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Explaining a Collective False Alarm: Context and Cognition in the Oxford Street Crowd Flight Incident

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Abstract

Collective false alarms can cause significant disruption, costly emergency response, and distress. Yet an adequate psychological explanation for these incidents is lacking. We interviewed 39 participants and analysed multiple secondary data-sources from the 2017 false alarm in Oxford Street, UK, to develop a new explanation of this phenomenon. There was evidence that awareness of recent collectively self-relevant terrorist attacks lowered the threshold for interpreting ambiguous signals as signs of hostile threat. Interviewees also fled and hid after inferring threat from others' fear and flight responses. Cooperative behaviour was sporadic and was associated with an emergent sense of groupness that occurred in limited locations. The analysis suggests that crowd behaviour in even the most dramatic false alarms has more in common with that in real emergencies than with the image of mass panic portrayed in the news media. This analysis has implications for policy in preparing the public for terrorist attacks.

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Explaining a Collective False Alarm: Context and Cognition in the Oxford Street Crowd Flight

Incident

Recent years have seen a number of dramatic incidents involving crowds of people fleeing from supposed terrorist attacks. There were 126 such false alarms in Great Britain in the period 2010-2019 (Barr et al., 2022), mostly comprising spontaneous evacuations from shopping centres and transport hubs (e.g., KentOnline, 2018; York, 2018). Similar high-profile false alarm incidents were also reported in Europe in the same period (Bartholomew, 2016); in Turin in June 2017, a crowd fled at the sound of pepper spray which they mistook for gunshots, leaving three people dead and over a thousand injured (Associated Press, 2019). False alarm incidents have also occurred in the USA (e.g., NBCMiami, 2023), including several at music events, where crowds have fled from what they mistakenly thought was an active shooter (e.g., Del Rosario, 2023). As well as injuries and even fatalities, false alarm incidents can cause huge disruption and a significant and costly outlay of emergency responder time and resources. False alarm flight incidents also appear to raise questions about the wisdom of government campaigns to increase public vigilance to possible terrorist attacks (Pearce et al., 2019).

However, an adequate psychological explanation for collective false alarms seems to be lacking. On the one hand, commentators often describe these incidents as cases of mass panic (e.g., Bartholomew, 2016; Davies, 2020). Yet the 'panic' concept has long been discredited as an account of crowd psychology (e.g., Donald & Canter, 1992; Sime, 1990). On the other hand, many contemporary academic accounts of behaviour in emergencies explain public responses to signals of potential threat in terms of cognitive biases (e.g., Kinsey et al., 2019; Mikami & Ikeda, 1985; Quarantelli, 1980); but these typically focus on false negatives not false positives.

In addition, despite their psychological, social, and policy significance, there have been few empirical studies of these crowd flight events. The small number of studies that do exist have largely relied on observational and secondary data (e.g., Barr et al., 2022; Philpot & Levine, 2022), and have not investigated underlying psychological processes or participant experiences.

Responding to the need for a psychological explanation, in this paper we develop a novel theoretical framework that addresses three key questions about false alarm flight incidents. First, under what conditions do people (mis) perceive relatively innocent signals as signs of hostile threat? Second, how does fear and flight behaviour spread through a crowd? And third, how do people behave towards each other in these incidents, and why? In order to answer these questions and explore the utility of the proposed framework, we carried out a case study, using interviews and multiple secondary data-sources, of one of the largest and most dramatic false alarms in Europe in recent years: the incident on 'Black Friday', November 2017, in Oxford Street, London.

Collective false alarms: What needs to be explained?

Prima facie, there are three elements of collective false alarm flight incidents that require explanation. In each case, existing psychological accounts appear to be wanting. First, there is the fact that at least some people mistake innocent sounds for the sound of an attack (such as gunshots). The idea of '*crowd panic*', which features in much of the news

coverage of false alarm flight events (e.g., Hyatt, 2017; Reynolds & Pilditch, 2017; Siddique, 2017), suggests one explanation for this (mis) perception of threat. Thus the fact that in these incidents there was subsequently found to be no genuine threat seems to give support to the idea that people in crowds are liable to hasty and irrational judgements (e.g., Smelser, 1962). However, critics of the ‘panic’ concept have long pointed out that the characterization of a fear or flight response as irrational is an unnecessary and unwarranted assumption (Sime, 1990; Quarantelli, 2001). Too often, the attribution of a (mis) perception to panic is a post hoc assessment rather than an account of psychological processes.

In contemporary research on public reactions to signals of emergencies, the key problem of human behaviour isn’t false positives but the opposite – i.e., disregarding signals of threat (Proulx, 2007; Lindel & Perry, 2012). In the literature, this common pattern of responses is often attributed to a normalcy bias, whereby people tend to believe that nothing unusual is happening, or an optimism bias, whereby people believe that disaster cannot happen to them (Atwood, & Major, 2000; Kinsey et al., 2019). While there is some previous work on false alarms in this tradition (Mikami & Ikeda, 1985; Quarantelli, 1980), it isn’t clear how a mechanism proposed to explain neglect of threat signals can explain false alarms, since the beliefs and possible motivations would be different in each case.

The second feature of these collective false alarms that requires explanation is the spread of behaviour. Often at a false alarm incident, what many people see and respond to is not the noise of a supposed terrorist attack or shooter but other people’s fear and flight reactions, joining in so that the response becomes a collective incident. ‘Contagion’, the notion that emotions and behaviour spread through contact or exposure alone, is the traditional explanation for how panic supposedly transmits between people (e.g., Le Bon, 1965; McDougall, 1920). While the concept remains popular with mathematical modellers of collective behaviour, who use the term synonymously with spread or mimicry (e.g., Cracco & Brass, 2018), it suffers from profound, even insurmountable, problems as a psychological explanation. It cannot explain group boundaries to emotional or behavioural spread (Milgram & Toch, 1969; Neville et al., 2020; Van der Schalk et al., 2011). Further, reviews of the evidence suggest that the mimicry involved in emotional contagion is not automatic, but rather relates to communication goals that already involve an emotional orientation to the other person (Parkinson, 2019).

The third feature of collective false alarms that requires explanation is how people behave towards each other during these events, and why. The ‘panic’ explanation suggests that behaviour will be uncontrolled and anti-normative in (perceived) emergencies, with competitive flight behaviour prevalent (Donald & Canter, 1992). This image has tended to be a feature of news coverage of false alarm flight incidents (e.g., Reynolds & Pilditch, 2017). However, there is now a substantial literature on behaviour in real emergencies documenting common instances of coordination, cooperation and social support among those caught up in the event (Drury, 2018), including in recent marauding terrorist attacks (Bernardini & Quagliarini, 2021; Dezechache et al., 2021). The few existing studies of collective false alarms similarly undermine the notion that behaviour in these incidents is predominantly or typically selfish or uncontrolled. Philpot and Levine (2022) used video evidence to analyse a spontaneous evacuation of 40 passengers from an underground train prompted by a phone charger exploding. They found that anti-social behaviour was rare and displays of pro-sociality were more common. A recent systematic review of false alarm incidents found evidence that public behaviour was diverse (Barr et al., 2022). Despite the widespread characterization of these kinds of events as ‘stampedes’ (e.g., Del Rosario, 2023; Mills, 2017), fewer than half of the incidents featured reports of competitive behaviours like pushing and trampling.

