



## Understanding youth disaster recovery: The vital role of people, places, and activities



Robin S. Cox<sup>a,\*</sup>, Leila Scannell<sup>a</sup>, Cheryl Heykoop<sup>a</sup>, Jennifer Tobin-Gurley<sup>b</sup>, Lori Peek<sup>c</sup>

<sup>a</sup> ResiliencyDesign Research Lab, Disaster and Emergency Management, School of Humanitarian Studies, Royal Roads University, Canada

<sup>b</sup> Department of Sociology, Center for Disaster and Risk Analysis, Colorado State University, United States

<sup>c</sup> Department of Sociology Natural Hazards Center, University of Colorado-Boulder, United States

### ARTICLE INFO

#### Keywords:

Youth  
Disasters  
Recovery  
Arts-based methods  
Lived experiences

### ABSTRACT

As disasters escalate in frequency and severity, children and youth are among those most at risk for resulting adverse psychological, social, health, and educational effects. Although there is growing interest in the vulnerabilities and capacities of youth who have experienced disaster, research focusing on their lived experiences during the recovery period remains sparse. In response to this knowledge gap, youth between the ages of 13–22 were invited to participate in workshops spanning one to four days, where they used art, music, photography, videography, and other means to articulate their experiences of post-disaster recovery. The research took place in four disaster-affected communities in the United States and Canada, including Joplin, Slave Lake, Calgary, and High River. Youth stories revealed key people, places, and activities that supported their recovery, and the mechanisms through which those supports had a positive impact. Examining youth perspectives is important to concretize and contextualize theories of disaster recovery.

### 1. Introduction

To date, much disaster research has focused on adults, where individual recovery is defined as the return to a potential for social and economic engagement and growth, assessed by an individual's stabilization of housing, income, and employment, physical and mental well-being, and positive social role functioning [1]. Understanding disaster recovery from the perspective of children and youth has received relatively less scholarly attention; however, a growing body of research is beginning to explore youth adaptation to disasters and other traumatic events (e.g., [16,40,68,73]). This important work on children and youth identified a range of interacting vulnerabilities [21] (risks, stressors, and exposure), and protective or promotive factors for recovery and resilience at the personal (e.g., neurobiological, personality, past experience, self-regulation, agency), relational (e.g., parents, family, attachment systems), environmental (e.g., places and community), and cultural (e.g., norms, mores, and practices) levels [12,26,27,41,59].

According to Peek [46], children and youth are some of the most susceptible to the negative impacts of disasters including psychological morbidity, physical injury, sanitation-related illnesses and other health concerns, death, and the adverse impacts of losing child-friendly spaces (e.g., home, schools and playgrounds) including educational decline and school dropout. Despite this recognition of young people's vulner-

abilities in disaster, relatively little research has explored their specific needs or their perspectives on what supports recovery and resilience [2].

To address this gap, the Youth Creating Disaster Recovery and Resilience (YCDR<sup>2</sup>) project undertook a qualitative research study to explore disaster recovery from the perspective of youth affected by disasters. The YCDR<sup>2</sup> project was designed to inform theories and practices of disaster recovery by learning directly from the unique perspectives of youth about their own recovery process following a disaster. The goal was to inform a more inclusive, community-based, and youth-informed understanding of disaster recovery while also providing opportunities for disaster-affected youth to share their stories through creative expression.

### 2. Dimensions of disaster recovery

Previous studies that have explored youth and disasters are largely devoted to identifying predictors of post-disaster mental health outcomes [19,37,71] and do not often seek young people's narrative perspectives on their own recovery (although see [23]). Therefore, in addition to continued research on vulnerabilities and post-disaster trauma experienced by children and youth, an exploration of young people's lived experiences of disaster recovery in varied locations is also needed.

\* Correspondence to: School of Humanitarian Studies, Royal Roads University, 2005 Sooke Road, Victoria, BC, V9B 5Y2, Canada.

Past studies have identified several factors such as emotional attachment, positive coping skills, familial resources, and educational supports as important to the recovery of children and youth after a disaster [8,75]. When social structural supports are considered, however, the work tends to be adult-centric, exploring the ways that parents, teachers, and service providers help children and youth in the aftermath of an extreme event [48,5,62]. Yet, while adults are often found to be sources of support, few studies examine the role of peers in youth recovery [53] and even fewer examine social support from the perspectives of youth themselves.

Most of the disaster-research with children and youth that has focused on place, has focused primarily on the role of schools and home – places known to be important for children and youth because of the role they can play in providing stability, adult and peer support, and supervision (e.g., [23,43,60,77,78]), Less is known about the other places that may also contribute to youth disaster recovery, although preliminary evidence suggests that a broader range of places may be important. For instance, Fothergill and Peek [23] interviewed and observed children and youth after Hurricane Katrina and noted the importance of parks, playgrounds, ball fields, and other public spaces in facilitating recovery. Research is also beginning to emerge that examines the role of place attachment and place disruption in shaping the wellbeing, emotional regulation, identity development, and self-esteem of children in the home, school, and other post-disaster contexts [60]. Given these insights, more work is needed to explore which places are important to youth and why.

Along with people and places, certain activities are expected to support youth in disaster recovery in important ways. Writing, drawing, photography, and other creative outlets [24,44,54] as well as programs focused on sports and play (e.g., [30]), can be beneficial for children and youth during the recovery process [36]. In general, explorations of recovery-relevant activities typically examine interventions or coping strategies (e.g., [39]), but do not explore which activities and strategies youth select and deem to be most useful for their own recovery.

As research interest in youth and disaster recovery grows, it is important to identify a range of supports, including people, places, and activities, and explain the mechanisms through which these supports contribute to recovery. Further, there is a need for research that goes beyond a reliance on the reports of parents and teachers and the use of pre-coded research instruments [46] to engage young people directly to capture their perspectives of disaster and recovery [10,28]. While existing studies provide important information about predicting young people's disaster recovery, details about their lived experiences are needed to concretize and contextualize the models [70]. The creation of more fully elaborated social science theories depends on the use of participatory methods and approaches that offer youth opportunities to give voice to their thoughts and interpretations of events. This youth-centred orientation is important if practice, policy, and research are to more effectively address the significant and subtle differences that emerge when speaking with rather than about youth [9].

