

Reducing stigma towards incarcerated populations: a systematic review of intervention studies

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ABSTRACT

Objectives To evaluate the effectiveness of interventions aimed at reducing stigma or discrimination against people with lived experience of incarceration (PLEIC), and to assess the role of 'Key Active Ingredients (KAI)' in influencing changes in stigma-related knowledge, attitudes and behaviours.

Design Systematic review (registered with PROSPERO CRD42024508685).

Data sources MEDLINE, Emcare, EMBASE, PsycINFO, HeinOnline, Sociology Source Ultimate and Web of Science were searched from January 2010 to September 2024.

Eligibility criteria Included studies were intervention-based, published in English from 2010 to present, where at least one primary or secondary outcome was stigma-related. There were no restrictions on context, type or level of stigma or study populations.

Data extraction and synthesis We adapted the KAI model for effective anti-stigma interventions as an *a priori* framework. An 'Active Ingredient Score (AIS)' was developed to measure the impact of KAI on each anti-stigma intervention. Quality assessment was conducted using the Cochrane Collaboration's Risk of Bias and the Joanna Briggs Institute Meta-Analysis of Statistical Assessment and Review Instrument.

Results 3926 articles were screened, of which 16 were included, covering 8815 participants across five countries. No studies from low or middle-income countries were found. 12 studies investigated the post-intervention impact on knowledge (positive=11), 12 investigated the impact on attitude (positive=10) and 8 investigated the impact on behaviour (positive=2) towards PLEIC. Of the eight KAI, only 'myth-busting' correlated with greater post-intervention effects on knowledge and attitudes. Both online and face-to-face interventions were equally effective. Overall, study methods were strong for the included randomised control trials (n=3), but weak to moderate for the non-randomised interventions (n=13).

Conclusion Anti-stigma interventions are highly effective at impacting stigma-related knowledge and attitudes towards PLEIC, with myth-busting emerging as an important component. More research, particularly involving women and adolescents, is needed to identify ways to achieve positive impacts on stigma-related behaviour, with longer study follow-up durations.

WHAT IS ALREADY KNOWN ON THIS TOPIC

→ Several interventions have been developed to address stigma faced by people with lived experience of incarceration (PLEIC), focusing on myth-busting and personal testimonies. However, robust studies, especially for PLEIC with substance use or mental health issues, are scarce.

WHAT THIS STUDY ADDS

→ This study systematically evaluates anti-stigma interventions for PLEIC, identifying 'myth-busting' as a key active ingredient that significantly improves knowledge and attitudes.

→ It also highlights the effectiveness of both online and face-to-face interventions in different contexts.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

→ The findings suggest that while anti-stigma interventions effectively change knowledge and attitudes, their effectiveness in altering behaviours was less established. This indicates a need for longer follow-up periods and more robust study designs.

→ Policymakers should incorporate 'myth-busting' elements into programmes and ensure cultural and contextual relevance.

INTRODUCTION

People with lived experience of incarceration (PLEIC) face substantial stigma. This can lead to social and emotional isolation, dehumanisation and distrust from society,^{1–4} ultimately making it hard to re-enter and acclimate to society during post-release.^{3–6} This stigma has sometimes been referred to as an 'invisible blight' that undermines the role of correctional facilities in rehabilitating incarcerated persons and creating a 'scarring effect' of exposure to the criminal justice system.⁷ In many cases, this stigma and the resulting behavioural impact (discrimination) violates the fundamental human rights of PLEIC.^{7,8}



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While stigma often begins from widely endorsed misconceptions of third parties (public stigma), over time, it can become internalised, leading to negative stereotypes about oneself and shaping how a person sees themselves.^{7 9} This can have negative psychological and behavioural consequences, such as poor self-esteem, feelings of shame, negative relationships with help-seeking behaviours and higher levels of mental health disorders, subsequently shaping their social reintegration and recidivism.⁷

Stigma is increasingly understood as a multilevel construct, encompassing structural stigma (policies, institutional practices and laws that disadvantage or marginalise incarcerated populations)¹⁰; public or social stigma (negative attitudes and stereotypes held by the general public or professionals (eg, correctional officers, health staff)¹¹; self-stigma or internalised stigma (when individuals adopt negative societal beliefs about themselves).⁸ These levels interact and reinforce one another, shaping the lived experiences of PLEIC.¹²⁻¹⁴ Anti-stigma interventions may aim to address any of these levels, and a clear understanding of which level is targeted is essential for evaluating effectiveness and interpreting outcomes.

