

Child participation in disaster resilience education: potential impact on child mental well-being

Revathi Nugehalli Krishna and Caroline Spencer
Monash University Accident Research Centre, Clayton, Australia

Kevin Ronan

School of Human, Health and Social Sciences, CQU, Rockhampton, Australia, and

Eva Alisic

Faculty of Medicine Dentistry and Health Sciences, The University of Melbourne, Parkville, Australia

Abstract

Purpose – Children can play an active and valuable role to minimise disaster risks and vulnerabilities. Yet, peer-reviewed literature on child participation in Disaster Resilience Education (DRE) is lacking. This knowledge gap is larger in low- and middle-income countries, especially related to vulnerable communities. The current study explores how child participation in developing and delivering a DRE intervention is associated with their mental well-being and resilience.

Design/methodology/approach – This qualitative study is part of a larger project where a DRE intervention was co-developed and delivered by children in the informal settlements in Chennai, India, using a participatory approach. This project used qualitative methods including interviews and focus group discussions with children who co-developed the intervention, their parents and staff members of the collaborating Non-Government Organisation (NGO) to understand their experiences and inform its processes.

Findings – The children involved in the development and delivery of the intervention reported that not only did they learn the skills necessary to prepare for hazards in the future, it also increased their confidence, self-worth and self-efficacy. This was also observed by parents and staff members of the collaborating NGO. They expressed pride towards the children and applauded their ability to communicate key Disaster Risk Reduction (DRR) messages with assertiveness.

Research limitations/implications – There is a dearth of empirical papers on child participation in DRR activities, and this study fills some of that gap by reporting the perceived impact of children's participation on their mental well-being and resilience. Furthermore, this study can act as a roadmap for researchers aiming to do action research with children.

Practical implications – DRR is more effective when all stakeholders, especially the affected and at-risk children, and communities are closely involved in structuring, planning, developing and delivering key disaster preparedness messages. This study serves to show that children's participation in DRR activities not only

© Revathi Nugehalli Krishna, Caroline Spencer, Kevin Ronan and Eva Alisic. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

The authors would like to acknowledge the children and the communities who participated in this project. They would like to thank the collaborating NGO who facilitated researcher introduction to the communities. The authors are grateful to the guest editors of Disaster Prevention Management who are putting together this special issue. They would like to extend their sincere thanks to Prof. Emmanuel Raju, Abner Lawangen and the anonymous reviewers who took the time to provide feedback on this paper improving its overall quality and reach. The authors are grateful for Dr. Sneha Krishnan's reflection on this paper. This study and paper are part of a larger PhD project funded by the first author's Monash University Postgraduate Scholarship, and they would like to acknowledge Monash University for its support.



impacts their preparedness but that it helps children in disaster recovery as well, in addition to building their resilience and overall improvement in their mental well-being.

Social implications – Given the participatory nature of this study, it involves children closely in the development and delivery of DRE intervention. The communities involved in this study had complex vulnerabilities including poverty, marginalisation and based in a low-and-middle income country, India. Oftentimes, these communities are not represented in scientific literature, and this study attempts to bridge that gap.

Originality/value – This study presents a multi-stakeholder perspective on child participation in its potential impact on children’s mental well-being and resilience. The DRE intervention was co-developed and delivered by children in the community making it unique in its development process as well as the context it was developed in – informal settlements in Chennai, India.

Keywords Child participation, “Disaster resilience education”, Children, “Disaster preparedness”

Paper type Research paper

Introduction

Children globally are vulnerable to disasters, especially those children living in poverty or in marginal and underdeveloped environments often found in low and middle-income countries (Back *et al.*, 2009; Martin, 2010; Norris *et al.*, 2002). Children have a range of emotional and behavioural consequences to their disaster experience. This can range from brief emotional distress to long-term psychopathology or impaired functioning (Norris *et al.*, 2002).

