

De-escalation of aggressive behaviour in healthcare settings:

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DOI:

[10.1016/j.ijnurstu.2017.07.003](https://doi.org/10.1016/j.ijnurstu.2017.07.003)

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Document Version

Peer reviewed version

Citation for published version (Harvard):

Hallett, N & Dickens, G 2017, 'De-escalation of aggressive behaviour in healthcare settings: concept analysis', *International Journal of Nursing Studies*, vol. 75, pp. 10-20. <https://doi.org/10.1016/j.ijnurstu.2017.07.003>

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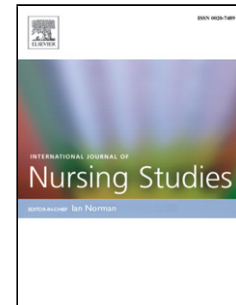
Title: De-escalation of aggressive behaviour in healthcare settings: concept analysis

Authors: Nutmeg Hallett, Geoffrey L. Dickens

PII: S0020-7489(17)30145-1

DOI: <http://dx.doi.org/doi:10.1016/j.ijnurstu.2017.07.003>

Reference: NS 2974



To appear in:

Received date: 17-2-2017

Revised date: 5-6-2017

Accepted date: 2-7-2017

Please cite this article as: Hallett, Nutmeg, Dickens, Geoffrey L., De-escalation of aggressive behaviour in healthcare settings: concept analysis. *International Journal of Nursing Studies* <http://dx.doi.org/10.1016/j.ijnurstu.2017.07.003>

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DE-ESCALATION OF AGGRESSIVE BEHAVIOUR IN HEALTHCARE

SETTINGS: CONCEPT ANALYSIS

ABSTRACT

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Background: De-escalation is the recommended first-line response to potential violence and aggression in healthcare settings. Related scholarly activity has increased exponentially since the 1980s, but there is scant research about its efficacy and no guidance on what constitutes the gold standard for practice. **Objectives:** To clarify the concept of de-escalation of violence and aggression as described within the healthcare literature. **Design:** Concept analysis guided by Rodgers' evolutionary approach. **Data sources:** Multiple nursing and healthcare databases were searched using relevant terms. **Review methods:** High quality and/or highly cited, or otherwise relevant published empirical or theoretical English language literature was included. Information about surrogate terms, antecedents, attributes, consequences, and the temporal, environmental, disciplinary, and theoretical contexts of use were extracted and synthesised. Information about the specific attributes of de-escalation were subject to thematic analysis. Proposed theories or models of de-escalation were assessed against quality criteria. **Results:** *N*=79 studies were included. Mental health settings were the most commonly reported environment in which de-escalation occurs, and nursing the disciplinary group most commonly discussed. Five theories of de-escalation were proposed; while each was adequate in some respects, all lacked empirical support. Based on our analysis the resulting theoretical definition of de-escalation in healthcare is "a collective term for a range of interwoven staff-delivered components comprising communication, self-regulation, assessment, actions, and safety maintenance which aims to extinguish or reduce patient

aggression/agitation irrespective of its cause, and improve staff-patient relationships while eliminating or minimising coercion or restriction". **Conclusions:** While a number of theoretical models have been proposed, the lack of advances made in developing a robust evidence-base for the efficacy of de-escalation is striking and must, at least in part, be credited to the lack of a clear conceptualisation of the term. This concept analysis provides a framework for researchers to identify the theoretical model that they purport to use, the antecedents that their de-escalation intervention is targeting, its key attributes, and the key negative and positive consequences that are to be avoided or encouraged.

KEYWORDS

Aggression, concept analysis, de-escalation, violence

INTRODUCTION

Violence and aggression by patients in healthcare settings is a global problem (Iozzino et al., 2015) with those working in mental health and medical emergency departments most at risk (Bowers et al., 2011, Phillips, 2016). Aggression can be verbal, physical, or sexual; the most commonly experienced by healthcare staff is verbal (Iennaco et al., 2013), but around a third of nurses in mental health settings have experienced physical violence (Spector et al., 2014). Violence causes short- and long- term physical and psychological harm for staff victims, and has been linked to burnout (Galián-Muñoz et al., 2014), decreased productivity, increased absenteeism (Gates et al., 2003), and interrupted patient care (Roche et al., 2010). The financial costs are significant: in the UK, £178 million, approximately half of all annual mental health nursing resources, are used to address and contain conflict (those things that patients do to threaten staff and patient safety e.g. aggression, absconding, self-harm) (Flood et al., 2008). Violence prevention, therefore, should be a priority. There is currently insufficient evidence to determine the safety and efficacy of intrusive and coercive interventions including seclusion and restraint (Nelstrop et al., 2006), and in the US the National Association of State Mental Health Program Directors have

concluded that 'every episode of restraint or seclusion is harmful to the individual and humiliating to staff members' (Haimowitz et al., 2006 pg.31). Professional guidelines recommend that coercive measures should not be considered as first-line interventions for potentially violent incidents (Haimowitz et al., 2006, Khwaja and Beer, 2013, National Institute for Health and Care Excellence, 2015), and endorse de-escalation instead, with more restrictive measures being used only in the event of its failure to avert violence.

The term de-escalation was first used in discourses about violence prevention in health and social care in the mid-1980s (e.g. Infantino and Musingo, 1985, Kaplan and Wheeler, 1983). It had occurred in the health literature before this to describe a tailing off of any one of a range of behaviours or situations towards eventual extinction, for example "opiate use" or "crisis". However, in the context of violence, the term had largely been used in scholarly works to describe geo-political conflict resolution (Azrael, 1978); specifically the reduction of western military involvement overseas (e.g. Darling, 1969, Tierney, 1969) and negotiation of opponent concessions through unilateral action in nuclear arms discussions (Wall, 1977). By the late 1970s the term was used in the context of police training in the management of domestic violence (Bell, 1979). In healthcare, use of the term has grown and has supplanted other terms for aggression management, such as 'control and restraint' which was an approach utilised in training programmes first in prisons and subsequently in mental health services in the UK and Canada which focused on self-defence, the use of pressure points, and martial arts-influenced holding and restraint techniques (Ryan, 2010).

