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By Mary Lavelle

WORD COUNT

5305

TIME SUBMITTED

05-AUG-2015 09:56AM

PAPER ID

19028359

Abstract

Background: De-escalation is the use of verbal and nonverbal communication to reduce or eliminate aggression and violence during the escalation phase of a patient's behaviour. Although de-escalation is a first line intervention in aggression management in acute psychiatric settings, little is known about the use or effectiveness of this technique.

Aim: To explore the factors that influence the use of de-escalation and its success in halting conflict in acute psychiatric inpatient setting.

Design: A retrospective case note analysis.

Methods: For each patient (n=522), their involvement in conflict (e.g. aggression) or containment (e.g. coerced medication) during the first two weeks of their admission was recorded. The frequency and order of the conflict and containment events were identified during each shift. The sequences of events occurring in shifts involving de-escalation were analysed. Sequences where de-escalation ended the pattern of conflict or containment were classed 'successful', all others were classed 'unsuccessful'.

Results: Over half of patients (53%) experienced de-escalation during the first two weeks of admission, with the majority of these (37%) experiencing multiple episodes. De-escalation was successful in approximately 60% of cases. Successful de-escalations were preceded by fewer and less aggressive, conflict events, compared to unsuccessful de-escalations, which were most frequently followed by administration of pro re nata medication. Patients with a history of violence were more likely to experience de-escalation and it was more likely to be un-successful.

Conclusions: De-escalation is frequently effective in halting a sequence of conflict in acute inpatient settings, but patients with a history of violence may be specifically challenging.

Relevance to clinical practice: These findings provide support for de-escalation in practice, but suggest that nurses may lack confidence in using the technique, particularly when the risk of violence is greater. Providing evidence-based staff training may improve staff confidence in the use of this potentially powerful technique.

Key words: Psychiatric Nursing; Aggression; Inpatient; Communication

What does this paper contribute to the wider global clinical community?

This study demonstrates that de-escalation is frequently used and is effective in halting the sequence of conflict and containment in acute inpatient psychiatric wards.

-De-escalation is most effective in halting a sequence of conflict and containment when patients' behaviour is less aggressive and nurses' perceived risk of violence is lower.

-Patient characteristics do not fully explain the use, or effectiveness, of de-escalation.

-Providing evidence based de-escalation training is critical to improve clinical confidence in use of the technique.

INTRODUCTION

De-escalation is the use of verbal and nonverbal communication to reduce or eliminate aggression and violence during the escalation phase of a patient's behaviour (NICE, 2005, CRAG, 1996). De-escalation is recommended as first line intervention in managing aggression and violence in mental health settings (NICE, 2005) and offers a safer, less coercive, alternative to traditional containment methods such as seclusion, rapid tranquilization, intensive supervision or physical restraint. However, despite the emphasis of de-escalation in policy and practice, little research has been conducted into this potentially powerful method (Inglis and Clifton, 2013, Muralidharan and Fenton, 2006).

BACKGROUND

The policy shift to less coercive methods is seen as essential as recent high profile deaths (Blofeld et al., 2003, Paterson et al., 2003) and a growing body of evidence (MIND, 2013) has highlighted the physical and psychological dangers of more coercive containment methods such as manual restraint (Frueh et al., 2005, Bonner et al., 2002). However, mandatory de-escalation training programmes disseminated to nurses are not based on empirical evidence (Inglis and Clifton, 2013) and there is no agreed standard approved approach of best practice (Paterson and Leadbetter, 1999b). Furthermore, the effectiveness of this training in either reducing the frequency of conflict (e.g. aggression) or containment (e.g. seclusion or manual restraint) on wards is unclear (Laker et al., 2010, Richter et al., 2006).

Theoretical explanations of violence, which many de-escalation training packages are based on, suggest that patients' behaviour will follow a predictable behavioural trajectory from agitation through to aggression (Kaplan and Wheeler, 1983). However, analysis of patients' behaviour on inpatient wards suggest that this is not always the case (Bowers et al., 2013, Johnson and Delaney, 2007). Indeed, analysis of ward behaviour suggests that de-escalation is effective in approximately 50% of crisis situations in real world settings (Ryan and Bowers, 2006).