Despite adverse effects of disasters, children can also be innovative agents of change. They can play an active and valuable role in the development and application of strategies and practices to minimise disaster risks and vulnerabilities (Amri *et al.*, 2017; Ronan *et al.*, 2016). The United Nations’ Sendai Framework identifies children and youth as agents of change and advocated for their active involvement in preparedness activities (UNISDR, 2015). Child-Centred Disaster Risk Reduction (CC-DRR) education programmes have documented a number of benefits including families’ and communities’ better preparedness against disasters, increase in awareness which in turn decreased anxiety related to disasters (Back *et al.*, 2009; Ronan *et al.*, 2015). Research exemplifies children’s ability to play an active role in their communities’ recovery from a disaster. For example, they might be acutely aware of the needs of those around them (Mort *et al.*, 2018) or participate in climate change community groups (Tanner, 2010). Studies show that there isn’t a “single” mode of child participation that is universally appropriate to build disaster resilience (Lansdown and Karkara, 2006; Shier, 2001). Community, institutional dynamics, parental awareness, standards of living, geophysical characteristics and cultural factors influence child participation (Tanner, 2010). Children feel empowered and less anxious about disasters when they participate in Disaster Risk Reduction (DRR) activities (Back *et al.*, 2009; Gibbs *et al.*, 2014; Peek, 2008; Pfefferbaum *et al.*, 2018). They become more empathic and self-aware through their participation (Wong *et al.*, 2010). Moreover, child participation usually leads to enhanced resilience (Chu *et al.*, 2008; Peek, 2008; Pfefferbaum *et al.*, 2018) and better family preparedness (Amri *et al.*, 2018; Mudavanhu *et al.*, 2015; Peek, 2008; Ronan *et al.*, 2016).

However, there is a dearth of empirical studies that include children’s active participation in the creation and implementation of these programmes (Back *et al.*, 2009; Carr, 2018; Jörin *et al.*, 2018; Pfefferbaum *et al.*, 2018), especially those children who face multiple adversities including poverty, marginalisation and lack of access to education, free play and even a safe environment (Feeny and Boyden, 2004). The gap in the literature related to the impact of child participation in disaster resilience education interventions is even larger. Thus, the current study seeks to address this gap through a deeper understanding of how children’s participation impacts their mental well-being and resilience, as perceived by the children themselves, their parents and staff members of the collaborating Non-Governmental Organisation (NGO). The Disaster Resilience Education (DRE) intervention development process and the intervention itself are described in another paper that is currently under review.

Methodology

This qualitative study explores the impact of child participation on children's mental well-being and resilience through the process of developing and delivering the DRE intervention in informal settlements in Chennai, India, from a multi-stakeholder perspective. This project was approved by the Monash University Human Research Ethics Committee (MUHREC, 2018-8979- 25039) as part of the larger PhD project. Collaboration with a local NGO helped us gain access to the flood-affected children and communities. The staff members of the NGO who worked closely with these communities led the task of recruiting children and introducing the researcher (the first author) to the communities. They also frequently attended meetings between the intervention development group and facilitated the delivery of the intervention as well. The NGO reviewed Monash University's approved ethics and data collection documentation in their internal ethics panels and approved this study. Due to high rates of illiteracy, we chose to do an audio-recorded verbal informed consent with both children and parents, who consented to participate in the study.

The DRE intervention was co-developed and delivered by children in inner-city informal settlements of Chennai, India, where the communities experience poverty, perceived marginalisation from the government and high levels of illiteracy. These children had lived experience of the 2015 South Indian Floods in which many of these families lost most of their belongings and suffered major damage to their houses. A participatory approach guided this research. Children played an integral role in developing the intervention and actively engaging as co-decision makers on the content, structure and format of the individual sessions including their delivery. [Table 1](#) provides specifics on DRE intervention, the various sessions and skills learned.