### 3. Present study and research questions

Over a three year period, the YCDR<sup>2</sup> research project engaged youth (aged 13–22) affected by wildfires, a tornado, and flooding, through an experiential, creative action research process. Using experiential activities and arts-based methods (e.g., photo elicitation, photo-story), researchers worked with youth to engage in critical reflection about their experiences of disaster recovery. The research questions specifically explored the youth's perspectives of which forms of support (i.e., people, places and activities) facilitated their recovery from disasters in each community.

### 4. Research sites

Four communities in North America were selected as research sites

based on exposure to a natural disaster and engagement in mid- to long-term recovery processes.

#### 4.1. Community 1

Slave Lake, Alberta, Canada (pop. ~ 7,000). Slave Lake is a small town located two and a half hours northwest of Edmonton on the southeastern edge of Lesser Slave Lake. On May 16, 2011, winds gusting to 100 km/hr drove a devastating fire into the Slave Lake community, forcing a community-wide evacuation. Although there were no reported deaths or injuries, 40% of the town was destroyed including the town hall, library, main shopping mall, and 374 homes.

#### 4.2. Community 2

Joplin, Missouri, USA (pop. ~50,150). Joplin is the largest city in Jasper County in southwestern Missouri and serves as a hub to surrounding towns. On May 22, 2011, an EF-5 tornado (the highest magnitude on the Fujita scale) tore through Joplin. Over 160 people died in the tornado and 990 were injured. Nearly one-quarter of the city of Joplin was destroyed, including the complete devastation of over 2,000 buildings. This included the destruction of several schools, including Franklin Technical School and Joplin High School.

#### 4.3. Community 3

Calgary, Alberta, Canada (pop. ~1,149,552). Calgary is the largest city in the province of Alberta. The city is located approximately 80 km east of the Canadian Rocky Mountains. On June 20–21, 2013, Calgary experienced unprecedented flooding. Following torrential rain, seven major tributaries and rivers rose and overflowed, causing severe damage to roads and bridges. Over 75,000 residents were forced to evacuate their homes, and many parts of the city, including the downtown business district, were without power for several days. One death directly related to the flooding in Calgary was reported.

#### 4.4. Community 4

High River, Alberta, Canada (pop. ~ 12, 920). Located approximately 60 km south of Calgary, High River is a small town that sits along the Highwood River. Like Calgary, High River was also hit by the June 2013 floods in Southern Alberta. In High River, the flooding caused waters to rise above vehicles and necessitated the rescue of over 150 people. The entire city was forced to evacuate. Approximately 70% of homes in High River were damaged by the flooding, and 79 of the 83 buildings in town experienced significant damage, leading to the closure of numerous small businesses. Three flood-related deaths were reported in High River, and one was recorded in the nearby community of Okotoks.

## 5. Methods

Below, we briefly describe the community and youth engagement process and our research approach. Additional details regarding the overarching project goals and the methodological approach are described elsewhere [22].

### 6. Initial site visits

Our research team initiated the project in each community by reaching out to key stakeholders involved in disaster response and recovery efforts and those working directly with disaster-affected youth (e.g., local government, education, health care, business, non-profit and community-based organizations, faith-based organizations, and arts-based groups). We then conducted a preliminary site visit to gather information about the disaster and establish youth and community

partnerships.

## 7. Youth workshop participants

Our team used a snowball sampling strategy to recruit youth for a series of participatory workshops. These workshops were organized in collaboration with community partners to engage youth to explore the research questions. Our recruitment initially targeted youth who had expressed interest during the first community site visit. We then worked with those youth, who assisted with additional recruitment through their peer networks. In addition, recruitment flyers were distributed to local contacts and youth organizations via email, outlining the project process, goals, role of participants, and time commitments. Participant selection criteria included: (1) experience of the local disaster; (2) interest in the project goals and activities; (3) expressed commitment to involvement over the project arc; and (4) for those under the age of 18, permission of the youth's parents or primary caregiver/guardian.

In the end, our team worked with 39 youth (26 girls and 13 boys), ranging in age from 13 to 22, across the four communities. All participants were treated in accordance with the national and international ethical guidelines for conducting research with humans (in Canada, the *Tri-Council Policy Statement on the Ethical Conduct for Research Involving Humans*; in the United States, the Department of Health and Human Services Office for Human Research Protections under the guidance of the University Institutional Review Board).

## 8. Arts-based workshops and focus groups

The one- to four-day workshops employed methods and design principles based on theories of group development and youth engagement. The initial activities of each workshop emphasized trust-building, group commitment, and goal delineation (e.g., [67]), as well as lessons learned from empirical studies of youth participation, such as building capacity, giving youth a voice, encouraging youthful styles of working, and adapting to the sociopolitical context (e.g., [25]).

Workshop activities included participatory arts-based and visual storytelling methods such as photo stories (e.g., [4,49,55]), face painting, Web of Recovery [22], Visual Explorer ([13]; Fig. 1), graphic recording, digital storytelling, and stop-motion animation (e.g. [15,20]). These activities were designed to generate dialogue about disaster recovery and encourage self-reflection, interaction, sharing of experiences, and knowledge generation about recovery in their communities [45,49,64,65]. Other qualitative strategies such as facilitated



Fig. 1. Visual Explorer was used to generate dialogue about disaster recovery.

conversations and interviews were used to deepen researchers' and youths' understanding and interpretation of the results [15,20].

All of the data generation activities were captured using audio-recording, photography, video, and observation notes. Members of the research team transcribed the audio files that were collected verbatim. The team then analyzed the data using an inductive, iterative coding and analytic process based on the constant comparative analytic strategies associated with grounded theory approaches (e.g., [14,52]). The research team also analysed participating youth's comments about the workshop process and their arts-based knowledge outputs (e.g., poetry, song lyrics, and photo-stories using a thematic analysis [3]. The data analysis process was supported by the use of qualitative analytic software (NVivo and Atlas.ti).

