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BMC Psychiatry

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De-escalating aggression in acute inpatient mental health settings: a behaviour change theory-informed, secondary qualitative analysis of staff and patient perspectives

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Abstract

Background De-escalation is often advocated to reduce harm associated with violence and use of restrictive interventions, but there is insufficient understanding of factors that influence de-escalation behaviour in practice. For the first time, using behaviour change and implementation science methodology, this paper aims to identify the drivers that will enhance de-escalation in acute inpatient and psychiatric intensive care mental health settings.

Methods Secondary analysis of 46 qualitative interviews with ward staff ($n=20$) and patients ($n=26$) informed by the Theoretical Domains Framework.

Results Capabilities for de-escalation included knowledge (impact of trauma on memory and self-regulation and the aetiology and experience of voice hearing) and skills (emotional self-regulation, distress validation, reducing social distance, confirming autonomy, setting limits and problem-solving). Opportunities for de-escalation were limited by dysfunctional risk management cultures/ relationships between ward staff and clinical leadership, and a lack of patient involvement in safety maintenance. Motivation to engage in de-escalation was limited by negative emotion associated with moral formulations of patients and internal attributions for behaviour.

Conclusion In addition to training that enhances knowledge and skills, interventions to enhance de-escalation should target ward and organisational cultures, as well as making fundamental changes to the social and physical structure of inpatient mental health wards. Psychological interventions targeting negative emotion in staff are needed to increase motivation. This paper provides a new evidence-based framework of indicative changes that will enhance de-escalation in adult acute mental health inpatient and PICU settings.

Keywords Mental health, Psychiatry, Violence, Aggression, De-escalation, Qualitative

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Introduction

Violence in acute inpatient mental health settings is a pervasive problem that is experienced by both staff and patients [1]. It can result in physical and psychological trauma [2], interference with treatment and recovery [3], and avoidable health service costs associated with staff sickness, high turnover, and litigation payments [4]. Whilst patients in these environments are reliant either on staff or their own interpersonal or physical attributes for protection [1], staff have a range of formal interventions available to incapacitate violence, including manual restraint (preventing movement through physical contact), coerced intramuscular psychotropic medicines, and seclusion (isolation in a locked room) [5]. Collectively, these interventions are referred to as "restrictive interventions".

Restrictive interventions are prima facie intended to maintain safety, yet restraint is the most common cause of staff injuries [2] and event sequencing studies show that the imposition of restrictive interventions can be a cause, rather than a resolution, of violence [6]. Notwithstanding the complex and competing arguments about their legitimacy, interventions such as physical restraint and forced medicines are, in and of themselves, explicitly violent acts [7]. Restraint is psychologically traumatising and retraumatising for patients [8], can result in patient deaths [9] and significant, potentially unnecessary, health service expenditure [10] with attendant implications for patient safety [11]. Whilst ostensibly intended as a last resort to avert violence, there is evidence that restraint is used in inappropriate contexts, for example, as punishment [8], to provide respite for staff [12], as revenge [13] or to satisfy sadistic impulse [14]. Moreover, despite substantial government investment in programmes to reduce restraint [15], scandals involving its abuse persist [16]. Recent and compelling evidence indicates that, despite new legislation mandating reporting [17], restraint is systematically underreported by some English mental health providers [18], raising the prospect that the extent of restraint remains concealed and underestimated.

'De-escalation,' a term which refers to a complex range of psychosocial techniques designed to reduce aggression at its escalation phase, is recommended in clinical guidelines nationally [5] and internationally [19]. There is scant evidence that the shift in policy focus to non-physical management of aggression has translated into changes in routine practice. Indeed, patients report either that there is a proportion of staff who opt for restraint too soon [20] or, more generally, that restrictive interventions, rather than de-escalation, are used in response to escalating aggression [13]. Survey data indicates that staff often identify restrictive interventions as a form of de-escalation [21]. The apparent inability of staff respondents to differentiate between psychosocial and physical management of escalations may corroborate patient reports that restrictive interventions are used as a first-line response.

The Capabilities, Opportunities and Motivations model of Behaviour change [22], proposes that people's behaviour is driven by their capabilities, opportunities, and motivations to engage in a given behaviour (e.g., de-escalation). Application of behaviour change theory is especially vital where, such as in the case of de-escalation, there is evidence of sustained dysfunction in the implementation of a healthcare intervention [23]. Empirical evidence provides some evidence of the kinds of capabilities, opportunities and motivations that are required to engage in de-escalation. For example, qualitative interview studies with staff indicate that capabilities include techniques such as 'delimiting' (manipulating the environment to induce calm and prevent multiple, simultaneous escalations) [24], problem-solving, reframing and negotiation [25, 26]. Whereas staff tend to advocate specific skills and techniques, data from patient interviews places more emphasis on values and knowledge-based components. For example, patients emphasise: rule bending, reduced social distance, authenticity, proactive attention to patient emotions, psychological understanding, and moral commitments that are resilient to abusive nursing and organisational cultures [13]. Areas of agreement between staff and patient accounts include the ability to personalise de-escalation [13, 25, 27] and the importance of emotional self-regulation [13, 25].

The differences in values in respect of de-escalation between staff and patients may point to the problem of *otherness* [28] that characterise staff-patient relationships within psychiatric models of care. Any clinician-patient dynamic (notwithstanding the dimensions of difference i.e. age, race, nationality, sexuality, gender, social class that can give rise to othering in any relationship), typically involves a differential in health status (the presence of a pathology), expertise (clinical training) and authority (designated powers of diagnosis and prescription). These relational preconditions can undermine authentic interactions and create distance in relationships between professionals and patients in any healthcare context [29]. They are perhaps especially alienating in psychiatry, where: patients do not always voluntarily present with symptomatic complaints [30]; arguably, clinicians provide only subjective evidence of pathology [31]; patients often fundamentally disagree with the knowledge claims and ethical basis underpinning the training and designated powers of clinicians [32].

A model of "expert"-delivered, standardised clinical skills and techniques to treat a defined pathology is reflected both in traditional conceptualisations of de-escalation [33] as well as in what staff value in respect of de-escalation in qualitative interviews [24–26]. Argument

that this formula may be misapplied in the case of de-escalation includes the observation that aggression is not a pathological behaviour in all contexts (e.g. self-defence) [34]. Indeed, evidence suggests that aggression in these settings is often preceded by staff behaviour i.e. either by aversive communication or through the imposition of unwanted interventions e.g. forced medicines [35]. The conceptualisation of de-escalation as involving a set of discrete and standardisable techniques conflicts with the importance of personalisation [13, 25, 27] and, moreover, potentially encourages a view of patients as objects to be 'done to,' resulting in the perceptions of inauthenticity and dehumanisation that patients report in qualitative interview studies [13]. This problem may also explain why traditional models of staff de-escalation "skills"-training have provided limited evidence of effectiveness [36].