For this qualitative study, we conducted in-depth interviews and focus group discussions with children who co-developed the intervention ($n = 10$), their parents ($n = 6$) and staff members ($n = 4$) of the collaborating NGO. Although we did not explicitly involve parents in the intervention development (since most parents were unable to come), children were encouraged to talk about their activities with their parents. Furthermore, considering parents and children live together, they are most likely to notice any changes in the children. Staff members of the NGO came in frequent contact with the children and the parents beyond the boundaries of this research study since they were working in the communities since before the floods. Their insight into community's journey into recovery, their preparedness activities, morale, attitudes and relationships were invaluable in addition to their involvement in this research. This study was conducted after two sessions of the intervention (in July 2018) was delivered. The development of the intervention took more than 9 months and so, although only two sessions were delivered before this study, the first author worked with the children over the 9 months through the development of the intervention. The topic guides for these interviews and focus group discussions revolved around each stakeholder's experience in the development and delivery of the DRE intervention. With the help of a transcriber in Chennai, India, we transcribed and translated all the interviews and focus group discussions into English and checked them for accuracy, including against respective audio recordings. We used NVivo version 12 to code the data. A coding tree was developed based on some of the themes that we expected to see *a priori*, based on interviews and focus group discussions conducted thus far, and we added new codes as they emerged. Once the first author completed coding, the data were sorted according to their appropriate themes and sub-themes to look for any errors or omissions in coding and recoded the data where necessary.

Results

The current study describes the perceived impact of child participation on children's mental well-being and resilience from a multi-stakeholder perspective in Chennai, India. The results

Intervention session	Aim of the session and example of a key session activity
Session 1	Aim: introduce hazards, vulnerabilities and preparedness <ul style="list-style-type: none"> • A skit to represent their experiences during the floods
Session 2	Aim: start with preparedness <ul style="list-style-type: none"> • Introduce “risk assessment” of households through a game
Session 3	Aim: household risks and preparedness in a flood situation <ul style="list-style-type: none"> • Create a risk map – done at home (homework from previous session and will be of this session too). In the session, taking a walk as two groups and identifying risks. Come back and draw up the map and the rank the risks according to the threats they might pose in a hazardous event. Also identify a place (building that they could access) that might be safe to evacuate to during a hazard such as floods
Session 4	Aim: create a preparedness plan <ul style="list-style-type: none"> • Discussion with the group on how to create a plan – different ways to create a plan – a board and marker game led by the children
Session 5	Aim: practice skills and recap <ul style="list-style-type: none"> • Practice calming skills including breathing and relaxation skills • Discussion on ideas of what they’ll do next time there is a flood

Table 1. Description of the DRE intervention sessions with examples of session activities

were triangulated across the stakeholders' perspective in three broad themes: life skills, children's own view of self and adults in child participation.

- (1) Life skills: Parents remarked that one of the most noticeable changes in their children was the reduction of anxiety, specifically about disasters. Children were worried about possible flooding every time it rained, often interfering in their ability to sleep well, focus at school and even temporarily be separated from their parents. Through their participation, children not only learned practical skills on disaster preparedness, but also felt reassured in their ability as this parent describes.

After the flood, it seemed like my kids were constantly worried about being flooded again or something else happening. Being part of this programme led them to understand how floods and cyclones happen, and how to prepare for them. Talking about these things week after week with you and with other kids really helped them.

Furthermore, children talking to their peers and sharing their experiences with each other seemed to have alleviated some of that anxiety and recognising that their reactions are common. Children became confident in their own skills, including in their first aid skills, as reported one of the parents here.

My kids told me that they are confident with doing first aid. My neighbour's daughter even treated her brothers after they had an accident with her first aid kit. They also feel confident in knowing how to prepare for a flood and what things to pack, how to react in these scenarios.

This confidence led to children's eagerness to share their newly learned skills and knowledge with others. Parents reported that children were more assertive than before and attributed it to their participation in the study. They reported that their participation gave them the confidence to express themselves as these two parents report below.

They are definitely learning to face things with more confidence. For instance, if any kid troubles my daughter, she should be able to defend herself. I feel that kids should know how to . . . I think the program has made them more confident. My kids didn't take part in discussions if there were lots of people and would not be assertive, but, now they are.

My child is quiet, and not many friends . . . Earlier she was upset and crying about having no friends. But now she is accepted as a friend by other kids in the class. I feel that she has become confident enough to speak to people. She has achieved this by attending your meetings.

