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Safety and contagion in acute psychiatric wards: How the milieu is implicated in the occurrence of clustered safety incidents

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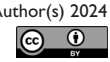
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Abstract

In psychiatry, clustered safety incidents are often attributed to behavioural contagion. Drawing on Kindermann and Skinner's conceptual work in our analysis of staff accounts, we explored whether clustered safety incidents could be attributable to contagion and the role played by staff and the psychiatric milieu (as a physical, cultural, and therapeutic space). Our analysis suggests that whether the clustered incidents identified by staff are attributable to contagion depends on how broadly the "incident" is defined, with clear implications for the over or under identification of contagion. We also identified the role of staff and the milieu in what was often perceived as contagion. We argue that the pursuit of safety by creating a predictable milieu may paradoxically

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contribute to this clustering of safety incidents and staff's perception of them as contagious via the mechanisms of risk amplification, involuntary convergence (increased exposure to safety incidents), and depletion of the milieu's therapeutic potential.

Keywords
mechanisms of social influence, mutual/reciprocal influence, psychiatric milieu, transmission

In psychiatry, there is wide acceptance that safety incidents involving violence and self-harm occur in spatio-temporal clusters due to behavioural contagion (Beck et al., 2018; Haw et al., 2013), a metaphor for the infectious disease-like spread of human behaviour. This article draws on staff accounts to consider whether clusters of safety incidents might be attributable to contagion and how the milieu might be implicated. Three concepts are central to our analysis: safety (safety incidents), the psychiatric milieu, and contagion. Each is briefly introduced below.

Notions of safety in psychiatry

Dominant notions of safety in psychiatry derive from organisational, service-oriented perspectives that omit patients' definitions of safety (Berzins et al., 2018; Cutler et al., 2015), focusing instead on identifying and managing risk of violence, aggression, self-harm, or suicide by patients (Crowe & Carlyle, 2003; De Santis et al., 2015; Slemon et al., 2017). Consequently, incident reporting systems fail to capture patients' safety concerns around bullying, intimidation, racism, aggression, drug and alcohol use, or theft of personal property (J. Jones et al., 2010). Berzins et al. (2020) note that safety incidents can also include iatrogenic harm, that is, harm caused by correctly following procedures and observing best practice, yet the physical and psychological harm caused by medication, restraint, and seclusion is obscured by dominant discourse (Berzins et al., 2020; Cusack et al., 2018; Valenti et al., 2014). Competing discourses conceptualise safety as the prevention of violence (including seclusion and restraint) and the psychological sequalae of violence (i.e., anger, fear, anxiety, and posttraumatic stress disorder symptoms) and harmful and ineffective interventions which have, in turn, led to the introduction of trauma-informed approaches (Eldal et al., 2019; Holmes et al., 2020).

The concept of the psychiatric milieu

The concept of milieu is used interchangeably to refer to physical, social, temporal, and sociocultural settings but rarely defined with precision (Banks & Priebe, 2020). In psychiatry, the milieu has become synonymous with ward atmosphere, a product of interactions between the psychological, physical, social, political, and spiritual components of hospitalisation, treatment policies and practices, the patient's health status and functioning, and the social climate of the unit (Moos, 1989; Thibeault et al., 2010).

The related concept of the *therapeutic milieu* is the notion that the setting, beyond formal treatment, is beneficial to patients (M. Jones, 1953). Prerequisites for a therapeutic milieu are containment (provision of physical care and safety), support (kindness for

fostering predictability and control), structure (having a predictable organisation of roles and responsibilities), involvement (ensuring the patient interacts with the social environment), and validation (affirming a patient's individuality; Gunderson, 1978). The notion of the therapeutic milieu lost currency in psychiatry with deinstitutionalisation, smaller inpatient units, shorter periods of hospitalisation, and the shift towards structure, limit setting, and safety (Delaney, 1997; Kahn & White, 1989; Thomas et al., 2002; Tuck & Keels, 1992). Nevertheless, the notion of milieu as a healing environment which is adaptive, responsive, and provides a safe, caring environment for personal growth and development has endured and gained new relevance with the contemporary focus on patient safety and its systemic nature (Espinosa & Kovarik, 2015; Jonas & Chez, 2004). It has been proposed that the milieu contributes to the production of safety. For example, Holmes et al. (2020) suggest that the removal of physical barriers (and therefore psychological barriers) between patients and staff is integral to safety (i.e., preventing violence and the psychological sequalae of violence), while others argue that safety is produced through social interaction in the milieu (Banks & Priebe, 2020; J. Jones et al., 2010).