Given the lack of adequate existing explanations for the three key features of collective false alarm incidents, we suggest below some concepts to help explain threat (mis) perception, emotional and behavioural influence, and cooperative vs competitive behaviour. These concepts informed the design of our interviews.

Towards a model of collective false alarm flight incidents

An alternative to panic and bias to explain the (mis) perception of threat is to investigate how certain beliefs might arise from particular temporal contexts of true signals. Thus signal detection theory suggests a possible mechanism for the shift from discounting signals to perceiving threat. In this account, the level of vigilance is a function of the recent frequency of genuine signals and the cost of false negatives. For example Wormwood et al. (2016) showed experimentally that raised awareness of the recent 2013 Boston marathon bombings led to a lowering of the threshold for interpreting a figure as holding a gun (rather than a neutral object).

Threat or risk perception is typically conceptualized in psychology in terms of risk to the personal self, when in fact perceptions of risk can vary with the salience of different group identities (Kellezi & Reicher, 2012; Spears, 2010). The issue in the present case, therefore, is the extent to which previous (genuine) terrorist incidents are perceived as self-relevant to different identities. Barr et al.'s (2022) systematic review found that increases in false alarm flight incidents followed what appeared to be psychologically-relevant attacks in UK and Europe, such as indiscriminate Islamist-inspired attacks, rather than the (more targeted) far-right terrorist attacks, despite the number of fatalities associated with the latter. Thus, in a context of recent terrorist attacks, a change in signal detection in the public (towards greater sensitivity) might operate through collective self-relevance.

Social appraisal (Manstead & Fischer, 2001) is a possible alternative explanation to 'contagion' for how emotional reactions are transmitted between people (Parkinson, 2019) in false alarm flight incidents. This account suggests that people use evidence of others' emotions to infer information about shared situations (such as hostile threat) and hence how to feel. Experimental tests using different emotions, including fear, demonstrate that people are particularly motivated to employ social appraisal under conditions of uncertainty (Bruder et al., 2014). Bernardini and Quagliarini's (2021) video analysis of the 2017 Turin false alarm incident and Philpot and Levine's (2022) study of a train evacuation both found evidence of what appeared to be social influence processes within the crowd. Since both studies were observational only, and since social appraisal has so far only been examined in experimental designs, there is a need to analyse self-report data to examine closely what people were thinking, feeling, and saying during such incidents.

For the question of how people behave towards each other in false alarm incidents and why, an alternative to 'panic' theories is the social identity model of collective resilience (Drury et al., 2019). This has largely been applied to real emergencies (though a comparative study that included two false alarms and nine real emergencies did not identify any differences in participants' reported behaviour; Drury et al., 2009a). The model suggests that the extent of cooperative and coordinated (vs competitive and uncoordinated) behaviour is a function of the extent of shared identity in the crowd (Drury, 2018). In a physical crowd (such as in a shopping street or transport hub) where there is no prior shared social

identity across the crowd, the degree to which shared social identity develops in a (perceived) emergency will be determined by the experience (if any) of common fate.

The present study

In order to address these questions of threat (mis) perception, spread of fear and flight, and cooperative behaviour, we carried out a case study of the false alarm that took place in Oxford Street and surrounding areas in London, UK, in November 2017 ('Black Friday'). This event was chosen due to the large number of people involved and the large number of available videos, social media sources, and media coverage. While it was large and there were more recorded injuries compared to other incidents, in key respects – misperception of signal, a crowd of people involved, emergency services response, shopping street location – it was similar to other false alarm flight incidents (Barr et al., 2022).

We interviewed 39 people who were present on Oxford Street during the false alarm to understand subjective experiences. We also triangulated all available secondary sources to create a comprehensive narrative account, to understand the main contours and sequence of behaviour.

There had been five high-profile terrorist incidents in the UK that year prior to the incident in Oxford Street¹, four of which were in London; and the official threat level at the time was 'critical', which is the highest level. In this regard, it's worth noting that there is evidence that the contingencies (i.e., the costs of wrongly ignoring) of a hostile threat are perceived as greater than for non-hostile threats (Goh, 2022). Therefore, we expected interviewees to refer to these recent incidents as one of the reasons they interpreted what they saw and heard on the day as signs of a hostile threat. More specifically, we expected more reference to recent Islamist-inspired attacks that had taken place in the UK and France (2015)² than to the far-right terrorist attacks in the same period³ (Barr et al., 2022). This pattern of responses would be in line with the role of collective self-relevance in signal detection, outlined above.

In line with social appraisal theory (Manstead & Fischer, 2001), we expected that the sight of others' fear responses to be mentioned by interviewees as an important factor leading them to believe that there was something to be afraid of and a reason to join in with the flight. In addition, if people use others' responses to infer how to feel and act, we expected the sight of the police response to be influential, although we did not expect emulation here. We also sought to explore any other reasons people cited for believing there was a terrorist attack and that they should join others in trying to flee (or hide).

Finally, we expected that reports of cooperative and supportive behaviour to be associated with evidence of shared social identity (Drury et al., 2009a), and the extent of coordinated vs uncoordinated behaviour to reflect the extent to which there was a sense of common fate across the crowd.

Method

We undertook a dual approach to addressing our research questions, comprising a detailed triangulated account of the

sequence of events and an interview study with 39 participants.

Triangulated narrative account

Our methodological approach mirrored that of Ball et al. (2019) in their analysis of one the 2011 English riots. We sought all available sources on the events in Oxford Street on 24th November 2017. The final data-set comprised 59 news articles, 34 videos, 57 social media postings, one academic paper (Eriksson Krutrok & Lindgren, 2022), and notes made at a knowledge exchange workshop with officials from Transport for London. The 39 interviews (see below) were also included.

Sources of information on the time and location of events and the movements of people were compiled into a chronological timeline in Excel, consisting of 184 actions and observations, with 120 references. We cross-referenced information such as times and locations in order to construct a robust evidential base for an assessment of the patterns in the physical movements of the crowds and emergency services. Timeline entries were triangulated for the narrative account, with notes made where conflicts arose. The aim was to create a consensual account of the timing, pattern and order of behaviours of the public and the emergency services, throughout the incident. Ethical approval for the triangulated account was obtained from the School of Psychology, University of [anonymised for peer review] (reference ER/LB679/1).

