anxiety in relation to the recurrence of events of that magnitude. Such fear induced panic reactions to stimuli that reminded them of the day of the disaster. To cope with these intense emotions, they engaged in actions that helped them to calm down, such as praying, taking deep breaths and drinking water. Previous evidence suggests that in some Indonesian sub-cultures, strong emotions are seen as entities that should be controlled, given that they can lead to illness and strained social relationships (Schwarz, 2014). This might explain why adolescents consistently referred to "*keeping calm*" as the ideal reaction to stressful situations. Thus, engaging in these behavioral strategies may reflect an effort to regain a sense of safety and maintain social harmony. Similarly, cognitive-based resilience strategies, such as acquiring knowledge about disaster preparedness, learning from experience and thinking positively (e.g. hoping that no future disaster occurs), could reflect a cultural and religious valuing of self-development, positive reframing and finding beneficial outcomes to challenging circumstances (Schwarz, 2014).

Research question 3: What underpins these differences?

SRT proposes that psychosocial phenomena are influenced by individual, societal and cultural forces. Whilst the caregivers and their adolescents exist within the same culture and share many social spheres and environments, their developmental stage, the spaces they inhabit and the people they interact with are not entirely the same. Thus, SRT complements multisystem perspectives of resilience by providing a structure with which to examine factors inside and outside the individual that may explain group differences in resilience. Both perspectives suggest that adolescents operate in different social and spatial spheres and that these may impact the different emphases in their pathways to resilience.

Perhaps the pathways with which the adolescents cope also relate to ways in which they engage with and make sense of their experiences, given that they are still in the process of developing their repertoire of coping strategies and abilities (Skinner & Zimmer-Gembeck, 2007). Our sample of adolescents were around 10 years old at the time of the disaster, which explains why play, a more child-like activity, was a familiar and effective coping strategy to foster social connection and psychological

relief. This expands evidence showing the positive effects of play for adaptation and recovery during challenging circumstances (Cohen & Gadassi, 2018; Kinoshita & Woolley, 2015).

As children grow older, they gradually engage in coping strategies that shift from behavioral coping to cognitively-based and emotion-focused coping (Losoya et al., 1998; Skinner & Zimmer-Gembeck, 2007). This may explain why the intrapersonal psychological resources theme was the most different in content. Whilst caregivers' narratives focused on mindsets, attitudes and cognitive reappraisals that helped them endure negative feelings and thoughts, adolescents mostly referred to behavior-based strategies to manage stress and panic brought on by triggers. Similarly, developmental differences could explain some of the variance observed concerning religious coping. Adolescents mostly used prayer to summon God's intervention for protection, which reflects a more concrete and literal understanding of divine power (Johnson & Boyatzis, 2006), whilst adults prayed to surrender and accept God's will – a higher-level meaning-making orientation underpinned by complex motivational, emotional, cognitive and behavioral processes (Cole & Pargament, 1999).

Furthermore, examining adolescents' psychosocial environments provides important insights beyond developmental differences. In Central Sulawesi, the aforementioned cultural values of "*gotong royong*" and religious beliefs are hegemonic representations, widely shared in the culture and therefore deeply embedded in everyday life (Duveen, 2007). However, adolescents inhabit a variety of spaces and interact with different people outside of their families. They spend many hours at school, with peers and on social media platforms. Contrastingly, caregivers' social environments appear to be more limited to their workplace, family and close communities (e.g. religious congregations).

Arguably, adolescents are exposed to a variety of systems of knowledge and perspectives, which could explain why they are more attuned to scientific knowledge related to disaster preparedness and psychological coping strategies. Unlike the caregivers, some adolescents did elaborate on the importance of acquiring knowledge on what to do in the event of an earthquake or tsunami – information that could have been acquired at school from teachers (Parrott et al., 2023b). Similarly, the intraindividual strategies exclusively mentioned by adolescents such as drinking water and breathing techniques may well have been acquired during psychological interventions and trauma healing activities that were organized after the disaster in schools (Parrott et al., 2023a; Parrott et al., 2023b).