From a public health perspective de-escalation has been defined as the main form of secondary violence prevention, occurring in the face of imminent aggression. This is in contrast to primary prevention which involves steps that are taken to prevent or reduce the likelihood that violent behaviour will be initiated, and tertiary actions which aim to reduce the impact of violence during its occurrence and in its aftermath (Paterson et al., 2004). De-escalation is described as a psychosocial intervention, which

should be used as the first-line response to violence and aggression (National Institute for Clinical Excellence, 2005). *Pro re nata* (as required; PRN) medication can be used as part of a strategy to de-escalate (National Institute for Health and Care Excellence, 2015), however there are risks, including increased morbidity and inappropriate use (by staff and patients), which are not associated with psychosocial de-escalation (Hilton and Whiteford, 2008).

Several writers have provided conceptual and operational definitions of de-escalation in healthcare settings (e.g. Clinical Resource and Audit Group, 1996, Cowin et al., 2003, National Institute for Health and Care Excellence, 2015). Some writers argue that de-escalation qualities are innate (Kindy et al., 2005) while others purport that their use and effectiveness develops through experience (Johnson and Hauser, 2001), or can be learnt through role-modelling and education (Beech and Leather, 2006, Kaufman and McCaughan, 2013, Pestka et al., 2012). However, despite these differing perspectives, Bowers (2014 p.36) notes that there are currently 'no systematic descriptions about what de-escalation is'. Furthermore, it is unclear whether definitions of de-escalation in healthcare have changed or evolved over time.

The aim of this paper was to conduct a concept analysis of de-escalation in healthcare in order to provide clarity for researchers, educationalists, and clinicians about the issue. An improved understanding of the concept has the potential to inform the theoretical underpinnings of de-escalation and help embed de-escalation principles in health care and educational culture with the ultimate aims of improving violence prevention and reducing the incidence of inappropriately restrictive interventions.

METHODS

Concept analysis is a form of literature review which aims to clarify concepts that are important in academic discourse but which lack definitional clarity (Toftthagen and Fagerstrøm, 2010). For the purpose of this review Rodgers' (2000) evolutionary method was used. This method involves setting

contextual parameters for the time span of the review, the discipline(s) to which it is intended to apply, and the environment in which it occurs. Unlike Walker and Avant's (2005) method, the primary focus of the evolutionary approach is not to construct fictitious model, borderline and alternate cases of the concept; instead, the process is inductive so 'real world' exemplars are identified. The aim of an evolutionary analysis is to provide a starting point for ongoing development of the concept as it evolves in usage (Rodgers, 2000). This involves identification of the component attributes of the concept that constitute a 'real' definition of when and where it is used, how, and by whom: i) 'surrogates' are terms used interchangeably with the concept; ii) 'antecedents' are actions and events that precede the concept; iii) 'consequences' are those that follow; iv) 'attributes' are the component characteristics of the concept; v) 'context', describes the temporal, disciplinary, environmental, and theoretical contexts of the concept. The latter point addresses Paley's (1996) concern that concept analysis fails to provide theoretical context. Finally, by providing clear details, we have addressed Draper's (2014) criticism that concept analyses typically lack explicit inclusion and exclusion criteria, and do not describe the data extraction process.

Data sources

We searched multiple databases (AMED, BNI, CINAHL, Embase, Medline and PsycINFO) from 1980 to April 2017. This period was selected as extensive internet searching failed to reveal mention of de-escalation in the healthcare context prior to 1980. The search terms used were: "de-escalat*" or deescalat*" or "conflict resolution" or "talk down" combined with "violen*" or "aggress*" or "assault*".

Data selection and analysis

Included papers were discursive, contextual, or theoretical accounts, empirical research studies, or literature reviews that used the term de-escalation or a synonym in the article title or abstract. Other literature about the de-escalation of violence or aggression without explicit mention of the term were also considered for inclusion. Exclusion criteria were non-English language papers, and those not within

the health and social care context. Papers that mentioned de-escalation, but did not describe any of the components of de-escalation required for the concept analysis, were also excluded. Additional manual searching of reference lists was undertaken. Titles and abstracts were screened to determine their relevance for inclusion in the review. Full text versions of eligible papers were obtained and assessed against the inclusion criteria. For all relevant papers, usage was established by number of citations of the paper (>10). This is important within an evolutionary concept analysis, where usage of the term is central to the review (Rodgers, 2000). For papers that did not meet this criterion, the relevant publication history of the author and innovation of the argument were assessed (Snowden et al., 2014), agreed independently by the two authors with any disagreement resolved by discussion.

The search strategy yielded 79 papers (see Figure 1). Each paper was categorised in terms whether i) there was an explicit primary aim to investigate or describe de-escalation, or ii) those which investigated de-escalation as a secondary aim or addressed it within the wider context of violence prevention. The type of paper, e.g. primary research, review, discussion etc., was also recorded. Each included paper was read and coded (NH) for each concept analysis component. Subsequently, coding was verified independently (GD) and any discrepancies resolved by discussion. Data for all components were analysed inductively with the aim of identifying the generally accepted state of knowledge about de-escalation. Further, data about the attributes of de-escalation were subject to a thematic analysis (Braun & Clark, 2006). Theories of de-escalation were evaluated using criteria previously used in forensic psychology theory evaluation (Ward et al., 2008): i) empirical adequacy (is the theory supported empirically?); ii) internal coherence (does the theory integrate key constructs logically and consistently such that it is falsifiable?); iii) explanatory depth (does the theory identify underlying mechanisms to explain the behaviour?); iv) fertility (does the theory generate new predictions, research, treatments, and knowledge?); iv) unifying power (does the theory combine previously separated theories to create new insight?).

RESULTS

Surrogate terms

Surrogate terms for de-escalation included conflict resolution, conflict management, crisis resolution, talk down, and defusing. One author each used 'authentic engagement' (Finfgeld-Connett, 2009) and 'low arousal approach' (McDonnell, 2010) to describe the therapeutic response that nurses use to de-escalate a potentially violent situation .