## 9. Findings: youth perspectives on disaster recovery

Participants' art products, discussions, and interview comments revealed key people, places, and activities that were integral to their recovery. In addition, results uncovered several mechanisms through which these resources, or supports, aided in recovery. Although the utility of each support is expected to vary among individual youth and across particular geographic and cultural contexts, this emerging framework nevertheless begins to identify the diversity of supports and mechanisms of recovery important to disaster-affected youth.

## 10. The role of people in disaster recovery

Most of the youth recognized, and often expressed gratitude for, particular people who supported their disaster recovery. They identified adults, including parents, grandparents, teachers, coaches, counselors, disaster relief workers, volunteers, and community members, but they also identified peers, pets, celebrities, and media representatives as important. Primarily, these people (and animals, in some cases) contributed to youth recovery through instrumental, emotional, and companionship forms of social support, all of which intersect but are, for the purposes of this paper, separated into three distinct themes.

### 10.1. Instrumental support

Youth in all four communities explained how others had provided them with tangible resources, help, and services; such practical aid has been termed "instrumental support" (e.g., [32]). For youth recovering from disaster, instrumental support took several forms. For some youth, this included meeting basic physical needs, such as food, clothing, and short- or long-term shelter, as one young woman from Calgary mentioned: "My sister kept me when I had nowhere else to go during the floods." Similarly, a participant from Joplin who had "lost pretty much everything in the tornado" cited the generosity of a summer camp director who in addition to offering free shelter, collected monetary donations from the camp counselors and other youth:

... that group of people, they went and they collected money behind my back and they took me on a \$300 shopping spree. Because I lost a bunch of stuff and all I had was like, three pairs of jeans and I had t-shirts and that's all I really had. I didn't even have a hair dryer so somebody went to town and bought me a hair dryer so I could do my hair.

Beyond basic needs, many of the youth benefited from youth-specific donations and resources. For example, several young women from Joplin described how musician/celebrity Katy Perry "donated over 2,000 dresses to Joplin for prom" which allowed them to celebrate this important milestone despite the disruption of the tornado.

### 10.2. Emotional and psychological support

In addition to instrumental support, participants from the four

communities described the importance of emotional and psychological support in their recovery process. Emotional and psychological support was often identified as someone “being there” or offering guidance. For example, youth acknowledged experiencing emotional support through empathic encounters with adults including parents and other caregivers, teachers and coaches. As one participant from High River expressed, “It’s really important that you have a good foundation of support of family and friends. People you can trust, whoever they are.”

Youth also spoke of emotional support as beneficial when it included sensitive guidance and the provision of hope; two Calgary youth included this in the narration of their stop-motion animation film that they created during one of the YCDR<sup>2</sup> workshops:

The people around me showed me the importance of bonding, and caring for one another. They helped me through the hard times of losing everything, and told me that tomorrow would be a better day.

Youth further articulated the importance of being able to express their emotions in a supportive environment. For example, when asked what advice he would give to other youth who had experienced a disaster, one young man from Slave Lake suggested:

I’d say just find someone close that you can trust that’s going to listen to you and find someone that you can let it all out with regardless if it’s sadness or if it’s the little bit of happiness you might find on a good day or the anger and pretty much that as long as you’re able to talk about it with someone that you know and that you’re not bottling it all up and just until one day you snap.

Another participant from Joplin similarly described the importance of emotional release within the context of unconditional positive regard [56], noting, “the one thing that really helped was our family and friends. Just to have a community where you can speak your mind and vent and get angry with and they still love you even after all this disaster.”

While receiving support from adults was an important theme emerging from the research in all four communities, so too was the importance of receiving emotional support from peers (see Fig. 2). As participant from Slave Lake expressed this theme: “At school for a little while I think they had a counselor, but it’s not really... I think youth to youth is more beneficial because who wants to be like ‘oh, I’m going to see that counselor...’?”

Despite the perceived value of peer-to-peer support, it was sometimes unexpected, given that youth recognized their peers were facing



Fig. 2. Peer-to-peer support was important to many youth's recovery.

similar post-disaster challenges. A male participant from Slave Lake described the experience of receiving peer support this way:

You just don’t expect it to come from them because you know a lot of them are in the same position as you are, and some of them aren’t. But you know they’re young people [and] you don’t expect them, well at least I didn’t expect them, to show any, or a little, or like I guess as much support as you know adults would.

### 10.3. Companionship support

In addition to instrumental and emotional support, a related form of support that appeared particularly important for youth recovery was companionship (e.g., [58,76]), or being with others, and experiencing a shared sense of belonging and communality. For some youth, including a young woman from Slave Lake, it was about establishing a deeper bond with family and friends:

We lived in like a camper for three months on our property out there and I guess you know literally and figuratively it brought our family closer together. So we did a few more things together, which was nice, and my parents didn’t really worry about the rebuild.

Many youth also benefited from reconnecting with friends and spending time with one another, as a participant from Joplin mentioned, “They just really helped me have someone to be with afterwards. It was really when the school year started and I could hang out with my friends that I could really recover.”

Companionship also seemed to have a strong impact on youth when it provided a sense of identity or belonging to a larger whole. One young man from Joplin felt especially connected to his choir group:

The people in choir are just some of the bestest friends I have ever had in my life. I know that I can trust them for anything. [...] After the tornado, as soon as we got to where we could get Internet and the computer, everyone was getting on the choir page to see where everybody was. It is just one big family that I am really happy to call mine.

## 11. The role of place in disaster recovery

Results also underscored the importance of specific places for youth during the recovery process. In line with previous research [24,71], youth participants identified home (i.e., their own or others) and school as important to their recovery. However, they also described a variety of other places that have received less research attention including formal and informal youth-gathering places (e.g., youth center, plaza, skate park, convenience store), natural environments (e.g., local parks), recreation places (e.g., community centers), community arts centers (e.g., theatre, dance studio), and disaster relief centers. Youth participants spoke about how these places aided in their disaster recovery by responding to physical and psychological needs (e.g., food, access to internet) and symbolic (e.g., hope, normalcy) needs and offering safe spaces for recovery.