Interview study

Participants

Thirty-nine semi-structured interviews with people who were present at Oxford Street and/or the surrounding streets on 24th November 2017 during the incident were carried out by five researchers. We used a variety of recruitment strategies. First, we employed both passive and active recruitment (Gelinias et al., 2017) on social media sites such as Twitter, Facebook, and LinkedIn (resulting in 15 and eight interviews respectively). Second, we made a call out on BBC Radio 4's 'All in the mind' programme (12 interviews). Third, a team member visited Oxford Street and approached shop staff (two interviews). Snowballing from these initial contacts also resulted in two further interviews.

As this incident was potentially traumatic, potential interviewees were asked to complete a mental health screening tool (see OSF site https://osf.io/8f6xn/?view_only=cf75483cbc394538becfda77e70faa8b) to avoid unduly distressing vulnerable participants. This involved completing the Generalised Anxiety Disorder Assessment (GAD-7) (Spitzer et al., 2006), the Patient Health Questionnaire-9 (PHQ-9) (Kroenke & Spitzer, 2002) and the Work and Social Adjustment Scale (WSAS) (Mundt et al., 2002). Participants that scored 10 or above on the GAD-7 or PHQ-9, or 11 or above on the WSAS were not interviewed and instead were signposted to professional support.

We made initial contact with 47 potential participants. Eight initial contacts did not result in interviews, as potential participants either did not pass the mental health screening threshold (3), declined to take part after being introduced to the screening tool (1), or stopped replying to emails after initial agreement to participate (4).

Participants' ages ranged between 20 and 71 years and the mean age was 43. Twenty-two participants were female and 17 were male. Twenty-seven participants were white, one each were Arabic, South Asian, Chinese, Hispanic, mixed British Asian, mixed British Asian, and mixed White and Black Caribbean; the ethnicity of six others was unknown. Twenty-eight were British, two were American, one each were Australian/British, American/British, and Qatari; the nationality of six is unknown.

Ethical approval for the interviews was provided by the School of Psychology, University of [anonymised for peer review] (ER/CG456/1, ER/CG456/1, ER/HL429/3, ER/SL750/2).

Interview schedule

The interview schedule covered eight topics: the story of the day, perceptions of the event ('Did you hear or see the initial incident?'), interpretation of the event ('What did you initially think was happening? Why?'), public behaviour ('Initially, what did the people around you do?'), police behaviour ('Did you see what the police were doing?'), terror attack awareness ('At the time, were you aware that there had been other terrorist attacks in the UK earlier in the year?'), and leaving ('How did you leave?'). Rather than asking people directly whether they were influenced by seeing others' (flight) behaviour, we asked 'what did the people around you do?' and 'Did you see people running? Why do you think they did that?'. There were ~45 questions in total, which were mostly opened-ended. Interview schedules can be retrieved from OSF: https://osf.io/8f6xn/?view_only=cf75483cbc394538becfda77e70faa8b

Interviews were conducted via Zoom, in the period January-August 2022. Zoom's internal transcription service provided an initial draft of the interviews which a professional transcription service edited for accuracy using the audiovisual files.

Analytic procedure

We analysed the interviews using theoretically-driven thematic analysis (Braun and Clarke 2006). Researchers familiarised themselves with the transcripts, noted important points and established codes informed by both prior knowledge of areas of interest (e.g., 'terror threat context'; Barr et al., 2022) and new points participants raised. After several iterations of this process, we established key themes and sub-themes which addressed our research questions (see Table 1).

Data availability statement

Anonymised transcripts and full list of secondary sources are available at OSF: https://osf.io/8f6xn/?view_only=cf75483cbc394538becfda77e70faa8b

Table 1. Superordinate themes and themes for addressing our research questions

Research question	Superordinate themes	Themes
1. Why did people interpret sounds and sights as signs of hostile threat?	Terror threat context increases sensitivity to signals	Shared awareness of terror threat
		Personal relevance
		Heightened vigilance
		Perceived identity of threat
2. Why did fear and flight behaviour spread?	Social appraisal and other inferences from other people's behaviour	Seeing crowds running
		Police behaviour
		Cumulative evidence
3. To what extent was public behaviour coordinated or uncoordinated, and why?	Diversity of behaviour	Running and hiding
		Supportive behaviour
		Competitive behaviour
		A fragmented experience across the crowd

Overview of the 'Black Friday' 2017 Oxford Street false alarm incident

This is an abbreviated version of the full triangulated account which can be accessed on the OSF site:

(https://osf.io/8f6xn/?view_only=cf75483cbc394538becfda77e70faa8b)

At around 16:35 on 24th November 2017, an altercation broke out between two men on the Central Line westbound platform of Oxford Circus London Underground ('tube') station. It was rush-hour, on the busiest shopping day of the year ('Black Friday'), and the platform was crowded. Some individuals reported hearing what they thought were gunshots, and a member of the public pressed the emergency button. An announcement on the platform communications system asked the public to evacuate the station. Passengers fled from the platform and the station itself, with some people reporting hearing cries and shouts.

At 16.38, police received multiple reports of gunfire on the platform. Police responded "as if the incident were terrorist related" (Metropolitan Police, 2017a). An armed response unit arrived less than a minute after the initial calls. They entered the station, ordering people to move.

Crowds spread out in all directions from the eight exits of the tube station. Although many people ran, behaviour varied. For example, video footage from the east side of Oxford Circus station shows people walking away in an orderly fashion as the announcement to evacuate the station can be heard in the background, while others walked briskly.

People on the streets at Oxford Circus saw urgent crowd flight from the station which developed into a cascade of flight incidents, with people running in groups. Some ran into shops to seek shelter. Some were already in shops or other premises, which then locked their doors. Dozens of uniformed police officers, who by then had joined the operation, ordered people to get inside shops or move away as they cleared the area. At 16:43, London Fire Brigade dispatched three fire engines. Police advised the public to avoid the area. They set up cordons across the main thoroughfares.

As some people moved away from the initial incident, they would start to walk normally, but on hearing a sudden sound,

running and hurrying would start again, with people moving like this in 'waves' as they progressed through the streets. Many sought and shared information. Some incidents of pushing and trampling were reported. But there were also incidents of kindness, with people helping those who had fallen or comforting the distressed. Video footage also shows some people fleeing towards Oxford Circus, rather than away, and then being directed back. People fleeing eventually reached as far as Soho, Mayfair, Covent Garden, Marylebone, and Marble Arch (0.8 mile away) – see Figure 1.