Antecedents to and consequences of de-escalation

Antecedents to de-escalation have largely been defined in terms of agitation and/or aggression (Berring et al., 2016, Davis, 2007, Hallett and Dickens, 2015, Hankin et al., 2011, Lavelle et al., 2016, Reade and Nourse, 2012, Richmond et al., 2012) or escalating behaviour of patients (Finfgeld-Connett, 2009, Johnson and Delaney, 2007, Maier, 1996, McDonnell, 2010, Morales and Duphorne, 1995, Wright et al., 2002). Other antecedents were patient rule-breaking behaviours including absconding, self-exposure, non-consensual touching, refusing to eat, sleep, get up, or go to bed (Bowers et al., 2013, Lavelle et al., 2016), and smoking in non-smoking areas (Lavelle et al., 2016). In addition, self-harm (Bowers et al., 2013, James et al., 2012, Lavelle et al., 2016, Stewart et al., 2012b), and suicide attempts (Lavelle et al., 2016, Stewart et al., 2012b) were antecedents. Refusal of regular and PRN medication, and requesting PRN medication were all identified as antecedents to, and to a lesser extent, consequences of de-escalation (Richardson et al., 2015). Finally, antecedent healthcare staff actions were invasion of privacy, e.g. when bathing or dressing an older adult (Somes et al., 2011), compulsory detention of a patient or transfer to another unit (Berring et al., 2016), administration of PRN medication (Bowers et al., 2013, Lavelle et al., 2016), and constant observations (Mackay et al., 2005, Stewart et al., 2012a).

PRN medication administration, constant observations and self-harm have also been identified as consequences of de-escalation (Bowers et al., 2013, Lavelle et al., 2016, Lian, 2001, Stewart et al., 2012a). Other consequences included the avoidance of measures including restraint (Richmond et al.,

2012) and PRN use (Swart et al., 2011), prevention of violent behaviour (Hodge and Marshall, 2007), reduction of patient anger and frustration (Distasio, 1994, Hallett and Dickens, 2015, Morales and Duphorne, 1995, National Institute for Clinical Excellence, 2005, Paterson et al., 1997), and the safety of staff and patients (Distasio, 1994, Richmond et al., 2012). Other positive but more distal consequences were improved staff-patient connections (Delaney and Johnson, 2006), patients being enabled to manage their own emotions (Richmond et al., 2012), and regaining of personal control (Berring et al., 2016). A direct consequence of de-escalation, according to Finfgeld-Connett (2009), is that it helps patients to develop feelings of hope, security and self-acceptance, compared with more authoritarian responses which can lead patients to lose trust in services and stop them from developing adaptive ways of responding. Unsuccessful de-escalation may be followed by assembly of a specialist team and the use of physical or pharmacological restraint (Hodge and Marshall, 2007, Hopper et al., 2012, Lavelle et al., 2016, Simpkins et al., 2016).

Bowers et al (2013) identified that the limitations of previous research on event sequencing in conflict and containment situations, including de-escalation, meant that data were largely based on shift-level rather than patient-level data. Consequently, the precise order of events was open to question.

Subsequently, a detailed examination of the sequence of events at individual patient-level revealed that most transitioned between de-escalation, verbal aggression and PRN medication administration in all possible bi-directional combinations forming a 'minimal triangle'. The most common transitions were from verbal aggression to de-escalation, verbal aggression to PRN medication, and from de-escalation to PRN medication. Therefore, de-escalation could itself be an antecedent of further activity in the unfolding of conflict and containment events.

Attributes of de-escalation

Five components were derived from thematic analysis: communication, self-regulation, assessment, actions, and safety. Details are presented in Table 1.

Context of de-escalation

Temporal context. The number of papers included in this review by decade increased from three (1980-1989) to 11 (1990-1999) to 33 (2000-2009) and to 39 (2010-2016). Use of the term de-escalation in relation to aggression in healthcare settings has changed little since its first use. The attributes identified in our thematic analysis reflect literature across the full span of the period under review. However, papers whose specific aim was to investigate de-escalation ($n=30$) numbered zero, six, seven, and seventeen in the respective time periods. The earliest published example of primary research de-escalation (Johnson and Hauser, 2001) was a qualitative study of skilled de-escalators, and just two further studies emerged in that decade (Cowin et al., 2003, Delaney and Johnson, 2006). Since 2010, at least seven de-escalation-specific primary research studies (Berring et al., 2016, Chigbundu, 2015, Hallett and Dickens, 2015, Lavelle et al., 2016, Mavandadi et al., 2016, Nau et al., 2010, Reade and Nourse, 2012) have been published. Reviews of de-escalation-related literature (Inglis and Clifton, 2013, Price and Baker, 2012) have only emerged recently while papers of an instructional or 'best practice' nature have emerged across the period. Thus, while the term has largely retained its meaning, its centrality to discourse on violence prevention has grown and strengthened.

Environmental context. Where specific information was provided, mental health settings were the most common environments in which de-escalation occurred ($n=38$); of these, four were in secure/forensic psychiatric services, two were psychiatric intensive care units, and two were child and adolescent units. Twelve papers described de-escalation in acute and general medical services; five of these were in emergency departments, one of which was a paediatric emergency department, one was within a general practice setting, one was in intensive care, one was in the operating room and one was in a children's hospital. Two papers focused on older adult settings, and one on midwifery.

Disciplinary context. The disciplinary context of most papers, where described, was nursing ($n=45$ studies), whilst generic clinical or healthcare staff comprised $n=13$. Physicians and psychiatrists were the

focus of four papers. Three papers examined the de-escalation of conflict between staff (Altmiller, 2011, Smith et al., 2001, Sotile and Sotile, 1996). One study described the de-escalatory practices of patients (Quirk et al., 2005), whilst the rest focused on staff de-escalation.

Theoretical context. Theories of aggression are rarely alluded to in definitions of de-escalation used in the literature. The first NICE (2005 p.8) guidelines refer to the ‘assault cycle’ theory but this is removed in the current (NICE, 2015 p.27) guidelines in favour of a descriptive definition of de-escalation as a ‘range of verbal and non-verbal skills and interactional techniques to avoid or manage known “flashpoint” situations ... without provoking aggression’. Some writers claim that de-escalation can be informed by theories of violence and aggression but have not proposed specific theories of de-escalation. For example, Hodge and Marshall (2007) proposed that knowledge of social learning, biological and frustration-aggression theories of aggression aetiology may enable clinicians to identify and select appropriate strategies to prevent or minimise violent behaviour in the context of the presenting features of the situation. However, they do not expand on how these theories can specifically be used to aid in the prevention of imminent violence.

The progression of aggressive incidents has been examined by various authors. Kaplan and Wheeler (1983) described a five phase ‘assault cycle’, a theoretical model proposing that the behaviour of perpetrators of aggression and violence typically elevates following a trigger event (phase 1) through an escalation phase (2) where behaviour becomes increasingly agitated; a crisis phase (3) characterised by directly assaultive behaviour; a recovery phase (4) in which there is a gradual return to baseline behaviour; and a post crisis depression phase (5) characterised by mental and physical exhaustion. While not using the term ‘de-escalation’ the authors state that during the escalation phase ‘the staff person must take purposeful action at the first observable sign of the client’s change in normative behaviour’ (Kaplan and Wheeler, 1983 pg.341) , and go on to describe a range of de-escalatory interventions (e.g., removal from the environment, relaxation training).

