Components of interventions to reduce restrictive practices with children and young people in institutional settings: the Contrast systematic mapping review

John Baker,[1]* Kathryn Berzins,[1] Krysia Canvin,[1] Sarah Kendal,[1] Stella Branthonne-Foster,[2] Judy Wright,[3] Tim McDougall,[4] Barry Goldson,[5] Ian Kellar[6] and Joy Duxbury[7]

[1]School of Healthcare, University of Leeds, Leeds, UK
[2]Patient and public involvement representative, London, UK
[3]Leeds Institute of Health Sciences, University of Leeds, Leeds, UK
[4]Specialist Services, Lancashire and South Cumbria NHS Foundation Trust, Preston, UK
[5]Department of Sociology, Social Policy and Criminology, University of Liverpool, Liverpool, UK
[6]School of Psychology, University of Leeds, Leeds, UK
[7]Faculty of Health, Psychology and Social Care, Manchester Metropolitan University, Manchester, UK

*Corresponding author J.Baker@leeds.ac.uk

Declared competing interests of authors: none

Published May 2022
DOI: 10.3310/YVKT5692

Scientific summary

Contrast systematic mapping review
Health and Social Care Delivery Research 2022; Vol. 10: No. 8
DOI: 10.3310/YVKT5692

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Scientific summary

Background

Incidents involving distress, aggression and violence, in which children and young people (CYP) experience harm to themselves or cause harm to others, are a frequent occurrence in CYP's institutional settings in health, social care, education and criminal justice contexts. These incidents are often managed by the use of restrictive practices, such as restraint, seclusion, injection of sedating drugs and constant observation. The use of these practices carries significant risks, including the risk of physical and psychological harm to CYP and staff. Numerous staff training interventions have been developed to try to reduce the use of restrictive practices by seeking to modify practice using a variety of behaviour change techniques (BCTs). Research in this area is limited by a lack of attention to their specific components. The Medical Research Council has supported work to develop a taxonomy of BCTs to improve the reporting of such interventions by providing a common language with which to specify the content and mechanisms by which behaviour is changed.

The BCT taxonomy is a list of 93 BCTs organised into 16 thematic clusters for standardised reporting of behaviour change intervention. It was developed to improve the reporting of interventions. It provides a common language that specifies the content and mechanisms by which behaviour is changed and can be used prospectively in intervention design and retrospectively in intervention review. Interventions to reduce restrictive practices use a variety of BCTs; for example, role-playing verbal de-escalation strategies could be coded as behavioural practice/rehearsal (BCT 8.1) involving social comparison (BCT 6.2) and feedback on behaviour (BCT 2.2).

This study takes an essential first step to future intervention development in the context of CYP in institutional settings by identifying the range of interventions that have been implemented, their specific components and how they relate to outcomes.

Design

This was a systematic mapping review of published and unpublished literature, including detailed coding of programme content using the BCT taxonomy.

Aims and objectives

The aims of this study were to identify, standardise and report the effectiveness of components of interventions that seek to reduce restrictive practices in CYP's institutional settings, using the BCT taxonomy.

The study objectives were to:

- provide an overview of interventions aimed at reducing restrictive practices with CYP in institutional settings
- classify components of those interventions implemented in terms of BCTs, and determine their frequency of use
- identify the role of process elements in intervention delivery
- explore evidence of effectiveness by examining BCTs and intervention outcomes, when possible

- compare the components of interventions in CYP's settings across target populations (i.e. different professions) and policy area (i.e. health, welfare, criminal justice) with those in adult psychiatric inpatient settings [Baker J, Berzins K, Canvin K, Benson I, Keller I, Wright J, *et al.* Non-pharmacological interventions to reduce restrictive practices in adult mental health inpatient settings: the COMPARE systematic mapping review. *Health Serv Deliv Res* 2021;**9**(5)] and identify potential explanations for any differences
- identify and prioritise BCTs showing most promise of effectiveness and that may require testing in future high-quality evaluations.

Methods

This systematic mapping review and BCT analysis incorporated a broad literature search to identify relevant records and data extraction and analysis. This included the description and classification of interventions using the BCT taxonomy alongside a quality assessment of retrieved records and an exploration of the evidence of effectiveness.

Data sources

It was known that, in addition to well-known interventions reported in the academic literature, there were also reports of numerous stand-alone interventions implemented in individual services. Not all of these would appear in a search restricted to published research literature. Therefore, the search strategy was augmented by an environmental scan to include interventions and programmes that were specific to individual settings. This approach facilitated the identification of a more diverse range of records than could be identified solely from published literature.