In recent years, several anti-stigma interventions have been developed to address different types of stigma (eg, perceived, anticipated, internalised, affiliate and experienced or enacted) faced by PLEIC. The hope and promise of these interventions is that, by reducing stigma, we can facilitate effective rehabilitation and reintegration into society. These interventions are primarily informational, aiming to improve (1) knowledge, (2) attitudes and (3) behaviour of the entire criminal justice community. Thus, while these interventions focus on PLEIC, they also apply to law enforcement officers, correctional personnel such as guards of correctional facilities and the general population.¹⁵

However, the style and substance of these interventions vary considerably. Some interventions include efforts to 'bust myths', drawing on cognitive psychology models to reframe people's views by countering unfounded beliefs. Others focus on the voices of formerly incarcerated people, seeking to effect attitudinal change through peer-to-peer identification. Researchers such as Knaak *et al*¹⁶ and Pinfold and colleagues,¹⁷ and others^{11 18 19} have compiled a list of 'best-practices' generally referred to as 'key active ingredients (KAI)'. These include the role of personal contact, multiple forms or points of social contact, personal testimonies and focus on education with myth-busting as positive predictors of anti-stigma interventions.²⁰

It is not well understood how effective these anti-stigma interventions are and which, if any, components are necessary or sufficient to reduce stigma among PLEIC. One prior systematic review focused on incarcerated people with substance use problems, finding a scarcity of robust intervention studies.²¹ Others similarly focused on PLEIC with mental health problems, reporting similar findings.^{15 22 23} However, these did not compare

the content of interventions, nor evaluate the impact of interventions independent of these health issues.

In this systematic review, we address these gaps by critically evaluating the effectiveness of interventions aimed at reducing any level of stigma or discrimination towards PLEIC, capturing all types of interventions, and including a broad range of participants such as people in prisons, law enforcement officers, correctional personnel, general population and other stakeholders within the justice system. We further test the KAI list, based on the a priori identified components of effective interventions, which we then test in our study to identify which, if any, components are essential for success and if the total number (score) of these KAI is correlated with intervention success.

METHODS

We conducted this systematic review according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (online supplemental appendix A) and registered with PROSPERO (CRD42024508685). See online supplemental materials for all appendices.

Search strategy

We searched the following databases for studies published in English on interventions aimed at reducing stigma faced by or directed towards PLEIC, without restriction on the country of study: Ovid MEDLINE (1946–present); Ovid Emcare (1995–present), Ovid EMBASE (1947–present) and Ovid PsycINFO (1806 – present); Sociology Source Ultimate (via EBSCOhost); HeinOnline (native interface) and Web of Science. All searches covered the period from 1 January 2010 to 10 September 2024. Full electronic search strategy Search was restricted to publications after 2010, since many rules and legislations for the human rights of incarcerated populations were revised, reviewed and/or established after 2010. For instance, the United Nations (UN) General Assembly resolution requested revision of the Standard Minimum Rules for the Treatment of Prisoners (SMR) in 2010,^{24 25} UN Rules for the Treatment of Women Prisoners and Non-Custodial Measures for Women Offenders were adopted in 2010,^{24 26} the intergovernmental Expert Group was established in 2011 to revise SMR,²⁷ the UN SMR (the Nelson Mandela Rules) were adopted in 2015,²⁸ and the Lancet Commission on Ending Stigma and Discrimination in Mental Health was established in 2022.²⁰

The population, intervention, comparison and outcome (PICO) model (online supplemental appendix B) guided our search strategy and included an extensive list of terms for PLEIC, different intervention levels and stigma/discrimination types (see online supplemental appendix C for formal definitions of stigma types and intervention levels), along with associated keyword variants. For MEDLINE, relevant medical subject headings (MeSH) terms were also included where applicable. This was further supplemented with keywords for study design

focusing on high-quality intervention studies, including randomised control trials (RCTs) and quasi-experimental or natural experiment designs. See online supplemental appendix D (a–g) for full electronic search strategy for all databases. In a subsequent step, we performed a snowball sampling of citations from prior systematic reviews in October 2024.

Our initial search yielded 3926 articles, of which 571 were duplicates, leaving 3355 articles for screening and eligibility stages. We used Covidence, an online systematic review management platform that supports reviewers to conduct independent and simultaneous screening, full-text reviews, conflict resolution and data extraction, while also maintaining an auditable record of decisions throughout the review steps.²⁹

Inclusion criteria

A series of inclusion/exclusion criteria based on the PICO model were applied. Studies were included if they: (1) evaluated an intervention that aimed to reduce stigma or discrimination faced by or towards PLEIC, regardless of whether the intervention was delivered to PLEIC themselves or to external populations (eg, correctional staff, general public, students); (2) used an experimental, quasi-experimental or within-subject pre/post design, either with or without a separate comparison or control group, provided they reported pre-intervention and post-intervention data; and (3) reported at least one stigma-related outcome. Stigma-related outcomes were defined broadly and could include changes in knowledge, attitudes, behaviour, self-stigma, internalised stigma or shame, public or structural stigma, as long as these were measured quantitatively and related to PLEIC.

Two reviewers (TM and JT) each conducted screening, reaching a consensus on any conflicts during the inclusion/exclusion process (online supplemental appendix E details questions used for screening). This left 147 articles, for which we sought full texts. TM and JT again evaluated the studies. 131 were then excluded, mostly due to the absence of stigma-related outcome measures (n=72), leaving 16 articles in the final analytical sample (see figure 1).