Leadbetter and Paterson (1995) and Maier (1996) expand on the idea of an assault cycle, to guide de-escalation. They identify phase-specific interventions informed by the hypotheses that each is associated with a different dominant emotion, that the aim(s) of intervention in each is different, and that the staff response needs to be tailored accordingly. During phase 1, for example, Maier (1996) states that the clinician's natural response is empathy and the aims are to prevent further escalation and potential violence, reduce arousal, and maintain safety. The appropriate response is coordination of staff interventions, removal of bystanders and potential weapons, and containment of threatening behaviour. The tactics used to achieve this include: maintaining communication, avoiding loss of authority, use of self-disclosure, conditional limit-setting, mood matching, distraction/diversion, and time-out. Phase 2, at which point the patient displays verbal abuse, is identified as the appropriate time for clinicians to employ 'talk down' or de-escalation techniques. Similarly, Leadbetter and Paterson (1995) propose that de-escalation interventions can be employed to prevent further escalation in the first two phases of the assault cycle. They then divide the crisis phase in two, advocating de-escalation in the first part, and adding a 'destructive' phase, being the peak of the arousal, which is when a physical staff response is required.

Dix and Page (2008) propose a cyclical model of de-escalation predicated on Frude's (1989) situational analysis of aggressive incidents which posits five stages that result in aggression: i) the situation, i.e., the immediate antecedent events to the aggression; ii) the appraisal, i.e., the conclusions the patient draws regarding the situation; iii) the resulting anger as arising from a negative appraisal; iv) inhibitors, which are the patient's attitudes, values and controls against aggression; v) aggression, which is the behavioural manifestation of the previous stages. Dix and Page (2008) state that staff-patient interactions, for example medication administration or limit-setting, provide the stage 1 antecedent to a majority of inpatient assaults. Their proposed model consists of three interdependent components: assessment, communication and tactics (ACT), each of which should be continuously revisited by the de-escalator during the incident.

Turnbull et al. (1990) present a model similar to that of Dix and Page (2008) which additionally describes how the de-escalator evaluates the aggressor's response to his use of de-escalation skills by constantly monitoring and evaluating feedback from the aggressor. The authors stress that flexibility in individual cases is more important than basing de-escalation on a few well practiced skills, or using those skills in a pre-determined order, since what may be de-escalatory for one person may be inflammatory for another.

Bowers (2014) synthesised the existing literature to develop a model to aid understanding of the process of de-escalation. The model portrays de-escalation as a linear process beginning with i) delimiting, which involves making the situation safe by obtaining assistance where needed, moving the patient or other patients to a safe area, and maintaining a safe distance; ii) clarification follows, whereby the reasons for apparent anger are established by effective communication; finally, iii) resolution is achieved by finding a mutually agreeable solution to the problem. Throughout this process the de-escalator must remain calm and control their emotions, whilst showing empathy and respect to the patient. Bowers' (2014) model resonates with the findings of Berring et al. (2016), who identified that successful de-escalation consists of a 'stream of actions', beginning with creating a safe space, then establishing 'mutual relations', followed by using creativity to resolve the situation. The concept of de-escalation as 'staged' is also used by Cowin et al. (2003) who identified a seven-step process: before de-escalation begins, physical presentation, content of speech, listening tools, issues to clarify and reflect upon, negotiation and problem solving, and shared affirmations.

The quality of the theories is generally good, with the exception of Maier (1996), see Table 2. One common limitation was the lack of supporting empirical evidence. Nevertheless, the models fall into one of two contradictory groups: linear or cyclical. Most, following Kaplan and Wheeler (1983), have assumed a linear process of aggression, confusingly described as the assault cycle, in which a trigger event leads to escalation of aggressive behaviour towards a crisis point, usually physical in nature, and

subsequently to resolution (Bowers, 2014, Leadbetter and Paterson, 1995, Maier, 1996). However, the strongest and most recent evidence about transition sequences in conflict and containment scenarios contradicts this assumption (Bowers et al., 2013). Rather, crises commonly occur rapidly and require management without time for extensive assessment. This suggests that the cyclical models, proposed by Turnbull et al. (1990) and Dix and Page (2008), may be more consistent with modern theories of aggression, since both advocate considerable flexibility in the use of different skills and interventions.

Theoretical definition of de-escalation

De-escalation is a collective term for a range of interwoven staff-delivered components comprising communication, self-regulation, assessment, actions, and safety maintenance, which aims to extinguish or reduce patient aggression/agitation irrespective of its cause, and improve staff-patient relationships while eliminating or minimising coercion or restriction.

Exemplar of de-escalation

In evolutionary concept analysis the purpose of an exemplar is to illustrate the attributes of the concept in a practice-related situation (Rodgers, 2000). This is provided by a psychiatric nurse who recounts a situation involving a child and their parents on a psychiatric unit (Johnson and Hauser, 2001 p.657).

I came running on the unit and there were about five staff members holding this child in the middle of the hallway... His parents were almost on top of the staff members... So, it was really, really intense... And believe me, my heart was pounding . . . And the mother was kneeling next to the child. The child was screaming. The father was on top of the mother, yelling at the staff. [The physician] was trying to kneel down and it was just mass chaos and escalating...

So, the first thing I decided that I had to do was intervene with the parents. So, I went up to both of them and very purposefully used touch - touched them on the back - used a very calm voice because there was a lot of anxiety and a lot of tension, a lot of yelling. And said, "Excuse me. I need you both to come with me for just a minute. Just give me a moment of your time. I know that you're very worried about the situation. The situation is very frightening." So I think I tried to validate what they were seeing, tried to use my voice to calm them, tried to use touch to get them to look at me, but very gently so they didn't turn around and hit me...

And they both stood up and then I used my hands and said, "Please just step over here with me for one moment." I said to them, "This has to be very frightening to you. I would like you to give me an opportunity to try and de-escalate this situation. Will you let me do that?" So, I tried to engage with them on the fact that it was very scary... I said, "I know you're concerned about your son. There are five people on top of him right now." And I tried to get them into a position to say yes, to give me permission to do this rather than just bust in. But, I had confidence at that moment that they would say yes.