Evolving definitions of contagion

Studies of self-harm, aggression, and assaults have claimed to have identified contagion (Beck et al., 2018; Cawthorpe et al., 2003; Ionno, 1983; Rosen & Walsh, 1989; Taiminen et al., 1998). Studies of contagion are often limited by the absence of a clear and consistent definition, however. In their systematic review of suicide contagion, Cheng et al. (2014) found that 20% of studies defined contagion as clustered behaviour, thus conflating the phenomenon being investigated with the mechanism. Kindermann and Skinner (2019) argue that the overuse of contagion as a "loose metaphor" calls for the development of a "precise and empirically useful concept" (p. 739) and used paradigm case formulation to discern the defining attributes of contagion and its developmental signature, temporal pathway, and mechanisms. They proposed that to distinguish contagion from other social processes, it must be: (a) the one-way transmission of an attribute (not its absence) to another person, where (b) the attribute does not leave the original person due to the transmission (this would be a transfer), and (c) the original person does not receive anything in return (this would be an exchange; Kindermann & Skinner, 2019, p. 743). In their model of the developmental pathway of contagion, exposure to the attribute without contagion represents immunity, while transmission of the attribute in the absence of exposure represents spontaneous infection. Kindermann and Skinner (2019, p. 746) also propose that contagion has a distinct temporal pathway from, for example, the convergence model (where group norms encourage increased similarity between individuals), or the Matthew effect or average alter model (where individuals gravitate to similar individuals leading to amplification of the defining attribute). In contrast, they argue that contagion involves the asymmetrical spread of an attribute across group members leading overall levels of the attribute to increase, never decrease.

Finally, Kindermann and Skinner (2019) suggest that identification of the mechanisms of transmission requires examination of influences which again must be distinguished from other means of transmission (using their criteria). They propose consideration of the many existing candidate theories. Studies of crowd behaviour have

proposed emergent norm theory, the idea that new norms emerge amongst crowds in response to a situation (Turner, 1964); contagion theory, whereby individuals act irrationally under the influence of a crowd; and, conversely, convergence theory, which posits that crowds are the product of the coming together of like-minded individuals and their behaviour reflects their shared characteristics (Turner & Killian, 1972/1987). Others include social learning theory (Bandura, 1969), which specifies five steps essential for learning (observation, attention, retention, reproduction, and motivation), the "chameleon effect" or unintentional mirroring (Chartrand & Bargh, 1999), imitation of group leaders (Offer & Barglow, 1960), group belonging and group cohesion (Rosen & Walsh, 1989; Taiminen et al., 1998), and the proposition that retaliatory behaviour occurs as an attempt to restore justice in response to unfair treatment (Ionno, 1983).

Although the psychiatric milieu is thought to play a role in contagion (Delaney, 1997), its precise contribution remains unclear and worthy of investigation (Dishion & Dodge, 2005). Given the potential for the psychiatric milieu to synchronise clusters of behaviours, it is possible that such clusters are not attributable to contagion and that the milieu amounts to a "contextual confound" (Gest & Kindermann, 2012).

This article addresses two related questions: (a) whether clustered safety incidents on psychiatric wards are attributable to contagion, and (b) whether the psychiatric milieu contributes to or confounds contagion (according to Kindermann & Sinner's, 2019, definition).

Methods

A purposive sample of mental health professionals with experience of working in UK inpatient psychiatric settings was invited to participate in an interview on safety on in acute psychiatric wards via social media (Twitter). Twenty-nine potential participants contacted one of the authors and received further details about the study and a consent form. The same author (a former mental health nurse) conducted semistructured interviews with 17 participants via telephone/MS Teams after taking verbal consent. A professional transcription company transcribed the audio-recorded interviews. The topic guide explored participants' views about safety issues in inpatient services. The aim of the interviews was to understand what the concepts of safety, milieu, and contagion meant to participants in the context of their everyday practice on acute psychiatric wards. Participants were initially asked to describe their job role and experience in inpatient mental health services and were then prompted to discuss what they considered to be the features of (un)safe wards, their experience of sensing that an incident had occurred (or was about to), and their understanding of why safety incidents appear to be temporally clustered (known as *contagion*). The interviewer probed for further explanation and reflection. The terms milieu and contagion were expressly used in interviews, by both the interviewer and participants.

