SUPPLEMENTARY MATERIALS 1

Review A: The effectiveness and acceptability of de-escalation training programmes for healthcare staff working in adult acute and forensic mental health inpatient settings

SM1.1 Training content and intensity

	Problem identification and when to intervene	Ensuring safety Pre-intervention	Non provocative verbal and non-verbal behaviour	Specific Interpersonal strategies	Challenging aggressive behaviour and setting limits	Cognitive-affective components*
Beech, et al., (2003; 2008) [1, 2]	x		x			x
Beech (2001) [3]	x		x			x
Biondo (2017) [4]	x	x	x	x	x	x
Bjorkdahl, et al., (2013) [5]	x				x	x
Bowers et al., (2006) [6]						x
Bowers et al., (2008) [7]						x
Calabro et al., (2002) [8]	x		x		x	x
Collins et al., (1994) [9]						x
Collins (2014) [10]	x	x	x	x	x	x
Carmel et al., (1990) [11]						
Cowin et al., (2003) [12]		x	x	x		
Geoffrion, et al., (2017) [13]	x	x				
Gertz (1980) [14]			x			
Goodykoontz et al., (1990) [15]	x	x	x		x	x
Grenyer et al., (2003) [16]	x	x	x		x	
Hahn et al., (2006) [17]	x					x
Ilkiw-Lavalle et al., (2002) [18]	x					x
Infantino et al., (1985) [19]			x			
Jonikas et al., (2004) [20]	x		x		x	x
Laker et al., (2010) [21]						
Lee et al., (2012) [22]	x					
Martin (1995) [23]	x	x			x	x
Martinez (2017) [24]	x	x	x	x	x	x

McIntosh et al., (2003) [25]	x		x		x	x
McLaughlin et al., (2010) [26]	x					x
Moore (2010) [27]					x	
Nau et al., (2009) [28]			x	x		x
Nau et al., (2010) [29]	x		x	x	x	x
Nau et al., (2011) [30]	x		x	x	x	x
Needham et al., (2004) [31]						x
Needham et al., (2005) [32]						x
Nijman et al., (1997) [33]	x			x	x	
Paterson et al., (1992) [34]	x		x			
Rice et al., (1985) [35]		x	x	x	x	
Robinson et al., (2011) [36]	x					
Sjostrom et al., (2001) [37]			x			
Smoot et al., (1995) [38]			x	x	x	x
Taylor, et al., (2012) [39]						x
Thackrey et al., (1987) [40]						
Whittington et al., (1996) [41]	x		x			
Wondrak et al., (1992) [42]			x	x	x	x

Cognitive-affective components included: attitudes, empathy, emotional regulation, self-awareness, and confidence

Review B: A theoretical domains framework-informed, qualitative evidence-synthesis of barriers and facilitators to the de-escalation of conflict in adult acute and adult forensic mental health inpatient settings

SM1. 2 Frequency of extracted data by conflict behaviour and theoretical domain

Conflict behaviour (n)	*Knowledge*	*Psych. skills*	*Memory, att., decision making*	*Behavioural regulation*	*Social influences*	*Environmental context*	*Social/prof. role and identity*	*Beliefs about capabilities*	*Optimism*	*Beliefs about consequences*	*Intentions*	*Goals*	*Reinforcement*	*Emotion*
Aggression (23)	*15*	*14*	*8*	*2*	*3*	*16*	*7*	*8*	*8*	*12*	*9*	*2*	*-*	*10*
Self-harm/suicide (25)	*18*	*23*	*2*	*2*	*2*	*20*	*6*	*7*	*4*	*12*	*7*	*1*	*1*	*15*
Drug/alcohol use (4)	*1*	*2*	*-*	*-*	*-*	*4*	*-*	*1*	*-*	*1*	*-*	*-*	*-*	*1*
Medication refusal (6)	*2*	*6*	*-*	*-*	*-*	*4*	*2*	*-*	*3*	*5*	*4*	*-*	*-*	*2*
Absconding (2)	*2*	*1*	*1*	*-*	*-*	*2*	*-*	*-*	*1*	*1*	*-*	*-*	*-*	*1*
Rule-breaking (5)	*3*	*3*	*-*	*2*	*1*	*4*	*3*	*-*	*-*	*2*	*-*	*-*	*-*	*-*
Total	*41*	*49*	*11*	*6*	*6*	*50*	*18*	*16*	*16*	*33*	*20*	*3*	*1*	*29*