This exemplar demonstrates the five attribute themes of de-escalation. The nurse used a range of *communication* skills with the parents, whilst acknowledging the intensity of the situation and the effect it had ('my heart was pounding'), demonstrating *self-regulation*. *Assessment* of the situation lead to the nurse intervening with the parents first, attempting to create a safe space by moving them away (*actions* and *safety*).

DISCUSSION

The current concept analysis aimed to clarify the nature, attributes, antecedents, consequences, and relevant contextual factors of de-escalation in healthcare. De-escalation comprises a set of skills,

knowledge, and personal features in the domains of communication, self-regulation, assessment, activity, and safety maintenance. It is preceded by patient aggression which may be self- or other-directed, agitation, or rule breaking. Some of these antecedents may in turn be the consequence of staff actions and/or environmental factors. Immediate consequences can include avoidance of more restrictive or coercive measures, reduced patient anger and frustration, and improved safety; but also PRN medication, constant observations, or further aggression. Hypothesised longer term consequences include improved staff-patient relationships, hope, and improved patient self-management. De-escalation has almost exclusively been studied in the context of nursing practice, particularly in mental health services.

The use of de-escalation as the main intervention for violence prevention in healthcare settings has grown since its first appearance in the literature in the 1980s. Similarly, there has been considerable empirical and theoretical development. Most training in the prevention and management of aggression and violence now includes information about de-escalation techniques (Livingston et al., 2010).

However, there is little clear guidance about what constitutes de-escalation, and no best practice, evidence-based guidelines about how de-escalation techniques should be taught. It is therefore unsurprising that no studies to date have investigated whether de-escalation skills taught during training sessions are used during aggressive incidents, although some studies suggest that training may increase confidence in and knowledge of de-escalation (Price et al., 2015).

Although many antecedents and consequences of de-escalation have been identified, few studies have examined the causal relationships between them. There appears to be a general consensus that de-escalation attempts are often precipitated by patient aggression, or behavioural escalation, and it follows that certain patient behaviours, such as self-harm or absconding attempts, might require de-escalation as a first-line response. The positive consequences of de-escalation are also described by numerous authors, particularly reducing patient aggression, preventing violence, and reducing the need

for restrictive interventions. What has not been demonstrated in the literature is which attributes of de-escalation are most effective, nor how people become effective de-escalators. In their systematic review of de-escalation training, Price et al. (2015) found that there was only limited evidence of improvements in de-escalation performance post-training. Similarly, the evidence for a reduction in assault rates following training was sparse, with three studies finding a reduction (Needham et al., 2004, Rice et al., 1985, Whittington and Wykes, 1996), two finding no reduction (Henk and Joost, 1997, Sjöström et al., 2001), and one actually finding an increase, possibly due to improved reporting (Martin, 1995). Promisingly, there was agreement between studies that training in de-escalation resulted in a reduction of the use of physical restraint (Jonikas et al., 2004, Laker et al., 2010, Moore, 2010, Needham et al., 2004). Again, large-scale controlled trials are needed to explore the effectiveness of de-escalation training, and particularly to identify the most effective methods of teaching.

Most studies of de-escalation have been atheoretical, although perusal of training literature suggests that de-escalation is often situated within the context of Kaplan and Wheeler's (1983) assault cycle (North West Integrated Workforce Unit, 2014). As a result, practice recommendations based on the assault cycle propose careful monitoring of relatively slowly escalating scenarios, and careful selection of de-escalation strategies and activities appropriate to the stage of escalation. However, this does not accord with more recent research into the transition sequences of conflict and containment events, which suggests that most incidents transition between verbal aggression, de-escalation and PRN medication, described as the 'minimal triangle' (Bowers et al., 2013). The second most common event transition is from verbal aggression to PRN medication; further, de-escalation itself often results in PRN medication administration. PRN medication, not in itself a de-escalation technique, therefore plays a considerable role in the resolution of aggressive and potentially violent situations. This misfit between accepted theory and practice actuality may be responsible, to some extent, for the hitherto confused concept of de-escalation (Hallett and Dickens, 2015).

This review identified the attributes of de-escalation, which can be grouped into five themes: communication, self-regulation, assessment, actions and safety. These correspond broadly with those identified by Dix and Page (2008) in the ACT model, and also the model of de-escalation described by Bowers (2014). This is interesting because categories for the ACT model were developed from clinical experience in a PICU, while Bowers' model of de-escalation comes from a synthesis of the literature. However, while the categories are similar, the structure of the models differs, with the ACT model being cyclical and Bowers' model being linear. Further research is needed to identify which of these models best reflects de-escalation in practice, and also which has the greatest utility for training.

Limitations

The identification of innovative arguments as a method of quality checking may have introduced bias, as this is a subjective means of quality control. However, these were checked by both authors with the aim of reducing bias. Furthermore, not all of the literature identified by this review, i.e. guidance and opinion, would have been appropriate for critical appraisal.

To date, three systematic reviews of the efficacy of de-escalation for violence reduction have been published; Price and Baker (2012) focused solely on qualitative research, demonstrating how de-escalation has evolved as a concept, from sporadic research in the 1980s and 1990s, to a growing field of research that can be reviewed and synthesised. What is of potential concern is that in 2006 Muralidharan and Fenton attempted to review evidence-based practice for non-pharmacological containment strategies for acutely disturbed mental health patients, including de-escalation, but were unable to produce any conclusions due to a lack of evidence from controlled studies. They revisited this review in 2012 to similar effect. An attempt to review de-escalation techniques for psychosis-induced aggression found similar results (Du et al., 2017). To date, only one randomised controlled trial has been identified that includes de-escalation, the Safewards trial (Bowers et al., 2015) and, although positive results were obtained, they were based on a range of interventions meaning that it was not possible to

separately quantify the effects of de-escalation from the other interventions. This lack of controlled trials demonstrates a significant gap in nursing knowledge, particularly when viewed within the environment of evidence-based practice.

CONCLUSIONS

To date, most research on de-escalation has been qualitative in nature, with small study samples; no large scale, quantitative studies have been undertaken that focus specifically on the effectiveness of de-escalation as a means of violence reduction. However, the Safewards RCT has shown that conflict and containment can be reduced with a suite of interventions, including de-escalation (Bowers et al., 2015). This review has identified that de-escalation comprises a set of attributes that are used in escalating situations to prevent the use of restrictive measures, patient violence, and reduce patient fears and anxieties. Those attributes are communication, both verbal and non-verbal; self-regulation; assessment; the actions taken to de-escalate a situation; and the maintenance of safety of all the individuals present. A skilled de-escalator will be able to identify which components are needed in different situations, assessing which interventions are effective in that moment, and contemporaneously maintaining the safety of the patients and staff who are present.