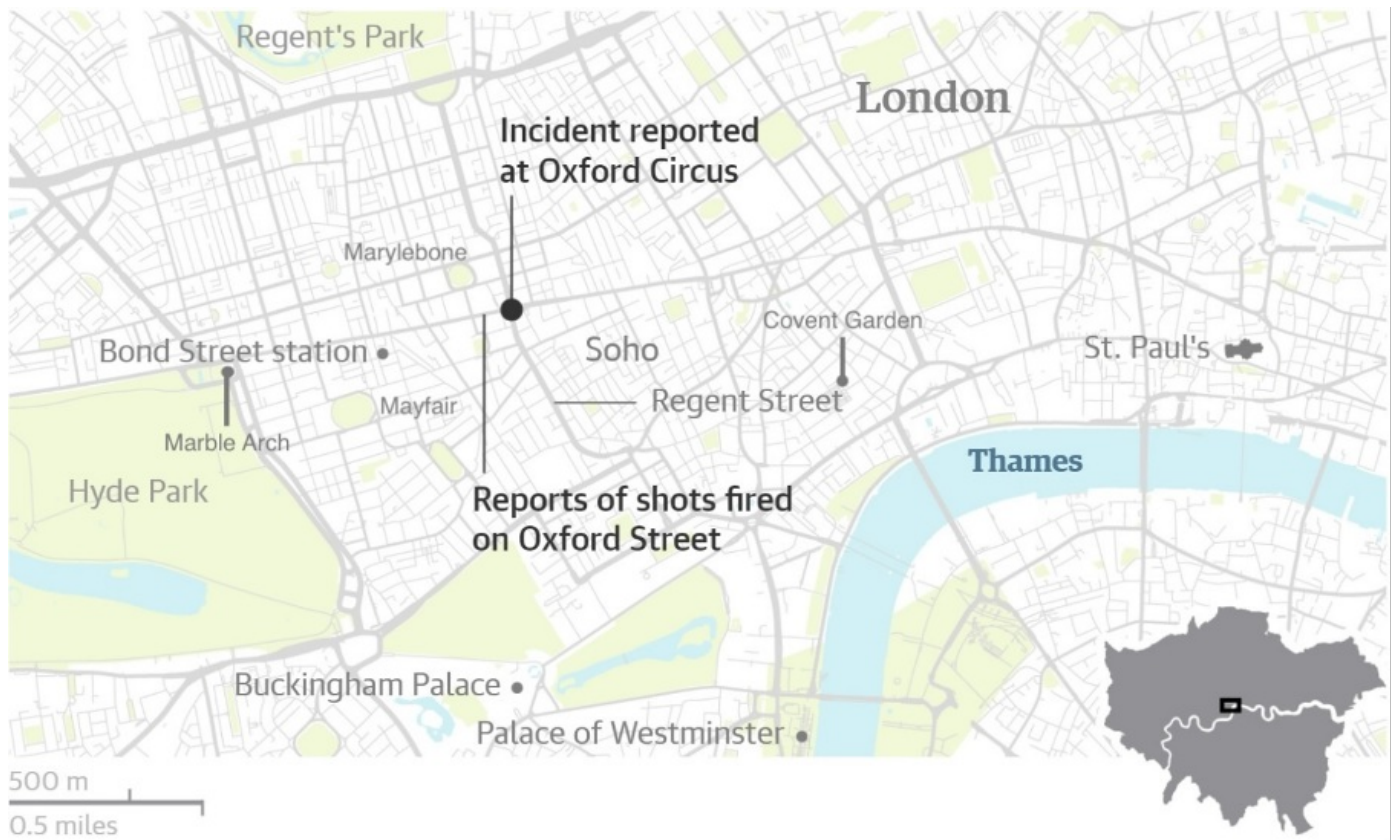


Figure 1. Locations in London where crowd flight occurred on 24th November 2017 (Source: The Guardian/ OpenStreetMap)

Some people went into offices, pubs, and cafes, where some continued to seek shelter by hiding in basements or lying on the floor. Scenes in department stores were often chaotic. Workstations were abandoned and goods spilled onto the floor. Once inside, staff and customers alike waited, often in basement rooms or offices. Those that could get a signal on their phones were searching for information via social media as neither staff nor security personnel had any further information. Some stores, however, opened their doors and told people to run because the police were asking people to leave the area.

By around 17.15, the Oxford Circus area was cleared of the public with just police personnel and vehicles present. Just after 17.20, some eyewitnesses reported they were being released from shops and restaurants they had been told to shelter in. However, other people stayed inside premises after 17.30. Further tweets from police stated that no evidence of shots or casualties had been located and that Oxford Circus and Bond Street tube stations were open and operating as normal.

At 18.04, the Metropolitan Police announced in a tweet that their response had been ‘stood down’ and asked people still sheltering in shops to leave (Metropolitan Police, 2017b). Later that evening London Ambulance Service released an update, confirming that sixteen people required medical attention while leaving the Oxford Circus area. Seven patients were discharged at the scene, eight patients were taken to two central London hospitals for minor injuries, with one patient attending a major trauma centre for leg injuries (Hyatt, 2017).

Analysis

The analysis section is structured to address our research questions 1. Why did people interpret sounds and sights as signs of hostile threat?, 2. Why did fear and flight behaviour spread through the crowd? (How did people respond to others’ (fear) responses?) 3. To what extent was behaviour cooperative and coordinated (vs competitive and uncoordinated), and why? In each section, we present representative extracts for each type of comment from participants.

1. Why did people interpret sounds and sights as signs of hostile threat?

We know that some people interpreted some sounds as signs that a terrorist attack was happening, since there were ~600 reports of ‘gunshots’ received by police (see triangulated account in the OSF folder). Four of our participants told us they heard what they thought were such ‘gunshots’. In addition, two interviewees cited examples of others interpreting ambiguous sounds as evidence of hostile threat.

Our interviewees reported a variety of reasons that they and others perceived ambiguous sounds and sights as signs of a hostile threat, and indeed for their overall perception that a terrorist attack was occurring. The most important of these -- certainly, the most commonly cited -- was the context of recent terrorist attacks. We grouped their comments on this topic under a superordinate theme we called ‘*Terror threat context increases sensitivity to signals*’. The majority of interviewees (26/39, 66.6%) referred spontaneously to the recent terrorist incidents in the UK and Europe. This spontaneous contextualization provides some evidence that this recent history was in their awareness at the time. These and other interviewee statements, captured in the themes below, suggest that this awareness of the recent context affected people’s threat perception, understanding, and behaviour.