### 11.1. Places that support the physical and psychological needs of youth

The youth in this study often spoke about places as central to their recovery when they supported not only their capacity to meet their physical needs but also their psychological needs. When referring to their home, for example, youth in the study were especially likely to highlight their own rooms as important because they provided a sense of stability and comfort. As one High River youth described, “just knowing that I have my own room is kind of enough to keep me floating.”

Participants also highlighted youth-friendly spaces that allowed teenagers to just be themselves, as this young man from Joplin

described in relation to a newly opened skate park and recreation center in his town:

The parents probably saw it as a babysitting service, but the teens saw it as a place to get away and actually be who they are and not have people judge them. And they had the ramp parks so the skaters and bikers had a place to go and be able to do their stuff.

For some youth, having any kind of private and quiet space of their own was vital for their recovery. A young woman from High River who had been living in crowded temporary housing explained, “It doesn’t matter. Just *your* space. [...] It is so important and it’s weird how important it becomes.”

### 11.2. Places as symbols of recovery

Youth from all four communities also talked about how places can evoke positive emotions by symbolizing hope, renewal, or stability. For some youth, this included places that were resistant to change, such as a church in Joplin that served as a beacon of hope for several youth participants:

Female participant 1: I just have to say that the cross was built very sturdy.

Male participant 1: Cause it’s been in like multiple storms.

Male participant 2: Yeah, because there has been a tornado in Joplin before. I mean the odds of it surviving both times. [...] It has become a huge icon for us all. The whole town, it was like that was their thing. It was a symbol of hope.

A young woman from Slave Lake described a sense of renewal and hope as she watched her neighbor rebuilding: “I feel a lot more, I guess happier you could say, going in the southeast. Cause now, it’s all brand new houses and apartments. It looks like it’s just a new area.” Another young woman from Joplin described the sense of hope she found watching the commercial life of the community return:

IHOP is back, you have Walmart, Home Depot around it, the Pizza Hut, it’s all back. And that was just an emotional thing for me because when the tornado happened I felt that nothing would ever be okay again and that it would never be the same as what it was.

Similarly, another young woman from Joplin described a fast-food restaurant as a place that brought her strength:

This is my happy place. I come here to get re-energized so I can go on with my day. Whenever I’m having a bad day my mom will just be like “you just need some Chik-fil-a.” And she will say that and we will go and just spend forever at Chick-fil-a. And we would go there a lot when I was in counseling for PTSD.

In addition to built spaces, nature and parks were also identified as providing a sense of continuity and stability. For example, when asked to provide a photograph of a place that represented their recovery, several Slave Lake youth selected images of Lesser Slave Lake. As one explained, the lake was “a constant and a thing of beauty” in contrast to the surrounding forest and town which had been severely damaged by the fire. The other participants agreed that the lake was something they “took for granted.”

## 12. The role of activities in disaster recovery

In addition to supportive people and places, youth in the four communities highlighted certain activities that contributed to their disaster recovery. Youth described hobbies, sports, exercise, extracurricular school programs, art, homework, church activities, music, shopping, writing, and work as activities they found to be particularly beneficial. Further conversation revealed that these activities offered cathartic expression and outreach through storytelling, distractions and fun, and opportunities for growth [66].

### 12.1. Storytelling

Youth participants indicated the importance to their recovery of having outlets for telling their stories and commemorating their disaster experiences. This was commonly done through visual arts, music, writing, and performance. For example, a young woman from Joplin recounted the healing power of sharing disaster stories as part of a high school art exposition:

We opened the art jam, sitting up on stage in a line and we went through our stories [...] we told all of what we were doing during the storm and then all of our reactions to the aftermath. [...] And the whole faculty and students, there were about 150 people all just swarmed up on stage and they pulled us off and sat us in the middle of the floor and just made a big circle around us and they were all sobbing and hugged us and it was really, really cathartic.

Another young man from Joplin found a sense of healing in writing and performing a song about the trajectory of his experience, from the disaster through recovery:

Basically, just after the tornado I started playing. I played a lot more than I did before [...] I wrote that song with the emotions I was feeling at the time. It gave me an outlet to express myself and I think it does for a lot of musicians, and the same with painters or dancers or anything. That is their way of expressing how they feel...

During the same session in Joplin, another participant said he was able to explore his emotions through writing a fictional book following the disaster. He explained, “instead of getting my anger out by hurting somebody, I got it out while writing a book. I got it out through paper and pencil.”

Along with emotional expression, participants described storytelling as a way to feel they could contribute by reaching out and connecting to other disaster-affected youth in their own and other communities. The youth from Slave Lake, for example, hoped the art products they produced in the research workshops would convey a message of hope to others, as if to say, “this is what I went through, this is what I did, this is what helped ME...maybe this will help YOU.”

### 12.2. Distractions and growth

Activities were central to these youth’s recovery because they offered respite and distraction from the ongoing disruptions in their lives. One young man from High River described escaping the stress of the recovery through videogames: “I know that at least for me, having my PlayStation 3 with my favorite game saved my soul from all of the negativity.” A young woman from High River was able to escape from the stress of a crowded temporary living situation through horseback riding. As she described, having an opportunity to engage in an enjoyable activity away from others made her time in a crowded temporary accommodation more bearable:

When we stayed at the ranch it sucked because there was like pretty much all of our family that lived in High River was all at the ranch too. There was a lot of people there and all the dogs were fighting and everyone was crying, all stressed out. And I just went and rode horses everyday. It was fun though, I mean, riding the horses.

