Best practice recommendations on the application of seclusion and restraint in mental health services: An evidence, human rights, and consensus-based approach

Short running title: Seclusion and restraint in mental health services

De Cuyper, Kathleen[1]; Vanlinthout, Els[1]; Vanhoof, Jasper[2]; van Achterberg, Theo[2]; Opgenhaffen, Tim[3]; Nijs, Sara[4]; Peeters, Tine[1]; Put, Johan[3]; Maes, Bea[4]; & Van Audenhove, Chantal[1]

[1] LUCAS - Center for Care Research & Consultancy, University of Leuven
[2] Academic Centre of Nursing and Midwifery, University of Leuven
[3] Institute for Social Law, University of Leuven
[4] Parenting and Special Education, University of Leuven

Corresponding author: Kathleen De Cuyper, kathleen.decuyper@kuleuven.be , Minderbroedersstraat 8, postbus 5310, B-3000 Leuven, Belgium, +3216326053, ORCID-ID: 0000-0003-1807-8941

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De Cuyper Kathleen (Orcid ID: 0000-0003-1807-8941)

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Accessible summary

What is known on the subject?

- Seclusion and restraint still regularly occur within inpatient mental health services.
- The Council of Europe requires the development of a policy on for instance age limits, techniques, and time limits.
- However, they only define the outer limits of such a policy by indicating when rights are violated. Within these limits many choices remain open.
- Staff and service managers lack clarity on safe and humane procedures. Research literature provides limited and contradictory insights on these matters.

What this paper adds to existing knowledge?

- The study resulted in 77 best practice recommendations on the practical application of restraint and seclusion as last resort intervention in inpatient youth and adult mental health services, including forensic facilities.
- To our knowledge, this is the first study in which the development of recommendations on this topic is not only based on scientific evidence, but also on an analysis of European human rights standards and consensus within and between expert-professionals and experts-by-experience. This approach allowed to develop for the first time recommendations on time limits, asking for second opinion, and registration of seclusion and restraint.

What are the implications for practice?

- The 77 recommendations encourage staff to focus on teamwork, safety measures, humane treatment, age and time limits, asking for second opinion, observation, evaluation and registration when applying seclusion and restraint as last resort intervention.
- The implementation of the best practice recommendations is feasible provided that they are combined with a broad preventive approach and with collaboration between service managers, staff (educators) and experts-by-experience. Under these conditions, the recommendations will improve safety and humane treatment, and reduce harm to both service users and staff.

Abstract

Introduction: Seclusion and restraint still regularly occur within inpatient mental health services. Professionals lack clarity on safe and humane procedures. Nevertheless, a detailed policy on for instance age limits, techniques, and time limits is required.

Aim: We developed recommendations on the humane and safe application of seclusion, physical intervention and mechanical restraint in inpatient youth and adult mental health services, including forensic facilities.

Method: After developing a questionnaire based on a rapid scientific literature review and an analysis of human rights sources stemming from the Council of Europe, 60 expert-professionals and 18 experts-by-experience were consulted in Flanders (Belgium) through a Delphi-study.

Results: After two rounds, all but one statement reached the consensus-level of 65% in both panels. The study resulted in 77 recommendations on teamwork, communication, materials and techniques, maximum duration, observation, evaluation, registration, second opinion and age limits.

Discussion: Combining an evidence, human rights, and consensus-based approach allowed for the first time to develop recommendations on time limits, asking for second opinion and registration.

Implications for practice: When combined with a preventive approach and collaboration between service managers, staff (educators) and experts-by-experience, the recommendations will improve safety and humane treatment, and reduce harm to service users and staff.

Relevance statement

The combination of an evidence, human rights, and consensus-based approach – the latter within and between expert-professionals and experts-by-experience - resulted for the first time in recommendations on time limits, asking for second opinion and registration when applying seclusion and restraint. Seclusion and restraint should always be avoided. However, if exceptionally applied as last resort intervention, the 77 developed recommendations will improve safety and humane treatment and reduce harm to service users and staff. Although developed with the contribution of Flemish experts, they can also be used outside Flanders, provided they are (made) compatible with the legal, cultural and organizational context.

Keywords

Delphi technique, physical intervention, mechanical restraint, seclusion, guideline, mental health care

Introduction

Scientific literature in mental health care demonstrates that there are many good reasons to maximally reduce the use of seclusion, physical intervention and mechanical restraint as a means of dealing with aggression and escalation (Herrman et al., 2022). First, all parties involved are exposed to both physical and emotional risks, such as the traumatizing effect of a coercive intervention (Aguilera-Serrano, Guzman-Parra, Garcia-Sanchez, Moreno-Küstner & Mayoral-Cleries, 2018; Akther, Molyneaux, Stuart, Johnson, Simpson & Oram, 2019; Askew, Fisher & Beazley, 2019; Chieze et al., 2019; Kersting et al., 2019; Krieger, Moritz, Lincoln, Fischer, & Nagel, 2021; Lawrence, Bagshaw, Stubbings & Watt, 2022; Mauritz, Goossens, Draiijer & van Achterberg, 2013; Nielson, Bray, Carter & Kiernan, 2020). Second, developmental opportunities such as building autonomy, developing relationships with peers and acquiring competencies are undermined when seclusion and restraint are part of a repressive approach (de Valk, Kuiper, Van der Helm, Maas & Stams, 2019). Third, its effectiveness regarding diminishing aggression and escalation and improving (physical) safety is not demonstrated (Chieze et al., 2019; Kersting, Hirsch & Steinert, 2019; Nielson et al., 2020; Roy et al., 2021; Sailas & Fenton, 2012).