We conducted a reflexive thematic analysis (Braun & Clarke, 2019), following the six steps described by Braun and Clarke (2006). Two of the authors (neither of whom conducted the interviews) were involved in the first and second steps, familiarising themselves with the data by reading all the transcripts and making annotations and notes and then generating initial codes. At this point, just one of these authors continued with the

hands-on analysis, systematically working through all the transcripts inductively coding the data with mostly descriptive labels and performing some deductive coding relating to the research questions and the topics covered in the interview. Given the shortcomings of the concepts being investigated, our inductive approach involved deploying loose definitions of safety, milieu, and contagion and approaching participants' accounts reflexively. For example, when examining participants' accounts of safety, care was taken to be mindful of the influence of organisation-, staff-, and patient-centred perspectives on the way safety (and harm) is defined and to avoid focusing on "safety incidents," incidents that qualified for inclusion in incident reports, or to those only involving patients or physical injury. Instead, a set of criteria associated with safety was inductively derived. The concept of contagion was operationalised in a similar way, taking an open-ended approach that included any type of behaviour by any person in the milieu (staff or patient).

The next steps involved generating, reviewing and defining, and naming themes that cut across the coded data. Multiple iterations of the various themes were constructed before arriving at the final versions. This process led to the development of the major themes of predictability, and the relationship between the milieu and contagion. The latter contained three subthemes that were all potential mechanisms for the contagion of safety incidents in the milieu (risk amplification, increased exposure to risk, and therapeutic depletion).

An abductive analysis was performed (Timmermans & Tavory, 2012) whereby potential examples of contagion were differentiated from other social processes by examining the data against Kindermann and Skinner's (2019) proposed definition, developmental signature, and temporal pathway, before returning to candidate theories to understand the mechanism by which contagion is occurring. Analyses were conducted by hand and using NVivo software.

Findings

The findings presented here are based on the analysis of accounts from 17 participants, including 13 nurses and a psychologist, psychiatrist, speech and language therapist, and social worker. Participants occupied various roles mostly on inpatient psychiatric wards, although three participants worked across multiple settings and one participant worked in the community.

Below, we present staff's perceptions of safety and of safety incidents. We then draw on these perceptions to explore the relationship between the milieu and the contagion of safety incidents.

Perceptions of safety: A safe milieu is a predictable milieu

All participants were working or had worked on acute wards, some for over 15 years. Their accounts relayed various norms and values around safety and risk. Participants described how attitudes to risk, safety, and the use of restrictive practices (e.g., physical restraint, as-needed medication) had shifted over the past decade. Participants recalled feeling safe when "we could all restrain people, and we had access to medications and

that there were loads of staff" (Ward manager-1) and how the focus of postincident reviews or debriefs had shifted from explaining "why the incident occurred from our perspective" (Nurse-4) to considering patients' psychological safety. Participants' accounts often featured "typical" safety incidents such as aggression, violence, absconding, self-harm, suicidal behaviour, bullying, intimidation, substance use, property damage, and use of restrictive practices. Nevertheless, many participants acknowledged that individual patients and staff or even different professions might interpret the same policy differently, and that some incidents "never get recorded because it's not recognised as an incident by a clinician" (Social Worker, patient safety lead). It was significant then that participants also referred to other events as having implications for safety, such as unexpected admissions or meetings, a chaotic patient, boredom, a fire alarm in the night, missed patient leave, or staff being perceived (by patients) as acting unfairly.

The belief that safety was related to predictability was pervasive. Faced with the inherently "unpredictable" (Ward manager-2) nature of acute wards, participants repeatedly demonstrated their conviction that a safe milieu was a predictable milieu: "you need to know what's going on in order to have that safety and be able to practice safely" (Nurse-3). Participants proposed that structure, stability, "predictability and knowing what's coming next" (Ward manager-1) were essential for staff and patients to feel safe. Safety could be embodied in "clear and consistent leadership" (Nurse-2) and facilitated by the physical layout and visibility. The layout could also lead to poor vision and blind spots that were considered "unnerving" (Nurse-9), however.