While there is a larger quantitative evidence base about the teaching of de-escalation most studies are of weak or moderate quality (Price et al., 2015). Better research evidence about the efficacy of teaching de-escalation is of course needed, however this does not solve the problem about the effectiveness of the attributes covered in training in terms of the goals of de-escalation. Neither does it solve the problem about what attributes should be included in training programmes, nor the most effective methods of teaching de-escalation. The current concept analysis offers a working definition, based on the best available evidence, which could be used to underpin training and education.

Guidelines have advocated the use of de-escalation techniques without clearly laying out what is intended (National Institute for Health and Care Excellence, 2015), meaning there has likely been large discrepancies between the ways de-escalation techniques are utilised. That many guidelines have been produced by well-respected authorities might mean that staff assign more significance to them than the scant evidence behind them warrants. Further research is needed to identify how staff utilise de-escalation techniques and which are effective, and controlled trials to examine the efficacy of training and the utilisation of de-escalation techniques. Future studies of de-escalation effectiveness must explicitly identify their terms. It will be helpful to do this in a manner consistent with the current analysis: i.e., what antecedent signs is their intervention targeting, what are its key attributes, what key negative and positive consequences are to be avoided or encouraged, and which theoretical model of de-escalation do they purport to use?

ACKNOWLEDGEMENTS

This review formed part of a PhD study conducted by NH, University of Northampton, supported by GD as academic supervisor. The authors would like to acknowledge Judith Sixsmith, PhD, MSc, PGCE and Jörg Huber, PhD, MSc, Diplompsychologe, Chartered Psychologist. Judith and Jörg were both supervisors for the PhD.

What is already known about the topic?

- De-escalation is frequently recommended as the first line intervention for imminent violence.
- De-escalation comprises a range of short-term psychosocial interventions aimed at reducing or eliminating aggression and violence.
- There is a lack of clarity about what precisely de-escalation entails and how best it should be implemented.

What this paper adds

- De-escalation is a collective term for a range of interwoven staff interventions, comprising verbal and non-verbal communication, self-regulation, assessment, and actions, whilst maintaining the safety of staff and patients.
- Models of de-escalation are either linear or cyclical, the former aligning with the assault cycle theory, and the latter with current research on event sequencing in inpatient aggression.
- Administration of PRN medication, and de-escalation itself, both appear to play an important role in unfolding incidents involving or potentially involving aggression.

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Figure 1. Flow chart of study selection