Preventive strategies have proven to be successful to reduce the use of seclusion and restraint in inpatient youth and adult mental health services, including forensic facilities. As stated in the Six Core Strategies model (e.g., Huckshorn, 2004; LeBel et al., 2010) and the Safewards model (e.g., Bowers et al., 2015; Fletcher et al., 2017), the preventive approach is situated at four levels: the management of facilities, the professional teams, the individual staff-members and national law. Next to the Six Core Strategies and Safewards model, the preventive approach in psychiatric services is based on trauma-informed care (e.g., Brocardt et al., 2011; Bryson et al., 2017), the engagement model (e.g., Blair & Moulton-Adelman, 2015), recovery-based care (e.g., Huckshorn, 2014), and - specifically in youth psychiatric and forensic services - on positive living climate (e.g., de Valk et al., 2015), collaborative problem solving (e.g., Chua et al., 2021; Perers et al., 2021), and the non-violent resistance model (van Gink et al., 2020). Preventive strategies include the implementation of leadership, education and training, architectural adjustments, team cooperation, maintaining a positive living climate, customized application of rules, risk assessment, a focus on working relationships with service users, the use of crisis plans, de-escalation techniques and alternative strategies like comfort rooms, and post-incident review with the service user(s) and staff. The frequency and duration of seclusion and restraint decrease when implementing these preventive approaches. The preventive efforts are generally accompanied by an overall stability of the security level within the facility (e.g., Bowers et al., 2015; Brocardt et al., 2011; Celofiga et al., 2022; Chua et al., 2021; Fletcher et al., 2017; Goulet, Larue & Dumais, 2017; Hammervold, Norvoll, Aas & Sagvaag, 2019; Hottinen et al., 2020; Huckshorn, 2004; Perers et al., 2021; Putkonen et al., 2013).

Nevertheless, even when preventive and alternative strategies are maximally implemented, in some situations of aggression and escalation in specific settings, seclusion and restraint cannot always be avoided (e.g., Al-Maraira & Hayajneh, 2019; Chieze, Calvien, Kaiser & Hurst, 2021; Kinner et al., 2017; Perers et al., 2021; Wilson at al. 2017). When confronted with aggression or escalation with high intensity, and under the condition that alternative strategies do not or no longer work, most literature

as well as most human rights bodies agree that - for the shortest time possible - seclusion or restraint can be used as last resort to keep everybody safe. In those cases, the focus needs to be on a safe, respectful, and humane application of seclusion and restraint (Committee of Ministers, 2004; CRC General comment 24, 2019; Chieze et al., 2019; Chieze et al., 2021; CPT, 2017; Doedens, Vermeulen, Boyette, Latour & de Haan, 2020; Garriga et al., 2016; NICE, 2015; Perers et al., 2021). According to the literature, important elements in minimizing the negative effects of restrictive measures are (a) considering the preferences of the service user regarding the (course of the) intervention, (b) respectful communication, (c) informing the person about the process of the intervention, and (d) respect for the privacy and needs of the service user, including contact with relevant others (e.g., Aguilera-Serrano et al., 2018; Chieze et al., 2019).

As stated in the Six Core Strategies and Safewards model (e.g., Bowers et al., 2015; Fletcher et al., 2017; Huckshorn, 2004; LeBel et al., 2010), the prevention, and safe and humane application of seclusion and restraint need to be part of a clear policy in each mental health and forensic service. However, staff and service managers appear to lack clarity on this subject (Cowman et al., 2017). Staff take a rather ambiguous stance on the use of seclusion and restraint. Nursing staff in mental health services perceives seclusion and restraint as necessary interventions to ensure safety. This attitude seems to outweigh their negative feelings towards seclusion and restraint, their moral conflicts and the concept of last resort. This ambiguous attitude can be explained by factors related to lack of expertise and education, and shortage of staff (e.g., Doedens et al., 2020; McKeown et al., 2019; Wong & Bressington, 2022). Nevertheless, this staff's attitude hampers service managers and educators to develop clear, safe and humane seclusion and restraint procedures.

