Effective Evidence-Based Post Disaster Recovery Interventions

Capstone Research Project

Faro Taug

Justice Institute of British Columbia

ESMS4900: Capstone Research Project

Instructor: Beth Larcombe

April 4, 2022

Abstract

Natural disasters are increasing in frequency and severity, creating an urgent need for effective, evidence-based interventions to assist affected individuals and communities recover. This study describes several such interventions, as well as other research which may provide evidence for emergency managers to inform individual and community level recovery.

The research study design is a qualitative review of secondary sources such as peer reviewed journal articles. The sources are evaluated for content related to the research question, what are the most significant factors to the recovery of affected community members' health and wellness following a disaster? And the sub-research question, what are the most effective recovery interventions that can be deployed post disaster to promote positive recovery outcomes for individuals and communities? The findings are analyzed thematically and include numerous common recovery impacts and common recovery factors, both positive and negative and several post disaster evidence-based recovery interventions that can be deployed at both the individual and community level.

This research has significant applications for emergency managers in the field who can use this evidence-based research to advance their understanding of recovery and apply it to community recovery planning ahead of a disaster. It can, as well, provide communities currently struggling with recovery after a disaster with ready made, effective, practical, and cost-effective interventions to promote positive recovery outcomes at both the individual and community level.

Keywords: effective; recovery; interventions; post-disaster

Table of Contents

Effective Evidence Based Post Disaster Recovery Interventions

Background

Disasters are increasing in intensity, frequency, and complexity, as experienced firsthand by numerous communities in British Columbia, Canada in 2021. These communities faced successive disasters of record heat, wildfires, and atmospheric river floods. This hazard season of weather extremes demonstrated the reality of the new normal of natural disasters and has been described as a wake-up call, even for experts (Little, 2021). Disasters are large scale, traumatic events that threaten harm to individuals and communities by disrupting social networks, services, and survivor's mental and physical health (Gibson, Little, Cowlishaw, Toromon, Forbes, O'Donnell, 2021, pg. 1).

Disaster management during the recovery phase involves actions taken after a disaster to re-establish or rebuild conditions and services (Public Safety Canada, 2015). Recovery is considered the most difficult phase of managing a disaster because it occurs over a longer time period, when many of the resources issued for the response phase have depleted the overall resources left for managing successive phases. This was demonstrated by the U.S. National Disaster Management System's description of disaster management as occurring during the actual event (Abramson, Grattan, Mayer, Colten, Arosemena, Bedimo-Rung, & Lichtveld, 2015). Focus on the acute response phase of a disaster can reduce access to interventions for individuals who have experienced excessive trauma and need mental health support during extended recovery periods (Abramson et al., 2015). This lack of access to supportive interventions can promote negative outcomes for recovery for individuals and communities.

Loss, injury, financial instability, and loss of social networks and support are devastating for survivors (Abramson et al, 2015). These conditions can cause survivors to exhibit a wide

range of responses that can vary from brief distress to long term mental health illness and other health issues. More people in crisis can create further stress on already weakened service infrastructure systems, further complicating recovery management.

This new normal of natural disasters is impacting more communities annually. In the case of B.C., Canada, some of the same communities experienced successive multiple type disaster events within the same year, complicating and extending those community's recovery period and risk for negative mental and physical health outcomes. This increasing need for individual and community level recovery from disasters is creating an urgent need for effective, evidence-based interventions to assist the recovery of affected individuals and communities, (Commers, Morival, Devries, 2014). In particular, the need is for interventions that are able to be deployed in the difficult recovery phase where resources are scarce by being effective, easy to deploy, low cost and without the need of highly specialized health professionals.

In December 2021, Lytton, B.C. residents publicly expressed frustration at what they have described as a slow recovery response by authorities. This result was largely because they were still displaced from the wildfires that occurred in the summer (Little, 2021). This increased scrutiny and criticism of local authority and provincial responses to this disaster has created a renewed and urgent focus on recovery. Evidence of this was indicated by the Government of B.C. announcement in December 2021, of a million-dollar grant and a new provincial Recovery Liaison to address these challenges (Little, 2021).

Further complicating recovery management is that impacts of disasters on survivors' health and wellness are not well understood. This is noticeably true regarding the understanding of events that link disasters to mental health outcomes (Abramson et al., 2015), and in regard to the factors that are significant in impacting recovery outcomes of disaster survivors. because

these aspects of recovery are not well understood, it is also not clear what recovery interventions exist which can be deployed to assist with recovery.