Thus, whilst religious representations strongly underpinned caregivers' identities, affiliation and ways of seeing the world, adolescents' elaborations manifested the co-existence of different modalities of thinking and knowledge, a concept referred to as cognitive polyphasia (Jovchelovitch &

Priego-Hernández, 2008; Markova & Marková, 2010). This points to the important role that adolescents can play in communicating scientific knowledge on disaster preparedness and resilience. This knowledge impacts not only their own representations but, perhaps more gradually, their home environments and communities. This would be especially valuable if some members of their groups had not been exposed to such knowledge. Accordingly, information shared by young people has been shown to be welcomed by their families (Izadkhah & Hosseini, 2005). Moreover, adolescents could find in acquiring and transmitting knowledge a sense of expertise that could improve their feelings of efficacy (Mariam et al., 2021) and therefore their overall resilience and that of their communities (Masten, 2018, 2021).

Limitations and future directions

With a few exceptions, the caregiver sample was mostly constituted by women, whilst all the adolescents were female. As societal and gender roles have an impact on coping processes (Hobfoll et al., 1994; Tamres et al., 2002), future research could sample males too to explore the similarities and particularities of their resilience processes compared to those of the women.

Another limitation is the well-recognized tendency of participants to report desirable, and underreport socially undesirable, attributes in interviews (Latkin et al., 2017). This may be particularly salient within Indonesia, given that expressing strong negative feelings and complaining contravenes cultural values (Schwarz, 2014). Moreover, interviews were carried out by local researchers, which may have cued participants to express more normative ideas concerning their religious affiliation and practice. Thus, future research could triangulate interviews with other data collection methods to gauge a more complete picture of people's resilience (see Patton, 2002). Furthermore, since this project was an international collaboration, researchers from various nationalities, cultural and religious backgrounds contributed to this study. Although care was taken when translating the interviews into English, it is possible that some elements got lost in translation. Nonetheless, the conceptual (rather than semantic) approach to the thematic analysis of the data (see Braun & Clarke, 2022) and the consulting of local researchers throughout the analytical process strengthen the cultural accuracy and robustness of the results (Novianti, 2014).

Lastly, the timing of the study could have influenced the results. Data collection was done 40 months after the disaster; the passage of time could play a role in how and to what extent participants remember their coping processes. Moreover, the COVID-19 pandemic occurred around a year and a half after the disaster, which could have influenced individual and collective resilience trajectories. Nonetheless, the prompt of the free

association task was designed to specifically tap into associations related to coping with the 2018 earthquake and tsunami. Further supporting the adequacy of our prompt, mentions of the COVID-19 pandemic were not frequent or distinctively salient.

Despite such limitations and the interest in capturing specific sociocultural representations, it should not be assumed that our results only apply to our sample. As pointed out in the discussion, many of our findings align with previous research in other samples that have experienced disasters, both inside and outside of Indonesia. This further corroborates the body of literature that shows that some aspects of resilience can be found across cultures and contexts (e.g. Ungar, 2006) and demonstrates the need for more cross-cultural research to advance understanding of the diversity of human resilience processes.

Practical implications

Adolescents are at a heightened risk of developing mental health issues after the experience of a disaster (Norris et al., 2002; Peek, 2008). This vulnerability is exacerbated for females due to gender-specific challenges and barriers to recovery. Understanding their resilience processes and that of the systems that influence them, such as their caregivers, is more important than ever, given the recent increases in ecological threats worldwide (Institute for Economics and Peace, 2023). Since Western resilience scholarship will not necessarily be applicable in other contexts, it is a priority to expand research into other disaster-prone settings around the globe. The identification of culture-specific values such as *"gotong-royong"* that encompasses principles of social connection and collective efficacy, the positive effects of sharing stories and the importance of religious beliefs in this Sulawesi sample, provides an inroad into creating psychological interventions that foster these dimensions to strengthen resilience and mental health in female adolescents and adults. Moreover, our results invite further investigation into the generalisability of the power of the collective, both inside and outside Indonesia, to shift from the predominately individualistic resilience and mental health strategies that dominate the literature. In addition, the recognition of the active role that female adolescents play in producing and communicating knowledge highlights their potential to introduce disaster preparedness information and positive psychological coping styles into their communities. This is also consistent with calls from academics and policy experts for child-centered disaster risk reduction and resilience programmes (see Ronan et al., 2016).

