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Future research avenues to facilitate social connectedness and safe collective behavior at organized crowd events

Anne Templeton[1] (iD)

Abstract
During the COVID-19 pandemic, organizers of crowd events must facilitate physical distancing in environments where attendees previously enjoyed being close with ingroup members, encourage accurate perception of health risks and close adherence to safety guidance, and stop expected normative behaviors that may now be unsafe. Research from crowd psychology demonstrates how group processes are integral to each of these issues. The COVID-19 pandemic, however, has created an extreme case environment in which to evaluate the collective findings from previous research and identify future research directions. This paper outlines how organizers of crowd events and researchers can work together to further develop our understanding of social connectedness in crowds, reasons for risk-taking behavior, and level of engagement in new collective behaviors. By working together to address these issues, practitioners and researchers can develop our understanding of crowd processes and improve safety at future crowd events.

Introduction

Organizers of large crowd events have been strongly impacted by the COVID-19 pandemic. National restrictions have led to the shutdown and phased reopening of organized crowd events in line with necessary safety guidelines. As a result, the industry has been tasked with identifying new methods to facilitate collective positive experiences at live events while attempting to keep crowd members safe through measures such as physical distancing. Research from crowd psychology has previously focused on the role of group processes in feelings of connectedness, enjoyment and safety in dense crowds, support between crowd members, and understanding social norms within crowds to facilitate safe management. Now, crowd psychology is tasked with understanding emotional appraisal and perceived safety in physically distant crowds, what forms

[1]University of Edinburgh, UK

Corresponding author:
Anne Templeton, Department of Psychology, University of Edinburgh, 7 George Square, Edinburgh, EH8 9JZ, UK.
Email: a.templeton@ed.ac.uk

support can take when crowd members have limited ability to physically intervene or share resources, and how to mitigate the occurrence of normative—often long-standing—crowd behaviors that are now unsafe due to COVID-19.

Hopkins and Reicher (2016, 2020) argue that there are both positive and negative consequences of participating in crowd events. This is particularly true during COVID-19. In a time marked by physical isolation, organized crowd events can provide an antidote by bringing people together in a controlled safe environment. However, crowd events can also be risky environments. For example, ingroup members may want to be physically close together, and may have reduced perceptions of health risks, which potentially increases their likelihood of risk-taking. Furthermore, risk-taking is particularly likely when the behavior is normative for the event and expected by other group members, such as enduring extreme weather conditions as part of a religious pilgrimage.

Together, both crowd theorists and safety practitioners face the challenges of understanding how social connectedness operates in new physically distanced environments, how to identify and mitigate risk-taking behavior, and how to encourage safe attendee behavior in the long term. Research from crowd psychology using the social identity approach (Reicher et al., 2010) signposts ways that we can understand these challenges by showing how emotional appraisals, perceptions, and ultimately collective behavior in crowd events are underpinned by social identities. In this article, I will outline some of the key findings from crowd psychology that can aid crowd event organization during COVID-19. I will also evaluate ways that the extreme environment of the pandemic has tested these findings, and propose future research avenues to enhance our understanding of crowd behavior and improve safety at future organized crowd events.

Connectedness, Enjoyment, and Safety While Physically Distant

To understand collective behavior and connectedness among crowd members, we first need to distinguish between physical and psychological crowds (Neville & Reicher, 2018; Reicher, 2011). Physical crowds consist of people in the same physical space who are not socially connected other than in small preexisting groups, such as commuters in transport hubs or shoppers in a city centre. Psychological crowds are characterised by social connections wherein the crowd members feel part of the same social group, such as attendees of a music festival or football fans celebrating together. Organized large crowd events typically consist of psychological crowds where the attendees feel part of the same group. Crucially, their collective behavior is caused by a shift from their identification as an individual (their personal identity) to their identification as a member of the group (their social identity; Turner et al., 1987).