Existing literature also provides indications of factors that inhibit and/ or create opportunities for de-escalation. Staff and patient perspectives are aligned in the view that paperwork diverts nursing staff from therapeutic contact rendering them unable to respond to early signs of distress with de-escalation [13, 37] and that petty rules and draconian inflexibility can create alienation that is not amenable to de-escalation [13, 25]. Patients and staff both support the view that physical environments conducive with de-escalation have a range of internal and external areas for de-escalation [13, 25] and are equipped with sensory rooms and equipment [38]. Staff participants, alone, identify lockable doors used to partition sections of the ward and prevent spread, as helpful [25, 39].

Previous evidence reveals a complex range of factors influencing motivation to use de-escalation. An important concern for staff is the possibility that tolerance of aggressive behaviour will result in a contagion effect among patients and multiple, simultaneous escalations which are impossible to manage safely [25, 40]. This fear may result in premature use of coerced intramuscular medicines to prevent spread [25, 37, 40] and it is a fear that may be exacerbated by short staffing [37]. There is agreement across staff and patient perspectives that moral judgements related to perceived aggression function reduce motivation to use de-escalation and instead increase desire to respond punitively [13, 25, 41]. Patient perspectives, alone, imply darker, inverse influences on motivation to use de-escalation, such as sadistic tendencies (in a minority of staff) and an absence of organisational systems of accountability that might provide a restraining influence on these [13]. Although inferences can be made from previous evidence related to the capabilities, opportunities and motivations required to engage in de-escalation in adult acute inpatient and PICU settings, to the authors' knowledge, there has been no previous theoretically informed and systematic analysis of the complete range of factors that may influence implementation.

Methods

Aim

To identify, using the Theoretical Domains Framework, the relevant factors influencing successful de-escalation of aggression in adult acute inpatient mental health settings, from the perspective of clinical staff and patients.

Study design

Secondary qualitative data analysis [42] of 46 semi structured interviews with ward staff ($n=20$) and patients ($n=26$). Secondary qualitative data analysis involves the use of previously collected datasets to generate new social or methodological understanding [43], typically using a different theoretical lens to the original analysis [44].

Theoretical framework

The Theoretical Domains Framework (TDF) [45], was selected over competing frameworks for exploring implementation problems [e.g. Normalisation Process Theory [46] and the Consolidated Framework for Implementation Research [47]] because it (a) provides a comprehensive model of behaviour change, (b) was specifically developed to identify determinants of professional behaviour change and (c) because it enables direct mapping to behaviour change techniques that can inform intervention development. The TDF expands into 14 domains:

- Capabilities: Knowledge; Skills; Memory, attention, and decision processes; behavioural regulation.
- Opportunities: Environmental context and resources; Social influences.
- Motivations: Social/professional role and identity; beliefs about capabilities; optimism; beliefs about consequences; reinforcement; intentions; goals; emotion.

It is probable, given the complexity of the TDF, that prior inductive investigations, such as the two descriptive qualitative research studies [13, 25] that we originally published using the same dataset as the current study, may have missed factors that are relevant. The present study, informed by the TDF, re-analyses collected data from our original qualitative interview studies with ward staff and patients to identify factors that influence staff engagement in de-escalation. Such investigations are needed to inform the development of targeted behaviour change interventions to improve staff, patient, and service level outcomes.

Study setting and recruitment

Patient participants were recruited from seven wards in three UK National Health Service (NHS) Mental Health Trusts in Northwest England. Wards included six adult acute inpatient mental health wards (three female only, two mixed, one male only) and one Psychiatric Intensive Care Unit. Staff participants were recruited from five wards in three UK NHS Mental Health Trusts in Northwest England. Wards included three PICUs and two adult acute inpatient mental health wards (one male only, one female only).

Both ward staff and patients were recruited via nurses working in the relevant clinical settings, who distributed recruitment packs to all eligible staff and patients. Interested staff and patients returned 'consent-to-contact' forms to the recruiting nurses and, only then, were potential participants approached by researchers. Patient capacity to consent was assessed by the nurse-in-charge on duty at the agreed date and time of the interview.

Inclusion criteria

All patients were eligible to participate provided they were an English speaking, current inpatient who had direct experience of the phenomenon of interest (defined as having been involved in an incident requiring de-escalation within the past 12 months) and provided informed consent. Staff were eligible provided they were ward-based (defined as nursing assistants, staff nurses, team leaders and ward managers) and had rich experience of the phenomena of interest (defined as having worked within the acute or PICU environment for a minimum of six months).

Sample

The dataset comprised qualitative interviews with 26 patients and 20 ward staff. The patient interviews ranged between 3 min and 1 h and 50 min, and the ward staff interviews between 25 min and 1 h and 27 min. Both ward staff and patient participant groups were purposively sampled [48]. A sample of ward staff was sought with variation in qualified and unqualified nurses, genders, ages, and clinical experience. The patient sample was selected with consideration to ranges of ages, genders, ethnicities, diagnoses (self-reported), experience of restrictive interventions, use of illicit substances within the past 12 months, detention status, time spent as an inpatient in the past 12 months, and number of previous admissions. The complete sample characteristics of both participant groups have been published previously [13, 25].

Data collection

Staff and patient interviews were guided by interview schedules with appropriately tailored language (via the engagement of a patient and public involvement advisory panel) for both groups. The interviews asked staff and patients to discuss their experiences with de-escalation and to identify barriers to use and effectiveness at the level of individuals (staff or patient characteristics), ward environments (physical and social) and healthcare organisations. Data collection continued until no new ideas, perspectives and concepts were emerging from the interviews. The interviews were conducted in 2014, were digitally recorded and transcribed verbatim.

Ethical considerations

Ethical approval for the re-analysis was sought and received a favourable opinion from Yorkshire and Humber NHS Research Ethics Committee (18-YH-0035).

Data analysis

Data were analysed using Framework Analysis [49], which allows for theoretical (deductive) and atheoretical (inductive) coding. Consistent with the theoretical approach to the study, our analysis was primarily deductive, with sections of data being coded to a priori theoretical domains. However, data coded to each theoretical domain was subsequently coded inductively to identify recurrent issues emerging within theoretical domains. The specific analytical processes were as follows. The 46 transcripts were detached from their original codes and uploaded to NVivo10 (a qualitative data analysis software package). A large matrix was then developed with 46 rows representing cases and columns representing the 14 domains of the TDF. An additional "other" column was created for any data coded as falling outside of the TDF. Summary links were then created between sections of data relevant to each theoretical domain (or other category) and the relevant cell of the matrix. The linked data summaries were then coded inductively to identify recurrent issues emerging within matrix columns. The final stage of the analysis to was to identify most prominent theoretical domains, customary in TDF-informed qualitative studies on the basis that it helps to inform the development of interventions that are targeted at the most important factors influencing behaviour [50]. This was achieved via team decision using criteria employed in previous qualitative studies informed by the TDF. Namely, that prominent domains are (a) frequently agreed by participants as being important and/or (b) discussed by participants in great depth [51].