Staff knowledge and experience of all aspects of the milieu informed planning and preparedness for "what possible situations can arise" (Nurse-4), increasing incident predictability and therefore preventability. Norms around how to respond to safety incidents came into play here: staff were expected to have a "solid understanding" (Nurse-5) of formal procedures and awareness of processes, policies, and guidelines, to perform regular activities (completing care plans, handovers, meetings, training in de-escalation and restraint, safety huddles) including structured risk assessments of patients to calculate "how risky they are to us, to our other patients" (Ward manager-2). They were expected to be familiar with patients' triggers and "calm down methods" (Nurse-6), the whereabouts of ligature points and blind spots on the ward, be "trained in conflict and violence management" (Ward manager-2), de-escalation, and "able to use physical restraint" (Nurse-7). Nevertheless, "ground level work" (Ward manager-2) was also required: being with patients, meeting needs, and providing meaningful activities were thought to help build therapeutic relationships, better rapport, and ultimately, "you feel safe, they feel safe" (Social Worker, patient safety lead). One ward manager described the tension between planning for anticipated risks and spending time with patients:

> [Staff] feel like they're going to get in trouble if they've not done a care plan, . . . But don't realise that maybe if they'd sat out with the [patients] for a few hours that morning, you've probably managed about a million incidents . . . that are not going to happen because you've spent that time and had a cuppa with someone. (Ward manager-1)

Although this participant acknowledges the importance of planning and prevention, the implication is that staff might avoid safety incidents by spending more time with patients.

Perceptions of safety incidents: Safety incidents are predictable and causally related

Participants expressed the belief that safety incidents were predictable, claiming that "there's always something like a precursor" (Nurse-4) and there were few safety incidents "we could never have predicted" (Psychologist). They strongly identified with the notion that staff could sense imminent or recent incidents, owing to an "all-knowing sense of what's going on" (Speech Language Therapist) and their "gut" or "animal" instinct. Participants described how their interpretation of what was expected in terms of safety led them to be in a constant state of "sensory awareness" (Social Worker, patient safety lead) or "hypervigilance" (Nurse-2) looking for anything that jarred with their notion of a safe, predictable milieu. Despite claims to identify with "that feeling when you come on the ward" (Nurse-1) or the ability to "sense tension in the air" (Nurse-7), participants were not describing intuition, or a "sixth sense" (Nurse-1), but "pattern recognition" (Trainee Advanced Clinical Practitioner) and nurses' sensitivity to these:

> They must be really, sort of, microcues that we pick up on when we see that. Because I don't really believe that it's something that's in the air. But it's something about the situation that's not the same and I suppose people who work in mental health, and people who have mental health issues, they're more acutely attuned to those micro-changes in behaviour, in environment. (Nurse-1)

The digressions or *microchanges* described by this participant could be conceptualised as disruptions in the milieu and might be manifested as something unexpected or out of the ordinary, ranging from shouting, alarms sounding, or police presence, to silence, an absent administrator, or empty lounge. Disruptions were significant because participants interpreted them as cues: "it was like you knew something was going on" (Nurse-7). Claims about the "atmosphere" or "vibe" of the ward could be traced to disruptions in the milieu: visual and auditory "microcues" (Nurse-1), "subconscious stimuli," or "environmental signals" (Nurse-2) such as changes in behaviour, body language, or the presence or absence of people. For example, one participant believed that patients "set the tone for the ward" through their body language (relaxed or tense) and "what they're saying, how they're saying things, what they're doing" (Nurse-9), while another noticed "how hot or otherwise the ward is" (Psychiatrist) based on patient behaviour (e.g., pacing, clenched fists).

Staff also perceived safety incidents and other behaviours that occurred over the course of one or more days as causally related, "suddenly there's three [incidents] in a day, that's just not going to be chance" (Psychiatrist). Participants reported temporal clustering of incidents using terms such as "contagion," "ripple," "domino," "knock-on," and "butterfly" effect. Their accounts included clustering of similar incidents and behaviours, such as aggression in one patient leading to aggression in another patient:

> If a patient is very violent and aggressive on a ward you may see a contagion for other violence and aggression both in a reaction back to that violence and aggression, but you may also see an incidence of increasing self-harm because people are distressed. (Social Worker, patient safety lead)

Participants also referred to clustering of dissimilar incidents and behaviours:

> If you ever get a violent incident, you always end up with knock-on events after that or people requiring more one-to-one input or people that normally require a moderate amount of one-to-one input, they can't get it because the staff are redeployed somewhere else so that . . . it has a massive effect on the ward. And it's traumatic, isn't it, if you see something like that and people really struggle. (Ward manager-2)

> They might sit for a couple of hours longer in the bedroom and then something that might have been quite easily resolved earlier on becomes another incident, whether it be self-harm or whether they go AWOL [absent without leave] or it could be anything. (Nurse-5)

All three examples above show how incidents of one type (violence, shouting) might have consequences of another type (patient traumatisation, staff redeployment, patients need support, patients' needs go unmet, patient withdrawal) that lead to incidents of another type (self-harm, leaving the ward without permission).