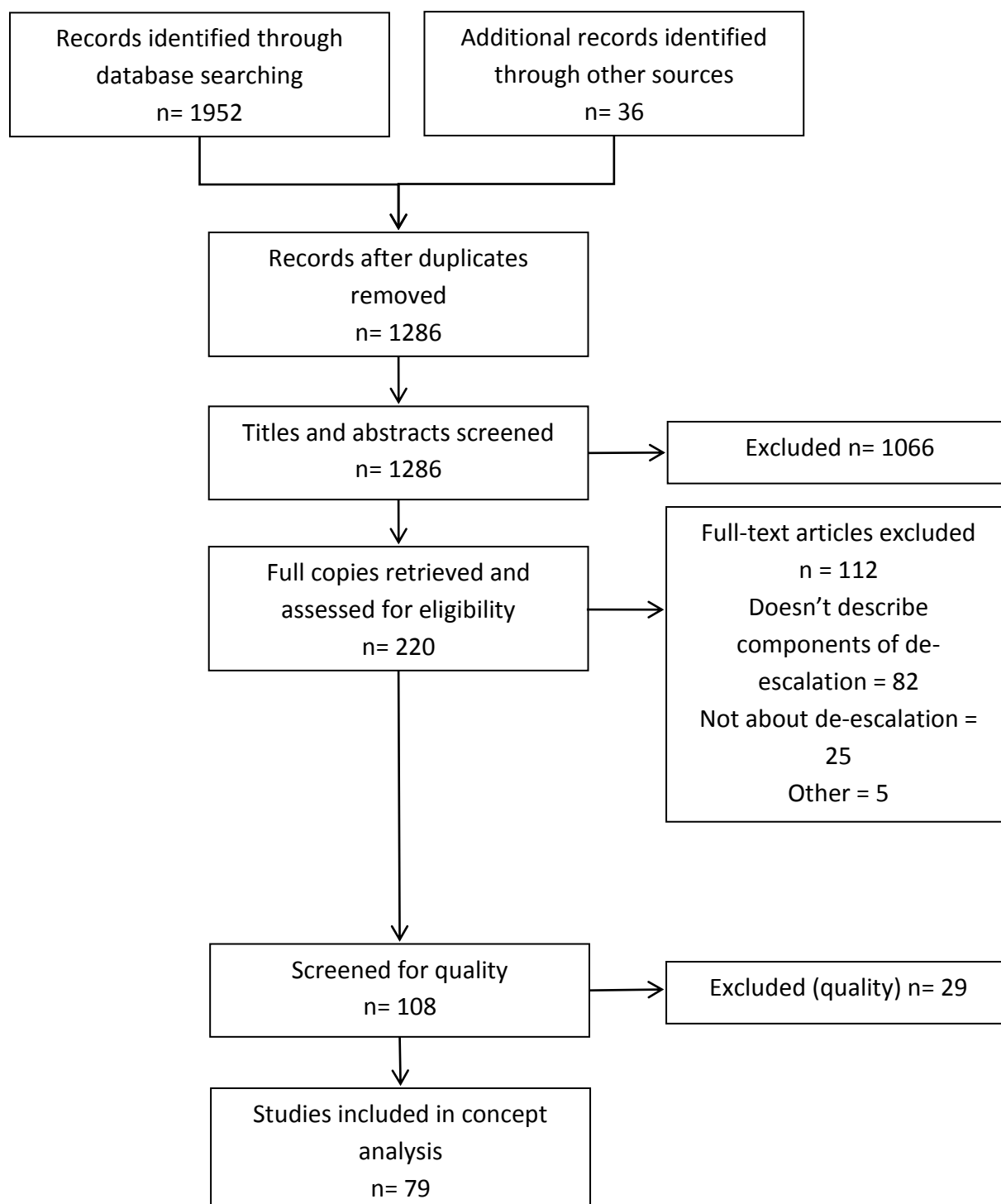


Table 1. Attributes of de-escalation

Themes and attributes	Study or paper
Communication	
Forming a connection with the potential aggressor as early as possible (through the use of a previously developed relationship where relevant).	Bowers (2014), Chigbundu (2015), Garnham (2001), Hodge & Marshall (2007), Johnson & Hauser (2001), Lian (2001), Littrell and Littrell (1998), Muralidharan & Fenton (2006), National Institute for Clinical Excellence (2005)
Using open-ended questions.	Bowers (2014), Hankin et al. (2011), Hodge & Marshall (2007), National Institute for Clinical Excellence (2005), Richter (2006), Stevenson (1991)
Offering choices or alternatives.	Bernstein and Saladino (2007), Berring et al. (2016), Ford (2012), Lowe (1992), Morales & Duphorne (1995), National Institute for Clinical Excellence (2005), Price & Baker (2012), Richmond et al. (2012), Saheed (2013), Swart et al. (2011)
Problem-solving, working out agreements, identifying causes, offering solutions, and seeking resolution.	Bernstein and Saladino (2007), Davis (2007), Drach-Zahavy et al. (2012), Duperouzel (2008), Hallett & Dickens (2015), Hankin et al. (2011), James et al. (2012), Liberman (2011), Maunder (1997), Mavandadi et al. (2016), Nau et al. (2010), Price & Baker (2012), Stevenson (1991), Smith et al. (2001), Stringer (2016), Turnbull et al. (1990), Wand & Coulson (2006)
Exploring opportunities for agreement.	DelBel (2003)
Reminding patients of behavioural expectations.	Chabora et al. (2003)
Acknowledging the aggressor's feelings/situation.	Berring et al. (2016), National Institute for Clinical Excellence (2005), Richter (2006), Stevenson (1991), Wand & Coulson (2006),
Expressing one's own feelings or using limited self-disclosure as a means of developing a rapport.	Buback (2004), Garnham (2001), Hankin et al. (2011), Hodge & Marshall (2007), Lowe (1992), Paterson et al. (1997), Smith et al. (2001),

Redirecting the conversation to a less charged topic.	Hankin et al. (2011)
Using clear, concise language.	Corbo and Siewers (2001), DelBel (2003), Hankin et al. (2011), National Institute for Clinical Excellence (2005), Richmond et al. (2012), Saheed (2013), Stevenson (1991), Sim et al. (2011), Su (2010), Turnbull et al. (1990)
Paraphrasing / summarising to demonstrate and ensure understanding.	DelBel (2003), Dubin & Ning (2008), Hankin et al. (2011), Richter (2006), Smith et al. (2001), Sotile & Sotile (1996)
Using humour when appropriate.	Hallett and Dickens (2015), Sotile & Sotile (1996)
Being honest, not making promises that can't be kept.	Dubin & Ning (2008), Maunder (1997)
Using 'fiblets' or 'therapeutic lies' with older adults.	Soreff & Siddle (2004)
Offering reassurance of safety.	Petit (2005), Su (2010)
Avoiding jargon or threats.	Davis (2007), National Institute for Clinical Excellence (2005), Stevenson (1991)
Avoiding indecisive or uncertain language	Buback (2004)
Avoiding appearing confrontational, overbearing, belittling, patronising, or provocative.	Davis (2007), Distasio (1994), Hankin et al. (2011), Hodge & Marshall (2007), National Institute for Clinical Excellence (2005), Richmond et al. (2012), Richter (2006), Saheed (2013), Twemlow (2001)
Conveying professional concern	Petit (2005)
Listening for content and meaning	Richter (2006), Saheed (2013)
Active listening	Lian (2001), Mavandadi et al. (2016), Soreff & Siddle (2004), Stringer (2016)
Using an appropriate tone of voice.	Chigbundu (2015), DelBel (2003), Distasio (1994), Drach-Zahavy et al. (2012), Gillespie (2008), Hankin et al. (2011), Hallett & Dickens (2015) Irwin (2006), Liberman (2011), Maier (1996), Price & Baker (2012), Richter (2006), Ryan & Bowers (2005), Smith et al. (2001), Sotile & Sotile (1996), Stevenson (1991), Stringer (2016)
Awareness of one's own body language and adoption of an open, non-threatening posture.	Buback (2004), DelBel (2003), Distasio (1994), Dubin & Ning (2008), Gertz (1980), Hallett & Dickens (2015), Inglis & Clifton (2013), Maunder (1997), National Institute for Clinical Excellence (2005), Paterson et al. (1997), Stevenson (1991), Stringer (2016), Turnbull et al. (1990),
Establishing and maintaining eye	Buback (2004), Dubin & Ning (2008), Garnham (2001),

contact in a non-threatening manner.	Lian (2001), Maunder (1997), McDonnell (2010), Paterson et al. (1997), Price and Baker (2012), Stringer (2016), Turnbull et al. (1990)
Maintaining a neutral facial expression.	Distasio (1994), Garnham (2001), Hankin et al. (2011), Paterson et al. (1997), Price & Baker (2012) Turnbull et al. (1990)
Using touch to calm patients, based on the belief that 'closeness and holding are calming and comforting'.	Carlsson et al. (2000 p.539)
Congruence between actions and speech.	Lowe (1992)
Cultural awareness since cultural differences in verbal and non-verbal communication styles, could compound problems.	Inglis & Clifton (2013), Paterson et al. (1997)
Demonstrating empathy in verbal and non-verbal modes of communication.	Davis (2007), Distasio (1994), Ford (2012), Garnham (2001), Hallett & Dickens (2015), Hankin et al. (2011), Lane (1986), Mavandadi et al. (2016), National Institute for Clinical Excellence (2005), Petit (2005), Procter (2011), Richter (2006), Stringer (2016), Turnbull et al. (1990), Twemlow (2001), Wand & Coulson (2006),
Slowing things down, gaining time	Maunder (1997), Richter (2006), Sotile & Sotile (1996), Stringer (2016)
Using silence to allow the individual time to clarify their thoughts.	DelBel (2003)