Also to safeguard human rights, clarity on age limits, safe and humane techniques and time limits are deemed essential in each service's policy on seclusion and restraint. After all, seclusion and restraint affect the right to private life and the right to freedom, and may constitute degrading treatment. Clear safeguards must prevent human rights violations (Al-Maraira & Hayajneh, 2019; Chieze et al., 2021; Kumble & McSherry, 2010; Sashidharan, Mezzina & Puras, 2019). Therefore, also the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT), a human rights body within the Council of Europe that pays a very high attention to seclusion and restraint, states that care facilities applying seclusion and restraint should have a clear policy on these subjects (CPT, 2017; CPT on Italy, 2017, §120; CPT on Bosnia and Herzegovina, 2016, §19; CPT on Cyprus, 2014, §107; CPT on Montenegro, 2010, §128; CPT on Croatia, 2008, §120). In standards and country reports, the CPT gives guidance, by stating that mechanical restraint of minors should be maximally avoided (CPT on Ireland, 2020, §114; CPT on Croatia, 2018, §153), and that certain techniques amount to a violation of human rights and may not be used (CPT, 2017). Additionally, the CPT demands absolute time limits, for example by stating that using seclusion or restraint for more than 24 hours may constitute a human rights violation (CPT on Germany, 2017, §105; CPT on Belgium, 2016, §143-144 and §163; CPT on Serbia, 2016, §191; CPT on Sweden, 2016, §117; CPT on Czech Republic, 2015, §165; CPT on Denmark, 2014, §125; CPT on Turkey, 2013, §64). However, this guidance only defines the outer boundaries. It focuses on those instances where a seclusion or restraint might

touch upon a human rights violation and draws lines that must not be crossed. For example, it identifies techniques that are unsafe and inhumane but does not state what is safe and humane. Research literature provides limited and contradictory insights on age limits, techniques, and time limits that must be considered to apply seclusion and restraint safely and humanely. Therefore, it is important to come to clear recommendations on these matters as we know that seclusion and restraint still regularly occur within inpatient mental health services, including forensic facilities (e.g., Flammer, Frank & Steinert, 2020; Flammer, Hirsch & Steinert, 2021; Lepping, Masood, Flammer & Noorthoorn, 2016; Välimäki et al., 2019).

Bringing the scientific literature and human rights together, we learn that: first, seclusion and restraint still occur regularly within mental health services; second, human rights require the development of a policy on for instance age limits, techniques, and time limits for the use of restraint and seclusion as a last resort intervention in situations of aggression or escalation; third, human rights bodies define the outer limits of such a policy by indicating when rights are violated. However, within these limits many choices remain open; fourth, the present limited and contradictory scientific evidence from the literature does not allow to formulate recommendations on how to develop a policy on safe and humane application of seclusion and restraint as last resort intervention in situations of aggression or escalation. Therefore, a Delphi-study was conducted to answer the following research questions regarding the use of physical intervention, mechanical restraint, or seclusion in inpatient youth and adult mental health services – including forensic facilities - in situations where alternatives fail to guarantee the safety and the integrity of the persons involved:

1. Which techniques can be recommended?
2. Which age limits are important to comply with?
3. Which maximum time periods may not be exceeded?
4. What to do when the serious and acute danger remains present after the expiration of the maximum time period?

The study was not only executed in open and secure inpatient youth and adult psychiatric and forensic services, but also in open and secure residential youth care services including forensic youth care services for minors who committed (a) juvenile offence(s), and services for youth with a disability. Consequently, the recommendations developed are the same for each of these settings. After all, they deal with service users with similar problems. A universal set of recommendations should avoid treating them differently depending on the setting they are in. Because in Flanders, quality of care in these settings belongs to the same government body, it is also practically implementable.

Method

A Delphi-study (Jorm & Ross, 2018; Jorm, 2015) was conducted in Flanders (Belgium) between September and December 2019 by a research team of ten scholars from the following research fields: nursing studies (n = 2), psychology (n = 3), criminology (n = 1), special educational sciences (n = 2) and legal studies (n = 2). We excluded chemical restraint from the Delphi-study. Developing

recommendations on this type of restraint requires a different study design led by other disciplines. The definitions of seclusion, physical intervention, and mechanical restraint are listed in Table 1.

- Enter Table 1 -

Table 1 Definitions of seclusion, physical intervention, and mechanical restraint (CPT, 2017)

Figure 1 gives an overview of the two rounds of the Delphi-study. A guideline development group consisting of representatives of the involved professional associations (n = 6), patient, youth and family organizations (n = 4), umbrella organizations (n = 4), and government administrations responsible for running the forensic residential youth care services (n = 2) evaluated the method of the Delphi-study and the development of the recommendations. Approval by an ethical committee for this study was mandatory as experts-by-experience participated in the study. The Delphi-study was approved by the social ethics committee of the University of Leuven, Belgium (register number G-2019 07 1690). The reporting of the development of the recommendations was done in accordance with the AGREE II Reporting Checklist (Kavanagh, 2009).