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The factors that contribute to aggression and violence in mental health settings are complex and diverse including: mental health care systems, environmental ward features, patient characteristics and clinician skill (Cutcliffe and Riahi, 2013, Papadopoulos et al., 2012). Similarly, such factors are likely to contribute to the use, and effectiveness, of de-escalation in practice (Price and Baker, 2012). However, de-escalation research is in its infancy and these relationships are poorly understood. Understanding the predictors of de-escalation use and success will enable improved training and practical application for clinicians.

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The aim of the current study was to begin to bridge this research gap, investigating the sequences of events that precede, and follow, de-escalation in real-world psychiatric inpatient setting; exploring the patient characteristics and behavioural precursors that influence the use of de-escalation and its success. For the purposes of this study, de-escalation has been operationalised as 'indication of verbal (e.g. quiet, calm talking) or other intervention (e.g. given a break outside, deep breathing exercises) from staff to calm patients down'.

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Three specific research questions will be addressed:

1. What conflict and containment events precede de-escalation and predict its success in halting conflict?
2. What conflict and containment events follow unsuccessful de-escalation attempts?
3. Do patient characteristics predict the use of de-escalation and its success?

METHOD

Design and participants

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The data was collected as part of a larger study investigating the Sequences of conflict and containment events in acute psychiatric inpatient settings (CONSEQ). A sample of 522 adult (aged 18-65) psychiatric inpatients was recruited from 84 acute psychiatric wards and psychiatric intensive care units (PICU) in 31, randomly selected, hospital locations in London and surrounding areas. At least three patients per ward were recruited. The data collection period was set as the first two weeks

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of the current admission. Patients who were in hospital for less than two weeks were excluded. Data were collected between July 2009 and March 2010.

Measures

The Patient-staff Conflict Checklist (PCC) was used to record patients' involvement in incidents of conflict and containment during the first two weeks of admission from clinical case notes. The PCC consists of 21 conflict behaviours (e.g. verbal aggression, physical aggression, rule breaking, substance use, self-harm, absconding, medication refusal, etc.) and eight containment behaviours (pro re nata (PRN) psychotropic medication, coerced intra muscular medication, special observations, seclusion, show of force, manual restraint, de-escalation and time-out). The PCC is accompanied by carefully devised operational definitions. De-escalation was operationalised as 'indication of verbal (e.g. quiet, calm talking) or other intervention (e.g. given a break outside, deep breathing exercises) from staff to calm patients down'. De-escalation was differentiated from time-out, which was defined as 'patient being requested to stay in room or area for period of time, without the door being locked'.

For this study, the PCC was expanded and a computerised version created so that the temporal order of events within a shift, and across consecutive days, could be collected, as well as frequency of events. This provides a time series of conflict and containment events for each patient, within each shift. Shifts with no conflict or containment were recorded (null events). The frequency, order and type of conflict and containment events during each shift were recorded. The PCC is valid, correlating with official incident reports (Bowers et al., 2006), and reliable, with a high internal consistency (0.7) (Bowers, 2009) and high inter-rater reliability (0.7) (Bowers et al., 2005). Patients' socio-demographic and clinical data were also collected from the case notes including age, gender, ethnicity, diagnosis, living group (alone, with others or no fixed abode), number of previous admissions, history of alcohol use (yes/no), substance use (yes/no), history of aggression towards self or others (yes/no) and whether admission was formal or voluntary.

Procedure

The study was approved by Kings College Hospital Research Ethics Committee. Patients were eligible to participate if they were inpatients of the selected acute wards, were aged 18-65 years old, had stayed in hospital for two weeks or more, were present on the ward when the survey was conducted, judged appropriate to be approached by the ward staff and were able to give informed consent to participate in the study.

When visiting a ward, the researcher first liaised with nursing staff to identify eligible patients, of whom six per ward were randomly selected to participate (judged to be the maximum that could be recruited per researcher per day). Nursing staff were consulted as to whether selected patients were well enough to be approached and able to give informed consent. A total of 1902 patients were eligible and selected to participate, of whom 973 were deemed by staff to be too ill to safely approach or were off the ward when the researcher visited (e.g. on leave). A further 407 selected patients refused to participate. After informed consent was obtained, the researcher accessed the patient's medical and nursing records for approximately 60 minutes to complete the PCC. Data were entered directly into a spread sheet on a laptop computer. In addition to two university researchers, 18 Mental Health Research Network Clinical Studies Officers were also trained to collect data from the participating wards.