Our study showcases the power of using SRT for the qualitative investigation of resilience from a multisystem perspective due to their shared epistemological assumption: psychological processes are influenced by the

dynamic relationship between the individual and their physical, social and cultural environment. SRT provides a framework that helps identify lay ideas and practices related to psychosocial phenomena as well as the pathways for their transmission amongst groups. Thus, whilst multisystem perspectives using quantitative methods can measure the interplay between interrelated systems, qualitative research using SRT can clarify the belief systems and behaviors that underpin and sustain such associations. Similarly, qualitative studies like this one can inform quantitative studies on the factors worth exploring based on the vantage points and experiences of those affected by a disaster rather than the researcher's assumptions. For example, whilst our results point to a relationship in resilience processes between caregivers and their adolescents, they also point toward religious congregations and spaces as systems deserving further examination based on their salient role in the coping and recovery of both groups. Arguably, the combination of quantitative and qualitative approaches is needed to address the complexity and nuance that multisystem perspectives of resilience seek to capture.

Conclusion

This study shows that adolescents and caregivers from a disaster-prone, collectivist, lower-middle income country relied on mutual support, religious beliefs and intrapersonal resources to cope with the psychological effects of experiencing the 2018 earthquake-tsunami-landslide. Aspects of these pathways to resilience are evident in other contexts. However, survivors' Islamic religiosity played a major role in their coping by way of the gratitude that arose when comparing themselves to those worse affected and the safety derived from the sense that God was protective. Furthermore, collectivistic values and the tradition of *"gotong royong"* provided a culture-specific psychosocial framework that promoted resilience through bearing negative feelings for the sake of others' wellbeing, as well as sharing stories, resources, companionship and play to move on from a state of crisis.

Notes

1. Many caregivers worked in the fishing and trading industry, which made scheduling interviews during the working day challenging. Participants who had not been interviewed by a cut-off date were excluded from this analysis.
2. School C is situated in the "red zone" and has not been fully rebuilt due to corrosion caused by sea water flooding. The government has offered to relocate the school further away from the coastal area, but most of the caregivers, who are primarily fishermen with low incomes, have refused this option because it would be too far from their homes.
3. The average salary in Indonesia is 8 to 9 million IDR per month (Wage Centre, 2023).
4. On completion of the first interview, participants were given a second prompt on the

role of teachers and schools in responding to the 2018 earthquake. This has been analysed separately and is reported elsewhere (Parrott et al., 2023b).
5. Around thirty minutes per grid.
6. Three interviews were double-coded for each group, resulting in 83% agreement for caregivers and 72% agreement for students.
7. In the original transcripts in Bahasa, mutual support and community efficacy were often encompassed in the term *"gotong royong."*
8. In Islamic tradition, any references to Allah (God) should be followed with "Subhanahu wa ta'ala" (SWT), an Arabic praise to God as the most holy and exalted.

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References

Aim, M. A., Goussé, V., Apostolidis, T., & Dany, L. (2017). The study of social representations in children and adolescents: Lessons from a review of the literature. *Estudos de Psicologia*, *22*(1), 28–38. https://doi.org/10.22491/1678-4669.20170004

Aldrich, D. P. (2012). *Building resilience: Social capital in post-disaster recovery*. University of Chicago Press.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *The American Psychologist*, *59*(1), 20–28. https://doi.org/10.1037/0003-066X.59.1.20

Bonanno, G. A. (2021). The resilience paradox. *European Journal of Psychotraumatology*, *12*(1), 1942642. https://doi.org/10.1080/20008198.2021.1942642

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest: A Journal of the American Psychological Society*, *11*(1), 1–49. https://doi.org/10.1177/1529100610387086

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide*. Sage.