The relationship between the milieu and (perceived) contagion

From participants' accounts we discerned three processes via which the milieu might contribute to contagion: through the amplification of risk, by increasing exposure to safety incidents, and by diminishing the therapeutic milieu.

A predictable milieu amplifies risk. Participants hinted at how constructions of safety played out in the milieu by affecting (perceived) incidents of contagion. They revealed how qualities they associated with "a safe milieu" could produce harm and clusters of behaviours they interpreted as "contagion." For example, being "risk averse" or performing well-intentioned efforts to intervene and resolve anticipated safety incidents could increase risk and safety incidents: "the more restrictions we put on people, the more chance we've got of violence" (Ward manager-2).

Participants also described information sharing among staff as an integral part of constructing and maintaining the predictable, safe milieu, and indicative of a good team. Handovers between shifts provided an opportunity for outgoing staff to update incoming staff, but a difficult shift had the potential to "set off a chain of reaction with [staff]" (Nurse-6). One participant described arriving on shift:

> You get people going, "Oh you might as well go home, you're going to have a terrible shift, it's been a bloody horrible day, so-and-so's been awful." You just think, for God's sake, I don't need this, this is not going to help me. (Ward manager-2)

In this instance, being briefed about "awful" behaviour was considered unhelpful, although patient information had the potential to help the team feel prepared and safe because they have "a good understanding of how they've presented previously and what works for that patient" (Nurse-5). Participants, however, described how patient information could increase anxiety and tension:

> Oh, Hannah's been on this ward before and she's really violent and then suddenly the next four people get this narrative of this person. And then . . . maybe you're scared or you're unsure of what to do or your experiences inform how you interact with Hannah. (Ward manager-1)

As illustrated here, this information could lead staff to make negative assumptions and impact on how they interpret and respond to that patient, especially, as another participant commented, if that patient had been involved in a safety incident, "you might expect that's going to happen again" (Nurse-4).

Through their hypervigilance and information sharing, participants were primed to interpret cues based on their experience of previous "similar instances," information about patients, patients' diagnoses, and unconscious biases. Participants reflected that consequently, their preparedness could be almost self-fulfilling: "when you're expecting that situation, it can almost create that situation" (Social Worker, patient safety lead). They described how "preempting issues that might happen before they've actually had a chance to actually develop and happen" (Nurse-2) and thinking about "scenarios that might arise, and how you're going to manage them" (Nurse-4) drove feelings of tension and anxiety which affected "how you are with the patients, how you are with your team" (Nurse-2) and could produce a "never-ending kind of spiral round of frustration, agitation, and aggression" (Social Worker, patient safety lead). Participants also described how they might arrive for a shift "already on the defensive" (Nurse-2) and full of "dread," and this influenced how they processed information. Participants observed that patients were similarly "very perceptive as to what's going on" (Nurse-8 manager) and inevitably affected by disruptions to the "balance" of the ward, such as patient departures and arrivals and staff changeovers. While staff hypervigilance was a marker of skill and expertise, participants associated patients' hypervigilance with hypersensitivity and impaired perceptions, judgements, and abilities attributable to, for example, paranoia, poor emotional regulation, sensory issues, and substance use.