Rigour and reflexivity

Measures to ensure the rigour of the analysis included multiple analysts involved in the coding of data [52] and the derivation of subthemes within a priori theoretical domains. To support the confirmability of interpretations, verbatim quotes are provided throughout

the presentation of results [53]. Multiple perspectives, including academic, clinical and patient, on the data were incorporated in the analysis [54]. Analysts that coded data were the lead author (OP, a mental health nursing academic), two lived experience researchers (AG & LC) and two current nursing assistants working in in-patient mental health settings (IJ & HR). A summary of the developing analysis was shared, over a series of meetings, with a lived experienced group comprised of current service users, all with inpatient experience (DB, PF, AS, LW) who provided feedback on the interpretations and conceptualisations of the core analysis team. At the end of this process, the analysis was shared to elicit feedback from the wider research team which consisted of health service researchers with clinical backgrounds (KL) and methodologists including a qualitative researcher (PB), a behaviour change scientist (CA) and an implementation scientist (HB).

The psychological background of the research team and patient involvement in the analysis may have led to an unbalanced perspective on the data, where assumptions about the ethics of restrictive interventions and the desirability of more psychologically informed practice, overlooked the pragmatic reality of risk management at the coalface. We took steps to address this problem, firstly by the recruitment of two current nursing assistants (HR and IJ) to the analysis team and, secondly, through regular meetings held between analysts to interrogate assumptions and consider alternative interpretations in the coding of data.

Results

De-escalation experiences were, typically, described as involving interactions between a lone patient and either a single staff member or groups of staff. Both ward staff and patients described intense focus on the physical behaviour and emotional expression of interlocutors during de-escalation encounters, and fluctuating changes in cognition, affect and arousal (labelled *internal states*) resulting from *perception* (e.g., perceived intention, perceived attitude). Changes in internal states were responded to, by both staff and patients, with self-regulating actions (e.g., cognitive strategies such as self-talk) and actions to regulate the internal states of others by changing perceptions. For example, through explanation, through stimulation of positive memories and/or reminders of context (this could be patients reminding staff of the professional context of the encounter or vice-versa), or by manipulating the environment to create calmer conditions for dialogue. These actions, whether internally or externally directed, were labelled *regulatory actions* in the analysis.

Analysing staff and patient accounts adjacently, revealed de-escalation as a reciprocal, intersubjective 'process' rather than involving a unidirectional application of a discrete set of staff techniques. Indeed, there were numerous vivid descriptions provided of patients de-escalating dysregulated staff behaviour (Table 1). The phenomenon of "de-escalation," therefore, according to our analysis, is reciprocal, involves fluctuating changes in internal states which are modified by internally and externally directed regulatory actions. The **de-escalation process** derived from our analysis is graphicalised in Fig. 1 and a table of evidence supporting each process component (reciprocity, perceptions, internal states, regulatory actions) is provided in Table 1.

The following exploration of theoretical domains provides an in-depth examination of factors influencing ward staff and patient ability to regulate themselves and each other within the central phenomenon of the de-escalation process. The most prominent theoretical domains that emerged from the analysis in terms of de-escalation capabilities were **Knowledge** (related to trauma and auditory hallucinations) and **Skills** [a wide range of skills were identified by participants and used to develop a *De-escalation Techniques Taxonomy* (Table 2)]. In terms of the creation of opportunities for de-escalation, both **Environmental Context and Resources** (participants identified extensive aspects the social and physical environment that restricted opportunity for de-escalation) and **Social Influences** (cultural attitudes to vulnerability in staff and relationships between ward staff and clinical leadership characterised by blame and distance) featured prominently in the data. The prominent theoretical domain relevant to increasing motivation to use de-escalation was **Emotion** (addressing negative emotion in staff associated with moral formulations of patients and internal attributions for behaviour). A detailed examination of each theoretical domain follows.

Capabilities

Knowledge

Accounts underscored knowledge of psychological trauma as a precondition for de-escalation engagement. This required staff awareness of how abuse and other dysfunctional family dynamics are re-enacted contemporaneously within relationships and conflictual encounters. A key element was knowledge of aggressive behavioural scripts [scripts are memory structures that are developed from repeated exposure to the same experience, activated with minimal or no conscious effort [55]]. For example, the following patient describes how aggression scripts could be activated and deactivated by differing staff approaches:

"At the other hospital, I was restrained… injected several times… when staff come running in, I stand back ready for a fight… because I've had it done to me as a child with my mother, my mum was a beater. This time around (the current admission) *they sit me down and go; what's the*

Table 1 Evidence for the De-escalation Process

		Reciprocity	
		Staff perceptions	**Patient perceptions**
Changes to internal states	***Cognition***	*"Your adrenalin's going and you're thinking, I need to do this, it's really important that the patient doesn't know that you're feeling a bit stressed because if they can pick up on it really easily and if they know that you're stressed, then they can see sort of that they're getting to you, in a sense."***(Staff nurse, PICU)**	*"She was smirking at me, like making the situation worse., it really fucking wound me up, to the point where I was crying, and I was like scratching my eyes and I was thinking of self-harming because I wanted to punch her in the face that much that I just thought."***(Patient, acute ward)**
	Affect	*"They show a lack of patience, lack of understanding, annoyance with the patient that they sort of leak through their body language and their tone of voice."* **(Ward manager, acute ward)**	*"When you're getting in a bit of a state, when there's too many of them surrounding you, they'll seem like they're ganging up. And the tone that they use should be reassuring when you're agitated about something… For them to talk to you like you're a child, or you're stupid, it can really exacerbate the feeling and explode the situation instead of calming it down."* (**Patient, acute ward)**
	Arousal	*"My hands shake, my face goes bright red. Sometimes, if it goes bad, your legs shake a bit, and it's just your adrenalin."***(Staff nurse, PICU)**	*"She was talking down to me she didn't realise, she didn't understand why I was kicking off until I absolutely blew and I was punching doors and kicking doors, then she realised and she had a word with me and she held my hand and she actually gave me a cuddle and said everything would be alright and took me out for a cig and made me a cup of tea because I was shaking."***(Patient, acute ward)**
Regulatory actions	***Internally directed***	*"I put my hands together so that you can control your hands a bit more. I guess I maybe just say* (self-talk), *if you do shake it's not a problem, if you do get scared, you can be scared, but I guess you just try and put your body a bit stiff so you can't shake!"* **(Staff nurse, PICU)**	*"When staff come on duty, they appear to be looking for things to have a go at people for, because they'll walk in before they've ever got to the office and put their bag and their coat down, they'll look in and see who's got their feet up on the furniture, and they'll say, you're not at home, get your feet off there. I was told by the physical health team that I needed to keep my feet up… She went, I've got to go and check… So she went to the office, come back and she went… it's not documented… so you can get your feet down. By this time, it's getting heated… I was finding it hard because I wasn't feeling well as it was, and I was finding it very, very hard to keep my cool, but you know… if that had been one of the young girls, who had kicked off, then they'd have been frogmarched to the bedroom."***(Patient, acute ward)**
	Externally directed	*"I use some stock phrases like you're safe, you're in hospital, we're nurses, we're not going to do you any harm, maybe we can talk about, if you calm down maybe we can go for a cigarette."***(Ward manager, acute ward)**	*"They were angry, shouting at me…the nurse in charge should have remained calm, she was getting aggressive. My parents told me you cannot argue with a fool because people might not notice the difference, so I'm going to be quiet and let you do the shouting…I said, listen to yourself, you're even shouting, do you need to take medication? Then she realised because I levelled with her. A lot of patients in here cannot speak for themselves… I always need to know is it* (enforced medicines) *justified, why are you doing this? Do you think it's necessary now? Through the way I talked and defended myself they realised I was being reasonable. I created reasonable doubt. I made them feel me, to be in my shoes. How many patients can do that though?"* **(Patient, acute ward)**