This is the difficult and complex environment that emergency managers are now facing regarding assisting their communities in recovery. Faced with these challenges, many emergency managers will be looking for effective evidence-based research on recovery, both to understand it further, as well as to develop evidence-based interventions which they can add to their emergency plans in order to promote the best recovery outcomes for the individuals, families, and communities they serve. However, typically emergency managers currently responding to successive disasters in the field do not have the time to do detailed time consuming, evidence-based research on recovery interventions. The next section will outline this study project and how it addresses this problem.

Research Question

This research project initiated a study of individuals and communities of all demographics and disaster types who had survived disasters, in order to understand the unique challenges that disaster survivors face to recover to something approaching normal. The research question is, what are the most significant factors to the recovery of affected community members' health and wellness following a disaster? The hypothesis is that if common disaster impacts and significant recovery factors exist, which span disaster type and demographic, then recovery interventions could likewise exist which could be used by emergency managers in the field, to assist affected individuals and communities to recover from disasters.

The initial research for this project found that there are common recovery impacts and factors that supported the hypothesis. Further data was then added regarding evidence-based recovery interventions to make the research stronger and to discover if the sub-question of the

hypothesis was correct. The sub-research question was: What are the most effective recovery interventions that can be deployed post disaster to promote positive recovery outcomes for individuals and communities? Research was done using the JIBC library database for peer reviewed journal articles using the key words: effective; recovery; interventions; post disaster, full text, scholarly sources from 2010-2022. This provided eighty-five hits. After removing duplicates, articles where full text was not available, and studies that were not relevant, twenty-seven studies were left for an abstract review. After reviewing abstracts, many studies were eliminated because they did not contain information about interventions, but covered recovery topics already discussed in other studies. This left twelve studies for a full text review. After reading the full text, six studies were eliminated because they discussed interventions that were not applicable to disasters. For instance, one study discussed a recovery intervention, but it was for victims of trauma such as a sexual assault. After the full text review, this left six highly relevant results.

Research Design and Methodology

The research design for this study is a qualitative study of secondary source, peer reviewed studies published as scholastic journal articles. Qualitative and quantitative research studies were included in the research study. Analysis of the studies was informed by thematic synthesis of evidence presented, to discover unique insights, repetitions, and gaps related to the research question and sub-question. Limitations of this study include a critical shortage of evidence for post disaster intervention effectiveness for all ages because of the ethical and practical challenges of conducting research in post traumatic settings (Gibbs, et al., 2014).

Literature Review

Individuals and communities that are exposed to disasters suffer from significant impacts to their health and wellness. Some of the documented impacts have included P.T.S.D. (post traumatic stress disorder), depression, anxiety, cardiovascular problems, and panic disorders (Adams, Boscarino & Galea, 2006). As disasters are becoming more frequent and severe, more individuals and communities are directly impacted. This has resulted in a growing need to understand the factors which have a significant impact on recovery. This literature review will present the research from peer reviewed sources on recovery factors as a qualitative thematic analysis. The main identified topics will be disaster impacts and general factors which effect health and wellness recovery following disasters. The subtopics will be factors which are protective and factors which are negative outcome reinforcing.

The literature was selected for review, first, by including each article that was available as a full text. Next, duplicates and articles which were not relevant were excluded. This left twenty-two articles, with four being excluded because they were older than 2006. These eighteen articles left were chosen for abstract review. Eight final articles were chosen for a full review. Several were chosen because they were themselves literature reviews or meta-analyses of the available literature. This was seen as advantageous to discovering general recovery factors because a wide range of literature was thereby included. Other articles were chosen because they covered a particular demographic, such as children. The overall selection represents a range of demographics, including, children, adults, Indigenous and Metis populations, civilians, and responders. As well as a range of disaster types and geographic locations.