For other youth, distraction from the stress of recovery was achieved through work. This included the physical work related to disaster clean-up and rebuilding. One Joplin youth expressed the importance of being involved in the “hands-on activities and work, just getting in and tearing up debris just to get your mind off of it all,” as well as the experience of returning to a regular paying job. A young woman from Slave Lake who worked at a large retail store spoke of the importance to her of simply being able to increase her hours following the fires; not only because of the economic benefits, but also because these hours provided relief from thinking about the disaster and the

long recovery process: “So we were really understaffed. We’re always busy. I put in so many extra hours. So, in a way it was actually kinda nice cause my mind wasn’t put on the fire.”

Other youth sought distraction, fun, and stress relief through sports and exercise. In Joplin, one of the participants had his own key to the local martial arts school, which was highly beneficial: “I will have my mom drop me off there and I will just hang there and spend time by myself a little bit and just kind of get stress off.”

Activities also served to re-focus and re-prioritize important goals for youth. A young man from Slave Lake described how the fire and the recovery process had helped him become more focused and motivated about school:

It was kind of my way to forget that people around me were hurting. Kind of...to not escape that but like, kind of just do something, for myself. I guess for a little while it was nice...to be able to do that...it was good.

### 13. Discussion

As with extant quantitative and qualitative studies on disaster recovery, this research confirms the need for a variety of resources and activities to aid youth recovery following a disaster. The findings highlighted a range of *people*, *places* and *activities* that supported youth participants as they were coping and adapting to the stress, loss, and life changes associated with the disasters they experienced. However, beyond what is offered by previous research, the youth's comments and responses provide a deeper understanding of which specific supports and resources are important to youth, and how these supports have a promotive and protective influence on youth experiences during disaster recovery.

#### 13.1. People

Participating youth repeatedly underscored the importance of obtaining social support from key adults, which is expected given their age and partial dependence on adults (e.g., [61]). The youth's comments confirm that parents, teachers, coaches and other supportive adults such as faith leaders are critical as they provide stable social systems that support psychological and emotional recovery. Interestingly, and consistent with a whole-of-community approach to resilience (e.g., [17]), participating youth also identified the role that adults outside of their immediate circles (e.g., neighbors, celebrities, people from outside the affected community) can play in providing a sense of hope for the future of youth and a sense of belonging to something bigger than themselves.

The findings further suggest that formal and informal recovery mechanisms account for how and in what form services are offered so that they are both accessible and relevant to youth. This includes paying attention to the sites where such services and outreach are offered in order to consider how to ensure such sites are youth-accessible and user-friendly. Further, a more youth-centered approach needs to proactively build on and develop effective adult-youth partnerships within communities such that they can be called upon in disasters to ensure the ongoing relevance of services to youth.

Because social support has strong implications for well-being and quality of life (e.g., [6]), especially during times of extreme stress and disorientation [42], ensuring that such support is provided in a timely and youth-relevant way may require extending a consideration of alternative methods and sites of delivery. This might include a more robust use of social media channels (e.g., [38]), and the creation of youth-friendly recovery and service delivery spaces.

Additionally, the findings suggest that effective psychosocial response to youth in disasters should include ensuring opportunities and spaces that are conducive to youth-to-youth or peer support. Youth's in the study described finding comfort and relief through the sense of

companionship, the commonality of experience, and the provision of a listening ear at times from their peers, when talking to adults felt challenging (either because they were adults or because, in the case of parents and caregivers, they were aware that those adults were already stressed and overburdened). Masten and Obradovic [42] describe the importance of friends as critical dimensions of youth attachment systems during the disaster recovery period.

What was noteworthy, however, is that this kind of peer-to-peer support was not always expected by youth themselves, which may make generating and highlighting opportunities for these interactions to occur of greater importance during the disaster recovery period. As several of the youth described, youth-friendly and youth-centric spaces provide opportunities for ‘youth to be youth’ and to share their experiences with each other without feeling watched or monitored by adults. Because access to peer networks may be disrupted following a disaster due to short- and longer-term displacement, and also because the strength and diversity of youth peer networks vary considerably, the findings further suggest that it is important to consider “the interdependence and multiplicity of systems of human lives” ([42], p. 12) when considering how to develop and implement strategies and interventions for supporting youth recovery following disaster.

#### 13.2. Places

The hallmark of place attachment (e.g., [29]) has rarely been explored in the youth and disaster literature. Youth in this study identified a range of specific places they found helpful, either because they supported young people meeting their physical or psychological needs, or because they served a symbolic function in signifying hope. As Korpela and colleagues [34,35] have shown, the comfort offered by favorite places allows youth to regulate their emotions and experience positive affect. Further, the present study affirms the symbolic importance of places as icons of recovery, something that has been previously identified as playing a role for adults (e.g., [18,63]).

Whereas the findings underscore the importance of identifying important places for youth who have experienced a disaster, they also highlight the need to be sensitive to the specific sociocultural contexts that influence how safe places and spaces are perceived and utilized by youth in any given community. Faith-based symbols (e.g., the Christian cross) and churches were very evident in the comments of Joplin youth, as they described what brought them hope and a sense of resilience, whereas reference to such religious spaces was largely absent in the comments of youth from the other three communities.

The present study suggests that communities identify and utilize a variety of built and natural spaces that can serve as safe havens for youth, or as places that can provide both physical and psychological comfort.

#### 13.3. Activities

The findings highlighted a range of activities that youth found helpful by providing opportunities for distraction or respite, a sense of meaning, and opportunities for emotional expression. Distraction is a common way in which people cope with trauma and stress, and is considered an aspect of processing the event rather than a pathological outcome (e.g., [33]). Activities involving retreat from the disaster can therefore sometimes elicit a change in priorities, or a self-transformation. Positive changes such as these reflect post-traumatic growth, which goes beyond coping and involves improvements in psychosocial functioning (e.g., [11]).

Some qualitative studies have invited children and youth to express their disaster experiences through drawing [23], interviews combined with participant-guided mobile methods [27], or focus groups [47,51]. The findings of this study support the value of that approach, and suggest that youth may find creative expression of their perspectives and disaster experiences particularly helpful. Such expression, whether

it be through music, writing, art, or other forms of expressive storytelling, can amplify the voices of those that have been overlooked in such research [22], provide opportunities for reflection and a deepening of understanding of youth experiences. When shared publicly, this can help modify existing assumptions about youth recovery and resilience [72] while also supporting young people's sense of belonging and amplifying their voice in recovery processes.