Parents and staff members of the NGO observed that children were not only being assertive at homes but also taking on more activities in the community and participating in sports in addition to displaying good communication, problem-solving skills. The children were also mindful of their quieter peers and ensured that they also had an opportunity to contribute as a staff member of the NGO notes here.

I feel the kids are ready and well prepared to handle crisis situations. They are able to deliver their DRE messages clearly. They also learned to be good team members that when they see other kids who are quiet, they encourage them to participate.

- (2) View of self: Children reported their experience in the intervention development gave them confidence about their preparedness skills and their ability to contribute positively to their family's and community's preparedness to disasters. Their confidence in learning disaster preparedness led to more active participation at school, as this 12-year-old girl who participated in the intervention development reported.

When the teacher asked the class about disasters in my geography class, I could explain it well in class. You taught me this, so I was able to explain in class confidently.

The children reported that they felt proud of themselves for the role they could play in their family's disaster preparedness. They also reported that this programme not only helped in their families' preparedness, but also made them more empathic towards others in the community. It made them eager to help others in the community, especially those who might be more vulnerable as a group of children reported in a focus group discussion below.

We didn't do anything last time during the flood, but, this time, we can be prepared and help our parents in prepare . . . We must try to help others if we can, especially elderly or younger children and other situations.

- (3) Breaking barriers around child participation: In this study, children were keen to participate in and contribute to the DRE intervention which led to them feeling empowered and resilient as a parent and a staff member of the NGO report below.

The children wanted me to give a solution for all the disasters they were imagining would happen. I was turning up blank. It was very helpful for them to participate in this and learn what hazards they might actually face here and how they can prepare for them.

Even at this young age, children are trying teach others about disaster preparedness. Sometimes children understand things better than us. We can be pre-occupied with so many things in life and so can't focus on "disaster". But it's great to see that kids can understand these things well; enough to even teach others.

A common barrier for child participation in DRR is adults thinking that DRR might be too complex to grasp. The parent below observes to the contrary.

I think this programme is useful. Even if we don't know what to do, my kids tell us what we have to do during a crisis, help us prepare for it.

Parents and staff members of the NGO also reported as quoted by a staff member that they felt increased trust and pride in the participating children when they saw how they participated and were able to positively contribute to their community's disaster preparedness.

For me, I think I learned what kids can do. Initially, sometimes it felt like kids can't do these things, but, through this programme, especially when they delivered the intervention and people in (the name of the neighbourhood) praised us and asked us questions, I realised that they can do so much and that made me happy.

This pride led parents to encourage child participation even in circumstances where it was not common, for example: girls and children from religiously conservative households were not allowed to participate in extra-curricular activities and generally mingle with other children like they did in this study. Most of all, there were indications that parents thought that their children, regardless of religious restrictions and gender, would benefit from participating in this study.

Especially (*name of a girl participant*) was ready to come with us to a different neighbourhood to teach disaster preparedness. It is surprising to people that a young girl from (*name of the religion*) community was keen to participate. And, I know that her family restricted her, but, she discussed this with them and after a few meetings, they agreed.

Before, we would only allow boys to participate in extra curriculars like these meetings. But, now both girls and boys are ready to go out boldly. Even the children are confident and tell us that if they participate, they will learn new things and also teach us.

Discussion

This qualitative study reports on the potential impact child participation in DRR activities has on their mental well-being and resilience. This study is part of a larger PhD research project where the first author facilitated the co-development and delivery of a DRE intervention with children in the informal settlements in inner-city Chennai, India. The communities in the study were vulnerable due to prevalence of poverty, high levels of illiteracy among the parents, systemic discrimination and marginalisation as perceived by these communities. The current study attempts to fill a gap in the scientific literature related to child participation in DRR activities (Back *et al.*, 2009; Lopez *et al.*, 2012; Pfefferbaum *et al.*, 2018).