Description

The overall findings from the review of the literature on recovery factors, began with the first reviewed research study. This was a study of alcohol use, mental health status and

psychological well-being, two years after the World Trade Centre attacks in New York city. Adams et al. (2006) describe a two-wave research study of adults living in NYC on the day of the World Trade Centre (WTC) attack. The study discusses numerous factors which impacted a survivor's recovery trajectory, including, substance abuse, associated with higher risks of P.T.S.D., depression, anxiety, respiratory and cardiovascular disease (Adams et al., 2006). Other factors, such as witnessed horror, loss, injury, or other compounding traumatic experiences were also found to increase the risk of negative health outcomes. Recovery factors which were protective, by lowering risk to negative health outcomes, were also identified (Adams et al., 2006). They included psychological resources such as social support and self esteem.

Children's perspectives on the impact of the Hazelwood coal mine fire and subsequent smoke event in 2014, were studied. Berger, Maybery and Carroll's (2020) qualitative study interviewed sixty-nine children impacted by the fire and smoke from the mine fire. The study identified significant negative impacts to some children's social emotional and academic well being, while others were not impacted. The negative impacts described were similar to the P.T.S.D., substance abuse and mental health issues described in the WTC survivors by Adams et al. (2006). For instance, Berger et al. (2020), describe that disaster impacts can cause changes to developing brain physiology leading to P.T.S.D., substance abuse, depression, and suicide in adulthood. Also similar to Adams et al. (2006), Berger et al. (2020), discussed positive recovery factors, which if present were protective and if lacking were indicative of negative outcomes. For example, social supports, preparedness training, routines, and being able to express opinions about decisions which affected them, were identified as protective against negative outcomes (Berger et al. (2020).

The third research study involved the responsiveness of health systems in addressing Indigenous residents' health and mental health needs following the 2016 Horse River wildfire in northern Alberta, Canada. Fitzpatrick, Wild, Prichard, Azimi, McGee, Sperber, Albert and Monresanti (2021), similar to the other sources, found survivors of the wildfire faced growing health and mental health concerns, after the disaster, especially among Indigenous and Metis residents and communities. Many factors which negatively impacted recovery were identified. These factors included, a lack of culturally appropriate services, and community engagement (Fitzpatrick et al., 2021). Also identified was the increased vulnerability of Indigenous and Metis populations because of compounding effects of intergenerational trauma, in addition to living in remote and hazard prone areas (Fitzpatrick et al, 2021). The Fitzpatrick et al. (2021) study is similar to the other two sources in several respects. First, previous trauma is discussed as a compounding negative factor on recovery in both previous sources. They also identified social support as a positive factor in recovery. When this was added, to even a small amount of preparedness for the threat, as described previously by Berger et al. (2020) it was a protective factor as it can offer a feeling of safety and control.

Gil-Rivas and Kilmer (2016) discussed the negative impacts of disasters on mental health. Similar to other studies, (Adams et al., 2006) and (Berger et al., 2020), these included psychological issues, behavioral issues, long term P.T.S.D. and other disorders (Gil-Rivas & Kilmer, 2016). A significant difference in Gil-Rivas, and Kilmer (2016) is the discussion of a history of mental health issues as being a compounding factor, although other sources do mention trauma and substance abuse. Unique positive factors discussed were coping efforts and adaptation at individual and community levels. Similar to other sources, social support is described as positive by reducing vulnerability through shared emotional connections in group

rituals in the community (Gil-Rivas and Kilmer, 2016). Another unique recovery factor described by Gil-Rivas and Kilmer (2016) comes from the Conservation of Resources Theory, which describes that the threat of loss of important objects is one of the strongest predictors of psychological issues. Similar to Berger et al. (2020), Gil-Rivas and Kilmer (2016) found parents' care giving routines were a protective recovery factor for children.

Meta-analysis of the WTC disaster by Liu, Bromet and Kim (2014) discusses the 2001 WTC disaster's long term health effects. Similar to other studies, Adams et al. (2006), Berger et al. (2020) and Gil-Rivas and Kilmer (2016), P.T.S.D. is discussed as being very positively associated with trauma from disasters. Unique from the other studies is the discussion of the long-term effects, 10 years after the disaster (Liu et al., 2014). Significant factors which determined outcomes were civilian and responders' variations in exposure, duration, and severity of trauma, especially, witnessed horror or losing someone. Other factors which influenced P.T.S.D. outcomes were co-morbidities and negative socio-economic demographic factors (Liu et al., 2014). In addition, similar to other sources, Fitzpatrick et al. (2021), Jackson, Fazal, Gravel and Papowitz (2017) and Berger et al. (2020), having even some preparedness or emergency training was seen as protective and was discussed as a reason that trained first responders had significantly less P.T.S.D. than civilians overall.