Analysis

In this paper, we examined the sequence of events preceding and following de-escalation, over the course of an eight hour shift. The analysis time frame of a shift was selected in order to limit the possibility of identifying superfluous relationships between events occurring far apart in time. Data were organised so that each patient in the study had 42 rows in the data set, each representing shifts (morning, afternoon and night) during the first two weeks of their admission. Each row detailed the order and nature of the conflict and containment events (if any) during that shift.

De-escalation sequences

Sequences of events were defined in terms of the following: first event of the shift (sequence start), all events preceding de-escalation during the shift (all precursors), events occurring immediately before

de-escalation (immediate precursors), events occurring immediately after de-escalation (immediate post) and all events that occurred after the de-escalation (all post). When events were recorded in the notes as occurring simultaneously these were counted as individual events for the sequence analysis.

De-escalation sequences were divided into two categories: (i) successful de-escalation sequences (de-escalation ended the sequence) and (ii) unsuccessful de-escalation sequences (de-escalation was followed by further conflict or containment events in the sequence). Starting events, precursors and immediate precursors for successful and unsuccessful sequences were identified and described. Events following de-escalation, in unsuccessful sequences, were also described. Events occurring at frequencies of less than 1% were not included.

A Mann-Whitney U test compared the mean numbers of precursors between successful and unsuccessful sequences. Odds ratios compared the nature of the start events between successful and unsuccessful sequences.

Patient predictors

Data were entered onto the Statistical Package for the Social Sciences (version 22). Odds ratios investigated relationships between patient factors (socio-demographic and clinical) and patients' experience of de-escalation. Multiple significant associations were further explored using binary logistic regression analysis.

For each participant, de-escalation success was calculated as the percentage of de-escalations experienced that were categorised as successful (i.e. successful de-escalations experienced / total de-escalations experienced)*100/1). Bivariate correlation analysis investigated the relationship between de-escalation success (%) and patients' socio-demographic and clinical factors.

RESULTS

Patient characteristics

16 Over half of the sample was male (54%), white (68%) and admitted involuntarily (40%). 3 The mean age was 41 years (SD=13.0). The majority of patients were not married or in a significant relationship (81%) and had no significant physical health problems (75%). Most patients had a diagnosis of schizophrenia (42%) or affective diagnoses (37%). 12 40% of patients had a history of alcohol use, 36% 12 had a history of substance use, 68% 4 had a history of self-harm and 57% had a history of previous violence.

De-escalation sequences

26 Among the sample of 522 patients, over half (53%) experienced de-escalation during the first two weeks of admission, with the majority of these patients (37%) experiencing de-escalation at least twice. A total of 784 sequences involving de-escalation were identified, 61% (n=476) were categorised as successful, ending after de-escalation occurred, while 35% (n=276) were categorised as unsuccessful, with the sequence continuing with conflict and containment events after de-escalation had been attempted. The remaining 4% (n=32) of sequences ended with de-escalation, only after it had been repeated during a sequence; these sequences were excluded from the analyses as they represent a different pathway, which may confound the findings.

Successful sequences

Table 1 displays the starting events, precursors and immediate precursors for successful de-escalation sequences. 38% of successful de-escalation sequences started with the de-escalation event itself and had no precursor events, 28% of sequences began with verbal aggression, while 8% began with various forms of rule breaking behaviour. Considering only sequences with precursors, the most frequent immediate precursor to de-escalation was verbal aggression (16%) followed by aggression to objects (13%) and the administration of PRN medication (11%). Rule breaking behaviour and

medication related conflict events made up 17% and 16% of immediate precursors to successful de-escalation respectively.