The results from this study indicate that child participation is beneficial for both the children and their families beyond the expected preparedness outcomes. Children, their parents and the staff members of the collaborating NGO reported that children felt empowered, less anxious about floods, confident in their own ability (Tanner *et al.*, 2009) to analyse the risk and prepare for future hazards. Whilst these findings are not new (Back *et al.*, 2009; Gibbs *et al.*, 2014; Peek, 2008; Pfefferbaum *et al.*, 2018), this study highlights how even in low-resource settings and perhaps in cultures where citizen participation in disaster resilience education, let alone children can be not only possible, but beneficial to such a large extent. Furthermore, children become more empathic and self-aware through their participation (Wong *et al.*, 2010).

Social, cultural and political factors play a major role in understanding the context in which child participation occurs (Percy-Smith *et al.*, 2010). In a context where patriarchy and authoritarianism are common, children finding a voice and their active participation becomes challenging. It is common for children, especially in low-resource settings to have more independence and autonomy, compared to their high-resource setting counterparts (Alderson, 2010). Poverty and needing for the parents to be away for long hours during the day contribute to this increased or even forced autonomy of younger children. These contextual factors and the fact that the collaborating NGO had been working with the children in these communities to increase child participation in governance and made strides against major issues such as child labour, lack of proper sanitation, lack of safe spaces for play and so on made child participation in this study feasible. This study asserts the need to continue involving children actively in DRR, to make their voice heard since they understand issues affecting them best (Peek, 2008) as it had already been evident in the issues they brought to their local government's notice. Child participation has numerous positive mental well-being outcomes such as reduction in overall anxiety, increased confidence, interest in participation in community activities, being assertive and improved communication skills, to name a few.

A strength of this study is that it serves as a roadmap for child participation in DRE activities. It follows Skivenes and Strandbu (Skivenes and Strandbu, 2006) recommendations on child participation from children's perspective: children must have the opportunity: to form their opinions, express their viewpoints, for their arguments to be taken seriously, must be included in the decisions being discussed, and finally, children must be informed after a decision has been made about issues that affect them. It provides a multi-stakeholder perspective on child participation in a vulnerable community. It also highlights the importance of relationship and trust building that has happened over the course of this study to make child participation possible. However, mental health outcomes and resilience could have been a larger focus with a more detailed exploration of different mental well-being indicators. A follow-up after a year or two since the study would be a great next step, however, due to time constraints of a PhD project that was feasible. Through this study, we are able to confirm the potentially positive role child engagement plays in children's mental well-being and resilience.