problem… go for a walk, go for a cig, just go to the shop. One of the staff… she'd make me go into the bedroom, she'd make me lay on the bed with my hands on my belly… that really calmed me down… and she stroked my hair, and she reminded me of my mum…That's twice, three times we've done it now and I've not had PRN for I'd say about a month." (**Patient, acute ward**).

Deactivation of aggressive behavioural scripts could be achieved by staff responses that were *unexpected* or *surprising*, enabling interactions to move outside of the anticipated dialogue and away from retaliation and antagonism. These responses typically involved humour, clownish playfulness or relaxing of rules or kindness when containment and/or consequences were expected.

The relevant knowledge factor identified by staff participants related to reducing distress in aggression they linked with auditory hallucinations, for example:

"I think hearing voices when somebody's got voices that are obviously saying horrible things. And for them to then…switch off from them and focus on you, I think is really challenging for staff. We've got a lady and what she experiences, I don't know, but she gets so aggressive when she's distressed. Nothing you say will help calm her down. The more you talk, the more she wants to hit you." (**Team leader, acute ward**).

Skills

Psychological skills Given that de-escalation has traditionally been conceptualised as synonymous with skills and techniques [33, 56, 57], it was perhaps unsurprising that accounts, and especially staff accounts, provided rich data in relation to psychological skills. These data could be organised into six skill domains, divided into a single 'internal regulation' domain and five 'external regulation' domains. The internal regulation domain referred to the

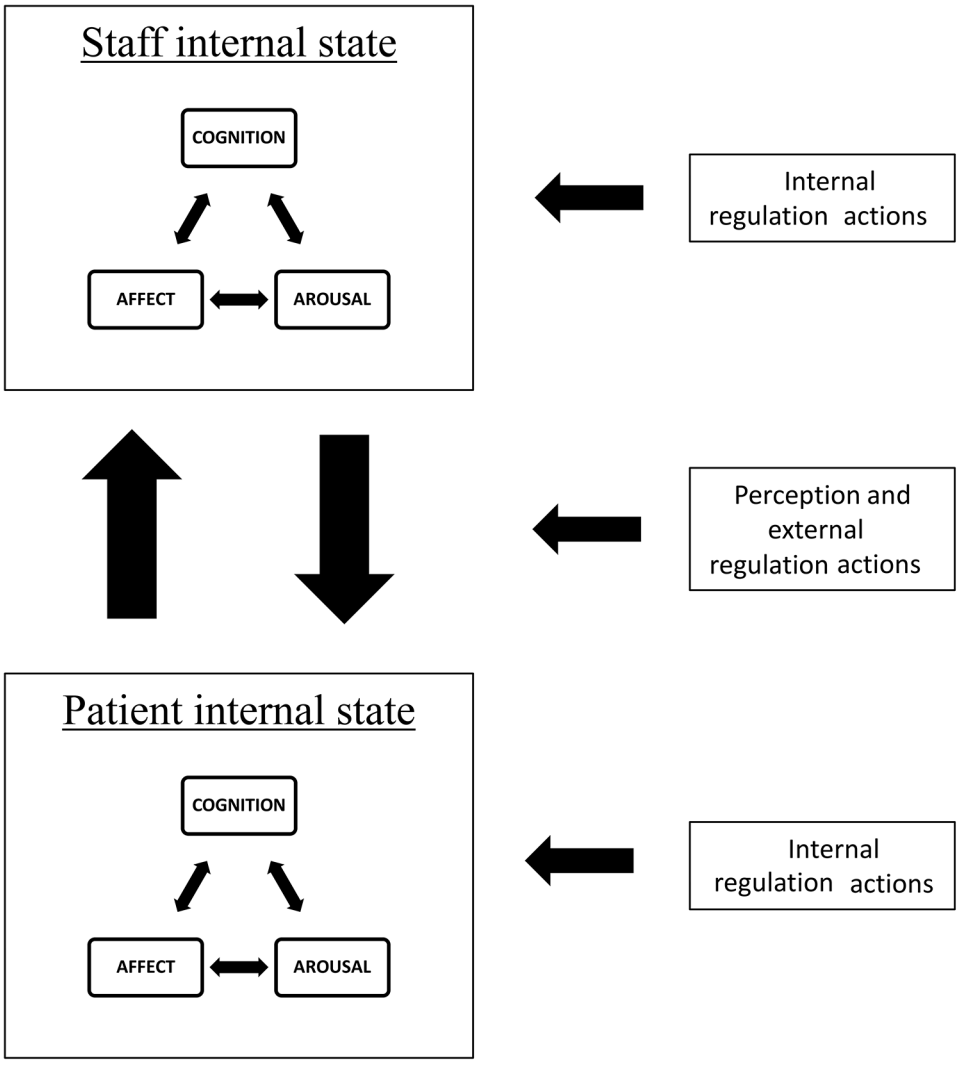

Fig. 1 The De-escalation process

ability to *remain calm* (domain 1). External regulation domains related, firstly, to abilities involved in connecting with the patient such as *confirming and validating* distress (domain 2) and *reducing social distance* i.e., engaging with patients in authentic, human interactions on equal terms (domain 3). They, secondly, related to external actions designed to create the cognitive, emotional, and physical conditions needed for de-escalation. For example, through *autonomy-confirming* (e.g., providing time and space, offering choices) *and limit-setting* (e.g., instructions and deterrents) techniques, (domain 4) and through *problem solving and reframing* techniques (e.g., context reminders, stimulation of positive memories, modifying attributions) (domain 5). The *pliability* domain (domain 6) cut across connecting domains and referred to the extent of staff ability to mould their behaviours to individual patient preferences and the changing dynamics of aggressive incidents as they unfolded. For example, some staff referred to using variation of intimacy and informality depending on their knowledge of each patient. Female patients, often described valuing, in terms of de-escalation, staff who were able to combine empathy and understanding with a firmness and discipline that enabled the containment of difficult emotions, e.g.,