- Enter Figure 1 –

Figure 1 Overview of the Delphi-study

Literature review and human rights analysis

The first Delphi-questionnaire was constructed based on a rapid scientific literature review and an analysis of human rights sources stemming from the Council of Europe.

The rapid literature review was first conducted in February 2019 to collect scientific evidence on the practical application of seclusion, physical intervention and mechanical restraint in inpatient mental health services and residential youth care. Reviews and guidelines were identified using a search strategy developed in PubMed, Education Resources Information Center (ERIC), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Google Scholar. The rapid scientific literature review focused on reviews and guidelines because they yield more reliable results compared to individual studies. Randomized controlled trials were not published on this subject. Selection criteria were (1) application of restraint and seclusion in case of aggression or escalation, (2) in inpatient mental health or residential youth care, (3) any empirical studies and (4) published after 2000. Forty-one reviews and 12 guidelines were selected. All information on age limits, interventions, duration, materials, and techniques were analyzed to formulate statements on the safe and humane application of restraint and seclusion to deal with aggression and escalation under the condition that alternatives fail to keep everybody safe. Also, vulnerabilities such as traumas and disabilities that should be considered during restraint and seclusion were included in the statements. These statements made up the items of the first Delphi-questionnaire. An update of the literature review in April-June 2021 in Pubmed, ERIC and CINAHL did not result in extra articles or guidelines.

In addition, the approach that the Council of Europe's human rights bodies take on seclusion and restraint in inpatient mental health and residential youth care was analyzed. The Council of Europe is an international organization and is aimed to protect human rights in the European region. Within the Council of Europe, a series of human rights treaties were signed - of which the European Convention on Human Rights is the best known - and human rights bodies were established [including the European Court of Human Rights (ECtHR)]. We focused on the Council of Europe because this organization puts a lot of emphasis on human rights aspects of seclusion and restraint. This is particularly the case for the ECtHR, which rules on these practices in specific court cases, and for the CPT, which visits care facilities in Member States and makes recommendations on issues including seclusion and restraint. These recommendations are detailed and give expression to general principles such as the prohibition of degrading treatment. The Council of Europe therefore takes a special place, especially when compared to the United Nations that barely make any concrete reference to seclusion and restraint. There is one important exception. The UN Convention on Rights of Persons with Disabilities (CRPD) and the related UN Committee on the Rights of Persons with Disabilities (CCRPD) sometimes refer to seclusion and restraint and seems to oppose any forced use of it, insofar as such use occurs solely or more frequently in the case of persons with disabilities. Since its use in mental health care is inextricably linked to a psychosocial disability, this would seem to push for a ban of seclusion and restraint (CCRPD General comment 1, 2014; CCRPD on Germany, 2015; CCRPD on Australia, 2013). Although we endorse the equality principle used by the CRPD, we chose not to include this ban in the guideline. First, the CRPD position on the use of coercion in care is highly contested because it can lead to underprotection (Appelbaum, 2016; Freeman et al., 2015). Moreover, even proponents of the CRPD seem to agree that there may be hard cases in which coercion cannot be ruled out. For these, they refer to the principle of 'necessity' (Flynn & Arstein-Kerslake, 2017). It is precisely this principle that also forms a starting point in the approach of other human rights bodies. So it is far from certain whether under the CRPD the use of seclusion and restraint can be completely ruled out. As long as it is, it seems desirable to use the handholds developed by the Council of Europe.

The human rights analysis resulted in a reference framework of key elements and principles which can be used to assess whether the application of seclusion and restraint in case of aggression and/or escalation is in line with the Council of Europe's human rights standards. A first version of this framework was made in 2018 and aimed at mental health services (Opgenhaffen et al., 2020). This framework was used to check all statements that were formulated after our literature review. As a result, first, some important principles mentioned in the reference framework were added as extra statements in the first Delphi-questionnaire. For example, human rights sources require seclusion and restraint to be recorded at fixed intervals, but it does not follow from the human rights analysis what is an apt interval. Therefore, several statements on time intervals between registration were included in the Delphi questionnaire. Another example is that human rights sources state that the duration of seclusion and restraint should be for the shortest time possible, usually minutes rather than hours. But more specified time intervals are not mentioned. That is why statements on general and absolute maximum duration of the interventions were added to the Delphi-questionnaire, such as "A person

may never – in any circumstances – be secluded for more than 24 hours". Second, the human rights analysis set the boundaries within which certain choices were to be made. For example, certain techniques (e.g., neck holds) and materials (e.g., net or cage beds) are to be considered unacceptable. Techniques that are unacceptable from a human rights perspective were obviously not proposed to the Delphi-panels, or the prohibition of the use of a certain technique/material was included in the questionnaire.

In the course of 2020, the reference framework on mental health services was supplemented by a version that also applies to youth care. Both were kept up to date until May 2021 (Opgenhaffen & Put, 2022).

Selection of participants

Two expert panels, one of expert-professionals and one of experts-by-experience, took part in the Delphi-study.