References

- Alderson, P. (2010), "Younger children's individual participation in 'all matters affecting the child'", *A Handbook of Children and Young People's Participation: Perspectives from Theory and Practice*, pp. 88-104.
- Amri, A., Bird, D.K., Ronan, K., Haynes, K. and Towers, B. (2017), "Disaster risk reduction education in Indonesia: challenges and recommendations for scaling up", *Natural Hazards and Earth System Sciences*, Vol. 17 No. 4, pp. 595-612.
- Amri, A., Haynes, K., Bird, D.K. and Ronan, K. (2018), "Bridging the divide between studies on disaster risk reduction education and child-centred disaster risk reduction: a critical review", *Children's Geographies*, Vol. 16 No. 3, pp. 239-251.
- Back, E., Cameron, C. and Tanner, T. (2009), "Children and disaster risk reduction: taking stock and moving forward", *Children in a Changing Climate Research*, UNICEF, p. p20.
- Carr, A. (2018), "Review of the global assessment report on disaster risk reduction: enabling child-centred agency", *Foro, Revista de Derecho*, No. 30, pp. 67-79.
- Chu, A.T., DePrince, A.P. and Weinzierl, K.M. (2008), "Children's perception of research participation: examining trauma exposure and distress", *Journal of Empirical Research on Human Research Ethics*, Vol. 3 No. 1, pp. 49-58.
- Feeny, T. and Boyden, J. (2004), "Acting in adversity: rethinking the causes, experiences and effects of child poverty in contemporary literature. Literature and thought on children and poverty", *Children and Poverty Series Working Paper*, 116.
- Gibbs, L., Di Pietro, M., Harris, A., Ireton, G., Mordech, S., Roberts, M., Sinclair, J. and Wraith, R. (2014), "Core principles for a community-based approach to supporting child disaster recovery", *Australian Journal of Emergency Management*, Vol. 29 No. 1, pp. 17-24.
- Jörin, J., Steinberger, F., Krishnamurthy, R.R. and Scolobig, A. (2018), "Disaster recovery processes: analysing the interplay between communities and authorities in Chennai, India", *Procedia Engineering*, Vol. 212, pp. 643-650.
- Lansdown, G. and Karkara, R. (2006), "Children's right to express views and have them taken seriously", *The Lancet*, Vol. 367 No. 9511, pp. 690-692.
- Lopez, Y., Hayden, J., Cologon, K. and Hadley, F. (2012), "Child participation and disaster risk reduction", *International Journal of Early Years Education*, Vol. 20 No. 3, pp. 300-308.
- Martin, M.-L. (2010), "Child participation in disaster risk reduction: the case of flood-affected children in Bangladesh", *Third World Quarterly*, Vol. 31 No. 8, pp. 1357-1375.
- Mort, M., Walker, M., Williams, A.L. and Bingley, A. (2018), "Displacement: critical insights from flood-affected children", *Health and Place*, Vol. 52, pp. 148-154.
- Mudavanhu, C., Manyena, S.B., Collins, A.E., Bongo, P., Mavhura, E. and Manatsa, D. (2015), "Taking children's voices in disaster risk reduction a step forward", *International Journal of Disaster Risk Science*, Vol. 6 No. 3, pp. 267-281.
- Norris, F.H., Friedman, M.J., Watson, P.J., Byrne, C.M., Diaz, E. and Kaniasty, K. (2002), "60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001", *Psychiatry: Interpersonal and Biological Processes*, Vol. 65 No. 3, pp. 207-239.
- Peek, L. (2008), "Children and disasters: understanding vulnerability, developing capacities, and promoting resilience—an introduction", *Children Youth and Environments*, Vol. 18 No. 1, pp. 1-29.
- Percy-Smith, B., Thomas, N.P., O'Kane, C. and Imoh, A.T.D. (Eds) (2010), *A Handbook of Children and Young People's Participation: Perspectives from Theory and Practice*, Routledge, Taylor and Francis Group, London.
- Pfefferbaum, B., Pfefferbaum, R. and Horn, R. (2018), "Involving children in disaster risk reduction: the importance of participation", *European Journal of Psychotraumatology*, Vol. 9, p. 1425577.

- Ronan, K.R., Alisic, E., Towers, B., Johnson, V.A. and Johnston, D.M. (2015), "Disaster preparedness for children and families: a critical review", *Current Psychiatry Reports*, Vol. 17 No. 7, p. 58.
- Ronan, K.R., Haynes, K., Towers, B., Alisic, E., Ireland, N., Amri, A., Davie, S. and Petal, M. (2016), "Child-centred disaster risk reduction: can disaster resilience programs reduce risk and increase the resilience of children and households?", *Australian Journal of Emergency Management, The*, Vol. 31 No. 3, p. 49.
- Shier, H. (2001), "Pathways to participation: openings, opportunities and obligations", *Children and Society*, Vol. 15 No. 2, pp. 107-117.
- Skivenes, M. and Strandbu, A. (2006), "A child perspective and children's participation", *Children Youth and Environments*, Vol. 16 No. 2, pp. 10-27.
- Tanner, T. (2010), "Shifting the narrative: child-led responses to climate change and disasters in El Salvador and the Philippines", *Children and Society*, Vol. 24 No. 4, pp. 339-351.
- Tanner, T., Garcia, M., Lazcano, J., Molina, F., Molina, G., Rodriguez, G., Tribunalo, B. and Seballos, F. (2009), "Children's participation in community-based disaster risk reduction and adaptation to climate change", *Participatory Learning and Action*, Vol. 60, pp. 54-64.
- UNISDR, U. (2015), "Sendai framework for disaster risk reduction 2015–2030", *Proceedings of the 3rd United Nations World Conference on DRR*, Sendai, Japan.
- Wong, N.T., Zimmerman, M.A. and Parker, E.A. (2010), "A typology of youth participation and empowerment for child and adolescent health promotion", *American Journal of Community Psychology*, Vol. 46 No. 1, pp. 100-114.