Capurso, M., & Pazzagli, C. (2016). Play as a coping strategy? A review of the relevant literature. *Children's Health Care*, *45*(1), 39–66. https://doi.org/10.1080/02739615.2014.948163

Chatterjee, S. (2018). Children's coping, adaptation and resilience through play in situations of crisis. *Children, Youth and Environments*, *28*(2), 119–145. https://doi.org/10.7721/chilyoutenvi.28.2.0119

Cohen, E., & Gadassi, R. (2018). The function of play for coping and therapy with children exposed to disasters and political violence. *Current Psychiatry Reports*, *20*(5), 31–31. https://doi.org/10.1007/s11920-018-0895-x

Cole, B. S., & Pargament, K. I. (1999). Spiritual surrender: A paradoxical path to control. In W. R. Miller (Ed.), *Integrating spirituality into treatment: Resources for practitioners* (pp. 179–198). American Psychological Association.

Duveen, G. (2007). Culture and Social Representations. In J. Valsiner & A. Rosa (Eds.), *The Cambridge handbook of socio-cultural psychology* (pp. 543–559). Cambridge University Press.

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, *55*(1), 745–774. https://doi.org/10.1146/annurev.psych.55.090902.141456

Garfias Royo, M., Parrott, E., Pacheco, E.-M., Ahmed, I., Meilianda, E., Kumala, I., Oktari, R. S., Joffe, H., & Parikh, P. (2022). A structured review of emotional barriers to WASH provision for schoolgirls post-disaster. *Sustainability*, *14*(4), 2471. https://doi.org/10.3390/su14042471

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307

Hobfoll, S. E., Dunahoo, C. L., Ben-Porath, Y., & Monnier, J. (1994). Gender and coping: The dual-axis model of coping. *American Journal of Community Psychology*, *22*(1), 49–82. https://doi.org/10.1007/BF02506817

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, *2*(1), 3–25. https://doi.org/10.9707/2307-0919.1014

Idoiaga Mondragon, N., Eiguren Munitis, A., Ozamiz-Etxebarria, N., & Berasategi Sancho, N. (2023). The voices of youths in Covid-19 times: Exploring young people's emotional representations. *Psychology & Health*, 1–18. https://doi.org/10.1080/08870446.2023.2264888

Idoiaga Mondragon, N., Gil De Montes, L., & Valencia, J. (2017). Understanding an Ebola outbreak: Social representations of emerging infectious diseases. *Journal of Health Psychology*, *22*(7), 951–960. https://doi.org/10.1177/1359105315620294

Institute for Economics and Peace. (2023). *Ecological threat report 2023: Analysing ecological threats, resilience & peace*. http://visionofhumanity.org/resources

Islam, R. R. (2012). Believing to recover: The role of religion in the recovery phase of natural disasters. *Anthropos*, *107*(1), 200–217. https://doi.org/10.5771/0257-9774-2012-1-200-1

Izadkhah, Y. O., & Hosseini, M. (2005). Towards resilient communities in developing countries through education of children for disaster preparedness. *International Journal of Emergency Management*, *2*(3), 138–148. https://doi.org/10.1504/IJEM.2005.007355

Joff, H., & Yardley, L. (2004). Content and thematic analysis. In D. F. Marks & L. Yardley (Eds.), *Research methods for clinical and health psychology* (1st ed., pp. 56–68). Sage.

Joffe, H. (1997). Juxtaposing positivist and non-positivist approaches to social scientific AIDS research: Reply to Fife-Schaw's commentary. *The British Journal of Medical Psychology*, *70 (Pt 1)*(1), 75–83. https://doi.org/10.1111/j.2044-8341.1997.tb01887.x

Joffe, H. (2012). Thematic Analysis. In D. Harper & A. R. Thompson (Eds.), *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners* (pp. 209–223). Wiley Blackwell.