A literature review by Jackson et al. (2017), discusses health promotion interventions in disasters. Health promotion (HP) is described as interventions which can assist in recovery. Including, assisting survivors to regain a sense of control by engaging them in decisions which affect them (Jackson et al. 2017). Similar to Berger et al. (2020), facilitating community and social connections and emergency management training were also described as interventions which assist in recovery (Jackson et al., 2017).

Additional studies, for instance, Margolin, Ramos and Guran (2010) discuss that witnessed horror, death and injury were among the most predictive factors of negative outcomes such as P.T.S.D. Uscher-Pines (2009) highlights a different recovery factor, relocation, which, especially if permanent, was found to have long term negative impacts.

Analysis

After reviewing the literature on recovery factors, several themes emerged. First, that described disaster impacts are remarkably similar in all the sources. This was especially true of the trauma of a disaster being a risk for developing P.T.S.D. and/or other physical and mental health issues. There were also other common recovery factors that were identified by many of the sources, even though, they involved different disaster types and demographics. Another theme that emerged was that recovery factors were both positive and negative. And the sources described many of the same positive or negative factors. For instance, most sources identified previous trauma and vulnerabilities as factors which negatively impacted recovery. Further, most of the sources also identified social support and preparedness training as positive protective factors in recovery.

There were additional themes also, depending on the source. For example, Uscher-Pines (2009) focused on one main recovery factor, relocation, not discussed by other sources. Gil-Rivas and Kilmer (2016) were unique in discussing having a previous history of mental health issues as a risk factor for negative outcomes such as P.T.S.D. Many of the sources, even the more recent ones suggest that more research is needed. Berger et al. (2020) conclude that a trauma informed approach applied in disaster management needs more research. Uscher-Pines (2009) also discuss a gap in disaster recovery literature of generalizability because disasters, impacts and victims are unique, and it is unclear if lessons from one disaster are applicable to all.

This is a debate in the field, as seen from the discussed literature in this review. Many common recovery factors were apparent and discussed by the majority of sources. This is even more significant when considering that the sources discussed different disaster types, demographics, and geographic locations.

Critical Analysis

The research studies analyzed for this project have provided much evidence which support the hypothesis, that there are both common disaster impacts and recovery factors which span disaster type and demographics. As well as common recovery interventions which can be deployed by emergency managers to assist affected individuals and communities to recover from disasters. Numerous studies analyzed discussed similar disaster impacts for survivors of disasters, regardless of disaster type or demographics. For instance, the World Trade Center (WTC) disaster exposure was related to post traumatic stress disorder among responders and civilians. A meta-analysis by Liu et al. (2014) discussed the 2001 WTC disaster long term health effects. P.T.S.D. is discussed as being very positively associated with trauma from disasters. This positive association of P.T.S.D. among disaster survivors was also found by other researchers who studied adult survivors of the WTC disaster two years after the attack (Adams et.al, 2006). They discuss commonly reported impacts post disaster including P.T.S.D., depression, anxiety, respiratory and cardiovascular problems, increased substance use and panic disorder. Further, a study of children who were survivors of the Hazelwood coal mine fire, discuss that repeated exposure to early adversity can change developing brain physiology by diminishing behavioral and emotional regulation leading to P.T.S.D., substance abuse, depression, and suicide in adulthood (Berger et al., 2020). Long term PTSD and other behavioral and psychological issues after disasters are also discussed in a study by Gil-Rivas and Kilmer (2016).

Liu et al. (2014) discuss long-term effects from their study 10 years after the WTC disaster, where recovery outcomes varied in civilian and responders, depending on their exposure, duration, and severity of individual or family trauma and death. Degree of exposure to a disaster and history of trauma was also discussed in other studies of WTC survivors, where witnessed horror, loss, or compounding traumatic experiences increased negative recovery outcomes (Adams et al., 2006). This negative recovery factor was also discussed in a qualitative study of Indigenous survivors of the 2016 Horse River wildfire, where intergenerational trauma was identified as a compounding negative factor on recovery outcomes (Fitzpatrick et al., 2021). Gil-Rivas and Kilmer (2016) further describe that the threat of loss of important objects is one of the strongest predictors of psychological issues, yet other studies found stronger predictors dependent on their role in the incident. This was true of Margolin, Ramos and Guran (2010) who discuss that witnessed horror, death and injury were among the most predictive factors in developing P.T.S.D.