[Insert table 1 here]

Unsuccessful sequences

The sequences of unsuccessful de-escalation events are displayed in table 2. The majority of unsuccessful sequences (33%) started with verbal aggression, while 17% began with aggression to objects (10%) or physical violence (7%). Aggression was also the most frequently occurring immediate precursor, with verbal aggression occurring in 41% of sequences, aggression to objects in 12% and physical violence in 10%. Half of all unsuccessful de-escalation attempts (49%) were immediately followed by a containment event, most commonly administration of PRN medication (35%). In 26% of cases, de-escalation was immediately followed by patients' aggression, most frequently verbal aggression (18%). The majority of unsuccessful de-escalation sequences (66%) ended in a form of containment, most commonly the administration of PRN medication (44%). Sequences not ending in containment ended with patient conflict, most commonly verbal aggression (9%), rule breaking behaviour (10%) or medication related incidents (5%).

[Insert table 2 here]

Successful vs unsuccessful sequences

Successful de-escalation sequences had fewer precursors ($M=0.91$, $SD=1.05$) than unsuccessful sequences ($M=1.39$, $SD=1.46$) [$Z(752) = -5.42$, $p<.001$], and were twice as likely to have no precursor events prior to de-escalation [successful (39%) vs unsuccessful (22%); $OR=2.19$, 95% CI 1.55-.3.11, $p<.01$]. Sequences that started with aggression were less likely to be successful [successful (33%) vs unsuccessful (47%); $OR=.53$, 95% CI .39-.73, $p<.01$].

Patient predictors

The socio-demographic and clinical features of patients in each of the de-escalation experience category (i.e. experienced de-escalation at least once vs did not experience de-escalation; experienced repeated de-escalation events vs experienced only one de-escalation event) are displayed in table 3. Odds Ratios revealed that younger patients, and those with a history of violence, were more likely to experience de-escalation, while White British males were more likely to experience repeated de-escalation. Bivariate correlation analysis found patients with a history of violence to have less successful de-escalations (table 3).

[Insert table 3 here]

Binary logistic regression analysis investigating the patient predictors of de-escalation experience are displayed in table 4. This revealed that, adjusting for age alcohol and drug use, patients with a history of violence were more likely to experience de-escalation during the first two weeks of their admission (table 4). No significant predictors of repeated de-escalation were identified. However, there was a trend for male patients, from Black and Minority Ethnic groups who had previous admissions, to experience less repeated de-escalations within their first two weeks of admission.

[Insert table 4 here]

DISCUSSION

The aim of this study was to identify the sequences of events that precede, and follow, de-escalation in real-world psychiatric inpatient setting; exploring the patient characteristics and behavioural precursors that influence the use of de-escalation and its effectiveness in halting the sequence of conflict and containment. The findings revealed that approximately half of patients in this study experienced de-escalation during the first two weeks of admission, with over a third of patients experiencing repeated de-escalation episodes. When implemented, de-escalation was successful in ending the sequence of conflict or containment in the majority of cases. Successful attempts had fewer, and less aggressive, precursor events, compared to unsuccessful events. These were most frequently followed by administration of pro re nata (PRN) psychotropic medication or patients' verbal aggression. Patients with a history of violence were more likely to experience de-escalation

within the first two weeks of their admission. However, de-escalation attempts with these patients were less likely to be successful.

The findings suggest that nurses frequently use de-escalation to manage patients' conflict behaviours successfully in psychiatric settings. Successful de-escalation events were marked by patients displaying fewer and less aggressive conflict behaviours prior to the de-escalation occurring. One interpretation of this may be that de-escalation is most effective when implemented early in the sequence of conflict and containment events. Thus, nurses' vigilance and responsiveness to less overt signals of disturbance in patients' behaviour may lead to faster intervention and de-escalation success. This corroborates with previous observational studies finding nurses' ability to notice the start of a conflict sequence to be the critical determinant of aggression management (Johnson and Delaney, 2007).

However, patients who experienced unsuccessful de-escalation events displayed more frequent and severe aggression prior to de-escalation occurring and were more likely to have a history of violence. This would suggest that perceived risk may influence the decision to use de-escalation when conflict arises. Indeed, staff-patient interactions have been identified as frequent precursors to patient aggression (Papadopoulos et al., 2012, Whittington and Richter, 2005). Perhaps in situations where the risk of violence is greater, attempts to engage and de-escalate the patient may be taken more cautiously. Taken together, these findings may reflect a lack of confidence in de-escalation techniques by staff (Inglis and Clifton, 2013), which is particularly evident when the perceived risk is greater (Whittington and Wykes, 1996, Paterson and Leadbetter, 1999a).