SM1.3 Summary of findings

TDF domain	Theme	Key barriers	Key facilitators
Knowledge	***Formal knowledge***	• **Knowledge of de-escalation techniques, and alternatives to control and restraint** • **Adaption of specific interventions** • **Psychopathology and theories of aggression/self-harm**	• **Inaccurate beliefs/attributions ref. conflict behaviours**
	Patient knowledge	• **Awareness of typical/atypical presentation, 'early warning' signs, triggers etc.** • **Understanding the meaning of behaviours** • **Co-produced care plan or positive behavioural support plan**	• **Poor therapeutic relationship**
Skills	***Empathic communication and interpersonal skills***	• **Non-medicalised, authentic engagement** • **Calm, non-provocative language** • **Directions accompanied by an explanation**	• **Avoidance** • **Authoritarian approaches**
	Therapeutic relationship	• **Time** • **Regular, informal engagement** • **Expression of genuine interest and concern**	• **Difficult to develop with involuntary patients** • **Patients can view relationships as 'risky'** • **Tension b/w casual interaction and 'professionalism'**
	Assessment and flexible intervention	• **Comprehensive Ax at Adm** • **Past intervention used to guide future intervention** • **Selection, and flexible application of appropriate interventions**	• **Behaviour attributed to the person cf. illness** • **Punitive/corrective approaches**
Memory, attention and decision making processes	***Awareness of antecedents***	• **'Outward focus' enables staff to notice subtle changes in behaviour and antecedents of conflict** • **Consistent monitoring and observation** • **'Fluid assessment' of milieu** • **Intuition ('gut feeling')**	• **Ignoring precursors and incidents**
	How and when to intervene	• **Clarity ref. what behaviours can be tolerated vs. those that require control** • **Decision to intervene informed by principles of respect, dignity, self-determination and safety**	• **Desire to control all difficult behaviour**
Behavioural regulation	***Self-monitoring***	• **Questioning strong emotions, values and biases, in order to maintain good practice** • **Constant reflection, focussing on non-judgement and not 'reacting'** • **Use of 'reflective groups' to consider the impact of controlling interventions**	
	Patient factors		• **Patients modify 'problematic' behaviour due to fear of being punished with medication**
Social influences	***Formal/informal social support***	• **Group reflection and knowledge sharing amongst staff can improve group cohesion, feelings of positivity and generate new approaches to de-escalation** • **Emotional communication between staff**	
	Resistance to change		• **Staff with entrenched ways of working may be resistant to adopting new strategies**

Environmental context	***Organisational: Ethos***	• **Underlying beliefs, assumptions and values of an organisation, e.g. focus on respect, safety and helping, rather than correcting** • **Promotion of socialising b/w staff and patients**	• **Coercive intervention justified at an organisational level (e.g. 'legal', treatment as 'necessary')**
	Organisational: Procedures	• **Provision of information** • **Risk assessments** • **Communication between stakeholders** • **Care plans and PBS plans**	• **Prioritisation of administrative duties over patient engagement**
	Organisational: Staff support	• **Debriefing and supervision** • **Peer support (staff)**	• **Team conflict** • **Lack of 'teamwork'**
	Resources: Staff	• **Higher staffing levels** • **Access to 1:1 time** • **Balanced staffing; mix of skill, gender and experience** • **Well-trained and experienced staff** • **Continuity of staff across admissions**	• **Lack of staffing** • **Poor staff-patient ratios** • **'Unavailable' staff** • **C&R used as a preventative measure, when staff feel under pressure** • **Bank/agency staff** • **Staff unfamiliar with ward**
	Resources: Time	• **Sufficient resources to offer time to patients (therapeutic relationship)** •	• **Effective de-escalation techniques underused due to lack of staff time** • **Administrative burden**
	Resources: Activities	• **Activities can prevent conflict, and be used as a de-escalation strategy**	
	Ward: Physical environment and ward design	• **Home-like setting** • **Unrestricted access for patients** • **Sensory rooms**	• **Old buildings** • **'Not-fit-for-purpose'** • **Locked wards**
	Ward: Therapeutic environment and patient milieu	• **Grouping 'similar' patients (presentation/Dx) or restricting admissions based on diagnoses (query ethicality?)**	• **Involuntary admissions** • **Complex presentations** • **High acuity**
	Ward: Procedures and rules		• **Rigid application of rules** • **Lack of clarity/consistency**
Social/professional role and identity	***Role***	• **Professional values** • **Professionalism = Emotional control and calmness** • **Nursing as a 'helping profession'**	• **Staff feeling undervalued by doctors** • **Need for control** • **Belief that nurses should be strict and patients should be respectful**
	Staff team	• **A strong staff team, where staff feel they can rely on each other** • **Good communication and a sense of 'community'**	• **Variation in adherence to care-plans and PBS plans**
	Risk		• **A focus on minimising risk rather than building relationships** • **Professional and legal concerns (record keeping, liability etc.)** • **'Covering my back' vs. providing support**
Beliefs about capabilities	***Team factors***	• **Peer support (staff)** • **Clinical supervision** • **Length of time working together**	
	Patient knowledge	• **Knowledge of patients increases confidence and facilitates appropriate intervention**	
	Formal training	• **De-escalation training**	• **Poor or inadequate training** • **Perceived lack of skill in managing particular presentations**