The predictable milieu increases exposure to safety incidents. The very nature of an acute psychiatric ward brings unwell people into close proximity and their interaction has consequences, as described by this participant:

> When we have a lot of people with bipolar and everybody's a little bit manic then what's happening is everybody's looking at somebody and saying are you having a go at me, are you looking at me. You're looking at me strange. And being very high in their activity, more reactive to just normal cues or more reactive to other people being unwell. And getting involved in each other's care. (Nurse-1)

As suggested above, participants thought that some services (e.g., child and adolescent services), particular conditions or symptoms (e.g., mania, learning disability, personality disorder, autism) and patient mix affected safety by increasing the likelihood of aggressive, competitive, and "unpredictable" behaviours. While "patients really want to help each other out," whether by "trying to soothe someone" or "someone else is upset about something and they go, 'oh yes and me'" (Ward manager-2) this could lead them to become distressed or create additional challenges for staff. The milieu as a physical place brings patients who might "rub each other up the wrong way" (Psychologist) into proximity, where even one person "can completely change the dynamics of the ward" (Psychiatrist). One participant described the benefits of patient communities and friendships akin to "a buddy system" (Nurse-9), but went on to say that "cliques" could facilitate the development of shared behaviours and goals:

> If one [patient] would become difficult or challenging or if one would become upset for whatever reason, it would spread to the other two [patients], or the other two would be quite obstructive or they would become quite difficult to engage. (Nurse-9)

These shared behaviours and goals were in turn interpreted as evidence of contagion. The physical layout of the milieu, specifically designs that facilitate visibility, made both intentional and inadvertent witnessing of incidents and staff and patient behaviours possible. Participants suggested that patients could be "distressed by witnessing" (Social Worker, patient safety lead) and/or hearing incidents. This reportedly could affect patients' "emotional wellbeing" (Nurse-4), make "other patients feel more dangerous" (Psychologist), and facilitate the spread of fear, anxiety, and distress, "like an infection" (Nurse-1).

> [A patient] said he'd, "Smash the ward up worse than the guy next door to me if you don't let me out." It was then that ripple effect of he'd seen or heard what happened next door and thought, "Well, I want to leave, and maybe the only way I can leave is by doing what he's done." (Nurse-6)

Attempts to "detract from the stimulus" (Nurse-5) and minimise the impact of witnessing an incident by dispersing patients could have their own negative implications. Patients encouraged to stay in their rooms may "feel more and more frustrated and concerned" (Nurse-8 manager), while one-to-one observation might be experienced by patients as "unhelpful" (Ward manager-2) or "unsafe" (Speech Language Therapist). Similarly, the use of alarms to signal for assistance caused stress in both staff and patients across "the entire service" (Nurse-8 manager).

The predictable milieu depletes therapeutic potential of the milieu. Participants viewed the therapeutic potential of the milieu as another fundamental component of safety, suggesting that without it, "everything starts to fall to pieces" (Nurse-8 manager) and the ward becomes merely a "holding pen" (Speech Language Therapist). Some even suggested that the absence of a therapeutic milieu was harmful because "you're leaving people just in their own distress or disturbance" (Ward manager-1) and creating an opportunity for aggression and unrest to develop:

> If you're not allowing people to have access to leave, access to activities, access to things that make them feel well, you're going to find that it's going to be more unsafe because people are going to be more aggressive, people . . . there's going to be a lot of unrest, people are going to be unsettled. (Ward manager-2)

Safety could be considered therapeutic in itself: "a vital thing for somebody to feel well" (Nurse-1). The therapeutic potential of the milieu could be diminished via exposure to an incident, or due to staff (un)availability, because of redeployment to an incident or retreat to their offices. There was enormous potential to damage trust, "it ruptures the patient–staff relationship hugely" (Psychologist) and for patients to feel "pissed off" (Nurse-8 manager), "rejected" (Nurse-7), and unsafe, which may lead them to "self-harm or to try and abscond" (Nurse-7) or to try to elicit care by using "verbal aggression" (Nurse-5) and "competing for volume" (Ward manager-2):

> All the staff, kind of, run away into an office and say, are you alright, is everyone alright, and we're all checking with each other. But we forget that we've got 20 guys either on the ward or in the bedrooms that are probably just as terrified or unsure of what's happened, but we've left them to dwell in it. And then they don't know what to do with it so then they . . . we get that ripple effect of incidents (Nurse-2)

Discussion

This study explored staff explanations for spatio-temporal clusters of safety incidents on psychiatric wards. In this article, we drew on staff accounts and using Kindermann and Skinner's (2019) definition of contagion we explored, first, whether clustered safety incidents on psychiatric wards might be attributable to contagion and, second, whether the psychiatric milieu contributes to or confounds these apparent instances of contagion.