One main reason that spectators attended pilot sporting events in the UK during the pandemic was to share the collective experience with others (Templeton et al., 2020). This is because feeling connected to others in a group can be a positive experience. Feeling connected to other crowd members is a recurring predictor of how positively crowd events are appraised. For example, higher relationality among pilgrims of the 2011 Mela was associated with increased positive emotional experiences of the event (Hopkins et al., 2016). Being physically close with fellow group members seems to amplify the positive experiences of events, and group members tend to seek being close to one another. Through surveys of protestors, Novelli et al. (2013) found that higher social identification with others at a protest predicted being in a more central, denser location in the crowd, and this led to higher positive emotions at the event. Experimental research on personal space supports the idea that people want to be physically closer to ingroup members compared to others. For example, when given the choice to set up seating arrangements, people prefer to be seated closer to those they perceive to be in their group compared with others (Novelli et al., 2010). Further, Templeton et al. (2018) found that pedestrians in a psychological crowd walked more closely together than when

walking in a physical crowd and that proximity between ingroup members increases in the presence of an outgroup (Templeton et al., 2019).

One concern when reopening crowd events is that increased physical distance could decrease collective experiences or, alternatively, that people may avoid crowd events due to concerns about being around others (see also Hales et al., 2021, for further discussion of feelings of ostracism during physically distanced times). Social identity processes are pivotal to understanding perceived safety in crowds and indicate how collective experiences can be facilitated when safety is a key focus of attendees. First, social identification with the crowd affects perceived crowdedness and safety. Novelli et al. (2013) found that attendees who reported low identification with others in a crowd felt more negative emotions the more they felt crowded. However, the more people identified with the other attendees, the less crowded they felt, and the higher their positive emotions were. Similarly, research on pilgrims performing rituals during Hajj found that pilgrims who reported low social identification with the crowd felt less safe in high densities, but pilgrims who reported high identification actually felt safer in high densities (Alnabulsi & Drury, 2014).

Second, expecting support from ingroup members is associated with perceived safety. The more the Hajj pilgrims identified with the crowd, the more they believed that pilgrims supported one another and would help them, and thus the safer they felt (Alnabulsi & Drury, 2014). Similar findings can be seen in pilot sporting events during COVID-19. Attendees' expectations that others in the crowd would work together to keep one another safe enhanced their collective experience and perceived safety at the event (Templeton et al., 2020). In other words, there was a high shared social identity among spectators when physically distant because they believed the distancing to be important for collective safety, and perceived other crowd members to be adhering to the measures to keep one another safe.

Taken together, previous research suggests that harnessing connectedness is important to facilitate positive crowd experiences, and crowd members actively sought being close to ingroup members in part because it was associated with increased enjoyment of the events. Now, however, being physically close to others risks virus spread and crowd events can only occur if they include physical distancing measures. COVID-19 requires practitioners to fundamentally shift their assumptions of how and why attendees may cluster together or move apart. They must consider how levels of social identification may cause attendees to, on one hand, feel too crowded and unsafe with others or, on the other hand, want to be physically closer to the people in their group to enjoy the experience together. Here, organizers must also attend to how spectators' perceived importance of safety measures influences preferred behavior and the collective experience; for example, how mutual support to ensure distancing can be seen as part of the collective safe experience.

As events reopen, computer modellers will simulate how attendees will move throughout the event to identify areas with limited capacity for physical distancing and to plan safe routes through the venues. Yet the assumptions modellers make about behavior—such as that crowd members will avoid dense areas—neglect the social psychological processes that influence why people may be motivated to stay close to ingroup members (Templeton et al., 2015). Going forward, computer modellers should avoid assuming set physical distance between spectators and incorporate aspects of the social identity approach to model potential motivations for members of psychological crowds to either gravitate together or stay apart as a protective measure.

If attendees believe the safety measures are important to have the events and keep one another safe, then the perception that others are not adhering to safety measures could decrease connectedness among the crowd. This points to the importance of future research considering what the crowd members prioritise: if keeping one another safe is a priority for crowd members in order to be together, then how does this change what is seen as a positive collective experience?