#### 14. Limitations and future directions

As with all studies, this research has some limitations. The participants in this project self-selected in response to our invitations and calls for participation. The sample size, although acceptable for qualitative projects, was relatively small given the number of communities where we worked, and we can make no claim to representativeness in this study. We do believe that the findings are suggestive of important themes, and we have elaborated on dimensions of youth disaster recovery based on their lived experiences. Yet, the emergent understanding of youth-centered social support following disasters cannot be considered comprehensive.

Additional research is needed to understand the support processes and challenges to youth recovery in response to different hazard types and with different cultural, ethnic, and other groups of youth. Similarly, further study is needed to understand more fully the barriers and challenges young people face in accessing support from people, places, and activities during disaster recovery. Youth in this study, for instance, identified issues related to rurality, such as a lack of transportation, necessary for accessing services and the support of their friends; and it is important to note that the accessibility and availability of social supports is conditioned by a wide variety of personal, familial, geographic, economic, and social factors. The comprehensive examination of these barriers was outside the scope of the present article, but these and other comments make it clear that more fully understanding such barriers is necessary to developing a comprehensive social support plan for disaster affected youth.

The relative impact of each factor of support on recovery was not examined as part of this study. It will be important for future research to explore these differences and to examine the variations between different means and methods of support across different contexts. As such, additional quantitative and qualitative research should explore which supports, for which individuals, and in which contexts, are most predictive of short- and long-term recovery of youth.

#### 15. Conclusion

This multi-site research study attempted to understand, from the perspectives of youth, *which* people, places, and activities helped them to recover following a disaster, and *how* these supports and behaviors benefited them. As such, it represents one of few studies to explore disaster recovery from a youth-centric perspective. Further, recognizing the diversity of the types of psychological, material, and symbolic resources that contribute to recovery [31], this study highlights the importance of identifying not only general themes in terms of the types of resources that youth find supportive, but also the specific expressions of those themes across different social, cultural, and economic contexts.

#### Conflict of interest statement

The authors certify that there is no actual or potential conflict of interest in relation to this article.

#### Acknowledgements

The authors gratefully acknowledge the Social Sciences and Humanities Research Council (SSHRC) of Canada and the Canadian Red Cross provided funding for this research. In addition, we would

also like to recognize and thank the community partners who supported our work including the Antyx Community Arts Society, the Joplin Family YMCA and High River Hearts and Minds. Furthermore, we would like to acknowledge Valerie Cere, Shawna Cosby, Matt Godsoe, Neil Griffith, Tiffany Hill, Samantha LaFever, Jennifer Lambrick, Christopher Lyon, Sarah Michaud, Kylie Pybus, Kelly Shreeve and Jessica Thurston, who served as research assistants on this project from Royal Roads University and Colorado State University. Importantly, Danielle Barker, Austin Henady, Jordan McGrane and Tyler Nonemaker, served as community-based and youth researchers for the project in Missouri. Jonathon Wood and Jennifer Tobin-Gurley designed the interactive website for this project, which can be found at [www.ycdr.org](http://www.ycdr.org).

#### References

- [1] D.M. Abramson, T. Stehling-Ariza, Y.S. Park, L. Walsh, D. Culp, Measuring individual disaster recovery: a socioecological framework, *Dis. Med. Public Health Prepar.* 4 (2010) S46–S54.
- [2] W.A. Anderson, Bringing children into focus on the social science disaster research agenda, *Int. J. Mass Emerg. Dis.* 23 (2005) 159–175.
- [3] H. Ando, R. Cousins, C. Young, Achieving saturation in thematic analysis: development and refinement of a codebook, *Compreh. Psychol.* 3 (2014), pp. 1–7.
- [4] T.A. Baker, C.C. Wang, Photovoice: use of a participatory action research method to explore the chronic pain experience in older adults, *Qual. Health Res.* 16 (10) (2006) 1405–1413.
- [5] E.J. Barrett, C.Y.B. Ausbrooks, M. Martinez-Cosio, The school as a source of support for Katrina-evacuated youth, *Child. Youth Environ.* 18 (2008) 202–235.
- [6] R.F. Baumeister, M.R. Leary, The need to belong: desire for interpersonal attachments as a fundamental human motivation, *Psychol. Bull.* 117 (3) (1995) 497–529.
- [7] A. Boksaczanin, Parental support, family conflict, and overprotectiveness: predicting PTSD symptom levels of adolescents 28 months after a natural disaster, *Anxiety Stress Coping* 21 (2008) 325–335.
- [8] S.S. Boocock, K.A. Scott, *Kids in Context: The Sociological Study of Children and Childhoods*, Rowman & Littlefield, 2005.
- [9] J. Boyden, Children under fire: challenging assumptions about children's resilience, *Child. Youth Environ.* 13 (1) (2003) 1–29.
- [10] L.G. Calhoun, R.G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice*, Routledge, 2014.
- [11] V.G. Carrion, C.F. Weems, T. Bradley, Natural disasters and the neurodevelopmental response to trauma in childhood: a brief overview and call to action, *Future Neurol.* 5 (2010) 667–674.
- [12] Center for Creative Leadership (n.d.). Visual Explorer. Retrieved from <[www.ccl.org](http://www.ccl.org)>.
- [13] K. Charmaz, Constructivist and Objectivist Grounded Theory, *Handbook of qualitative research 2* Sage, Thousand Oaks, 2000, pp. 509–535.
- [14] P. Christensen, A. James (Eds.), *Research with Children: Perspectives and Practices*, Routledge, 2008.
- [15] D. Cicchetti, Resilience under conditions of extreme stress: a multilevel perspective, *World Psychiatry* 9 (2010) 145–154.
- [16] R.S. Cox, M. Hamlen, Community disaster resilience and the rural resilience index, *Am. Behav. Sci.* 59 (2) (2015) 220–237.
- [17] R.S. Cox, K.M.E. Perry, Like a fish out of water: reconsidering disaster recovery and the role of place and social capital in community disaster resilience, *Am. J. Commun. Psychol.* 48 (2011) 395–411.
- [18] C.H. Cryder, R.P. Kilmer, R.G. Tedeschi, L.G. Calhoun, An exploratory study of posttraumatic growth in children following a natural disaster, *Am. J. Orthopsychiatry* 76 (2006) 65–69.
- [19] V. Currie, C. Heykoop, *CPP Circle of Rights Workbook Series: Reflectiveplanning for Social Change*, International Institute for Child Rights and Development, Victoria, BC, 2011.
- [20] Federal Emergency Management Agency (FEMA), *Children Vulnerable to Disaster-related stress* (2012) Retrieved from <<http://www.fema.gov/news-release/2012/12/08/children-vulnerable-disaster-related-stress>>.
- [21] S. Fletcher, R.S. Cox, L. Scannell, C. Heykoop, J. Tobin-Gurley, L. Peek, Youth creating disaster recovery and resilience: a multi-site arts-based youth engagement research project, *Child. Youth Environ.* 26 (1) (2016) 148–163.
- [22] A. Fothergill, L. Peek, *Children of Katrina*, University of Texas Press, 2015.
- [23] Fothergill A., Peek, L., 2006. Surviving catastrophe: a study of children in Hurricane Katrina. Learning from catastrophe: Quick response research in the wake of Hurricane Katrina, pp. 97–129.
- [24] K. Frank, The potential of youth participation in planning, *J. Plann. Literat.* 20 (4) (2006) 351–371, <http://dx.doi.org/10.1177/0885412205286016>.
- [25] J.M. Furr, J.S. Comer, J.M. Edmunds, P.C. Kendall, Disasters and youth: a meta-analytic examination of posttraumatic stress, *J. Consult. Clin. Psychol.* 78 (2010) 765–780.
- [26] L. Gibbs, K. Block, L. Harms, C. MacDougall, E. Baker, G. Ireton, J. Richardson, E. Waters, Children and young people's wellbeing post-disaster: safety and stability are critical, *Int. J. Dis. Risk Red.* 14 (2015) 195–201.
- [27] L. Gibbs, C. MacDougall, J. Harden, Development of an ethical methodology for post-bushfire research with children, *Health Soc. Rev.* 22 (2) (2013) 114–123.