Eleven relevant English-language health and social care research databases (including Applied Social Sciences Index and Abstracts, Criminal Justice Abstracts, Education Resources Information Center, MEDLINE and PsycInfo®), grey literature and social media were searched between August 2019 and January 2020.

Study selection

The inclusion criteria were broad: English-language records dated 1989–2019 of interventions aiming to reduce the use of restrictive practices in CYP's institutional settings. Interventions may or may not have been implemented, and there were no geographical limitations. The starting date of 1989 was decided by the date of introduction of the UK 1989 Children Act (Great Britain. *Children Act 1989*. London: The Stationery Office; 1989), which precipitated a significant shift in the orientation of children's services. Because of the research team's prior knowledge of the paucity of the evidence base, there were no restrictions on study design and no quality threshold was imposed. Searches were conducted in August 2019 and updated January 2020.

Data extraction and analysis

The following data were extracted: participants, setting, intervention type, procedures, fidelity, study design, whether or not the intervention had been evaluated and the quality of the included records.

Data extraction, guided by Workgroup for Intervention Development and Evaluation Research (WIDER), Cochrane Library and theory-coding scheme recommendations, included intervention characteristics, study design and reporting. Screening and quality appraisal used the Mixed Methods Appraisal Tool (MMAT). The BCT taxonomy was applied systematically; interventions were coded for BCT components, and the outcomes data were related back to these components.

The BCT taxonomy was applied to all interventions identified in the included records. Intervention data were examined for content, including the range and frequency of procedures, as well as overarching patterns. BCT data were analysed by reporting overall percentages of BCTs across the interventions,

then by BCT cluster, for example cluster 1 (goals and planning). Procedures used within interventions (e.g. training, audit and review, or service user involvement) were then described and classified in terms of BCTs. Outcomes were related back to BCT content.

Results

The searches identified 43,494 records in the published literature and 8796 from the grey literature and social media. After removing duplicates and irrelevant records, 363 full texts were retrieved. The final data set comprised 121 records. These 121 records varied in type (e.g. research report, journal article, slides, video).

Based on the MMAT screening questions, the included records contained 76 evaluations. The most common evaluation approach was a non-randomised design, which was reported in 41 of the evaluation records and three of the mapping records. There were no randomised controlled trials. The evaluations pertained to 67 out of 82 interventions; not all interventions had been evaluated, and others had been evaluated more than once.

A total of 47 out of 67 evaluations of interventions reported multiple outcome measures (e.g. number of restraints and use of pro re nata). The studies used 22 standardised measures in addition to non-standardised measures and routine data. Service users were involved in six interventions, with type and extent of involvement varying greatly. Twelve interventions reported some cost data.

Eighty-two unique interventions were identified. The majority aimed to reduce the use of seclusion and/or restraint. The 82 identified interventions were coded for BCT content and contained 36 out of a possible 93 BCTs. The number of BCTs identified per record ranged from 1 to 89, with an average of seven BCTs identified in an intervention. BCTs were identified on 542 occasions within the 82 interventions.

The most frequently identified BCTs were instruction on how to perform the behaviour, restructuring the social environment, problem-solving, action-planning, feedback on outcomes of behaviour and reframing. All 36 of the identified BCTs were within 14 of the BCT taxonomy's 16 clusters. Four of these clusters contained the majority of the identified BCTs and were detected in over half of all interventions:

1. Cluster 1 (goals and planning) – solving problems by identifying actions required and setting and reviewing goals. For example, this might be introduced as a collective staff activity.
2. Cluster 12 (antecedents) – includes factors that could influence whether or not restrictive practices can be avoided, typically in terms of preventing situations in which service users might become distressed and conflict could occur, by strategies such as restructuring the physical environment, adding objects to the environment, or changing the values or social culture of a service.
3. Cluster 4 (shaping knowledge) – includes instructions on performing behaviour and information about antecedents.
4. Cluster 2 (feedback and monitoring) – includes the monitoring of routinely collected data, and whether and how feedback was given. Both feedback and monitoring related primarily to outcomes such as de-escalation or reduced restrictive practices, although there was some evidence of monitoring CYP's emotional states.

Procedures within interventions were disaggregated and their BCTs identified. Most interventions comprised multiple procedures (range 0–15). The procedures were grouped by theme, and the most common procedures focused on staff training. Other procedures related to guideline or policy change, risk assessment tools, data review, milieu changes and changes to therapeutic approach (e.g. introducing trauma-informed care). This contrasted slightly with the most common procedures in the companion review focusing on interventions in adult mental health inpatient services, which found that the most commonly used procedures in those settings were training, audit and feedback, and nursing changes.