There were also many positive recovery factors identified in the literature. One of the most discussed in the research was social support. Social support is described as positive by reducing vulnerability through shared emotional connections in groups rituals in the community. For example, parents' care giving routines being a protective factor for children was discussed by Berger et al. (2020) and Gil-Rivas and Kilmer (2016). Psychological resources such as social support and self esteem were discussed as protective by lowering risk to negative health outcomes in WTC disaster survivors (Adams et al., 2006). Social support was also identified as a protective factor among Indigenous survivors of the 2016 Horse River wildfire (Fitzpatrick et al., 2021). Other sources discuss the importance of social connections in recovery in the context of health promotion interventions (Jackson et al., 2017). Additional sources also point out that most

stress and disaster models discuss that those who have access to social connections are better able to resist the negative impacts of disasters (Abramson et al., 2015).

There was much evidence from the literature that showed a progression in the research-to-research models and interventions. For instance, the Resilience Activation Framework (RAF) was developed after the 2010 Deepwater Horizon Oil Spill (DWHOS) disaster. RAF is a conceptual model demonstrating how access to community social resources promotes individual adaptation and rapid recovery in post disaster settings (Abramson et al., 2015). Abramson et al., (2015), similar to other sources, such as Breckenridge and James (2012), discusses the importance of offering effective recovery interventions at the individual and community level. Further, Abramson et al. (2015) discusses that there is significant interaction between the two levels.

However, some of the strongest support for community level social interventions for post traumatic recovery comes from the Collective Narrative Therapy (CNT) model. Breckenridge and James (2012) discuss how this model uses community ritual events to acknowledge the disaster and experiences of loss and survivorship to promote healing (Breckenridge & James, 2012). Many communities who have experienced disasters have developed events such as memorial days or community pride events.

School based interventions are another type of recovery intervention based on community social networks. Commers, Morival and Devries (2014) discuss a qualitative study examining the Happy Sad Letter Box (HSLB) project, designed to minimize trauma in children following the Indian Ocean Tsunami in 2004. Locked cardboard boxes were placed in sixty-eight schools, and children reporting psychosocial issues were invited to talk to a school counsellor.

Other models such as the Adapted Ager and Strang Framework is a longer-term community-based intervention for children, post disaster. Recommendations included the re-establishment of a feeling of safety and stability, as well as providing creative outlets so that children and young people can process positive and negative emotions (Gibbs et al. 2014).

Creative engagement is also described in another recovery model, the Post Traumatic Growth (PTG) model. Harms, Abotomey, Rose, Woodward Kron, Bolt, Waycott and Alexander (2018) discuss a mixed method study of survivors of the 2009 Black Saturday Bushfires that found positive transformations such as appreciation of life and spiritual change were frequently reported by survivors. Community level creative engagement was seen as an important aspect of PTG (Harms et al., 2018).

A current gap in psychosocial interventions targeting sub-clinical symptoms in a disaster setting intervention is the skills for life adjustment and resilience (SOLAR) programme (Gibson et al, 2021). This model was studied using a quasi-experimental control design involving ninety-nine participants. The findings of the study indicated that SOLAR was effective at reducing distress, PTSD, impairment, anxiety, and depressive symptoms by teaching psychoeducation, sleep, nutrition, exercise, managing emotions and maintaining healthy relationships (Gibson et al, 2021). The intervention can be delivered over five sessions by a trained non specialist or lay coach, so is low cost and easy to implement and has clear implications for practise in the field. Supporting the sub-hypothesis, that effective post disaster recovery interventions do exist which can be applied in the field by emergency managers to improve recovery outcomes in their communities.

Discussion

This research project began with a desire to understand the impacts that disasters have on survivors' health and wellness, in order to understand what needs to be addressed for people and communities to recover from disaster events. As the research progressed, the disaster impacts became clear, because they were discussed by so many of the studies that were examined. For instance, P.T.S.D. was discussed as a disaster impact by most of the research, regardless of disaster type or demographic studied. Because the impacts became clear, the focus of the research moved to discovering what factors were the most significant in influencing recovery outcomes.