Shared awareness of terror threat

The vast majority of interviewees (36/39, 92%) reported being aware that, before the incident, the UK, and in particular London, had faced terrorist attacks. Furthermore, many interviewees reported a *shared awareness* of the terror threat context in the public at large. For Frances this understanding reflected a wider public knowledge of previous attacks:

I think it was that heightened level of awareness in the public cos of things like especially it is being London... There had been attacks on the bus, London Bridge et cetera. So it was in my mind (Frances)

Frances also referred to numerous anti-terror measures in place in public spaces at that time. Another interviewee reported that the news media was speculating on the risk of terrorist attacks specifically aimed at Oxford Circus at Christmas:

there was a lot of consistent reporting about how Oxford Circus might be a target at like Christmas. I think this was like a common sort of like newspaper theme as well, so I think that was maybe also played into like some of my thinking (Greg)

Thus, interviewees reported both their own and an assumed wider public awareness of recent lethal terror attacks and the plausibility of further attacks in places like Oxford Street in the lead up to Christmas.

Personal relevance

The potential for central London to be attacked at Christmas time was personally relevant for people in London, but especially for those who worked in central London:

I was obviously very conscious of where we worked was such a huge big tourist destination and especially Christmas, a place where there are thousands of people and I definitely thought that you know that would be a target one point. (Jeremy)

Several participants reported the personal relevance of the attacks in London in 2017. Leo was present during the London Bridge attack on 3rd June that year. Other interviewees reported that family (e.g., Fatima) and friends (e.g., Greg) had been caught up in the police response to previous attacks. These personal history stories (cf. Lindell & Perry, 2012) are important, as they suggest that the recent news media wasn't the only way that people became aware of the terror threat context.

Heightened vigilance

Twenty interviewees reported being either worried or wary of the risk from terrorism in London at Christmas shopping time. For some, this led to heightened vigilance to threat signals. For example, Alice reported fleeing Oxford Circus tube station merely at the sound of an alarm before others fled, suggesting she was especially vigilant of and responsive to possible threat signals. In the following quote she reports her expectation that 'it was due to happen':

I think it felt more heightened at that time. And you know, I can't really remember like what else there was, but I think there's just been a gradual build-up of things that have happened. I think it was, I think, part of remembering like something hasn't happened in a while, so the likelihood it might because it hasn't happened in a while. And then yeah because there's lots of people, I think it just sort of felt like there hasn't been one in a while, I think you'll feel safe when that something's just happened, but I think, because I felt like, it sounds awful, but like it was due to

happen, or it was, something was coming. (Alice)

It is difficult to be sure whether or not statements like the above were a post-hoc assessment of risk or reflect an anticipated risk felt at the time. However, some interviewees stated that they specifically recalled anticipating the risk of terrorism on the day:

I definitely remember thinking, 'is this a good idea to be going to London, on Black Friday, when there's been so much terrorism around?', because this would be the ideal day to ruin Christmas. (Ken).

Some interviewees, especially people who worked in central London, explicitly stated that the terrorist context – the recent attacks in London – heightened their vigilance towards possible threat signals:

I think most people who work in like central London at some point, maybe think 'oh that could be a possibility at some point', especially back then because, like I said, there was so many. Maybe there was like two in a year, and I don't like I said I'm not sure if Manchester had happened then, and like it was definitely a running of attacks which made you a bit more heightened to it. (Jeremy)

The terror threat context therefore appears to have led to heightened vigilance, at least among some of those present that day.

Perceived identity of threat

While not all interviewees mentioned the assumed attackers' ideology by name, all of the concrete examples of terrorism they named were Islamist-inspired attacks; no one mentioned any of the recent far-right attacks. Most interviewees interpreted what they saw and heard in the light of the UK attacks, although some also used the 2015 Paris attacks as a reference point:

the Bataclan attack was the thing, that was on my mind, I think above anything else, thinking they, you know, could, could this be another rampaging attack of, of the kind that we saw in Paris, that, that was what scared me. (Oliver)

In addition, nine referred to the July 7th 2005 London bombings⁴ to interpret the events around the tube stations:

it was more the 2005 incident that came to mind, I guess, because I thought it could be tube related. (Ramone)

It is notable that both Oliver and Ramone said they had recently spent time abroad and were perhaps less aware of the 2017 terror threat context in the UK. Therefore, while a minority of interviewees used a longer frame of reference to make sense of their experience, most interviewees interpreted threat signals in the light of the specific 2017 terror threat

context.

2. Why did fear and flight behaviour spread through the crowd?

Given that most people fleeing did not hear the supposed 'gunshots', we sought to address how fear and flight behaviour spread through the crowd. Specifically we were interested in how interviewees had responded to other people's perceived fear and flight responses. A superordinate theme of *social appraisal and other inferences from other people's behaviour* gathered the accounts, as captured here in a theme of '*seeing crowds running*'.

Seeing crowds running

Around half of our interviewees (20/39, 51%) reported seeing crowds running as the first sign that something unusual was happening:

the first that I became aware of anything amiss was there were people running, I'd say maybe ten to fifteen people running at great speed and looking panicked. (Ken)

Many stated that they saw or heard fear in the crowds (30/39, 77%), inferring threat rather than some benign cause of the running. Interviewees referred to multiple indicators that the crowd was fearful. Some said they saw fear in runners' faces or heard screams. Others cited discarded shopping bags and shoes as further evidence of fear in the people they saw running:

there was a woman in front of me, she lost her shoe. And she just dived into like this shop, she left her shoe there and I just remember thinking 'oh my god don't leave your shoe'. It was like, she seemed pretty desperate to to get away (Harriet)

Therefore, in these accounts the sight of people running, the fear inferred from that, and the fear observed on people's faces led to speculation about the cause of their fear, and the conclusion that ignoring it would be a risk:

And I remember quite clearly heading up this huge group of people there was one woman who was blonde and had this look of terror on her face, and I thought 'Oh my god, what are they running away from?' I don't know what they're running away from but there's no way I'm continuing in this direction. Literally turned around, and ran up the street myself and got to Selfridges (Isla)

Many interviewees maintained that their own running was not irrational but reasonable given so many other people's fear response. Indeed, the irrational response in this situation would have been to ignore these fear reactions:

the exact situation I was in on that day I would have been crazy to ignore it, like you don't ignore (a load of)

screaming people running towards you (Emma)

Some interviewees reported joining in running as a crowd was running towards them:

I first became aware of it when some people were rushing past us, look over the shoulder and see a whole wave of people doing that, so we were swept up with it. This would have all happened in a second or two and we started to, I wouldn't say run full pelt but moving very quickly, maybe at a jogging pace, maybe a bit more urgent than jogging. But clearly people were you know, just the expression on people's faces, it was panic. (Ken)

There are several points to make about the language Ken uses. First, Ken refers to being 'swept up', which seems to mean in a physical sense rather than a psychological sense. Indeed, Ken also mentioned that he was eager to get out of the running crowd so he didn't get 'trampled' -- he did not mindlessly emulate those around him. Second, when referred to 'panic' on people's faces, Ken clarified that he used the term not to mean irrationality but simply urgency:

I suppose I'm using it anecdotally, certainly not in the sense of a panic attack or even as a runaway fear response, so I'm not even talking about it as a physiological condition, I was more referring to the urgency with which people were moving, the expression on their face, the darting movements looking over their shoulders, grabbing their loved ones, and also the incomprehension of just, I've got to get away, I've got to get away. (Ken)

Several other interviewees spoke of 'panic', and one (Carrie) reported experiencing a panic attack on her way home. However, most interviewees seemed to use the term 'panic' as Ken did, to describe urgent flight from a perceived threat, fear, and confusion.