In rank order, the BCTs that showed most evidence of effectiveness on reducing restraint and seclusion were as follows: instruction on how to perform the behaviour, restructuring the social environment, feedback on outcomes of behaviour and problem-solving.

Limitations

The search strategy combined traditional search techniques for retrieving research and grey literature with a scanning approach to identify potential alternative sources of relevant material. This had the advantage of enabling the retrieval of diverse records that reported intervention content and was useful for mapping the number and range of interventions; however, the diverse quality of reporting in some records retrieved in this way presented a challenge for the meaningful assimilation of findings. For example, a lack of detailed description of interventions may have masked the presence of BCTs such that they were not detected.

The literature search was restricted to English-language records and there was limited evidence from countries outside the USA, so the findings may have limited international transferability. The finding that the evidence was weak restricted the scope of the study to examine the effectiveness of BCTs used in interventions.

Implications for policy and practice

Service providers have an urgent need for high-quality evidence regarding the effectiveness of interventions to reduce restrictive practices. At present, these findings suggest that individual providers are developing and delivering ad hoc untested interventions or inconsistently implementing known interventions. Evaluations of such interventions often report positive findings that imply that they are effective. However, the trustworthiness of such claims is undermined by poor reporting of intervention content, poor measurement of fidelity, the absence or poor reporting of any theoretical basis for the intervention and testing the intervention using the least robust methodologies. Without reliable evidence, service providers may be using scarce resources to implement ineffective intervention components.

Research recommendations

Existing evaluations reveal little about which aspects of an intervention are effective. There are commonly occurring BCTs identified across interventions. Without testing individual intervention components, it remains unclear which components – or combinations of components – might be effective and whether that effect is limited to incidence or duration of one or all restrictive practices. Rigorous, theory-driven testing of individual components is required.

The evaluations identified in this review used a variety of outcome measures reported in different ways (e.g. incidents per service user or per day). This heterogeneity makes it difficult to compare studies and prevents meta-analyses of outcome data. Despite this, one gap that remains is the underuse of service user-reported outcome measures. Development of such outcome measures could add a useful dimension that may shed further light on intervention effectiveness.

Conclusions

Despite numerous policy initiatives, there are ongoing concerns about the use of restrictive practices in children's settings and their impact on the psychological and physical welfare of service users and staff. Unlike previous reviews, this study was broad in scope, not limited to a single restrictive

practice or type of intervention. It is therefore the first, to our knowledge, to comprehensively map the procedures and effectiveness of interventions available to reduce restrictive practices in children's settings, and to describe their content in terms of BCTs. It revealed that many interventions have been implemented over the past two decades targeting multiple restrictive practices, using multiple procedures and, when they have been evaluated, multiple outcome measures. Very few interventions were theory based and most reported positive findings. The synthesis revealed that many of these interventions have clusters of BCTs in common, suggesting that these interventions have been developed based on an unstated set of assumptions of how they are intended to work and through what mechanisms. Making these assumptions explicit through the use of theory would enable the testing, measurement and refinement of interventions to maximise their effectiveness. Future interventions should test individual procedures (and their constituent components) in isolation and be thoroughly described.

Study registration

This study is registered as PROSPERO CRD42019124730.

Funding

This project was funded by the National Institute for Health and Care Research (NIHR) Health and Social Care Delivery Research programme and will be published in full in *Health and Social Care Delivery Research*; Vol. 10, No. 8. See the NIHR Journals Library website for further project information.

Health and Social Care Delivery Research

ISSN 2755-0060 (Print)

ISSN 2755-0079 (Online)

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: journals.library@nihr.ac.uk

This journal was previously published as *Health Services and Delivery Research* (Volumes 1–9); ISSN 2050-4349 (print), ISSN 2050-4357 (online)

The full HSDR archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hsdr. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nihr.ac.uk

Criteria for inclusion in the *Health and Social Care Delivery Research* journal

Reports are published in *Health and Social Care Delivery Research* (HSDR) if (1) they have resulted from work for the HSDR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

HSDR programme

The HSDR programme funds research to produce evidence to impact on the quality, accessibility and organisation of health and social care services. This includes evaluations of how the NHS and social care might improve delivery of services.

For more information about the HSDR programme please visit the website at https://www.nihr.ac.uk/explore-nihr/funding-programmes/health-and-social-care-delivery-research.htm

This report

The research reported in this issue of the journal was funded by the HSDR programme or one of its preceding programmes as project number NIHR127281. The contractual start date was in July 2019. The final report began editorial review in October 2020 and was accepted for publication in June 2021. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HSDR editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health and Care Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, the HSDR programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, the HSDR programme or the Department of Health and Social Care.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).