- [29] M.V. Giuliani, Theory of attachment and place attachment, in: M. Bonnes, T. Lee, M. Bonaiuto (Eds.), *Psychological Theories for Environmental Issues*, Ashgate, Aldershot, 2003, pp. 137–170.
- [30] R. Henley, *Helping Children Overcome Disaster Trauma Through Post-emergency Psychosocial Sports Programs*, Swiss Academy for Development, Biel/Bienne, 2005.
- [31] S.E. Hobfoll, The influence of culture, community, and the nested-self in the stress process: advancing conservation of resources theory, *Appl. Psychol.* 50 (3) (2001) 337–421.
- [32] J.S. House, D. Umberson, K.R. Landis, Structures and processes of social support, *Ann. Rev. Soc. 14* (1988) 293–318.
- [33] S. Joseph, R. Williams, W. Yule, Psychosocial perspectives on post-traumatic stress, *Clin. Psychol. Rev.* 15 (6) (1995) 515–544.
- [34] K.M. Korpela, T. Hartig, F.G. Kaiser, U. Fuhrer, Restorative experience and self-regulation in favorite places, *Environ. Behav.* 33 (4) (2001) 572–589.
- [35] K. Korpela, M. Kytta, T. Hartig, Restorative experience, self-regulation, and children's place preferences, *J. Environ. Psychol.* 22 (4) (2002) 387–398.
- [36] V. Kunz, Sport as a Post-disaster Psychosocial Intervention in Bam 12 Sport in Society, Iran, 2009, pp. 1147–1157.
- [37] A.M. La Greca, W.S. Silverman, E.M. Vernberg, M.J. Prinstein, Posttraumatic stress symptoms in children after Hurricane Andrew: a prospective study, *J. Consult. Clin. Psychol.* 64 (1996) 712–723.
- [38] L. Leung, Stressful life events, motives for Internet use, and social support among digital kids, *CyberPsychol. Behav.* 10 (2) (2006) 204–214.
- [39] K.M. Lewis, A.K. Langley, R.T. Jones, Impact of coping efficacy and acculturation on psychopathology in adolescents following a wildfire, *J. Child Family Stud.* 24 (2) (2015) 317–329.
- [40] A.S. Masten, Global perspectives on resilience in children and youth, *Child Dev.* 85 (2014) 6–20.
- [41] A. Masten, A. Narayan, Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience, *Ann. Rev. Psychol.* 63 (2012) 227–257, <http://dx.doi.org/10.1146/annurev-psych-120710-100356>.
- [42] A.S. Masten, J. Obradovic, Disaster preparation and recovery: lessons from research on resilience in human development, *Ecol. Soc.* 13 (1) (2008) 1–16.
- [43] A. Masten, J. Osofsky, Disasters and their impact on child development: Introduction to the special section, *Child Dev.* 81 (2010) 1029–1039, <http://dx.doi.org/10.1111/j.1467-8624.2010.01452.x>.
- [44] C. Mutch, E. Gawith, The New Zealand earthquakes and the role of schools in engaging children in emotional processing of disaster experiences, *Pastoral Care Educ.* 32 (2014) 54–67, <http://dx.doi.org/10.1080/02643944.2013.857363>.
- [45] C.R. O'Donnell, R.G. Tharp, Integrating cultural community psychology: activity settings and the shared meanings of intersubjectivity, *Am. J. Comm. Psychol.* 49 (2012) 22–30.
- [46] L. Peek, Children and disasters: understanding vulnerability, developing capacities, and promoting resilience—an introduction, *Child. Youth Environ.* 18 (2008) 1–29.
- [47] L. Peek, F. Fothergill, Using focus groups: lessons from studying daycare centers, 9/11, and Hurricane Katrina, *Qual. Res.* 9 (1) (2009) 31–59.
- [48] L. Peek, J. Sutton, J. Gump, Caring for children in the aftermath of disaster: the church of the brethren children's disaster services program, *Child. Youth Environ.* 18 (2008) 408–421.
- [49] L. Peek, J. Tobin-Gurley, R. Cox, L. Scannell, S. Fletcher, C. Heykoop, Engaging youth in post-disaster research: lessons learned from a creative methods approach, *Gateways: Int. J. Commun. Res. Engag.* (2016).
- [50] B. Pfefferbaum, C.S. North, D.E. Pollio, N.E. Wallace, R. Smith, H. Jeon-Slaughter, Focus groups with children after the World Trade Center attacks, *J. Loss Trauma* 12 (4) (2007) 349–363.
- [51] N. Pidgeon, K. Henwood, Using grounded theory in psychological research, in: N. Hayes (Ed.), *Doing Qualitative Analysis in Psychology*, Psychology Press, Hove, UK, 1997, pp. 245–273.