A key point to come out of this part of the analysis is that people who reported 'following' others in their fear and flight responses tended not to do it with just minimal information (as the 'contagion' account might suggest; Le Bon, 1965). Rather, most (12 of the 20 runners) said they were conscious of the recent context of terrorism (which made others' fear response comprehensible). Most said they also drew upon other sources of information to interpret the sight of the fear and flight of others and the overall situation. We explore further the other sources of information below, starting with reactions to the presence of the police.

Police behaviour

For those 25 interviewees who said they saw police officers, the police's visible presence operated as strong confirmatory evidence of a threat, which created or increased participants' fear, although some were also reassured by the police presence. Indeed, for many interviewees, particular features of the police presence indicated not just that 'an incident' was occurring but that 'a terrorist incident' was occurring. These features included 'stab vests', firearms, aggressive actions, urgent movement, the use of armoured vehicles and helicopters, and the sheer scale of the response:

they were like very strong policeman-type SWAT-type people in like, they were standing like a square around like, between like the end of kind of Oxford Street, the, the, near the Hyde Park area to all the way to Oxford Street Circus, like Oxford Circus station, like it was a whole bunch of men, all around the area, they were like making sure everyone's okay, was guarding, so, when I saw them, I thought it was a terrorist attack, because that, I believe that's what they wear when there's like a terrorist attack or a terrorist threat... (Fatima)

This inference led to a shock or fear reaction, according to interviewees:

I came out and straight away it was like blue flashing lights in my face so yeah like so there was yeah there was that feeling of okay, well the police are here, but then also oh my God, the police are here (Sienna)

In combination with this other evidence that there was a hostile threat in progress, the sight of armed police had clear implications for action:

Interviewer: And did your behaviour change as the incident progressed and, if so, how and why did it change?

Grace: It changed once I was reaching the exit, after I saw the police, with their Kalashnikovs, wherever they call guns, and what I thought were, were the two shots, and definitely after what I heard in the street about the van mowing people down, it changed from, this is awful, I'm not gonna get to my barbecue, to, now we've got to run for our lives

Cumulative evidence

Across our interviewees, it was not just one factor (whether the recent context of terror threat, other people's fear response, or police behaviour) but a cumulative combination of different indicators that they said led them to believe there was a terrorist attack happening. Interviewees reported hearing various rumours consistent with recent terror attacks, including a gunman, people with knives, or a van targeting pedestrians.

Greg reported that he initially questioned the accounts of others that there was an attack, even when he saw people running and screaming:

all of a sudden, I don't want to call it commotion because it wasn't like, there wasn't a lot of noise but, but the people suddenly started to run like out of the tube station and past. And it was like it was really odd, because what had been like quite a civil space just suddenly kind of switched. [] I was kind of wondering what's going on, and then a young man [] ran by me and said and 'run for your life! There's people with guns!'. So, sorry I'm laughing but and you know, and I was like, I was like 'oh my God!' like, like 'what's going on?'. And it was strange because, because then you know, there was other people running too saying it was a terrorist incident. And, and a lot of people who were just like screaming and stuff, some people crumpled to the ground, others were running as fast

as they could. I didn't really, you know, I was like 'what is going on?'. (Greg)

Similarly, Rory stated that he did not run immediately. Instead, even when he saw a woman with blood on her face he wanted more information:

I walked out and this woman was just sort of running at me and she had blood on her face, so I think she'd fallen over in the malaise. And she just said 'run' and then I said 'what was going on?' because people started coming up behind her and they're like 'oh ISIS is down, there's an ISIS attack.' (Rory)

Two other interviewees said they saw several instances of other people running before they concluded that they should themselves run because a terrorist incident was occurring. These examples suggest that acceptance of the presence of a hostile threat and joining in with the flight (or hiding) was not immediate, but rather involved initial hesitation, information seeking, and consideration of further pieces of evidence.

3. To what extent was public behaviour coordinated, cooperative and supportive, and why?

Just as the triangulated account of the event suggests that there was a wide variety of behaviour exhibited by members of the public, interviewees reported witnessing a *diversity of behaviour*. Thus Greg referred to it as a 'spectrum'. Other interviewees reported seeing others looking around, filming, not moving, and information-seeking, as well as running, walking, and carrying on as normal. The notion that behaviour was diverse or on a 'spectrum' might suggest a low level of coordination in the crowd (though see Au-Yeung et al., 2023). This relatively low level of coordination can be analysed at two levels. First, the wide variety of behaviours suggests that many people were not co-acting with others. Second, there is the question of the extent of cooperative and supportive vs competitive behaviours. Before analysing the extent of reported cooperation and support and why this occurred, we briefly examine the behaviours which were reported as predominating. (More detail on the full range of behaviours can be found in the full triangulated account in the OSF folder).

Running and hiding

Accounts of running and hiding were among the most commonly reported behaviours, both engaged in and witnessed. Twenty (51%) of our interviewees reported that they ran (including most of those who said they interpreted the sight of crowds running as indicating a hostile threat). Other interviewees said they walked away, some briskly, while many were already inside premises, and one (Noah) said he simply ignored the incident. Despite some mass media accounts characterising the Oxford Street false alarm incident as a 'stampede' (e.g., Mills, 2017; Reynolds & Pilditch, 2017), which suggests a single homogenous fleeing crowd, both the triangulated account and the interviews suggest that most instances of collective running were in waves with fairly small crowds.

Fourteen interviewees (36%) said they hid. Most hiding involved moving off the streets into various premises. However, many were already inside and sought further safety, moving to basements, staff rooms, and locked areas. Interviewees largely reported seeking shelter in shops of their own accord. However, the police were also instructing people to seek

shelter (both in person and via Twitter). These instructions were reinforced by shop workers facilitating hiding:

We were told to [hide], and also, as well, your first instinct is to hide, hide away from whatever the threat is, didn't think it was a bomb scare, I thought it was a shooter or a van mowing people down, so, people were running into the nearest shops, but they were being directed to, both by the police and by the shop, people who worked in the shops, who were saying, 'come in! come in!' (Grace)

Offers from shop staff to hide people seeking shelter was just one form of supportive behaviour people reported during the incident.