*They can hold their selves, you don't want to mess with them…but they're beautiful women inside, they're so loving and caring and they come into work and they're dead joyful and as soon as they walk in, we all smile because we love them… they've got the thing of intimidation, not a scary way but a way of not going to mess with you… But they've got that loving side to them as well, not threatening, loving."***(Patient, acute ward)**.

Identification of the six psychological skill domains enabled the generation of the De-escalation Technique

Table 2 De-escalation techniques taxonomy

				Cross cutting domain	
	Domain	**Description**		**6. Pliability**	**Evidence**
Internal regulation	***1. Remain calm***	Inhibit contempt, frustration, anger, anxiety. Gradually reduce tone of voice.		N/A	*"What I've found helpful is trying to stay calm, facially as well, to show that I'm calm and I'm not intimidated, frightened, angry."***(Nursing assistant, PICU)**
External regulation	***2. Confirm and validate***	Agree, apologise, suspend disbelief, authentic empathy, honesty, respect, enable patient to 'save face', don't interrupt, give way to interruptions, non-critical (future-focused), praise, time, attention & commitment, rewards.		Empathy and understanding **and** emotional containment	*"Agree with them, I know this place is shit, I said, I wouldn't like to be here, just an honest approach, that's usually a lot of de-escalation, letting them know, yeah, it is a crap situation for you, but this is it, this is where you are, let's deal with the damn thing."***(Nursing assistant, PICU)**
	3. Reduce social distance	Humility, openness, self-disclosure, humour, fallibility, vulnerability, equality ('people not patients'), formality and informality, intimacy, friendship, sharing of activities (nicotine, tea, coffee), touch, authenticity.		Level of intimacy/ informality adapted to patient preference	*"Just down to earth, just like you can tell that they're not judging you, you can tell that they're not trying to work you out, they just…they act more like a friend."***(Patient, acute ward)**
	4. Autonomy & limit-setting	*Autonomy* Involve, transfer responsibility, options, suggestions, alternatives, contingencies, facilitate emotional expression, time & space, use of silence, seek permission.	*Limit-setting* Specific, clear, and objective description of target behaviour and its impact. Instructions and deterrents.	Creates choice but sets limits on genuine risk.	*Autonomy* *"It's important to give a range of options… what do you want to do, do you need a drink, do you want to go to your bedroom and relax a bit, do do you want us to have a chat about what's going on? Just a range of options allowing them to choose what they want to do."* (S**taff nurse, PICU**) *Limit-setting* *"I've had a six-foot seven guy standing over me, he literally assaulted a patient and I got myself in the middle of it and I'm looking up at him and I went "you need to stand back. You need to stand back." And he lifted his fist up to punch me, and I went "don't even attempt to do that, you need to stand back." As he was looking, he could see that I meant what I was saying, and he stepped back and walked away."* (N**ursing assistant, PICU**)
	5. Problem-solving and reframing	Problem clarification and resolution, context reminders, stimulation of positive memories (shared history with staff), stimulation of empathy for others, unexpected or surprising responses (humour, playfulness, creativity).		Surprise/unexpected responses calibrated to knowledge of patient	*"I had a patient last week that said he was going to rip my head off and get his brother to come and shoot me, and my response was, well, I'm going at five, so he'd better get here before five. He grinned at me. He wasn't expecting that, and it just sort of defused the situation."* (**Ward manager, acute ward**)

Taxonomy, presented in Table 2 with supporting evidence.

Physical skills The physical skills identified by participants, perhaps, counterintuitively, aimed to communicate vulnerability by communicating non-violent intent and rendering violent actions socially incongruent. For example, staff described deliberately taking a seat during verbal confrontations, even when this was unreciprocated by the patient, for this reason. Patients accounts referred to staff remaining seated when they were confronted by a patient with a grievance, from a standing position, and experienced this as belittling. This demonstrated how behaviours that are similar, at surface level, can provoke radically different emotional responses depending on intent. Sitting down during confrontations may communicate vulnerability by relinquishing an optimal stance for self-defence. Remaining seated at the onset of a confrontation may communicate a lack of concern that is experienced as deliberately provocative.

Other physical behaviours intended to communicate vulnerability included ensuring a minimal staff presence necessary to maintain safety and adopting an open body posture with arms kept by sides. A minority of staff participants reported that keeping their arms by their sides interfered with their ability to conceal visible tremor, perceived as necessary to avoiding emboldening patients who were perceived as seeking the *'upper hand'* (**Team leader, acute ward**). Relatedly, there was broad agreement among staff that visible anxiety could either provoke unhelpful feelings of stigma during confrontations or undermine patients' confidence in their ability to help. Patients did not always share this view, for example:

"I'm not bothered whether they come across as nervous, because I'll respond to that, I'll calm down to that because I'd see them as a vulnerable person. I'm not a bully so if they came across as nervous then I'd calm down a lot more." (**Patient, acute ward**).

Opportunities

Social influences

Accounts indicated that opportunities for de-escalation were often limited by risk management cultures at ward level. These cultures appeared underpinned by an understandable fear of adverse safety events like violence occurring. This fear was managed by a hyper-valuation of '*consistency*,' which referred to the rigid application of rule systems and cultural norms without consideration to situational context (for example, variations in interpersonal boundaries and rules depending on the risk profile and/or the preferences of the patient concerned). Such cultures were exemplified by the meticulous maintenance of narrow interpersonal boundaries, efforts to control patient narratives about their experiences as inpatients, intolerance of dissent, and unconditional demands for respect of staff (without concomitant expectations that respect would be shown to patients). The sense of injustice provoked by the latter of these was exacerbated by the presence of what patients described as *'propaganda materials'* (Patient, acute ward) displayed in the clinical environments e.g.,

"There are posters up everywhere saying 'Care Assistants: Respect Us." Well, I drew my own poster saying respect patients. They didn't like it; I was told to put it away." (**Patient, acute ward**).