We recruited expert-professionals from mental health and youth care organizations with best practices regarding (the prevention of) seclusion and restraint in Flanders. Thirty-five organizations were selected based on (1) audits from Flemish Care Inspections, and with the assistance of (2) an umbrella organization of mental health services, and (3) an expertise center on care for persons with a disability. For professionals, the prerequisite for inclusion was experience with the use of restraint and/or seclusion as a staff-member, or involvement in developing policies regarding restraint and seclusion as a service manager.

Experts-by-experience were recruited by four patient, youth, and family organizations. Prerequisites for inclusion were (a) personal experience with mental health and/or youth care, either as a ~~care~~ service user or as a family member, and (b) participation in an experts-by-experience course, voluntary work, or policy group in a care organization to expand the personal experiences to shared views. The second prerequisite for inclusion allowed the experts-by-experience to give a balanced opinion from some distance on a sensitive topic. Mark that personally have been subject to coercive interventions was not a prerequisite for the experts-by-experience to participate. The research team estimated that completing online Delphi-questionnaires might be stressful for some persons who experienced coercive measures themselves without the presence of a researcher who can provide support. Together with the patient and youth organizations, we estimated that experts-by-experience who expanded their personal experience with mental health and/or youth care (see prerequisite b) do not need personal experience with coercive interventions to evaluate recommendations on the use of seclusion and restraint from the perspective of service users.

Unfortunately, in Flanders, the trajectories to expand personal experiences with receiving care only exist within mental health services, and not yet in youth care. We organized a focus group with youngsters living in a residential youth care service to overcome this limitation of the study, and because minors are not eligible for participation in a Delphi-process. The participants (n = 6) were recruited by the involved youth organizations. The focus group took place between the two Delphi-

rounds, so their opinions were also included in the adjustment of the unaccepted statements of the first round (see next section).

Delphi-questionnaires

We used QuestionPro to program the online questionnaires of the two Delphi-rounds. They consisted of three sections: one on each intervention questioned. The questionnaire for the first round consisted of 73 statements: 23 statements on physical intervention, 32 statements on mechanical restraint, and 18 statements on seclusion. The compatibility of the statements with the local legislation was assessed. No adjustments to the statements were necessary.

Each section of the Delphi-questionnaire started with the definition of the intervention (see Table 1). As not all expert-professionals had experience with the application of all three interventions, professionals were asked in the beginning of each section whether the intervention was applied in their organization. If not, the statements on that intervention were not presented to that professional. All experts-by-experience were asked to complete the three sections. Their views across all three types of interventions were important to hear in the study given that they were representing the voices of people who are subjected to seclusion and restraint.

The panelists evaluated each statement on a 5-point Likert scale: 'not agree', 'rather not agree', 'just as much disagree as agree', 'rather agree' and 'agree'. Besides these five options, participants could choose the option 'no expertise on this matter'. Every statement was accompanied by a comment box, where participants could add suggestions or an explanation for their answer (Jorm & Ross, 2018). Because the aim of the Delphi-study was to formulate *best practice* recommendations, a warning after each statement stipulated that the panelists had to judge the statement on its appropriateness, not on its feasibility.

The statements that were not accepted in the first Delphi-round (see next section) were adjusted to make up the second Delphi-questionnaire. The adjustments were first based on a qualitative analysis of the comment boxes of the first Delphi-questionnaire. Moreover, four new statements that were suggested by panelists were added. Second, one statement was adapted based on the focus group that was held with youngsters with experience in mental health or youth care. This was the statement on the absolute maximum duration of seclusion: it was downsized from 48 hours to 24 hours. The second questionnaire was finalized after another checkup with the local legislation, with again no adaptations as result. This process resulted in a questionnaire of 25 statements.

In the second Delphi-round, besides the second questionnaire, panelists received a feedback-report, with feedback on their individual scores as well as group scores of both panels for each statement.

Definition of the cut-off criterion

A quantitative definition of consensus was chosen as the cut-off criterion to determine which statements were accepted as recommendations to be used in inpatient mental health and residential youth care services (Jorm, 2015). The cut-off criterion was set at 65% for each Delphi-panel because the study included two panels, more than 70 statements had to be evaluated, and a controversial topic

was examined (Diamond et al., 2014; Jorm, 2015). This means that a statement was accepted as a recommendation if at least 65% of each Delphi-panel (rather) agreed with the statement to be accepted as a recommendation. Statements reaching less than 65% but more than 35% agreement in one or both panels, were taken to the next round of the study. Statements with agreement rates below 35% in one or both panels were rejected. Participants who indicated that they had 'no experience' relevant to a specific statement were not considered in the calculation of the percentage of agreement regarding a statement.