Cooperative and supportive behaviour

Many instances of supportive behaviour were reported. Several interviewees (Ramone, Arthur, Greg) said they tried to help people in the streets before they saw the emergency services arrive, by offering medical assistance or directions to distressed tourists. Others reported witnessing helping behaviour within running crowds, particularly when someone fell (Arthur, Carrie). However, many examples of supportive behaviour were reported where people sheltered.

Shop staff deciding who to shelter had difficult decisions to make based on their knowledge of previous terror attacks. Thus Kai said he and his colleagues sheltered people, despite perceiving risks to themselves and others:

we were by the door and my initial thing was where I'd seen previous like terror attacks and things like that, that's what that's what it was like, and um and we weren't sure obviously, who we were letting in and we didn't want to let anyone just run into the store [] because we've seen obviously like what happened in London Bridge and in other places where people like are running in and with knives and whatnot so err [] it was a bit surreal (Kai)

Once inside, Kai reports, distressed people were comforted, and resources, (including phones, food and drink, and information) were shared.

Competitive behaviour

The full triangulated account identified a number of reports of pushing and some of the video footage (for example inside Bond Street tube station) shows chaotic and competitive evacuation behaviours, including pushing. Some interviewees likewise reported competitive behaviour. This included a fear of someone being trampled (Ken, Grace, Oscar) or reporting someone else being trampled (Jeremy). Six of our interviewees mentioned pushing, especially at doorways, where crowds were trying to enter or leave (Penny, Liang).

A fragmented experience across the crowd

In previous research showing relatively high levels of cooperation across an evacuating crowd, this has been associated

with an experience of common fate, which has been the basis of a new common identity (e.g., Drury et al., 2009a, 2009b). An notable feature of the Oxford Street interview accounts was the variety of different experiences. While there was a common understanding of the recent context of terrorist threat, experiences on the day were varied.

The large number of different premises sheltering people, and the lack of communication, were among the factors that seemed to contribute to a fragmented experience across the crowd. Among our interviewees, three of those already in shops did not witness crowd flight directly (so did not join in), others saw crowds rush into premises they were already in, some reported remaining hiding for hours, while for others hiding was a brief experience. Thus, there was no shared perception of what and where the threat was, and the threat signals people perceived depended upon where and when people were positioned. For example, video footage shows some people running the wrong way towards Oxford Circus, rather than away, and then being directed back, whereas others fled in the opposite direction. The unseen, unconfirmed nature of the supposed attacker meant that other members of the public themselves could be the threat. In short, there was little evidence of a sense of common fate across the crowd.

We did not ask people directly about shared identity. However, there were a number of spontaneous references to feeling part of a group with strangers. All of these came with reference to the pockets of supportive behaviour reported in those locations such as shop basements where people were grouped together as one and seemed to share a common (and positive) experience with strangers:

It was actually ... quite nice, people were being quite friendly. I had a really long conversation with some complete random stranger. ... it felt like we kind of clustered into groups, the people that were panicking, the people that were just chilling, and the people that were just like, we're here, we might as well get to know each other. (Akira)

Discussion

Given that people often discount signs of an emergency (Kinsey et al., 2019), collective false alarms warrant an explanation. Our analysis of interviews with 39 people present at the November 2017 Oxford Street collective false alarm, in combination with our detailed triangulated account of events, provides some support for a new explanation covering each aspect of such incidents.

In relation to the causes of (mis) perception, as expected nearly all of the interviewees, including three of the four who said they heard 'gunshots', said they were very aware of recent genuine terrorist incidents. Moreover, all of the examples of recent terrorist attacks that interviewees spontaneously mentioned were Islamist-inspired attacks (rather than the far-right ones occurring in the same period). Awareness of recent genuine terrorist attacks also seemed to be a reason for interviewees' readiness to interpret others' fear reactions as caused by an ongoing terrorist incident. This pattern of findings is consistent with the notion, based on signal detection theory (e.g., Wormwood et al., 2016) and social identity research (e.g., Kellezi & Reicher, 2012), that a recent context of terrorist attacks seen as collectively self-relevant can lower the threshold for interpreting ambiguous signals as signs of hostile threat, particularly when the perceived cost of a

false negative is high.

Most of our interviewees, like most people present on the day, did not hear the ‘gunshots’ but rather responded to the fear and flight responses they witnessed in others, as well as other information: this was how behaviour spread beyond Oxford Circus. The pattern of interview responses – inferring how to feel from others’ emotional reactions – appears to evidence a social appraisal process (cf. Manstead & Fischer, 2001). But, as mentioned, participants’ awareness of the context of recent terrorist threats provided a framing for their observations of fear in others. Participants said they also drew inferences for their own emotion and action from the urgent actions and demeanour of police, but without in this case emulating them, a pattern which again is more like a social appraisal process than contagion.

Our triangulated account and our interviews both suggested that the public exhibited a wide variety of behaviour during the collective false alarm on Oxford Street. There was some antisocial behaviour – including pushing and even trampling – but it did not predominate or spread. The pejorative and pathologizing characterization of the event as a ‘stampede’ (e.g., Mills, 2017; Reynolds & Pilditch, 2017), suggesting impulsive mass flight, seems unwarranted. The triangulated account suggests that those locations where more pushing or other competitive behaviour was reported or observed included some of the shops as people were trying to get in or escape, and the escalators in Bond Street station. This is in line with the observation made at past (genuine) emergency evacuations that it tends to be the narrow pinch-points in an evacuation route where greater competitive behaviour occurs (Bartolucci et al., 2021; Chertkoff & Kushigian, 1999).

Cooperative behaviour was sporadic. Overall, the event did not demonstrate the same levels of support, cooperation, and coordination amongst those affected as seen at some genuine terrorist events that have been investigated (e.g., Bernadini & Quigiliarni 2021; Dezechache et al., 2021; Drury et al., 2009b; Proulx & Fahy, 2003). For many people, it seems, the Oxford Street false alarm was a deeply distressing experience, and they did not feel supported by others. An obvious difference between the Oxford Street false alarm and many of the genuine terrorist attacks (and indeed many other emergencies) that have been researched previously is that in the latter there is evidence of a common experience in relation to the threat – a sense of common fate – whereas in Oxford Street there was a notable lack of shared understanding across the crowd about the location and nature of the threat. The initial incident in the Oxford Circus underground station was followed by perceived threats at street level, in shops, in the Bond Street tube station and spread unevenly over a fairly large geographical area. The very absence of a visible source of threat increased uncertainty over who, what, and where was dangerous. As such, there was a highly fragmented experience across the crowd. Correspondingly, there was little evidence of a sense of ‘we-ness’ or shared identity across the Oxford Street crowd as a whole, which is an established source of cooperative and supportive behaviour in emergency crowds (Drury, 2018). What evidence there was occurred in relation to situations where smaller groups within the crowd found themselves thrust together (for example hiding in shop basements).