Unsuccessful de-escalation attempts were rarely followed by patient violence (5%) or manual restraint (5%) but were most frequently followed by the administration of PRN medication (24%). In a high proportion of cases (44%) PRN administration ended the sequence. This suggests that where de-escalation is not effective on its own, it often is when bolstered by PRN. Issues of patient stigma and staff power and control surround the administration of PRN medication (Baker et al., 2006).

Providing training to improve communication around PRN may in turn improve the effectiveness of de-escalation and reduce the reliance on other, more coercive measures, such as restraint.

Although not significant, the findings showed a trend for repeated de-escalation episodes to be less likely among male patients from Black and Minority Ethnic (BME) background who have repeated admissions. A recent meta-analysis revealed that ethnicity was not associated with inpatient aggression (Dack et al., 2013). One explanation for the finding may be the 'circles of fear' hypothesis, which suggests that patients from BME groups and the staff treating them are both perpetually fearful; patients fearing punitive forms of care and staff potentially over-reacting to actions of BME patients due to misunderstanding and misconceptions (Keating et al., 2002). Alternatively this trend may simply be an artefact of the relationship between schizophrenia, male gender and BME status (Dack et al., 2013).

Strengths and limitations

The findings should be considered in the context of its strengths and limitations. Firstly, de-escalation is a broad and ill-defined intervention encapsulating all verbal and nonverbal communication nursing staff use to calm patients. Communicating with patients is an intrinsic part of nursing, therefore, events that would be formally categorised as de-escalation may not be considered significant incidents by nurses and, for this reason, omitted from the notes. Secondly, as this study was a retrospective case note analysis it may not provide an accurate picture of clinical reality. However, it does provide an insight into the use of de-escalation, and its effectiveness in clinical practice, which can guide the direction of future, larger scale, observational studies in this vastly under-researched area. Thirdly, by employing the time frame of a shift, superfluous relationships between events occurring far apart in time will be limited. However, relationships between events occurring across shifts may be missed. Fourthly, although the current study was unable to comprehensively explore the many factors that may influence de-escalation (e.g. clinical skill or environment (Price and Baker, 2012), it provides empirical evidence of behavioural pre-cursors and patient factors that contribute to it, which can be built on in future research.

Implications for practice

These findings provide support for de-escalation in practice, but suggest that nurses may lack confidence in using the technique, particularly when the risk of violence is greater. De-escalation is not instinctual but rather a skill that requires teaching (Whittington and Richter, 2005). However, de-escalation has been neglected in research to date and, as a result, there is little empirical evidence to inform training (Inglis and Clifton, 2013). There is an urgent need to conduct high quality empirical research to identify the de-escalation skills that are most effective in reducing conflict in psychiatric settings. This would provide evidence to inform training and improve staff confidence in the use of this potentially powerful technique.

Conclusion

In conclusion, the findings suggest that de-escalation is frequently used on psychiatric inpatient wards and is effective in halting the sequence of conflict and containment in the majority of cases. Early intervention and patients' history of violence appear to predict de-escalation success. **18** Patients with a history of violence may provide a specific challenge for nurses' de-escalation skills. Future research investigating the specific de-escalation skills that are most effective in reducing conflict in psychiatric settings is urgently needed to inform evidence-based training.

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Table 1. Successful de-escalation sequences (n=476)