			(e.g. dual-Dx)
Optimism	***Effectiveness***		• **De-escalation perceived as ineffective** • **'Some situations cannot be controlled'** • **Coercive measures as 'inevitable'** • **Some situations require nurses to 'take control'** • **Perception of high risk results in more restrictive practices**
	Patient factors	• **De-escalation seen as more feasible with specific patient groups (e.g. older people)**	• **Staff particularly 'negative' about specific patients** • **When patients seen as 'time-wasters' or 'attention seekers', staff will not intervene** • **Coercion 'necessary' for some patients**
Beleifs about consequences	***Risk, safety and ethical concerns***	• **'On-the-spot' risk assessment** • **Progression from low- to high-intensity intervention, based on level of risk**	• **C&R justified on the basis of safety** • **Risk aversion** • **Duty of care supersedes patient right to autonomy**
	Intervention effectiveness	• **Non-intervention is often preferred** • **A focus of communication and understanding rather than control can lead to positive outcomes**	• **De-escalation seen as putting staff safety at risk** • **C&R viewed as effective behaviour modification strategy** • **'Soft' intervention ineffective in changing behaviour**
	Relationships	• **Staff aware that C&R can negatively impact therapeutic relationships**	• **De-escalation undermines staff authority and power**
Intention	***Alternatives to control and restraint***	• **Focus on engagement, discussion and negotiation**	• **Explosive incidents: staff perceive these as unpredictable, requiring a 'strong' approach**
	Control, restraint and containment	• **When necessary, aim to make as brief as possible**	• **C&R in response to suicide risk** • **C&R balances safety, access and the physical and psychological needs of the patient** • **Uncertainty ref. method of intervention**
	Staff factors	• **Intention to remain calm** • **Intention respond with empathy**	• **Emphasis on staff 'power'** • **'What the professional says is right'** • **Convenience cf. best interest of patient**
Goals	***Staff goals***	• **A desire to resolve conflicts without confrontation, and maintain/build relationships**	• **Varied or conflicting approaches to managing problematic behaviour inhibits the adoption of new ways of working**
	Organisational goals	• **Organisational support for use of de-escalation (cf. C&R)**	
Reinforcement	***Positive reinforcement***	• **Positive comments from patients can support practice-change**	
Emotion	***Emotion, attribution and behavioural consequences***	• **Behaviour attributed to 'illness'** • **Feeling 'safe' when confronted by conflict behaviour**	• **Behaviour attributed to 'person'** • **Self-harm as a purposeful act, directed at others** • **Negativity, fear, powerlessness** • **Hypervigilance**
	Emotional support and self-management	• **Self-monitoring** • **Acknowledging difficult emotions** • **Debriefing** • **Informal support ('letting off steam')**	• **Attempts to supress emotions** • **Poor therapeutic response** • **Repeated exposure to self-harm**

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