Contributions to theory and policy

Overall, the contribution of this study is a new explanation of collective false alarm incidents that goes beyond the assumptions of mental frailty that underlie the main alternatives (mass panic, bias, contagion). It serves to restore

meaning to incidents previously seen as an anomaly, instead embedding them firmly alongside other examples of social cognitive and collective behaviour. Moreover, the similarities between the Oxford Street false alarm and many others (Barr et al., 2022) – including also many perceived shooter incidents in the USA – means that the explanation provided here likely applies to these other incidents as well.

On one level, in focusing on understanding participants' subjective experiences, the analysis is distinct from both 'panic' and 'bias' accounts, each of which attempt to compare perception/cognition with an 'objective' ideal judgement (hence 'irrationality'). But on another level, the present analysis is consistent with the view that the high level of vigilance in the crowd in Oxford Street was to some extent calibrated to the actual level of threat (cf. Barr et al., 2022, 2023). At the time of the November 2017 false alarm, the UK National threat level was at its highest – 'critical', meaning an attack is likely in the near future. The (mis) perception was not random or arbitrary; it formed a pattern of collective false alarms in the 2010s, which could be predicted by the number of casualties in recent Islamist-inspired attacks across Europe (Barr et al., 2022). As Loewenstein and Mather (1990) argue, whereas public concern bears little relationship to variations in the severity of threat for some types of risk, for other types of risk, perception and reality are proportionately related.

In addition, even though the Oxford Street false alarm was widely depicted as precipitate and hasty (e.g., Davies, 2020; Hyatt, 2017; Siddique, 2017), many of our interviewees described how they initially hesitated and sought further information before deciding that there was a terrorist attack happening and acting. Therefore, initial perceptual judgements in this false alarm seemed to have much in common with patterns of response in real emergencies where there is often a period of discounting and information-seeking (e.g., Kinsey et al., 2019; Mikami & Ikeda, 1985; Quarantelli, 1980).

As well as these contributions to theory, the present study has implications for policy. Given that our evidence suggests that a heightened level of vigilance can increase the likelihood of collective false alarms, a question might be raised about the wisdom of campaigns to raise public vigilance (such as 'Run, Hide, Tell'; Pearce et al., 2019). Whether a false alarm is 'too costly' and whether there are 'too many' false alarms is a judgement call to be made by those whose role it is to prevent public complacency when risk levels are high. Our own analysis suggests much of what was problematic on Oxford Street that day (in particular the relatively low levels of coordination, cooperation and support, and high levels of distress, in the public) was due to the indeterminacy of the perceived threat – not necessarily the fact that it was a false alarm per se. Given also that the alternative – i.e., concealing threat information from the public – can damage trust (Wessely, 2005), a recommendation from this research is to continue to make the public aware, and to inform the public about the nature of hostile threats (cf. Mowbray et al., 2023; Pearce et al., 2019).

Strengths and weaknesses

The evidence found for the identity-relevance of threat is not direct or strong. Participants didn't use 'we'-language in relation to the presumed attackers. Therefore, in terms of the existing evidence it might be more accurate to say that interviewees saw the (Islamist-inspired) indiscriminate attacks as relevant because these could affect 'anyone' (especially in central London), whereas the far-right attacks were discounted as not relevant to 'us' (in central London). In addition, it is possible that interviewees may have referred to Islamist-inspired rather than far-right attacks not because they saw the

far-right attacks as less relevant to themselves but rather because there were more of the Islamist-inspired attacks in the previous 12 months and because the news media covered the latter more extensively (von Sikorski et al., 2021; cf. Johnson & Tversky, 1983). However, the fact that some of our interviewees cited personal experience of previous terrorist attacks suggests that people might not have relied solely on recent media coverage for their lowered threshold for perceiving a threat.

Social media activity has been associated with the Oxford Street incident and other similar events, and might be offered as an explanation for the spread of behaviour. Eriksson Krutrök and Lindgren (2022) report that tweeting activity increased suddenly and dramatically following the first report on the evacuation of Oxford Circus tube station in November 2017. However, it is not clear how many people actually in Oxford Street at the time are included in the numbers of people counted as tweeting, retweeting, or viewing tweets. Certainly, some of our interviewees consulted Twitter, but others couldn't get a signal on their phones and so were unable to check social media for periods during the incident.

Clearly interviewees would have an interest in presenting their own decision-making and behaviour as rational and reasonable post hoc. However, their pattern of responses often closely matched the relevant sections of the triangulated account of events (such as the section on behaviour to others, where accountability concerns might be most acute). Moreover, the sheer volume and variety of data collected, including a substantial amount of contemporaneous material (including many videos), gives us confidence in that triangulated account. Although the interview sample comprised whoever came forward, and therefore there were many people who may have had very different experiences on Oxford Street that day, a strength was the fact that we recruited from multiple sources and included a range of people, both UK tourists as well as people working in London, and some non-UK visitors.

The present case study evidence needs to be complemented by evidence from other kinds of research design. This could include experimental studies using virtual reality simulations (Templeton et al., 2023) with different threat scenarios. These experimental studies could enable greater control over important factors such as media coverage and the perceived identity of attackers and attacked, which the present study could not disentangle.

Conclusions

Our study of a collective false alarm provides some evidence that awareness of a recent historical context of self-relevant hostile threats can lower the threshold for perceiving a signal as a sign of terrorist threat. In this state of heightened vigilance, social appraisal appears to play a significant role in the spread of fear and behaviour beyond the initial incident. As at similar false alarm incidents (Barr et al., 2022), those caught up displayed a range of behaviour. The sporadic nature of cooperative behaviour was likely due to the fragmented experience across the crowd which did not enable a shared identity to develop. Beyond the specifics of the Oxford Street incident, this case study therefore contributes to a broader understanding of human behaviour in collective crises as not mentally weak and fragile but rather meaningfully and systematically related to its historical and social context.

Statements and Declarations

Conflict of interest

The authors have no conflict of interests to declare.

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Footnotes

¹ Westminster Bridge (22nd March), Manchester Arena (22nd May), London Bridge (3rd June), Finsbury Park (19th June), and Parsons Green (15th September).

² A series of coordinated attacks in Paris on 13th November 2015, involving both guns and suicide bombers, killed 130 people and left many more wounded. See <https://www.bbc.co.uk/news/world-europe-34818994>

³ The far-right incidents included the 2017 vehicle attack on Finsbury Park mosque, London, plus a number of attacks in mainland Europe.

⁴ On July 7th 2005, four suicide bombers on London tube trains and a bus killed 56 people and injured many more. See <https://www.bbc.co.uk/news/uk-33253598>

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reporting shots fired in a number of locations on #OxfordStreet & at Oxford Circus tube station. Given the nature of the info received we responded as if the incident was terrorism, including the deployment of armed officers [Post]. X

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