Results

First Delphi-round

In total, 78 participants completed the first questionnaire. The sixty participants of the first panel were expert-professionals from adult psychiatric and forensic services (n = 17), youth psychiatric and forensic services (n = 17), and (forensic) youth care services (n = 26), including professionals active in care for youth with a disability (n = 12). They came from 22 of the 35 recruited organizations. The second panel consisted of 18 experts-by-experience from (youth) mental health care who were recruited by the four patient, youth, and family organizations that were consulted by the researchers. All panelists judged the statements regarding seclusion. Physical intervention statements were judged by 59 expert-professionals and 18 experts-by-experience; one professional indicated that physical intervention was not used in their organization. Mechanical restraint statements were judged by 40 expert-professionals and 18 experts-by-experience; 20 expert-professionals indicated that mechanical restraint was not applied in their organization.

Fifty-two statements were endorsed by 65% of the round one participants in both panels and were therefore directly accepted as recommendations. The other 21 statements reached more than 35% of agreement in one or both panels and were therefore taken to the second Delphi-round.

Second Delphi-round

Sixty-five panelists participated in the second Delphi-round: 48 expert-professionals and 17 experts-by-experience. The drop-out rate in the panel of professionals was about the same for all included types of services. The panelists completed a questionnaire consisting of 25 statements.

Only one statement did not reach the cut-off criterion of 65% in both panels. It considered asking for a second opinion in case mechanical restraint use would take longer than 15 minutes. Fifty-nine percent of the expert-professionals and 87% of the experts-by experience indicated that they (rather) agreed with this statement. In conflict with our predefined criteria however, we decided together with the guideline development group to accept the statement, because the two panels did accept the analogous statement for seclusion. As mechanical restraint often also takes place in a seclusion room, which implies that mechanical restraint and seclusion are combined, we accepted the statement.

Consensus-based best practice recommendations

After two Delphi-rounds, 77 statements were accepted as consensus-based best practice recommendations. They are listed in Appendix A, together with the agreement levels in both panels

and the Delphi-round in which the consensus criterion was reached. The recommendations were kept up to date until May 2021 based on updates of the rapid literature review and the legal reference framework. The answers to the research questions are as follows.

1. Which techniques can be recommended to apply seclusion and restraint?

Both the literature review and the legal analysis resulted in limited evidence on preferred or discouraged techniques and thus relatively few statements on techniques could be presented to the panels. As a consequence, only a few techniques resulted as recommendations from the Delphi-study, for example therapeutic holding in children (Kozub & Skidmore, 2001) and the preferable supine position, face up (Cusack, McAndrew, Cusack & Warne, 2016; NICE, 2015). Consequently, the recommendations consider more procedural actions rather than preferred techniques. Examples are recommendations on teamwork such as designating who takes the lead during an intervention, recommendations regarding safety such as the protection of head and neck and keeping the airways and breathing free, recommendations on humane treatment such as communication with the service user, a ban on using cage or net beds and metal handcuffs, avoiding the person being undressed during the intervention, and recommendations on observation at regular moments in time and on registration of these observations.

2. Which age limits to seclusion and restraint are important to comply with?

In the first Delphi-questionnaire, we set a fixed age limit of 13 years as the youngest possible age for the use of all three interventions, based on the NICE guideline (NICE, 2015). However, this was not accepted by the expert-professionals as extreme aggression also occurs in children under the age of 13. In the second round questionnaire, we transformed the statements on age limits into a cascade on preferred intervention for young children in case alternative strategies fail to keep everybody safe. In this cascade, physical intervention is considered above the other measures for children under the age of 13. Seclusion can only be considered if physical intervention cannot be applied because of circumstances such as weight, physical strength, or trauma experienced by the child. Mechanical restraint is not allowed under the age of 13. These statements were accepted in the second Delphi-round as best practice recommendations. In 2021, after the Delphi-study was conducted, a fourth recommendation concerning age limits had to be added, given more explicit evidence in recent CPT-reports (CPT on Croatia, 2018, §153; CPT on Ireland, 2020, §114) on mental health services, indicating that for minors aged between 13 and 18 mechanical restraint must be avoided at all times.

3. Which maximum time periods may not be exceeded for seclusion and restraint?

The only time limit we found in the literature and guidelines was 10 minutes for physical intervention (NICE, 2015). From the legal human rights analysis, we found that the absolute maximum duration for the use of mechanical restraint and seclusion is 24 hours (New South Wales Government, 2015; CPT-reports). Therefore, in the Delphi-questionnaires, we differentiated for mechanical restraint and seclusion between the *general* maximum duration on the one hand, and the *absolute* maximum duration that may never be exceeded on the other hand. In the first Delphi-round, only the absolute

maximum duration of 24 hours for mechanical restraint was accepted by both panels. In the second round, the panels reached consensus on a general maximum duration of 15 minutes in case of physical intervention and mechanical restraint, and one hour in case of seclusion. Finally, and remarkably because of the contrast with the first round, both panels agreed on the absolute maximum duration of 24 hours for the use of seclusion. Apparently, some professionals and experts-by-experience changed their opinion, possibly based on the results of the first Delphi-round on which the participants received feedback to inspect before completing the second Delphi-questionnaire.