An extension of this is to explore how the desire to be close to one's group interacts with the motivation to keep apart for the safety of the group. Finally, perceptions of crowding will become particularly important even with distancing measures are in place. In increased numbers, crowd members who highly identify with the crowd may have more positive appraisals but those with low identification may feel less safe and have more negative experiences. As such, practitioners and researchers could work together to compare behavioral and self-report data on how levels of social identification with others in the crowd influence perceived safety and how this influences the distance attendees attempt to keep from others.

Perceived Risk, Concern for Risk, and Risk-Taking

A major issue facing both crowd practitioners and researchers is how to identify unsafe crowd behavior prior to and during events. One area that underpins this issue is attendee perception of risk and subsequent health behaviors. Previous research suggests that we may perceive ingroup members as posing less risk to us than those outside our group, which can lead to engagement in risk-taking behavior (for a detailed summary seeHopkins & Reicher, 2020; Hopkins et al., 2019). This is a particular consideration during the COVID-19 pandemic since attendees must be vigilant to risks to keep one another safe and common activities that may ordinarily have been expected as part of the event (e.g., chanting) could now increase the likelihood of virus spread.

Khazaie and Khan (2019) explored the effect of social identification on health-risk perceptions, disgust, and likelihood of engaging in risk-taking behaviors. They found that participants asked to imagine being in a psychological crowd were less concerned about disease spread and reported greater likelihood to engage in health-risk behaviors (e.g., providing physical support to someone with flu-like symptoms) compared to those in the physical crowd condition. Notably, there was no difference in the perceived risk of the behaviors, merely in the concern for disease spread

and engagement in risky behavior. In contrast, Cruwys et al. (2020) proposed a theoretical model where the perceived risk is decreased. Specifically, higher shared social identification leads to reduced disgust, which in turn decreases perceived risk and increases risk-taking, and thus accelerates the spread of infectious diseases.

The first part of Cruwys et al.'s (2020) model is supported by behavioral evidence that disgust operates as a function of group membership. For example, we are less disgusted by a smelly t-shirt if we think that it belongs to an ingroup member rather than someone from an outgroup or whose group membership we do not know (Reicher et al., 2016). The next part of the model, lowered perceived risk, is supported by self-report data from spectators at pilot sporting events. Here, the more the spectators perceived a shared social identity among the crowd, the less risk they believed the other members of the crowd posed (Templeton et al., 2020). Moreover, similar to Khazaie and Khan (2019), as shared social identity increased, the spectators' concern about other crowd members spreading germs decreased.

Contrary to both Cruwys et al. (2020) and Khazaie and Khan (2019), however, the spectators' lowered risk perception and concern for disease spread did not increase risk-taking, since they did not decrease adherence to COVID-19 safety measures. There are two important caveats to these findings. First, they are based on self-reported adherence to safety measures rather than behavioral data. The spectators may have reported higher adherence either because they considered the safety measures to be important, or the reduced risk perception led them to believe they were acting more safely than they were. Second, the spectators may have perceived less risk and been less concerned because they believed the other crowd members were maintaining safety by highly adhering to the safety measures.

It is unclear from previous research whether ingroup members are seen to pose less risk, or whether risk is accurately perceived but the concern for it is reduced when interacting with ingroup members, or if both factors interact. Future studies should build on previous research

to explore the extent to which each factor contributes to risk-taking behavior. One reason that spectators saw ingroup members as less risky but still reported high adherence to the COVID-19 safety guidelines may be because attendees were aware of the high importance of the safety measures (Templeton et al., 2020). Going forward, experimental research could explore the interaction of perceived risk and perceived importance of safe behavior on risk-taking. Moreover, research could manipulate the level of perceived importance of acting safely to determine whether it is a factor that can lower increased risk-taking when risk perception is attenuated by ingroup relations. Finally, to further understand how accurately crowd members appraise their own level of risk-taking, practitioners and researchers could work together to compare crowd members' self-reported levels of risk-taking with behavioral data such as CCTV footage of events.