There was little evidence that these practices served their intended aims. Accounts presented staff as entrenched in a maladaptive cycle of violence, where fear of violence was managed by the compulsive heaping on of more rules and tighter boundaries, provoking further violence, such as that described by the following patient:

"Some are "that's the rule, that's the way it is." The girls were watching a film…Nurse X came in and switched it off at dead on midnight. The film finished at quarter past twelve. She went "that's the rule, it goes off at twelve" …so she had three people ready to strangle her." (**Patient, acute ward**).

There were indications that that these cultures were maintained through the *stigmatisation of vulnerability* and *insularity*. For example, vulnerable colleagues (e.g., new starters, newly qualified nurses, students, and temporary staff) were often regarded as a threat to established practices and in need of socialising to existing cultural norms. As discussed in the capabilities theme, many staff had internalised the notion that the physical expression of vulnerability (anxiety) was incompatible with competence. However, this was not uniformly the case. The following nurse's description of her emotion regulation style, highlights both the importance of *acceptance* to her mastery of anxiety but, also, demonstrates how this form of self-talk could be undermined by cultures in which anxiety is viewed as synonymous with weakness:

"I put my hands together so that you can control your hands a bit more. I guess I maybe just say (self-talk), *if you do shake it's not a problem, if you do get scared, you can be scared, but I guess you just try and put your body a bit stiff so you can't shake!"* (**Staff nurse, PICU**).

The data indicate that attitudes to vulnerable staff, and to vulnerability within staff, may serve to socialise out of staff the very qualities that make them suited to de-escalation (e.g., being flexible, offering choice, expressing vulnerability).

The second culture-maintaining factor was insularity. Staff described distant relationships with management characterised by blame-based contact. This distance was exemplified by colloquialisms such as *'ivory tower'* (**Nursing assistant, acute ward**) and patient references to management as '*the people upstairs*' (**Patient, acute ward**). Management styles characterised by blame and distance could create a culture of back-covering and secrecy that restricted the flow of accurate information from wards concerning de-escalation events and opportunities for senior leadership to intervene where toxic cultures had emerged, e.g.,

'There is a protective culture… being open is a challenge, and people will only learn where they're being open. We need to be accountable but one of the concerns currently is there's this culture of staff are to blame and it just always allows them (incidents) *to go under the radar every time… don't upset the apple cart… You get a lot of that going on – very protective…'* (**Team leader, PICU**).

Environmental context and resources

Staff and patient participants identified an extensive range of potentially modifiable factors associated with the social and physical environment that undermined patients' capacity for self-regulation when de-escalation was required. These factors tended to confer on patients' feelings of exclusion, dependence, inferiority, and humiliation and related to visual evidence of coercion within the environment (e.g., zero tolerance posters) and social processes such as handovers, ward rounds, admission processes, prescribing consultations, mealtimes, medication rounds and any experience involving extending waiting times. Patients also prioritised improved management of sensory input and conflict within the patient community.

Patients and staff had extensive suggestions for making the environment more compatible with de-escalation. They felt that carers should be involved in de-escalation

planning as early in the admission as possible and that unqualified staff should be involved in ward rounds, to equip them with the knowledge they often needed to de-escalate typical patient concerns arising from inadequate medical communication (e.g., information on side effects). They felt that these structural problems ensured that those who knew most about the patient had least input into decision making relevant to de-escalation.

"*'I've been here two years; I've never sat in a ward round… because a lot of the time patients come out of ward rounds highly agitated… we're trying to calm them down, but we don't know what happens … they want to know about medication. They want to know about side effects… It's always, I'll get the nurse… but they've also got so much other stuff going on… there must be some stuff we can help with.*" (**Nursing assistant, PICU**).

Other suggestions included improved input of service users into handovers, keeping the door to the nursing office open to patients (patients waiting outside and difficulty rousing staff from within was a constant source of escalation evident in the data), eliminating institutionalised practices around medication times (queuing and use of the 'stable door') and staff eating meals together to address undignified aspects such as being observed eating:

"On <deleted ward name>*they are during mealtimes; they'll go out and they'll sit. Members of staff don't all congregate on one table, there'll be one on every table having a chat and having lunch and talking. That breaks down the us and them barrier… Christ, they're living on this ward, be part of it. Don't separate yourself…I don't see it's us and them, I see a person, not a patient.*" (**Nursing assistant, PICU**).

Patients and staff agreed that environmental noise, especially the sound of others' distress, could contribute to a contagion effect of escalations. However, patients felt that staff typically addressed this through the joyless suppression of all noise, without reference to meaning and context. Instead, they felt that environments should be equipped with calming spaces with sensory equipment that would provide sanctuary from others. Patients felt that ward rules mandating patient assembly (e.g., bedroom lock-offs) and the rendering of internal and/or external ward areas 'out-of-bounds' restricted opportunities to de-escalate conflict within the patient community.

Motivation

Emotion

Considering the data in terms of motivation, almost by definition, required reflection on who staff want to de-escalate and whom they consider worthy of de-escalation. This was evident in the language employed by staff both in the staff interviews and in patient interviews describing staff behaviour. These data indicated that staff commonly use the term 'behavioural' to signal to each other and to patients, whether an observed behaviour could be detached from mental illness and whether it was, thereby, worthy of compassion and attention in response, e.g.:

"I think the staff was making fun of her. I don't think it was her perspective. The member of staff said to her, there's nothing much wrong with you. We'll get you discharged… It seems to me you've got plenty of behavioural issues. And she went, I've had a diagnosis, what are you talking about? And she went, yes, yes, I know what kind of diagnosis you've had…which just…who are you talking to? Who do you think you are? By 'behavioural,' they mean that if you scream and shout about something you haven't got a mental illness, you just can't control your behaviour." (**Patient, acute ward**).

There was, albeit, rarely, some reflection on the degree of accuracy these assessments could have given the complexity of psychopathologies and trauma histories characterising inpatient populations, e.g.:

"Certain staff members will think they're just messing about. One of the phrases I always think oh, they don't know what they're talking about, is oh it's all behavioural. It means nothing, that… What people mean when they say it's all behavioural is they know what they're doing, they've got capacity, they're doing it on purpose because they're a bad person. They may have learnt behaviours that get a response, but it's not necessarily their fault. They might have had a horrendous upbringing, and that type of behaviour was the only way they could get attention." (**Ward manager, acute ward**).