4. What to do when the serious and acute danger remains present after the expiration of the maximum time period?

Both panels agreed in the second Delphi-round on what staff has to do when they fail to comply with the absolute maximum time limits. Their agreement indicated that when the duration of the mechanical restraint or seclusion exceeds 15 minutes or one hour respectively, observations after every 15 minutes are recommended, preferably in person – under the condition that this does not lead to more aggression - to check whether the intervention can be ended. The consensus further indicated that if the intervention cannot be ended because of the intensity of the aggression or escalation, professionals must ask for a second opinion after 4 hours, or earlier if possible. The evaluation of the situation by another expert who was not involved earlier might give new insights in how to end the intervention.

Discussion

The Delphi-study resulted in consensus between expert-professionals and experts-by-experience on 77 best practice recommendations concerning the practical application of restraint and seclusion as last resort interventions in situations of aggression or escalation in inpatient mental health services, including forensic facilities. To our knowledge, this is the first study in which the development of recommendations on the practical application of seclusion and restraint is not only based on scientific evidence, but also on an analysis of European human rights standards, and on consensus within and between expert-professionals and experts-by-experience. In formulating the recommendations, it was always questioned how a recommendation would contribute to the safety of the service user and staff-members, to maximizing health and quality of life of the service user, and how tailoring to individual needs and preferences of the service user could or should be integrated. Furthermore, the project team discussed all recommendations with a view to potential adverse effects (side effects, risks or harm) of following a particular recommendation.

What the study adds to the existing research

The aim of this Delphi-study was to close the knowledge gap on age and time limits, and techniques that are to be considered when applying seclusion and restraint as last resort interventions to keep everybody safe. Lack of clarity on this subject exists in the clinical field, human rights bodies and in the research literature (see Introduction section). High quality *intervention* studies on this topics are associated with many challenges. These are inherent to the research subject. Service users are not always able to give informed consent, randomization is difficult to implement in practice settings, and

ethical considerations are imperative (Bergk et al. 2008; Chieze). et al. 2019). Therefore, another study method was needed to come to clear recommendations on these matters. Therefore, we developed recommendations based on the combination of an evidence, human rights, and consensus approach. Legal scholars, researchers, professionals and experts-by-experience hold different expertise (Jorm & Ross, 2018; Page, 2007; Reen, Baily, Maughan, & Vincent, 2020). For example, experts-by-experience can provide valuable extra insights into the negative effects of restrictive measures (Reen et al., 2020). By combining the expertise of all these stakeholders in a Delphi-process, it appeared feasible to reach consensus on teamwork, safety measures, humane treatment, duration, observation, evaluation, asking for second opinion, registration and time and age limits on which to focus when applying seclusion and restraint. To our knowledge, this is the first study that results in best-practice recommendations on all of these topics. Remarkably, in 26 of the 77 recommendations, there is a large variation (>10%) in the percentage of agreement between expert-professionals and experts-by-experience, with generally more conservative scores given by the expert-professionals. For most of the 26 recommendations, the views of the experts-by-experience were more often in favor of a *less* intrusive application of seclusion and restraint compared to the expert-professionals. This shows that committing to more collaboration between professionals and experts-by-experience when protocols are developed can contribute to more humane practices.

The Delphi-process resulted (1) in the confirmation of other study results, for example regarding teamwork, communication, humane treatment, observation and evaluation (e.g., Bachmann, Vatne & Mundal, 2022; Cusack et al., 2016; Dahan et al., 2018; Garriga et al., 2016; Manser, 2009; NICE, 2015; Pérez-Revuelta et al., 2021; Vollm et al., 2018), (2) in recommendations on which the research literature and evidence-based guidelines are inconclusive, for example regarding the preferable supine position, face up, and age limits (Cusack et al., 2016; Meehan, McGovern, Keniry, Schiffmann & Stedman, 2022; Masters et al., 2022; NICE, 2015), and (3) in new recommendations that not have been studied before, for example regarding time limits, asking for second opinion, and registration. The recommendations on timeframes are crucial regarding ending the intervention as soon as possible, and to maintain safety during the intervention. The *general* maximum duration of physical intervention and mechanical restraint is set on 15 minutes, and on one hour in case of seclusion. The *absolute* maximum duration of seclusion and mechanical restraint may never exceed 24 hours. When staff fails to comply with the maximum time limits, staff must ask for a second opinion after 4 hours, or earlier if possible. The recommendations on age limits aim to prevent traumatic experiences of children and youngsters (Nielson et al., 2021). In children under the age of 13, when alternatives fail to keep everybody safe, physical intervention has to be considered above the other measures. Seclusion can only be considered if physical intervention cannot be applied because of circumstances such as weight, physical strength, or trauma experienced by the child. Mechanical restraint is not allowed under the age of 13, and must be avoided at all times in minors aged between 13 and 18. Subsequently, recommendations on registration are needed because registration constitutes a paper trail which makes the coercive measure verifiable. Staff is encouraged to register the observations and evaluations every 15 minutes. In addition to making the measures verifiable, the recorded information

helps staff and ~~staff~~ service managers to learn from the intervention with the aim of diminishing the frequency and duration of seclusion and restraint in the future (Goulet et al., 2017).