The milieu was conceptualised as norms and values around safety conveyed through policy, training, and practice, culture and staff/patient interaction, and staff and patient characteristics and perceptions. Dominant safety ideologies shaped the perceptions and interpretations of individuals (staff), the consequences of which were played out in staff–patient relations, particularly how staff interpreted and responded to patients' characteristics and behaviours and how they sought to prevent and manage safety incidents. The data presented here suggest that it is not only patients' exposure to "safety incidents" that triggers further incidents. Instead, participants' accounts indicate that any kind of disruption detected in the milieu could act as a cue for staff or patient behaviours that may subsequently be interpreted as a safety incident and/or contagion. Moreover, their accounts illuminate the role that staff and the psychiatric milieu play in relation to contagion: by amplifying risk, increasing exposure to safety incidents, and by depleting the therapeutic potential of the milieu.

Safety incidents: Contagion or cluster?

Although participants described spatio-temporal clusters of safety incidents (i.e., behaviours happening in the same space at the same time or soon afterwards) as causally

related, perceiving them as a manifestation of contagion, it is unclear whether such clusters were attributable to contagion. Here we turn to Kindermann and Skinner's (2019) criteria for distinguishing contagion from other social processes to help us ascertain whether these incidents might have been attributable to contagion. According to Kindermann and Skinner, contagion is distinguishable from other social processes by three criteria: (a) the one-way transmission of an attribute to another person, where the attribute does not leave the original person, and the original person does not receive anything in return (p. 743); (b) the asymmetrical spread of an attribute across group members leading overall levels of the attribute to increase, never decrease (p. 746); and (c) its mechanisms of transmission can be distinguished from other means of transmission and contextual confounds. Below, we consider each in turn in relation to the data presented here.

Based on our data, it is difficult to say whether the clustered behaviours described by participants constitute contagion because satisfaction of the transmission criteria depends on how the attribute being transmitted is defined. For example, the aggression expressed by one patient that seems to be transmitted to another patient does not leave the original patient nor does the original patient receive anything in return appears to be attributable to contagion. Whether incidents of self-harm that occurred around the same time could be attributed to contagion might be a matter of classification: both aggression and self-harm could be considered a form of violence or more broadly still, an expression of harm, in which case it could be said that contagion has occurred. If aggression towards others and self-harm are considered to be distinct attributes, however, then this would not constitute contagion.

Kindermann and Skinner (2019) further require that an attribute must spread in an asymmetrical pathway in which the overall levels of the attribute increase. One example of an attribute that spread in this way, and that therefore might qualify as attributable to contagion, was anxiety. Participants described how anxiety was not limited to transmission amongst patients but could also be transmitted between staff and between patients and staff leading to an overall increase in anxiety across the ward. For example, in the data presented here, participants described staff "cross-contaminating" staff on adjacent wards with tension and anxiety after dealing with a safety incident.

Kindermann and Skinner's (2019) third criterion requires that mechanisms of transmission be distinguished from other means of transmission and contextual confounds. A contextual confound would be any external stimuli that synchronises staff and patients' behaviour, such as the sounding of an alarm (seen in our data). We considered whether safety incidents themselves qualify as such a synchronising event, but would suggest that they do not, as the resulting behaviour is not synchronous and spreads beyond witnesses and those directly involved. Indeed, participants believed that contagion from some incidents could spread both beyond the physical setting of the ward (to other wards) and over hours or even days.

Regarding other mechanisms of transmission, candidate mechanisms of contagion, such as mirroring, group cohesion, or retaliation (Chartrand & Bargh, 1999; Ionno, 1983; Taiminen et al., 1998) are usually centred on the patient and we did find evidence of these in our data, such as where patients formed friendships and developed shared goals and behaviours (challenging staff) and copied threatening and destructive behaviours. In

our analysis, however, we shifted our gaze from patients to staff and the milieu, the role of which we consider in more detail below.

The role of staff and the milieu

Our findings suggest the milieu (including staff) is implicated in producing clusters of behaviour by amplifying perceptions of risk, increasing exposure to incidents, and by underperforming its therapeutic role. It is less clear whether by doing so the milieu is contributing to contagion or constitutes a contextual confound (meaning the clusters are not evidence of contagion). Below, we consider the relationships we identified in the data between the milieu and (perceived) contagion and whether these amount to contextual confounds.