- [52] A.A. Pina, I.K. Villalta, C.D. Ortiz, A.C. Gottschall, N.M. Costa, C.F. Weems, Social support, discrimination, and coping as predictors of posttraumatic stress reactions in youth survivors of Hurricane Katrina, *J. Clin. Child Adolesc. Psychol.* 37 (2008) 564–574.
- [53] L. Raftree, S. Machingaidze, L. del Valle, F. Foster, Coping in the aftermath of calamity: the earthquakes of El Salvador, After Cameras Gone: *Child. Dis.* (2002) 15–24.
- [54] P. Reavey, K. Johnson, Visual approaches: using and interpreting images in qualitative psychology, in: C. Willig, W. Stainton-Rogers (Eds.), *Handbook of Qualitative Research in Psychology*, Sage, London, 2008.
- [55] C. Rogers, *Client-centered Therapy: Its Current Practice, Implications, and Theory*, Houghton Mifflin, Boston, 1951.
- [56] K.S. Rook, Social support versus companionship: effects on life stress, loneliness, and evaluations by others, *J. Personal. Soc. Psychol.* 52 (6) (1987) 1132–1147.
- [57] J.K. Sapienza, A.S. Masten, Understanding and promoting resilience in children and youth, *Curr. Opin. Psychiatry* 24 (2011) 267–273.
- [58] L. Scannell, R.S. Cox, S. Fletcher, C. Heykoop, That was the last time I saw my house: the importance of place attachment among children and youth in disaster contexts, *Am. J. Commun. Psychol.* 58 (2016) 158–173.
- [59] E.M. Sterrett, D.J. Jones, L.G. McKee, C. Kincaid, Supportive non-parental adults and adolescent psychosocial functioning: using social support as a theoretical framework, *Am. J. Commun. Psychol.* 48 (2011) 284–295.
- [60] Y.J. Shen, C.A. Sink, Helping elementary-age children cope with disasters, *Prof. School Counsel.* 5 (2002) 322–330.
- [61] A. Silver, J. Grek-Martin, “Now we understand what community really means”: reconceptualizing the role of sense of place in the disaster recovery process, *J. Environ. Psychol.* 42 (2015) 32–41.
- [62] C.C. Sonn, A.F. Quayle, P. Kasat, Picturing the wheatbelt: exploring and expressing place identity through photography, *Am. J. Commun. Psychol.* 55 (2015) 89–101.
- [63] C.H. Stein, D.A. Faigin, Community-based arts initiatives: exploring the science of the arts, *Am. J. Commun. Psychol.* 55 (1–2) (2015) 70–73.
- [64] R.G. Tedeschi, L.G. Calhoun, The posttraumatic growth inventory: measuring the positive legacy of trauma, *J. Traumat. Stress* 9 (1996) 455–471.
- [65] B.W. Tuckman, Developmental sequence in small groups, *Psychol. Bull.* 63 (6) (1965) 384–399.
- [66] M. Ungar, Community resilience for youth and families: facilitative physical and social capital in contexts of adversity, *Child. Youth Serv. Rev.* 33 (9) (2011) 1742–1748.
- [67] M. Van Manen, *Researching Lived Experiences*, State University of New York Press, Albany, 1990.
- [68] E.M. Vernberg, A.M. La Greca, W.K. Silverman, M.J. Prinstein, Prediction of posttraumatic stress symptoms in children after Hurricane Andrew, *J. Abnorm. Psychol.* 105 (1996) 237–248.
- [69] F. Walsh, Traumatic loss and major disasters: strengthening family and community resilience, *Family Proces.* 46 (2) (2007) 207–227.
- [70] C.F. Weems, A.A. Pina, N.M. Costa, S.E. Watts, L.K. Taylor, M.F. Cannon, Predisaster trait anxiety and negative affect predict posttraumatic stress in youths after Hurricane Katrina, *J. Consult. Clin. Psychol.* 75 (2007) 154–159.
- [71] K.A.S. Wickrama, V. Kaspar, Family context of mental health risk in Tsunami-exposed adolescents: findings from a pilot study in Sri Lanka, *Soc. Sci. Med.* 64 (3) (2007) 713–723.
- [72] T.A. Wills, Social support and interpersonal relationships, in: M. Clark (Ed.), *Prosocial Behavior*, Sage, Thousand Oaks, CA, 1991, pp. 265–289.
- [73] S.L. Wilson, M.A. Kershaw, Caring for young children after a hurricane: Florida's childcare workers reflect on support and training needs, *Child. Youth Environ.* 18 (2008) 237–253.
- [74] L. Wolmer, N. Laor, C. Dedeoglu, J. Siev, Y. Yazgan, Teacher-mediated intervention after disaster: a controlled three-year follow-up of children's functioning, *J. Child Psychol. Psychiatry* 46 (11) (2005) 1161–1168.