Strengths and limitations of the study

An important strength of this study is the combination of an evidence, human rights, and consensus-based approach – the latter within and between professionals and experts-by-experience - as is explained above. A second strength is the cross-sectoral approach of the Delphi-study. Developing universal recommendations avoids that how service users are treated differs between types of services. Additionally, the cross-sectoral character of the study made the recommendations more robust as they were endorsed by professionals bringing in expertise from different settings (Jorm, 2015; Page, 2007). At the same time, however, the cross-sectoral approach and the choice for the settings included was geared by a specific need to develop recommendations within the Flemish policy domain of "welfare, health and family". As a result, settings that fall outside the scope of that domain (e.g., hospital wings of prisons) are not covered by this research. A second, related limitation is the entirely Flemish Delphi-panels. Their expertise may be partly determined by Flemish and Belgian policy and legislation that has for instance an impact on the type(s) of restraint that are “preferred” in Flanders and Belgium compared to other regions (Bak & Aggernaes, 2012; O’Donovan, Boland, & Carbaleddo, 2022; Steinert et al., 2010). Also the disciplines that make up the Flemish mental health teams, their education or the way care is organized in Flanders have an impact on the expertise of the Flemish Delphi-panels (Cowman et al., 2017). However, the recommendations remained in line with international evidence and human rights insights. Therefore, they can also be implemented elsewhere, provided that their compatibility with the legal, cultural, and organizational context is checked first.

Conclusion

The Council of Europe’s human rights bodies require a clear policy on the application of seclusion and restraint. To this end, this study offers for the first time to our knowledge consensus-based best practice recommendations on time limits, asking for second opinion and registration, when applying seclusion or restraint in inpatient youth and mental health services, including forensic facilities. Importantly, only when seclusion and restraint take place as last resort interventions within a broad multi-method preventive approach, the recommendations will improve safety and humane treatment, and reduce harm to service users and staff (Reen et al., 2020).

Relevance for clinical practice

Unfortunately, practice shows that the preventive approach to the use of seclusion and restraint is in exceptional situations not successful. In situations in which alternatives fail to keep everybody safe, this study shows among others that (1) staff need to aim for the registration of the observations and evaluations of seclusion or restraint every 15 minutes, (2) staff must ask for a second opinion at the latest after 4 hours of mechanical restraint or seclusion, (3) the *absolute* maximum duration of these measures may never exceed 24 hours, and (4) mechanical restraint may never be applied in children under the age of 13. To minimize the exposure to physical and emotional risks for all parties involved, and to safeguard the human rights of the service users, the implementation of these recommendations

– combined with a broad preventive approach - is essential and urgent. This implies that service managers, staff educators, staff and experts-by-experience need to collaborate. The services managers must provide for the optimal construction and design of the wards as well as of the seclusion room. Appropriate materials must be available to the staff, as well as clearly outlined procedures. The staff-educators need to include the procedures in their training program. Importantly, education and training should be as much about reducing seclusion and restraint as it is about performing it safely and humanely. Collaborating with experts-by-experience during the training sessions will contribute to this objective. Finally, staff has the difficult task of applying the recommendations in practice. Therefore, it is important for team leaders to be fully committed to ensuring basic ward safety for everyone and to supporting their staff in difficult circumstances. In situations in which seclusion or restraint cannot be avoided, the debriefing afterwards with all parties involved is essential for their wellbeing, and helps to avoid seclusion and restraint in the future (e.g., Chieze et al., 2021; CPT, 2017; De Cuyper et al., 2021; Hammervold, Norvoll, Aas & Sagvaag, 2019; Masters et al., 2002; NICE, 2015). Under the condition that all stakeholders – including experts-by-experience - are involved in combining the multi-method preventive approach with the safe, respectful, and humane application of seclusion and restraint as last resort intervention, the decrease of seclusion and restraint use can become a reality in mental health services.

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Table 1

Intervention	Definition
Seclusion	The stay of the service user in a specially provided individual seclusion room, or another individual room which the service user cannot leave independently
Restraint	Any act or use of material that restricts, prevents, or impedes a person's freedom of movement, where the person cannot regain independence of movement. Two types of restraint are addressed in the Delphi-study.
• Physical intervention	Restraint through an intervention in which the service user is physically restrained or immobilized by one or more staff-members or in which the service user is moved or allowed to be moved in a physically controlled manner.
• Mechanical restraint	Restraint by means of mechanical devices attached to or in the immediate vicinity of the service user, which cannot be removed independently by the service user. Ergonomic devices attached to or in the immediate vicinity of the service user, and which cannot be removed by the service user independently, are not considered mechanical restraint unless these devices are used outside their original purpose.