Joffe, H., & Elsey, J. W. B. (2014). Free association in psychology and the grid elaboration method. *Review of General Psychology*, *18*(3), 173–185. https://doi.org/10.1037/gpr0000014

Joffe, H., Rossetto, T., Solberg, C., & O'Connor, C. (2013). Social representations of earthquakes: A study of people living in three highly seismic areas. *Earthquake Spectra*, *29*(2), 367–397. https://doi.org/10.1193/1.4000138

Johnson, C. N., & Boyatzis, C. J. (2006). Cognitive-cultural foundations of spiritual development. In E. C. Roehlkepartain, P. E. King, L. Wagener, & P. L. Benson (Eds.), *The handbook of spiritual development in childhood and adolescence* (pp. 211–223). Sage Publications.

Jovchelovitch, S., & Priego-Hernández, J. (2008). Cognitive polyphasia, knowledge encounters and public spheres. In G. Sammut, E. Andreouli, G. Gaskell, & J. Valsiner (Eds.), *The Cambridge handbook of social representations* (pp. 163–179). Cambridge University Press.

Juth, V., Silver, R. C., Seyle, D. C., Widyatmoko, C. S., & Tan, E. T. (2015). Post-disaster mental health among parent–child dyads after a major earthquake in Indonesia. *Journal of Abnormal Child Psychology*, *43*(7), 1309–1318. https://doi.org/10.1007/s10802-015-0009-8

Keen, S., Lomeli-Rodriguez, M., & Joffe, H. (2022). From challenge to opportunity: Virtual qualitative research during Covid-19 and beyond. *International Journal of Qualitative Methods*, *21*, 16094069221105075. https://doi.org/10.1177/16094069221105075

Keen, S., Lomeli-Rodriguez, M., & Williams, A. (2021). Exploring how people with chronic pain understand their pain: A qualitative study. *Scandinavian Journal of Pain*, *21*(4), 743–753. https://doi.org/10.1515/sjpain-2021-0060

Kinoshita, I., & Woolley, H. (2015). Children's play environment after a disaster: The great east Japan earthquake. *Children (Basel, Switzerland)*, *2*(1), 39–62. https://doi.org/10.3390/children2010039

Koenig Kellas, J., & Trees, A. R. (2006). Finding meaning in difficult family experiences: Sense-making and interaction processes during joint family storytelling. *Journal of Family Communication*, *6*(1), 49–76. https://doi.org/10.1207/s15327698jfc0601_4

Latkin, C. A., Edwards, C., Davey-Rothwell, M. A., & Tobin, K. E. (2017). The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland. *Addictive Behaviors*, *73*, 133–136. https://doi.org/10.1016/j.addbeh.2017.05.005

Liebenberg, L., & Theron, L. C. (2015). Innovative qualitative explorations of culture and resilience. In L.C. Theron, L. Liebenberg & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 203–215). Springer. https://doi.org/10.1007/978-94-017-9415-2

Losoya, S., Eisenberg, N., & Fabes, R. A. (1998). Developmental issues in the study of coping. *International Journal of Behavioral Development*, *22*(2), 287–313. https://doi.org/10.1080/016502598384388

Mariam, I., Budhiana, J., Permana, I., Dewi, R., Rahmanishati, W., Noviyanti, LIA., Utami, R. N., Sanjaya, W., La Ede, A. R., & Unmehopa, Y. F. (2021). Knowledge, Attitudes, Disaster Training and Self Efficacy on Disaster Preparedness. *Research Horizon*, *1*(5), 179–188. https://doi.org/10.54518/rh.1.5.2021.179-188

Marková, I. (2012). Social representations as anthropology of culture. In J. Valsiner (Ed.), *The Oxford handbook of culture and psychology* (pp. 487–510). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195396430.013.0023

Markova, I., & Marková, I. (2010). Gerard Duveen on the epistemology of social representations. *Papers on Social Representations*, *19*(1), 1–4.