Self-regulation

Remaining calm.	Bernstein and Saladino (2007), Carlsson et al. (2000), Chigbundu (2015), Corbo and Siewers (2001), DelBel (2003), Duperouzel (2008), Gertz (1980), Lian (2001), Lowe (1992), McDonnell (2010), Petit (2005), Ryan & Bowers (2005), Sim et al. (2011), Steen (2011), Su (2010), Virkki (2008)
Separating one's feelings about the aggressor/patient and the problem. Avoiding making judgements about the aggressor. Avoiding taking the aggression personally.	Altmiller (2011), Paterson et al. (1997), Steen (2011), Su (2010)
Emotional regulation, assertiveness, self-control and confidence.	Daffern et al. (2012), Davis (2007), Distasio (1994), Lian (2001), Lowe (1992), Maier (1996), Maunder (1997), Mavandadi et al. (2016), Muralidharan & Fenton (2006), National Institute for Clinical Excellence (2005), Nau et al. (2010), Petit (2005), Price & Baker (2012), Richter

	(2006), Stevenson (1991), Virkki (2008)
Personal reflection following an incident to what went well or poorly and what could be improved.	Altmiller (2011)
Assessment	
Assessing the potential aggressor's emotional state or the immediate situation.	Duperouzel (2008), Hanieh et al. (2014), Johnson & Hauser (2001), Steen (2011), Stevenson (1991), Wand & Coulson (2006),
Assessing the risks associated with interventions	Richter (2006)
Observing and recognising known early-warning signs of aggression.	Hallett et al. (2016), Inglis & Clifton (2013), Mackay et al. (2005), Morales & Duphorne (1995), Muralidharan & Fenton (2006), Steen (2011)
Judging the anticipated trajectory of the situation in the context of the individual patient, using existing knowledge of the patient	Delaney & Johnson (2006), Lovell et al. (2015), Berring et al. (2016)
Knowing when to intervene.	Lovell et al. (2015)
Using all five senses to assess the situation	Corbo and Siewers (2001)
Actions	
Use of activities to help the patient to displace anger and frustration and to distract the individual by providing a change of activity.	Kaplan & Wheeler (1983), Garnham (2001), Chabora et al. (2003), Bernstein and Saladino (2007), McDonnell (2010), Liberman (2011), Hallett & Dickens (2015), Hallett et al. (2016), Reade and Nourse (2012)
Limit-setting, that is non-confrontational and based on respect	Dubin & Ning (2008), Finfgeld-Connett (2009), Hallett et al. (2016), Hankin et al. (2011), Hodge & Marshall (2007), Irwin (2006), Lowe (1992), Morales & Duphorne (1995), Paterson et al. (1997), Price & Baker (2012), Reade and Nourse (2012), Richmond et al. (2012), Su (2010)
Redirecting the individual's attention / distraction.	Distasio (1994), Hallett et al. (2016), Soreff & Siddle (2004), Stringer (2016), Swart et al. (2011)
Standing if the individual is standing, sitting if they are sitting.	Dubin & Ning (2008)
Removing the potential aggressor, or others, from the situation, thus creating a safe space.	Bowers (2014), Chabora et al. (2003), DelBel (2003), Hallett & Dickens (2015), Hallett et al. (2016), Kaplan & Wheeler (1983), Lian (2001), Liberman (2011), Maunder (1997), Smith et al. (2001)
Bringing in a different person to interact with the individual.	Gillespie (2008)

Decreasing environmental stimuli	Lian (2001), Reade and Nourse (2012), (Somes et al., 2011)
Recognising and alleviating causes of agitation (older adults) e.g. pain, hunger etc.	Somes et al. (2011)
Stress management and relaxation exercises as ways in which patients could reduce their own aggression.	Chabora et al. (2003)
Using an individualised treatment plan	Littrell and Littrell (1998)

Maintaining safety

Making a safe and cautious approach to the aggressor through use of slow, careful movement to avoid further agitation or surprise.	Distasio (1994), Hankin et al. (2011), Hodge & Marshall (2007), Lian (2001), Muralidharan & Fenton (2006), Paterson et al. (1997), Sim et al. (2011)
Being aware of the environment in terms of planning escape routes, and avoiding vulnerable positions and isolation.	Distasio (1994), Maier (1996), Hankin et al. (2011), Hodge & Marshall (2007), Garnham (2001), National Institute for Clinical Excellence (2005)
Seeking support or being aware of backup should it be needed.	Bowers (2014), Davis (2007), Hallett & Dickens (2015), Maunder (1997)
Being aware, and removal or moderation of potential weapons, dangers and triggers.	Distasio (1994), Duperouzel (2008), Hankin et al. (2011), Hodge & Marshall (2007), Lian (2001), Mackay et al. (2005), Soreff & Siddle (2004), Stevenson (1991),
Acknowledging that agitated individuals may require more personal space, or a greater buffer zone, than usual.	Bowers (2014), Corbo and Siewers (2001), Davis (2007), Dubin & Ning (2008), Garnham (2001), Hankin et al. (2011), Mavandadi et al. (2016), McDonnell (2010), Paterson et al. (1997), Price & Baker (2012), Richmond et al. (2012), Richter (2006), Saheed (2013), Stringer (2016)
Debriefing following an incident in order to identify strategies for de-escalation that may prove useful in future crises.	Azeem et al. (2015), McDonnell (2010)

Table 2. Evaluation of theories of de-escalation

De-escalation defined as comprising multiple	Theory provides a clear account of what	Clear account of the mechanisms and	Detailed description of the likely reason for	Integrated account of distal and proximal factors	Level of detail commensurate with contemporary	Theory is supported by existing	Theory consistent with accepted	Theory draws together existing theories	Theory is fertile: generates new hypotheses	Total (out of 20)
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	factors i.e. is a complex phenomenon	de-escalation is including who used with and when what it comprises	interaction of mechanisms that create successful de-escalation	different de-escalation interventions succeeding at different times and with different patients	underpinning successful de-escalation	primary research literature and knowledge.	empirical research	related theory	or research knowledge in a new way	, research questions or interventions	
Turnbull 1990	2	2	2	2	2	2	1	2	1	1	17
Leadbeter & Paterson 1995	2	2	2	1	2	2	1	1	2	1	16
Maier 1996	0	1	1	0	1	1	0	1	0	0	5
Dix & Page 2008	2	1	2	2	1	1	1	2	2	2	16
Bowers 2014	2	1	2	1	1	2	2	1	2	2	16

0 = No, 1 = to some extent, 2 = Yes, definitely