Table 3. Studies on seclusion and restraint (n=15 SRs in Aragonés-Calleja, 2022)

Author, year	Participants	Setting/context	Interventions	N. included studies	Type of included studies	Analysis	Country of origin of included studies	Results/ Findings	Risk of Bias
Sailas & Fenton, 2000	People with severe or chronic mental illness. Prevention of these measures: i) personal; (ii) organizations; (iii) people with serious or chronic mental illness.	Psychiatric settings.	Effects of seclusion and restraint vs. standard care or alternatives. • Seclusion: solitary confinement in a controlled space. • Restraint: physical or mechanical movement restriction. • Standard care: usual unit practices excluding seclusion/restraint. Prevention strategies: • Education, behavior strategies, alternatives, policy changes, medication, administration, or standard care.	N=0	Only RCTs.	N.A.	N.A. .	Effect of seclusion and restraint The search strategy yielded 2155 citations. Of these, the full articles for 35 studies were obtained. No studies met minimum inclusion criteria and no data were synthesised.	**Risk low**
De Hert, 2011	Psychiatrically ill youth 6-21 years old (n=2393).	Psychiatric settings for children and adolescents.	Seclusion and restraint use	N=7	N=4 longitudinal design (n=1,302); N=2 descriptive studies (n=590); N=1 cross-sectional survey (n=504).	Descriptive statistics.	Studies were conducted in the US (n=4), Australia (n=2), only one study was conducted in Europe.	Studies reported high baseline seclusion and restraint rates. Interventions reduced restraints by 93.2% and duration by 54.2%, while seclusion episodes decreased by 74.7% with mixed results.	**Risk unclear**
Bak, 2012	Hospitalized adult psychiatric patients who had been physically restrained.	Psychiatric hospitalization units.	Interventions that prevent mechanical restraints.	N=59 (48 quantitative and 11 qualitative).	Original peer-reviewed articles.	Both qualitative and quantitative research.	International.	No intervention achieved the highest recommendation and effect. Cognitive milieu therapy (CMT) reduced mechanical restraints by 87%, followed by multi-intervention programs (76%) and patient-centered care (68%).	**Risk unclear**
Bryson, 2017	Children and adolescents with mental illness.	Psychiatric and residential settings.	Trauma-informed care (TIC)	N=13	Various (e.g. studies varied in design from retrospective, longitudinal, to prospective studies).	N.R.	N.R.	Trauma-informed care initiatives (TICs) focused on reducing seclusion and restraint, improving client symptomatology, and emphasized leadership commitment, staff support, patient voices, aligned policies, and data-driven change.	**Risk unclear**
Dahm, 2017	Adult patients with severe mental disorders (18 to 65 years).	Mental health services.	Measures or interventions to reduce coercion.	N=21	N=10 RCTs; N=4 four cluster RCTs, N=5 clinically controlled trials, N=2 cluster-controlled studies.	N.R.	The studies were conducted in Norway (2), Switzerland (2), Finland (2), the Netherlands (5), the UK (6), Denmark (2),	Individually designed crisis plans, risk assessments, and support for security staff may reduce involuntary admissions and coercive measures, though other methods lack clear evidence.	**Risk low**