The role of the physical milieu in involuntary convergence and increasing exposure to safety incidents

As a physical space, the milieu creates the impression that patients' behaviour is clustered or contagious because it occurs in broadly the same spatio-temporal context but it could also indicate a contextual confound that synchronises behaviour. First, the milieu holds people in close proximity with others with whom they likely share an identity (i.e., patient) and some characteristics (e.g., diagnosis, symptomology). Although participants interpreted this as increasing the likelihood of patients upsetting each other and their vulnerability to behavioural contagion, it is perhaps more suggestive of convergence theory where like-minded people come together and group norms encourage similarity in the characteristics and behaviour of individuals (Turner & Killian, 1987), except patients in the milieu have been brought together by external forces in a form of involuntary convergence. Additionally, the emphasis on visibility in the physical ward design (intended to facilitate staff surveillance of patients in the pursuit of safety), might increase the likelihood of patients' increased exposure to and potential to be affected by the behaviour of staff and other patients. The physical milieu, by virtue of the physical design of the ward plus the close proximity of patients, suggests involuntary convergence and is likely a contextual confound.

The role of staff and the milieu in risk amplification and therapeutic depletion

Similar to the physical milieu, the pervasive risk culture of the psychiatric milieu might create the impression of behavioural contagion by amplifying perceptions of risk. As suggested by the data presented here, risk culture facilitates the anticipation and prevention of future incidents, encouraging the retrospective attribution of linear cause and effect, and reinforcing staff's perceptions of incidents as predictable, preventable, and contagious. Risk culture drives staff to seek to engage in practices that examine patient characteristics and past and recent incidents and to individualise safety incidents such as risk assessment, care planning, debriefing, and postincident review. This culture affected

staff's attitudes, behaviours, and interpretations of patients' behaviours, as seen in risk amplification processes such as handovers between shifts or sharing information with other staff about patients could negatively prime staff's expectations and interpretations of patients' behaviour.

Risk culture and its associated activities might also contribute to the depletion of the therapeutic nature of the ward, which in turn contributes to the impression of contagion. According to participants, by prioritising specific types of risk and safety, staff are diverted away from therapeutic work, leading to a cycle of unmet needs and attempts at care elicitation amongst patients.

Our finding that ward staff are implicated in these clustered events, regardless of whether they are attributable to contagion, is significant because safety discourse in psychiatry often focuses on individual-level patient risk (e.g., reducing incidents of violence or self-harm) rather than on ward culture and staff characteristics and behaviours (Crowe & Carlyle, 2003; De Santis et al., 2015; Slemon et al., 2017). Our findings resonate with Berzins et al.'s (2018) who describe patients' conceptualisations of safety risks as including "not being listened to," "not feeling psychologically safe," understaffing, and diminished therapeutic relationships, and observations by Kang et al. (2020) that lack of support and emotional distress preceded "behaviours of concern." Like staff, patients are "attuned" to the atmosphere of the ward (J. Jones et al., 2010; Kanyeredzi et al., 2019) and value predictability and structure (Eldal et al., 2019; Katz & Kirkland, 1990). Seemingly innocuous staff practices such as the constant process of looking for and responding to disruptions in the milieu could therefore contribute to further disruption and "provoke" patients (Hamilton & Manias, 2007; Thomson et al., 2019), with potential implications for patients' psychological safety and perception of the milieu as a therapeutic space.

Conclusion

This article examines the commonly held belief that safety incidents on psychiatric wards spread due to contagion. Although participants were confident in their interpretation of clustered safety incidents as contagion, our examination of our data against Kindermann and Skinner's (2019) criteria call their interpretation into question. Notwithstanding the limitations of relying on interview data from a single (staff) perspective, according to this data, we did not find evidence of contagion of safety incidents. Whether safety incidents are attributable to contagion appears to depend on how the attribute or incident is defined and what behaviours are included under that definition. We found that the spread of a broadly defined attribute such as anxiety had potential to be considered as contagion, but Kindermann and Skinner's (2019) proposed criteria were limited by the lack of direction regarding how to define the attribute being transmitted. This has clear implications for the over or under identification of contagion. Our analysis illuminates the hitherto unexplored influence of staff and the psychiatric milieu on the (perceived) contagion of safety incidents via risk amplification, involuntary convergence, and therapeutic depletion. Paradoxically, the pursuit of safety and predictability by staff contributes to the clustering of safety incidents and their perception of them as contagious.

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Ethics statement

This study received ethical approval from South Central Berkshire B REC ref: 20/SC/0360.

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