Facilitating Safe Normative Behavior

Another reason that crowd members may engage in risk-taking is because they are acting in line with expected social norms at the event (Hopkins & Reicher, 2020). Groups have normative behaviors that they expect to enact at collective events (Stott et al., 2001) and performing these behaviors demonstrates group membership to others, can be encouraged by others, and is an important part of enjoying the events (Hopkins et al., 2019). Particularly important for organizers of crowd events, social norms can provide an avenue to promote long-term safe behavior (see Mols et al., 2015), and crowd members can be an additional resource to maintain safety in crowds as they often regulate the behavior of others to act safely if acting safely is within the group norms (see Drury et al., 2015).

To identify potential risk behaviors prior to events, organizers must be aware of the behaviors crowd members expect to perform due to their social identities. Where expected behaviors are unsafe due to COVID-19, organizers must find ways to promote alternative safe behaviors that can continue throughout the pandemic and still enable crowd members to enact their identities. The attendees of pilot sporting events looked to other crowd members for information and placed great importance on supporting their players, clubs, and teams (Templeton et al., 2020). This is consistent with social influence literature that suggests when evaluating behavioral change initiatives, group members look to one another to see how the other group members respond, and are most influenced by those perceived to be ingroup members (van Bavel et al., 2020; see also Packer et al.,2021, for further discussion on conformity and deviance from norms during COVID-19).

Together, this suggests that prototypical group members (e.g., clubs, players, bands) could be influential agents to communicate and facilitate safe behavior within crowds. Van Bavel et al. (2020) argue that in order to effectively change behavior, the new behavior must be viewed as being in line with the group's norms and interests. Part of this includes the information being perceived as coming from an ingroup member. Strong preexisting shared social identities already appear to exist between many attendees and organizers, particularly in sports events, which provides a good foundation for encouraging behavior change. Organizers of crowd events could have prototypical group members communicate and display the expected behavior and emphasise how it is within the crowd's interest to adhere and against the crowd's interest to do the opposite. For example, organizers could emphasise that following the safety guidance is in the group interest because it is an act of care for fellow group members, and encourage self-regulation within the crowd by asking them to ensure others act safely. They could also demonstrate how it is against the crowd's interest not to adhere to the guidance since nonadherence could stop future events.

As organized crowd events reopen, the variety of preexisting norms and desired enacted behaviors will provide an opportunity to test the versatility of social norm interventions to

facilitate new safe normative behavior. Moreover, the increased attendee numbers will escalate the importance of crowd members themselves acting as advocates for safe behavior. Thus, future research could hone in on how norms of supportive behavior can be facilitated among crowd members, and how to work with crowd members to develop behaviors based on their expectations of normativity pre-COVID-19.

To encourage crowd members to facilitate safe behavior, they must know what behavior is expected. The clarity of information given by organizers is important in predicting the extent to which attendees will trust them to keep them safe, and, subsequently, their adherence to safety measures (Templeton et al., 2020). Research from mass decontaminations shows how effective communication is key to encouraging adherence by facilitating a shared social identity between the people giving instructions and the people expected to enact the behavior (Carter et al., 2014). Given the already existing shared social identities between many organizers and attendees (e.g., at sports events), future research could examine how both preexisting shared social identities and clarity of information interact to predict trust in organizers and subsequent adherence to their guidance. Moreover, research could explore how providing effective communication facilitates the maintenance of trust in organizers over time, and how this facilitates long-term adherence to safe behavior through the pandemic.

Conclusions

The extremity of the COVID-19 pandemic has laid bare new challenges for crowd event organization and research. In the current situation, crowd members are required to physically distance instead of congregating together, and they are reckoning with more extreme risks that require changing behavior and expectations of events. Research from the social identity approach points to ways that organizers can facilitate psychological connectedness in physically distant environments through redefining the collective aims of the events. It indicates how organizers can identify reasons for risk-taking, but also how social norms and effective communication can be used to facilitate safe behavior. However, the pandemic has also illuminated ways forward for practitioners and researchers to collaboratively enhance our understanding of crowd perceptions and behavior. Together, they can work to promote safe, connected, and informed crowd behavior both during COVID-19 and further into the future.

ORCID iD

Anne Templeton https://orcid.org/0000-0002-5422-6297

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