Author, year	Participants	Setting/context	Interventions	N. included studies	Type of included studies	Analysis	Country of origin of included studies	Results/ Findings	Risk of Bias
							Australia (1) and the USA (1).		
Gaynes, 2017	Adult psychiatric patients (n= 3,628)	Acute care settings.	Strategies to prevent and de-escalate aggressive behaviors.	N=17; 17 controlled studies (described in 22 articles) that provided data for Aragonés-Calleja, (2022)	RCTs, cluster RCTs (CRT), non-RCTs, and cohort studies.	N.R.	USA (8) and others (9).	Seventeen studies evaluated interventions, with risk assessments and multimodal programs showing some benefit in reducing aggression and seclusion, though evidence was limited and many studies had bias.	**Risk unclear**
Goulet, 2017	Samples were drawn from mental health hospital units and staff (n=19), forensic settings (n=4), some studies focused on the patient's perspective.	An adult psychiatric setting, including forensic psychiatry.	Interventions examined in this review were SR reduction programs, defined by the authors as involving two or more activities aimed at reducing seclusion, restraint or aggression for inpatients in mental health and forensic settings.	N=23	RCTs (n=2), quasi-experimental studies (n=4), longitudinal studies (n=15), and qualitative studies (n=2).	Synthesis or descriptive analysis.	USA (n=10), Australia (n=4), the Netherlands (n=4), the UK (n=3), Sweden (n=1), and Finland (n=1).	Recovery-oriented programs, mainly adaptations of Six Basic Strategies, included leadership, training, post-confinement review, patient participation, prevention tools, and environment in SR reduction efforts.	**Risk low**
Rabe, 2017	Children and adolescents with mental illness.	Psychiatric hospitalization unit.	Coercive measures.	N=12	Various (e.g. survey studies, two case-control studies)	N.R.	4 European and 8 non-European.	European studies found more coercion in late adolescent girls, while non-European studies saw more boys in early school age, with limited empirical research in child psychiatry.	**Risk high**
Jackson, 2018	Mental health professionals: nurses, doctors and others (n=215).	Inpatient settings	Release from seclusion	N=12	N=10 research studies (n=4 quantitative; n=6 qualitative studies), n=2 expert opinion papers.	Systematic review. Qualitative synthesis.	The studies were undertaken in five countries: UK(2), Netherlands (1), USA (1), Canada (1), and Australia (5).	The review found limited evidence on seclusion release decisions, with professionals prioritizing safety, but environmental factors and control over service users also influencing release	**Risk low**
Jalil, 2018	1,471 participants (nurses)	10 studies recruited nurses from psychiatric hospitals; 1 study from universities; 1 study recruited from registrants	In mental health nurses: Is exposure to clinical practice associated with anger? Secondary questions relate to what reported levels of mental health nurses' anger mean in the context of published normative data; which specific features of exposure to practice are associated with anger; and identification of any relationships between anger and other outcomes.	N=12	The inclusion criteria were not limited by study design. (11/12 Cross-sectional survey)	Systematic review. Qualitative synthesis.	Studies were conducted in eight countries: UK (4), USA (2), China (1), Canada (1), Japan (1), Iran (1), Australia (1) and Turkey (1).	Nurses' anger, linked to patient aggression and job motivation, affects their well-being and potential use of containment measures, though its direct impact remains unclear.	**Risk low**

Author, year	Participants	Setting/context	Interventions	N. included studies	Type of included studies	Analysis	Country of origin of included studies	Results/ Findings	Risk of Bias
Ye, 2018	Patients with mental illness.	Psychiatric unit, psychiatric hospital, acute admission ward, and mental health center.	PICO=Population: patients with mental illness. Intervention: relevant training for staff. Comparison: staff without specific training. Outcome: the use of physical restraint.	N=8	Four RCTs and four quasi-experimental studies.	Systematic review, meta-analysis.	China	Staff training, including restraint techniques, violence management, and self-reflection, effectively reduces physical restraint use, supported by substantial evidence.	**Risk low**
Chieze, 2019	Hospitalized adult psychiatric patients.	Psychiatric hospitalization units for adults.	Seclusion and / or physical restraint.	N=35	N=3 RCTs; N=32 observational design (30 cohorts; 2 cross-sectional studies).	Qualitative analysis.	Brazil (1), Germany (4), Norway (2), Australia (3), Netherlands (1), Finland (4), European countries (1), US (11), Japan (1), Spain (1), Sweden (1), Austria (1), France (1), India (1), Canada (1) and one stranger.	Seclusion and restraint often lead to negative psychological effects, including PTSD, with limited evidence supporting their therapeutic benefits. Further research is needed.	**Risk low**
Gleerup, 2019	Psychiatric patients (n=4,006).	Psychiatric hospitalization units	Having been subjected or questioned about seclusion and mechanical restraint.	N=14	3 reporting on RCTs and 11 reporting on observational studies.	Unclear ("synthesis of the primary results stratified according to whether they are objective or subjective measures.")	USA (4), Germany (3), one in Israel, The Netherlands, Brazil, India, Japan and the UK, respectively, while one study examined patients from 10 different European countries.	Subjective outcomes favour seclusion over mechanical restraint, while objective measures show longer stays for those subjected to seclusion and mechanical restraint.	**Risk low**
Kersting, 2019	Adult psychiatric patients.	Psychiatric hospitalization units for adults.	Physical Harm and Death in the Context of Coercive Measures	N=67	2 experimental RCTs, 1 case-control study, 11 epidemiological studies, 12 association studies, and majority case series, case reports.	Qualitative analysis.	Various, mainly UK and USA	Cardiac issues, injuries, and venous thromboembolism were common harms associated with coercive interventions, with restraint and forced medication being the most frequently reported measures.	**Risk unclear**
Nielson, 2020	Children and adolescent with a mental disorder	Psychiatric inpatient environments	Physical restraint in mental health care means '…the use of physical contact which is intended to prevent, restrict, or subdue the natural movement of any part of the patient's body'	N=16	16 quantitative studies (n=13 are retrospective)	Narrative synthesis	America (n=6), Australia (n=3), Norway (n=3), Canada (n=2), Belgium (n=1), and Finland (n=1).	Physical restraint in children and adolescents is linked to age, gender, diagnoses, history, risky behaviours, timing, staff influences, and potential physical and psychological harm.	**Risk low**