Appendix

A. Comments

This was a thoroughly interesting paper that contributes to the central theme of listening to different voices in the disaster field. We would like to appreciate and commend the authors in undertaking such an important work and forging new directions by replicating similar studies with children. By choosing to focus on the voices, perceptions and experiences of children, this paper shifts the narrative of disasters as shock events, and instead through children participation emphasises an approach that builds their life skills, enhances their sense of self and others. Although various organisational programmes and practitioners have implemented child-centred disaster preparedness initiatives, this qualitative study elaborates on the mental well-being and overall educational experiences of students, teachers and parents.

It was encouraging to see how similar participatory programmes in urban settings such as Chennai, India, could be inclusive of children's voices and aid their self-awareness, problem-solving and leadership skills. Through their participation, enhanced confidence and initiatives we hope that they are able to contribute not only in disaster preparedness and response activities but also retain the values of speaking about, going beyond their school curriculum and think out of the box. These skills will help them bridge disciplinary silos and work together to achieve common goals. We appreciate that this paper reflects on children's role in not only preparing for disasters but also reducing disaster risks in the contexts that they live in. The lessons drawn from this paper are relevant for similar low-resource settings and cultures where citizen participation in disaster resilience education requires more attention and engagement. Lastly, we would like to invite the authors of this paper and readers to reflect, engage and share any lessons on the methodological and ethical aspects of working with children. This might benefit practitioners and academics who undertake similar works in underprivileged social groups in the Global South.

By Sneha Krishnan, Robert Soden, Bhen Aguihon, Rongkun Liu and Pradip Khatiwada

B. Response from the author(s)

Thank you very much for your thoughtful comments about our paper and our study. You are right in pointing out that often children's voices are missing, especially marginalised children in disaster situations. Furthermore, a holistic understanding of their situation – whether it is the cultural identity and norms of their community, their community's and family's socio-economic background are necessary to make any difference in their lives. This understanding is crucial for community, and children engagement – whether it relates to disaster preparedness or building resilience in everyday life. The children involved in this study were from incredibly disadvantaged and marginalised backgrounds. Considering their voices are some of the least heard, yet they are some of the most acutely affected groups in a disaster situation, we thought understanding their perspectives and working on relevant issues they identified as critical would be the best course of action. Thus, the children were decision-makers of the direction of this research project, and this paper is one of the records of that journey.

Methodology and ethics were some of the most discussed issues throughout the project. Participatory research method was at the heart of this project. So, children were primary decision-makers in this project. For example: they and their communities together identified disaster preparedness education intervention as the need of the hour. The various elements of the intervention, including style of intervention delivery, were primarily decided by them. They identified the need to include first aid training in the intervention. Most disaster preparedness interventions in the literature didn't include first aid and so, had we just gone by what had been done in the past, we would have missed this. Similarly, children made a point that most traditional teaching methods were non-engaging and so suggested using theatre, art and simulated practices to learn concepts which were implemented.

Finally, ethics-related issues were complex. We obtained ethics clearance from Monash University, where the first author was enrolled for her PhD studies. We also got ethics clearance from the NGOs' internal ethics committees who we collaborated with. We recognise that when it comes to children, parents or primary caregivers should provide consent too. So, although we had a written information and consent form, we opted for audio-recorded consent process due to the prevalence of high rates of illiteracy. While this is not the norm, this method of informed consent was required if we were to engage with the communities without stigmatising them or even worse remind them of potentially past trauma, where many people lost their lands (since they didn't know what they were "signing" away). One of the things we ensured was to check in periodically to ensure children and the communities were happy with their participation and that they wanted to continue to engage. As an example, the children led the frequency and the length of the meetings so that they had complete autonomy in this process.

Corresponding author

Revathi Nuggehalli Krishna can be contacted at: revathi.nuggehallikrishna@monash.edu

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com