Massazza, A., Joffe, H., & Brewin, C. R. (2019). Earthquakes, attributions, and psychopathology: A study in a rural community. *European Journal of Psychotraumatology*, *10*(1), 1661813. https://doi.org/10.1080/20008198.2019.1661813

Masten, A. S. (2018). Resilience theory and research on children and families: Past, present, and promise. *Journal of Family Theory & Review*, *10*(1), 12–31. https://doi.org/10.1111/jftr.12255

Masten, A. S. (2019). Resilience from a developmental systems perspective. *World Psychiatry: Official Journal of the World Psychiatric Association (WPA)*, *18*(1), 101–102. https://doi.org/10.1002/wps.20591

Masten, A. S. (2021). Resilience of children in disasters: A multisystem perspective. *International Journal of Psychology: Journal International de Psychologie*, *56*(1), 1–11. https://doi.org/10.1002/ijop.12737

Masten, A. S., & Motti-Stefanidi, F. (2020). Multisystem resilience for children and youth in disaster: Reflections in the context of COVID-19. *Adversity and Resilience Science*, *1*(2), 95–106. https://doi.org/10.1007/s42844-020-00010-w

Masten, A. S., & Obradović, J. (2008). Disaster preparation and recovery: Lessons from research on resilience in human development. *Ecology and Society*, *13*(1), 9. https://doi.org/10.5751/ES-02282-130109

Masten, A. S., Lucke, C. M., Nelson, K. M., & Stallworthy, I. C. (2021). Resilience in development and psychopathology: Multisystem perspectives. *Annual Review of Clinical Psychology*, *17*(1), 521–549. https://doi.org/10.1146/annurev-clinpsy-081219-120307

Moore, G., Fardghassemi, S., & Joffe, H. (2023). Wellbeing in the city: Young adults' sense of loneliness and social connection in deprived urban neighbourhoods. *Wellbeing, Space and Society*, *5*, 100172. https://doi.org/10.1016/j.wss.2023.100172

Moscovici, S. (1961/1976). *La psychanalyse, son image et son public*. Presses universitaires de France.

Moscovici, S., & Marková, I. (1998). Presenting social representations: A conversation. *Culture & Psychology*, *4*(3), 371–410. https://doi.org/10.1177/1354067X9800400305

Murphy, R., Pelling, M., Adams, H., Di Vicenz, S., & Visman, E. (2018). Survivor-led response: Local recommendations to operationalise building back better. *International Journal of Disaster Risk Reduction*, *31*, 135–142. https://doi.org/10.1016/j.ijdrr.2018.04.009

Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, *38*(4), 467–480. https://doi.org/10.1017/S0033291707001353

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001. *Psychiatry*, *65*(3), 207–239. https://doi.org/10.1521/psyc.65.3.207.20173

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*(1-2), 127–150. https://doi.org/10.1007/s10464-007-9156-6

Novianti, L. P. (2014). Research Ethics: Between Formal Norms and Intention. In M., Zaumseil, S. Schwarz, M., von Vacano, G., Brent Sullivan & J. E. Prawitasari-Hadiyono (Eds.), *Cultural psychology of coping with disasters* (pp. 153–160). Springer.

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.ijdrr.2020.10149

Nurser, K. P., Rushworth, I., Shakespeare, T., & Williams, D. (2018). Personal storytelling in mental health recovery. *Mental Health Review Journal*, *23*(1), 25–36. https://doi.org/10.1108/MHRJ-08-2017-0034

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, *19*, 160940691989922. https://doi.org/10.1177/1609406919899220

Osofsky, J. D., & Osofsky, H. J. (2018). Challenges in building child and family resilience after disasters. *Journal of Family Social Work*, *21*(2), 115–128. https://doi.org/10.1080/10522158.2018.1427644

Otto, J. M. (2010). Sharia and national law in Indonesia. In J. M. Otto (Ed.), *Sharia Incorporated: A comparative overview of the legal systems of twelve Muslim countries in past and present* (pp. 433–490). Leiden University Press.