| Event | Start N (%) | All precursors N (%) | Immediate precursors N (%) |
|---|----------------|----------------------------|----------------------------------|
| Conflict | | | |
| Aggression | | | |
| Verbal aggression | 130 (28) | 163 (40) | 31 (16) |
| Aggression to objects | 13 (3) | 28 (7) | 24 (13) |
| Physical violence | 11 (2) | 16 (4) | 13 (7) |
| Non-consensual sexual touching of another patient | 5 (1) | 6 (1) | 6 (3) |
| Rule breaking | | | |
| Refusing to eat | 11 (2) | 12 (3) | 9 (5) |
| Refusing to go to bed | 6 (1) | 6 (1) | 4 (2) |
| Refusing personal hygiene | 5 (1) | 5 (1) | 5 (3) |
| Refusing to see workers | 6 (1) | 8 (2) | 4 (2) |
| Exposing self | 7 (2) | 11 (3) | 6 (3) |
| Smoking in a no-smoking area | 6 (1) | 7 (1) | 4 (2) |
| Absconding | | | |
| Attempted abscond | 12 (3) | 18 (4) | 9 (5) |
| Return from abscond | | 5 (1) | 4 (2) |
| Medication | | | |
| Refusal of PRN medication | | 9 (2) | 5 (3) |
| Demanding PRN medication | 9 (2) | 11 (3) | 10 (5) |
| Refused regular medication | 16 (3) | 22 (5) | 16 (8) |
| Self-harm | | | |
| Self-harm | 6 (1) | 14 (3) | 6 (3) |
| Suicide attempt | | | 3 (2) |
| Containment | | | |
| Start Informal | 6 (1) | 6 (1) | 2 (1) |
| De-escalation | 177 (38) | | |
| Given PRN (psychotropic) | 25 (5) | 40 (9) | 21 (11) |
| Show of force | | 4 (1) | 3 (2) |
| Time out | | 7 (2) | 4 (2) |

Table 2. Unsuccessful de-escalation sequences (n=276)

| Event | Start N (%) | All precursors N (%) | Immediate precursors N (%) | Immediate post N (%) | All post N (%) | End N (%) |
|---------------------------------|----------------|----------------------------|----------------------------------|----------------------------|----------------------|--------------|
| Conflict | | | | | | |
| Aggression | | | | | | |
| Verbal aggression | 92 (33) | 132 (36) | 87 (41) | 51 (18) | 93 (14) | 25 (9) |
| Aggression to objects | 30 (10) | 52 (14) | 26 (12) | 13 (5) | 33 (5) | 7 (3) |
| Physical violence | 20 (7) | 37 (10) | 21 (10) | 11 (3) | 36 (5) | 2 (1) |
| Non-consensual sexual | 4 (1) | 8 (2) | 6 (3) | | | 2 (1) |
| Touching of another patient | | | | | | |
| Rule breaking | | | | | | |
| Refusing to eat | 5 (2) | 8 (2) | 2 (1) | 13 (4) | 16 (2) | 15 (5) |
| Refusing to go to bed | | | | 3 (1) | 6 (1) | 2 (1) |
| Refusing personal hygiene | | 3 (1) | | | | |
| Refusing to see workers | 4 (1) | 4 (1) | 2 (1) | 5 (2) | 14 (2) | 7 (3) |
| Exposing self | 6 (2) | 7 (2) | 5 (2) | 2 (1) | 5 (1) | 2 (1) |
| Smoking in a no-smoking area | 2 (1) | | | 2 (1) | | |
| Absconding | | | | | | |
| Attempted abscond | 13 (5) | 24 (7) | 15 (7) | 3 (1) | | |
| Return from abscond | | 3 (1) | 2 (1) | 4 (1) | | 5 (2) |
| Abscond | | | | 6 (2) | 9 (1) | 3 (1) |
| Medication | | | | | | |
| Refusal of PRN medication | 2 (1) | 9 (3) | 3 (1) | 9 (3) | 22 (3) | 7 (3) |
| Demanding PRN medication | 4 (1) | 6 (2) | 5 (2) | | | 2 (1) |
| Refused regular medication | 7 (3) | 12 (3) | 7 (3) | 9 (3) | 16 (2) | 4 (1) |
| Self-harm | | | | | | |
| Self-harm | 6 (2) | 9 (3) | 7 (3) | 4 (1) | 11 (2) | |
| Suicide attempt | 4 (1) | | 4 (2) | | | |
| Containment | | | | | | |
| Start Informal | 2 (1) | | | | | |
| Start detention | | 3 (1) | | | | |
| De-escalation | 58 (21) | | | | 47 (7) | |
| Given PRN (psychotropic) | 15 (5) | 22 (6) | 7 (3) | 96 (35) | 162 (24) | 122 (44) |
| Given IM medication (forced) | | 3 (1) | | 2 (1) | 26 (4) | 13 (5) |
| Start seclusion | | | | 4 (1) | 18 (3) | 7 (3) |
| End seclusion | | | | | 10 (2) | 5 (2) |
| Start constant observations | | | | | 10 (2) | 6 (2) |
| End constant observations | | | | | | |
| Start intermittent observations | | | | 5 (2) | 10 (2) | 7 (3) |
| Show of force | | | | 8 (3) | 23 (3) | 2 (1) |
| Manual restraint | | 6 (2) | 4 (2) | 4 (1) | 32 (5) | |
| Time out | 2 (1) | 13 (4) | 7 (3) | 16 (6) | 38 (6) | 17 (6) |