Moral judgements about volition and intent were, not exclusively, but more readily applied to patients designated with the label of 'personality disorder.' Staff expressed significant negative emotion when discussing de-escalation in this perceived group. Their accounts were characterised by internal attributions (i.e., dispositional, trait-based explanations for behaviour) and dichotomous thinking (i.e., they tended to discuss patients with 'personality disorder' as a definable collective with common shared behaviours and attitudes), the latter with some irony given that *'splitting'* was a transgression they often attributed to people they identified with this group, e.g.:

"It's just the manipulation that these people with personality disorders present with, there's a lot of splitting of staff. Like, one of member of staff is great, and they're saying another member of staff is treating me rubbish, whereas you treat me nice. And, they're saying to another member of staff, he treats me rubbish, whereas you treat me nice." (**Staff nurse, PICU**).

There was evidence that such dichotomous thinking could directly inform differential treatment in respect of potentially de-escalating practices, e.g.:

'It's about knowing your diagnoses. Someone who's got a diagnosis of personality disorder doesn't warrant flexibility, because they're going to take the piss basically… If you know someone's got that (personality disorder), *be mindful of it and don't give too much ground. Whereas someone who's say got schizophrenia, well, just the weird example, say they don't like to be seen eating as part of their delusion system. Say, right, okay, I'll come and sit with you while you eat something cold in your bedroom.'* (**Staff nurse, PICU**).

Patients, by contrast, often provided more nuanced, situation-based formulations of suboptimal staff behaviour related to de-escalation, e.g.:

"The NHS are cutting monies down for staff and they're running around, because they don't get a break, you knock on that room because we've got to get our milk out of that room, but when they're trying to eat their poor little dinner in the poor little 15 minutes they've got and we're mithering them for milk and mithering them for biscuits… So, I can understand anger from the staff point of view too." (**Patient, acute ward**).

Discussion

This study used behaviour change theory and implementation science methodology to identify factors that influence de-escalation behaviour in acute mental health inpatient and PICU settings. This analysis enabled the generation a framework of indicative behaviour changes required to enhance de-escalation in adult mental health acute inpatient and PICU settings. This framework (presented in Table 3) indicates that, to enhance de-escalation, behaviour changes are needed at every layer of inpatient organisational structures and across professional disciplines (i.e., nursing, clinical psychology, occupational therapy, and psychiatry). The following discussion will outline the novel contributions our paper makes to understanding how capabilities can be enhanced, opportunities created, and motivation increased, to foster the conditions in which de-escalation in acute inpatient mental health settings can occur more often and more successfully.

Enhancing capabilities

Our analysis offers the following new understanding of how de-escalation capabilities should be enhanced.

Table 3 Indicative behaviour changes to enhance de-escalation

	Theoretical domain	Indicative behaviour changes
Capabilities	***Knowledge***	*Enhance de-escalation capabilities by increasing ward staff's knowledge of*: • The impact of developmental trauma on memory and self-regulation. • The aetiology and experience of voice hearing and strategies for reducing distress and isolation.
	Skills	*Enhance de-escalation capabilities by enhancing ward staff skills in*: • Emotion regulation and techniques related to confirming and validating distress, reducing social distance, confirming autonomy, limit-setting, problem solving and re-framing. • Pliability and the expression of vulnerability.
Opportunities	***Social influences***	*Create opportunities for de-escalation by*: • Stimulating critical reflection on cultural conceptualisations of appropriate professional boundaries and limit-setting (and the contextual dependence of these on individual and situational differences). • Constructing ward and organisational cultures that are protective of vulnerability in staff. • Increasing the visibility of clinical leadership in ward areas, promoting psychologically safe relationships with ward staff, open discussion and information exchange regarding practice and clinical safety.
	Environmental context and resources	*Create opportunities for de-escalation by*: • Removing visible evidence of coercion within ward environments and signage instructing or threatening patients about their behaviour. • Involving patients in shift handovers. • Reducing social isolation and use of force during the admission process. • Changing ward round practices that result in service user distress and including unqualified staff in ward rounds. • Collaborative prescribing. • Staff and patients eating meals together. • Implementing sensory modulation rooms. • Eliminating rules mandating patient assembly. • Keeping the door to the ward nursing office open.
Motivation	***Emotion***	*Increase motivation to use de-escalation by*: • Modifying moral judgments about volition and intent of patient behaviour, encouraging needs-based formulations of behaviour. • Enhancing situational formulations of behaviour (i.e., the historical, environmental/institutional, and social context in which aggression occurs). • Raising consciousness about the contestability of psychiatric diagnoses, especially 'personality disorder.'

Firstly, we developed, through synthesis of participant perspectives, a new way of conceptualising de-escalation, the *'De-escalation Process'* which posits that de-escalation is a reciprocal, intersubjective process, involving non-linear changes in staff and patient internal states (cognition, affect, and arousal) that result from perception (perceived intent or attitude) and are modified by internally directed (e.g., cognitive strategies such as self-talk) and externally directed regulatory actions (e.g. explanation, context reminders). This way of understanding de-escalation is consistent with the most highly cited psychological models of aggression [e.g [55]]. and challenges prior framings of de-escalation as involving the unidirectional application of a formal set of staff techniques [e.g [33, 56, 57]]. The key implication of this conceptualisation is that it may undermine models of training focused on skills-based training delivered to staff alone. Novel interventions seeking to enhance de-escalation should refocus content to addressing sources of interpersonal and environmental stress that undermine staff and patient capacity for self-regulation and/or consider intervention models that train patients as well as staff in de-escalation. In respect of the latter option, training content could be based around the *De-escalation Techniques Taxonomy* we developed from staff and patient perspectives on helpful de-escalation behaviours.

Creating opportunities

The sources of interpersonal and environmental stress perceived as reducing the regulation capacity of staff and patients during de-escalation were wide ranging. These included: coercive messaging in ward signage; conduct of ward rounds and shift handovers; adverse experience of the admission process; insufficient collaboration in antipsychotic prescribing; ward rules, and features of the physical environment including segregated staff and patient spaces and the lack of sensory modulation rooms. There were also important staff team and organisational cultural barriers identified involving negative attitudes to vulnerability in staff (perceived as undermining emotion regulation capacity) and stigmatisation of therapeutic intimacy in staff-patient relationships (undermining the authentic connections perceived as important to de-escalation). Relationships between ward staff and senior clinical leaders characterised by blame and distance impeded transparent analyses of conflict events through which learning about de-escalation could occur.

Existing interventions to reduce restrictive interventions including the *Six Core Strategies* [58] and *Safewards* [59] both target environment and culture. Both models have demonstrated robust evidence of effectiveness [60, 61]. However, neither model explicitly targets ward round conduct, attitudes to vulnerability in staff or collaborative antipsychotic prescribing. Our analysis indicates these are likely to be important targets for interventions to enhance de-escalation.