In researching common recovery factors, it was interesting to discover that much of the literature also agreed on recovery factors, even though different disaster types and demographics were studied. It was surprising to discover that there were both positive recovery outcome reinforcing factors such as social resources, and negative ones such as trauma and degree of exposure to the event. After this research, it became evident that the hypothesis was correct, that there is significant evidence-based research on recovery impacts and recovery factors. As such, the research increased scope to add research focusing on providing evidence for the sub-question hypothesis, that effective recovery interventions post disaster exist. The sub-question research provided promising evidence about effective recovery interventions post disaster that can be deployed at both the individual and community levels for communities recovering from disasters.

Some of the studies provided useful research about characteristics of interventions to make them more effective. For example, that creativity is an important part of effective interventions, and that they should be offered at individual and community levels (Breckenridge & James, 2012); (Gibbs et al., 2014). In addition, many of the sources discussed the importance

of interventions being culturally appropriate such as Abramson et al. (2015) and Fitzpatrick (2021). A characteristic that was unique to only one of the sources was to include in such interventions, the re-establishment of a feeling of safety and stability, especially when working with children (Gibbs et al., 2014).

However, other sources describe intervention models which are more developed and have immediate implications for practise. For instance, the Collective Narrative Therapy (CNT) model, can be used to create a community storying event for affected communities to collectively acknowledge the disaster and experiences of loss and survivorship to promotes healing (Breckenridge & James 2012). This intervention could easily be adapted into a community strong pride event like a community block party, for example, “Lytton Strong.” This would promote community healing and re-establish community social networks. Many communities have used these kind of community campaigns in the past to re-establish community connections after disasters.

Other promising effective recovery interventions, which could easily be incorporated in recovery planning include school-based interventions, such as the Happy Sad Letter Box (HSLB). These interventions could be utilized in schools to help school counsellors identify children and young people and families at risk for developing psychological issues. They can also be offered further referrals to health professionals as required.

In addition, the SOLAR intervention is a ready-made program that is evidence based and can easily be used to provide immediate recovery intervention. The fact that the program does not need highly trained professionals is a huge asset of this intervention. For example, emergency managers can offer emergency social services or other staff to take the training and begin offering the program to affected individuals in the community. This intervention is highly

relevant because it addresses the key post disaster impact, P.T.S.D. and has been studied in a controlled trial, which showed that it was effective for treating P.T.S.D. It was particularly interesting to discover conceptual models, such as RAF, which are being developed in the field of recovery in disaster settings, because this is an indication that more studies will be completed in this area in the future.

Evaluation and Recommendations

This project has provided much evidence-based research on recovery which can be used by emergency managers to inform evidence-based interventions for individuals and communities to recover in post disaster settings. Recommendations for emergency managers would be to use this research on recovery impacts and recovery factors to aid in recovery planning ahead of a disaster. For example, to be aware that characteristics of effective interventions include providing safety and security, as well as creative outlets, especially when working with children. As well, the research on effective evidence-based intervention models discussed, such as CNT, HSLB and SOLAR, could immediately be implemented by emergency managers to provide individual and community level interventions to communities in recovery. Further, this research can be used by communities and organizations, who wish to plan more effectively for recovery if the unthinkable disaster event occurs, to significantly improve the probability of positive recovery outcomes for all stakeholders.

Conclusion

This study has discovered promising evidence-based recovery resources that emergency managers can use to develop effective recovery interventions for their communities. These include the understanding of common disaster impacts and recovery factors. In addition, this research project discovered effective recovery intervention characteristics and frameworks which

can be used to inform practise. The research also discovered ready made effective recovery interventions that have immediate applications in the field to assist individuals and communities to recover from disasters. Clearly much more research in this area needs to be done. However, despite this, much evidence around recovery was discovered. Future research into effective evidence-based research could focus on interventions in all phases of a disaster rather than just the recovery phase. Studies of resilience interventions also may be applicable to this research subject.