Table 3. Patients' socio-demographic and clinical factors and their relationship to de-escalation experience and success.

| | De-escalation Experienced | | | De-escalation Repeated | | | De-escalation Success (%) |
|--------------------------------------|---------------------------|------------------------|-------------------------|-------------------------|-----------------------|-------------------------|---------------------------|
| | Yes (n=274) n (%) | No (n=248) n (%) | Chi ² /Z (p) | Yes (n=193) n (%) | No (n=80) n (%) | Chi ² /Z (p) | Rho (p) |
| Socio-demographic information | | | | | | | |
| Male | 151 (55) | 128 (52) | 0.64 (.42) | 96 (50) | 55 (69) | 8.49 (<.01) | .01 (.84) |
| White British | 186 (68) | 166 (67) | 0.05 (.82) | 141 (73) | 45 (56) | 7.36 (<.01) | -.10 (.10) |
| Married | 52 (19) | 44 (18) | 0.14 (.70) | 40 (21) | 12 (15) | 0.98 (.32) | -.03 (.62) |
| Age [Mean years /SD] | [40 /12] | [43/13] | -2.43 (.02) | [39 /12] | [41/13] | -.67 (.50) | .01 (.86) |
| Clinical information | | | | | | | |
| First admission | 35 (13) | 42 (17) | 1.87 (.20) | 21 (11) | 14 (18) | 2.29 (.13) | -.02 (.71) |
| Schizophrenia | 116(42) | 103 (42) | 0.04 (.86) | 75 (39) | 41 (51) | 3.68 (.06) | -.08 (.18) |
| Affective diagnosis | 98 (36) | 92 (37) | 0.10 (.75) | 72 (37) | 26 (33) | 0.53 (.47) | .08 (.18) |
| Patient history | | | | | | | |
| Alcohol use | 116 (44) | 87 (36) | 3.49 (.06) | 80 (41) | 36 (47) | 0.51 (.48) | -.04 (.56) |
| Drug use | 107 (40) | 81 (33) | 2.71 (.10) | 73 (38) | 34 (44) | 0.62 (.43) | .01 (.89) |
| Physical health problems | 64 (23) | 70 (28) | 1.62 (.20) | 49 (25) | 15 (18) | 1.34 (.25) | .12 (.06) |
| Self-harm | 167 (62) | 159 (65) | 0.43 (.51) | 121(63) | 46 (59) | 0.38 (.54) | .05 (.40) |
| Violence | 172 (64) | 124 (50) | 9.61 (<.01) | 117 (61) | 55 (70) | 2.19 (.14) | -.15 (.01) |

Table 4. Regression analyses of patient predictors of de-escalation experience.

| Regression models | | R ² | OR | CI | | p |
|-------------------|---|----------------|------|-----|------|-----|
| | | | | Low | High | |
| 1. | De-escalation experienced | .03 | | | | |
| | Violence | | .62 | .43 | .89 | .01 |
| | Age | | .98 | .97 | 1.00 | .12 |
| | Alcohol use | | .82 | .55 | 1.22 | .33 |
| | Drug use | | 1.03 | .66 | 1.58 | .91 |
| 2 | Repeated de-escalation experienced | .06 | | | | |
| | White British | | .56 | .31 | 1.01 | .06 |
| | Male | | 1.76 | .95 | 3.27 | .08 |
| | First admission | | .49 | .23 | 1.09 | .08 |
| | Schizophrenia diagnosis | | 1.29 | .69 | 2.43 | .43 |
| | Violence | | 1.22 | .65 | 2.29 | .54 |

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