Pacheco, E. M., Parrott, E., Oktari, R. S., & Joffe, H. (2022). How schools can aid children's resilience in disaster settings: The contribution of place attachment, sense of place and social representations theories. *Frontiers in Psychology*, *13*, 1004022. https://doi.org/10.3389/fpsyg.2022.1004022

Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, practice*. Guilford Press.

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, *136*(2), 257–301. https://doi.org/10.1037/a0018301

Parrott, E., Bernardino, A., Lomeli-Rodriguez, M., Burgess, R., Rahman, A., Direzkia, Y., & Joffe, H. (2023a). Community Resilience after Disasters: Exploring Teacher, Caregiver and Student Conceptualisations in Indonesia. *Sustainability*, *16*(1), 73. https://doi.org/10.3390/su16010073

Parrott, E., Lomeli-Rodriguez, M., Pacheco, E. M., Rahman, A., Direzkia, Y., & Joffe, H. (2023b). Adolescent girls' representations of the role of schools and teachers post-disaster: "second parents, second homes. *International Journal of Adolescence and Youth*, *28*(1), 2242450. https://doi.org/10.1080/02673843.2023.2242450

Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work*, *1*(3), 261–283. https://doi.org/10.1177/1473325002001003636

Peek, L. (2008). Children and disasters: Understanding vulnerability, developing capacities, and promoting resilience - an introduction. *Children Youth and Environments*, *18*(1), 1–29. https://doi.org/10.1353/cye.2008.0052

Pemerintah Provinsi Sulawesi Tengah. (2019). *Laporan Finalisasi Data dan Informasi Bencana Gempa Bumi, Tsunami dan Likuifaksi Padagimo di Sulawesi Tengah. Pemerintah Provinsi Sulawesi Tengah*. https://monitoring.skp-ham.org/wp-content/uploads/2020/04/Laporan-Finalisasi-Data-dan-Informasi-Bencana-Gempa-Bumi-Tsunami-dan-Likuifaksi-Padagimo-di-Sulawesi-30-Jan-2019.pdf

Raccanello, D., Rocca, E., Barnaba, V., Vicentini, G., Hall, R., & Brondino, M. (2023). Coping strategies and psychological maladjustment/adjustment: A meta-analytic approach with children and adolescents exposed to natural disasters. *Child & Youth Care Forum*, *52*(1), 25–63. https://doi.org/10.1007/s10566-022-09677-x

Raudsepp, M. (2005). Why is it so difficult to understand the theory of social representations? *Culture & Psychology*, *11*(4), 455–468. https://doi.org/10.1177/1354067X05058587

Ronan, K. R., Haynes, K., Towers, B., Alisic, E., Ireland, N., Amri, A., … Petal, M. (2016). Child-centred disaster risk reduction: Can disaster resilience programs reduce risk and increase the resilience of children and households? *Australian Journal of Emergency Management*, *31*(3), 49–58.

Sammut, G., & Howarth, C. (2014). *Social representations*. In T. Thomas, (Ed.) *Encyclopedia of critical psychology* (pp. 1799–1802). Springer Reference.

Schwartz, S. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, *5*(2-3), 137–182. https://doi.org/10.1163/156913306778667357

Schwarz, S. (2014). The life conduct dimension of coping: Local wisdom discourses and related life orientations. In M., Zaumseil, S. Schwarz, M., von Vacano, G., Brent Sullivan & J. E. Prawitasari-Hadiyono (Eds.), *Cultural psychology of coping with disasters* (pp. 225–244). Springer.