References

Abramson, D. M., Grattan, L. M., Mayer, B., Colten, C. E., Arosemena, F. A., Bedimo-Rung, A., & Lichtveld, M. (2015). The resilience activation framework: A conceptual model of how access to social resources promotes adaptation and rapid recovery in post-disaster settings. *The Journal of Behavioral Health Services & Research, 42*(1), 42-57. https://10.1007/s11414-014-9410-2

Adams, R. E., Boscarino, J. A., & Galea, S. (2006). Alcohol use, mental health status and psychological well-being 2 years after the World Trade Center attacks in New York city. *The American Journal of Drug and Alcohol Abuse*, *32*(2), 203-224. https://doi.org/10.1080/00952990500479522

Berger, E., Maybery, D., & Carroll, M. (2020). Children's perspectives on the impact of the Hazelwood mine fire and subsequent smoke event. *Child & Youth Care Forum*, *49*(5), 707-724. https://doi.org/10.1007/s10566-020-09551-8

Breckenridge, J., & James, K. (2012). Therapeutic responses to communities affected by disasters: The contribution of family therapy. *Australian & New Zealand Journal of Family Therapy, 33*(3), 242-256. https://10.1017/aft.2012.29

Commers, M. J., Morival, M., & Devries, M. W. (2014). Toward best-practice post-disaster mental health promotion for children: Sri Lanka. *Health Promotion International, 29*(1), 165-170. https://10.1093/heapro/das047

Fitzpatrick, K. M., Cameron Wild, T., Pritchard, C., Azimi, T., McGee, T., Sperber, J., Albert, L., & Montesanti, S. (2021). Health systems responsiveness in addressing Indigenous residents' health and mental health needs following the 2016 Horse River wildfire in

northern Alberta, Canada: Perspectives from health service providers. *Frontiers in Public Health*, 9. https://doi.org/10.3389/fpubh.2021.723613

Gibbs, L., Snowdon, E., Block, K., Gallagher, H. C., MacDougall, C., Ireton, G., Pirrone-Savona, A., Forbes, D., Richardson, J., Harms, L., & Waters, E. (2014). Where do we start? A proposed post-disaster intervention framework for children and young people. *Pastoral Care in Education, 32*(1), 68-87. https://doi.org/10.1080/02643944.2014.881908

Gibson, K., Little, J., Cowlishaw, S., Ipitoa Toromon, T., Forbes, D., & O'Donnell, M. (2021). Piloting a scalable, post-trauma psychosocial intervention in Tuvalu: The Skills for Life Adjustment and Resilience (SOLAR) program. *European Journal of Psychotraumatology, 12*(1), 1-15. https://10.1080/20008198.2021.1948253

Gil-Rivas, V., & Kilmer, R. P. (2016). Building community capacity and fostering disaster resilience. *Journal of Clinical Psychology*, *72*(12), 1318-1332. https://doi.org/10.1002/jclp.22281

Harms, L., Abotomey, R., Rose, D., Woodward Kron, R., Bolt, B., Waycott, J., & Alexander, M. (2018). Post disaster posttraumatic growth: Positive transformations following the Black Saturday bushfires. *Australian Social Work, 71*(4), 417-429. https://10.1080/0312407X.2018.1488980

Jackson, S. F., Fazal, N., Gravel, G., & Papowitz, H. (2017). Evidence for the value of health promotion interventions in natural disaster management. *Health Promotion International*, 32(6), 1057-1066. https://doi.org/10.1093/heapro/daw029

Little, S. (December 26, 2021). Flooding, fires, and heat: A year of unprecedented weather extremes in B.C. *Global News*. https://globalnews.ca/news/8438007/bc-year-in-review-weather-extremes/

Liu, B., Tarigan, L. H., Bromet, E. J., & Kim, H. (2014). World Trade Center disaster exposure-related probable posttraumatic stress disorder among responders and civilians: A meta-analysis. *PLoS ONE*, 9(7), 1-10. https://doi.org/10.1371/journal.pone.0101491

Margolin, G., Ramos, M. C., & Guran, E. L. (2010). Earthquakes and children: The role of psychologists with families and communities. *Professional Psychology: Research and Practice*, *41*(1), 1-9. https://doi.org/10.1037/a0018103

Public Safety Canada, (2015). *Emergency Management Planning, frequently asked questions.* Government of Canada. https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/mrgnc-prprdnss/mrgnc-mngmnt-plnnng-faq-en.aspx

Uscher-Pines, L. (2009). Health effects of relocation following disaster: A systematic review of the literature. *Disasters*, *33*(1), 1-22. https://doi.org/10.1111/j.1467-7717.2008.01059.x