Increasing motivation

The influence of negative emotion in staff on motivation to use de-escalation, raises important questions about the nature and extent of psychological support for ward staff in the challenging work that they are required to do. Indeed, accounts showed that staff teams exhibited many patterns of cognition, affect and behaviour that are typical of people who have experienced complex trauma. For example, *repetition-compulsion* [62] in the bolstering of draconian rule systems despite apparently clear evidence of their harmful effects. An approximation of *contempt for vulnerability* was observed in attitudes toward potentially vulnerable staff (e.g., non-regular staff, students, new starters, newly qualified staff), a trait that can be found in people who have been raised in environments where predation is the norm [63].

Importantly, in staff discussion of people designated with the label of 'personality disorder,' there was clear evidence of staff engaging in the psychological defence mechanism *splitting*, which involves the failure to incorporate both positive and negative aspects in appraisals of people and situations [64]. Moreover, staff tended to discuss patients designated with this label as belonging to a collective with shared attributes, indicating that they had developed a rigid internal representation of who a 'personality disordered' patient is. Wider literature related to the inpatient experience of people designated with these labels, presents a perception that staff view everything they say and do through the lens of the 'personality disorder' label [65], suggesting that staff may interact with the internal representation of people within this perceived group, rather than the external reality of the individual. It is possible that these phenomena serve a psychologically protective function for staff. For example, splitting of patients in to 'all bad' groups, may avoid the need to confront therapeutic inefficacy. Interacting with internal representations, rather than individuals, may enable staff to distance themselves from patients' suffering and bring a sense of order and predictability to distressing experiences such as witnessing self-harm. Human beings are, however, complex, and do not fit comfortably into taxonomic classification systems. Being treated as a label rather than a person is likely to provoke feelings of oppression and injustice that are incommensurate with de-escalation. These self-protective mechanisms require skilful psychological interventions that do not provoke counterproductive moral injury.

There was a broader problem with staff formulations of aggressive behaviour, characterised by moral judgements and internal attributions, that seemed to undermine their tendency to adopt de-escalating approaches.

This problem seemed rooted in an overestimation of the accuracy of clinical judgements of volition and intent. It is established in experimental psychology that humans have limited ability to accurately predict the intentions and motives of others through observation alone [66] and this problem may be reflected in empirical evidence reflecting the unreliability of clinical judgement [67] and clinicians' poor interpersonal accuracy (the ability to interpret another person's psychological states, traits, and behavioural cues) [68].

Interventions are needed which deconstruct moral judgements and promote situational formulations of behaviour. Moral judgements arise from the negative emotion that is provoked by needs-meeting behaviours, rather than the needs that drive behaviour [69]. For example, a moral judgement can be formulated about self-harm but not the need for relief from unbearable distress. Human needs are present or absent and are without moral dimension. Identifying unmet needs through signalling emotions, followed by a structured review of feelings and needs sequences with reference to relevant contextual factors (e.g., their historical, institutional, and wider social context) is likely to be useful in deconstructing these counter-de-escalating formulations. It is important also to acknowledge that patients presented more nuanced, situation-based explanations for unhelpful staff behaviour during de-escalation. This indicates that trauma alone cannot explain staff attitudes because patients, too, are exposed to trauma in inpatient settings [1], often overlaying [70] as well as invoking [71] developmental traumas. Attitudes, therefore, are likely explained by a combination of, and interaction between, a traumatic and unpredictable working environment, on one hand, and a psychiatric paradigm that encourages crude categorisations of expressions of distress and either/or thinking, on the other.

Limitations

There are important limitations of our work for consideration. The dataset for the secondary analysis is almost a decade old. There have been substantial policy programmes in the area of reducing restrictive interventions in the UK [15], as well as new evidence-based interventions for reduction [60], since the data were collected. It could be argued that our analysis is undermined because (a) it lacks relevance to contemporary practice and (b) because the data were interpreted by researchers who viewed the data with reference to theoretical and evidential updates that have occurred since the time of data collection. In terms of the former critique, there are reasons to believe that our analysis has retained relevance to contemporary practice. Firstly, we have published two recent papers using contemporary datasets [72, 73], albeit in forensic mental health inpatient settings, that support these findings. Secondly, the problems depicted in recent abuse scandals [14], share many of the attitudinal and cultural signifiers as those illuminated by our analysis. The latter critique alludes to the concept of 'presentism' in which past events are interpreted and potentially distorted by contemporary values and understandings [74]. It is difficult to determine with any precision the extent that this phenomenon influenced interpretations but would certainly have had some. Considering evidence that contemporary practice may not have evolved consistently with relatively recent care philosophies such as *'least restrictive practice'* [75] and *'trauma-informed care'* [76], analyses informed by recent knowledge and understanding are likely to have value whether applied to recently collected or somewhat older datasets such as our own.

An additional limitation of our work relates to the identification of most prominent theoretical domains. Whilst identifying most prominent domains is considered desirable in TDF-informed analyses (because it is likely to reveal the most important influences on behaviour within capability-opportunity-motivation configurations) [50], it is possible that important factors within minor domains were excluded from the final analysis.

Conclusions

Interventions to enhance de-escalation in adult acute inpatient settings should enhance capabilities, create opportunities, and increase motivation. Capabilities should be enhanced by increasing knowledge of traumatic experiences and their implications for memory and self-regulation, and the aetiology and experience of voice hearing and strategies for reducing distress. Interventions should enhance skills in emotional self-regulation, validating distress, reducing social distance, confirming autonomy, setting limits, and problem solving and reframing. Opportunities for de-escalation can be created by modifying risk management cultures (particularly in terms of limit-setting, cultural conceptualisations of appropriate professional boundaries and cultural attitudes to vulnerability in staff) and improving working relationships between clinical leadership and ward staff. Interventions targeting the environment should increase service user involvement in shift handovers and prescribing, reduce social isolation and use-of-force on admission and audit the environment to address a range of common flashpoints that undermine de-escalation efforts. Motivation to engage in de-escalation may be increased by psychological interventions that undermine moral judgements about, and internal attributions for, aggressive behaviour.

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Author contributions
OP, CJA, PB, HB & KL contributed to conception and design. The data were acquired by OP. Analysis and interpretation was conducted by OP, CPB, DB, LC, PF, AG, IJ, PM, AS, LW & HR. All authors were involved in drafting the manuscript or revising it critically. All authors gave final approval of the version to be published.

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Data availability
The datasets analysed during the current study are not publicly available due to the fact they contain personal data, for example, job roles, place of work, colleague names, family names and circumstances, which could identify the participant, but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Ethical approval for the study was sought and received a favourable opinion from Yorkshire and Humber NHS Research Ethics Committee (18-YH-0035). Every participant provided informed consent to participate in the original study. When gaining informed consent to participate, participants consented to analysis and reanalysis of their data.

Consent for publication
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Competing interests
The authors declare no competing interests.

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