Skinner, E. A., & Zimmer-Gembeck, M. J. (2007). The development of coping. *Annual Review of Psychology*, *58*(1), 119–144. https://doi.org/10.1146/annurev.psych.58.110405.085705

Smith, N., & Joffe, H. (2013). How the public engages with global warming: A social representations approach. *Public Understanding of Science (Bristol, England)*, *22*(1), 16–32. https://doi.org/10.1177/0963662512440913

Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, *6*(1), 2–30. https://doi.org/10.1207/S15327957PSPR0601_1

Taylor, H., & Peace, R. (2015). Children and cultural influences in a natural disaster: Flood response in Surakarta, Indonesia. *International Journal of Disaster Risk Reduction*, *13*, 76–84. https://doi.org/10.1016/j.ijdrr.2015.04.001

Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review*, *96*(4), 569–575. https://doi.org/10.1037/0033-295X.96.4.569

Tearne, J. E., Guragain, B., Ghimire, L., Leaning, J., & Newnham, E. A. (2021). The health and security of women and girls following disaster: A qualitative investigation in post-earthquake Nepal. *International Journal of Disaster Risk Reduction*, *66*, 102622. https://doi.org/10.1016/j.ijdrr.2021.102622

Theron, L. C., & Liebenberg, L. (2015). Understanding cultural contexts and their relationship to resilience processes. In L.C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 23–36). Springer.

Thin, N. (2018). Qualitative approaches to culture and well-being. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* (pp. 122–140). DEF Publishers.

Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relationships. *Journal of Personality and Social Psychology*, *54*(2), 323–338. https://doi.org/10.1037/0022-3514.54.2.323

Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). A person-by-situation approach to emotion regulation: Cognitive reappraisal can either help or hurt, depending on the context. *Psychological Science*, *24*(12), 2505–2514. https://doi.org/10.1177/0956797613496434

Ungar, M. (2006). Resilience across cultures. *British Journal of Social Work*, *38*(2), 218–235. https://doi.org/10.1093/bjsw/bcl343

Ungar, M. (2015). Resilience and culture: The diversity of protective processes and positive adaptation. In L.C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 37–48). Springer. https://doi.org/10.1007/978-94-017-9415-2_3

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*(2), 126–149. https://doi.org/10.1177/1558689811400607

Ungar, M., & Theron, L. (2020). Resilience and mental health: How multisystemic processes contribute to positive outcomes. *The Lancet. Psychiatry*, *7*(5), 441–448. https://doi.org/10.1016/S2215-0366(19)30434-1

Ungar, M., Brown, M., Liebenberg, L., Othman, R., Kwong, W. M., Armstrong, M., & Gilgun, J. (2007). Unique pathways to resilience across cultures. *Adolescence*, *42*(166), 287–310.

Ungar, M., Theron, L., & Höltge, J. (2023). Multisystemic approaches to researching young people's resilience: Discovering culturally and contextually sensitive accounts of thriving under adversity. *Development and Psychopathology*, *35*(5), 2199–2213. https://doi.org/10.1017/s0954579423000469

van de Ven, P. (2020). The journey of sensemaking and identity construction in the aftermath of trauma: Peer support as a vehicle for coconstruction. *Journal of Community Psychology*, *48*(6), 1825–1839. https://doi.org/10.1002/jcop.22373

von Vacano, M., & Schwarz, S. (2014). The religious dimension of coping: The roles of cosmologies and religious practices. In M., Zaumseil, S. Schwarz, M., von Vacano, G., Brent Sullivan & J. E. Prawitasari-Hadiyono (Eds.), *Cultural psychology of coping with disasters* (pp. 245–266). Springer.

Wage Centre. (2023). *Salary in Indonesia*. https://wagecentre.com/work/work-in-asia-and-oceania/salary-in-indonesia

Wright, M. O., & Masten, A. S. (2015). Pathways to resilience in context. In L.C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 3–22). Springer.

Zaumseil, M., & Schwarz, S. (2014). Understandings of coping: A critical review of coping theories for disaster contexts. In M., Zaumseil, S. Schwarz, M., von Vacano, G., Brent Sullivan & J. E. Prawitasari-Hadiyono (Eds.), *Cultural psychology of coping with disasters* (pp. 45–84). Springer.