Data extraction and analysis

One reviewer (TM) prepared an extensive data extraction sheet based on the Template for Intervention Description and Replication checklist and the Cochrane Collaboration data collection form for interventions.³⁰ The sheet was checked for any inconsistencies, missing information and ease of use by four independent reviewers (SEL, EB, JT and CSP). Once finalised, a double data extraction process was performed by six independent reviewers (TM, JT, TB, SN, CSP and EB) (online supplemental appendix F lists data extraction coding).

With previously conducted research as a guide, a 'best fit' framework synthesis was chosen as the main method of analysis.³¹ TM created a framework of *a priori* themes based on the 'key active ingredients (KAI)' models of anti-stigma interventions by Knaak *et al*¹⁶ and Pinfold *et al*¹⁷ which identified key components of effective anti-stigma interventions. These were adapted for the context of interventions designed to address stigma faced by and directed towards PLEIC. TM used this framework to code data from included studies against the following eight KAI: multiple forms of social contact; personal contact; multiple points of social contact; personal testimony;

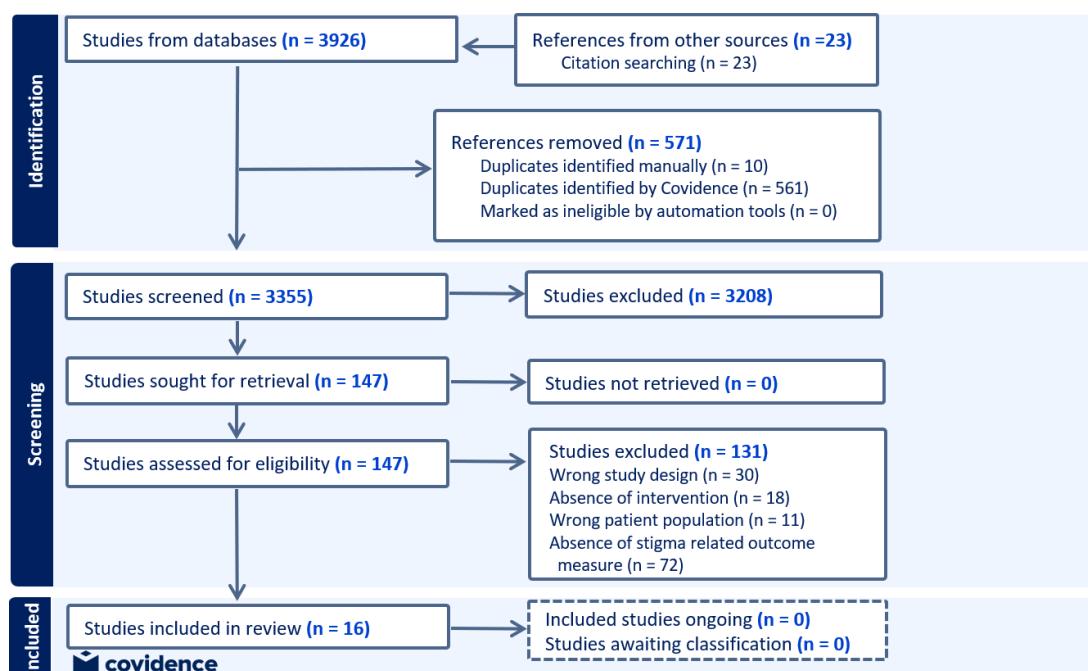


Figure 1 PRISMA diagram. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.



Table 1 Key active ingredients—most predictive of positive outcomes for anti-stigma interventions (based on the key active ingredient model by Knaal *et al*¹⁶ and Pinfold *et al*¹⁷)

Key ingredient	Definition
Multiple forms of social contact	Multiple activities such as presentations+videos, etc
Personal contact	Face-to-face contact with speakers
Multiple points of social contact	Contact at multiple time points
Personal testimony	From a trained speaker who has lived experience or statements from service users
Multiple first-voice speakers	Multiple speakers who have benefited from such interventions/programmes
Practical behavioural change skills	Teaching skills that will help with what to say, what to do
Engage in myth-busting	Replacing myths with accurate knowledge
Person-centred codesign approach	Involving end users and modelling a person-first approach

multiple first-voice speakers; practical behavioural change skills; engage in myth-busting; person-centred codesign approach (see table 1 for descriptors).

Using these eight KAI as the initial point for analysis, we then developed the 'KAI score' to provide a quantifiable measure of an intervention's potential effectiveness and to identify KAI that are most likely to be effective for PLEIC. Each intervention was scored on a scale of 0–8, with one point awarded for each ingredient present. Interventions with all eight KAI received a maximum score, indicating that they fully incorporate all the KAI we identified as crucial, as per the existing evidence base.

Due to the heterogeneity of the included studies, meta-analysis was not conducted. However, we tested a series of potential modifying factors using the Pearson correlation coefficient, examined potential patterns and tendencies and conducted a thorough analysis of KAI for interventions focused on PLEIC, which, to our knowledge, has not been conducted before.

Quality assessment

The methodological quality of the included studies was assessed using a combination of the Cochrane Collaboration's tool for assessing risk of bias and the Joanna Briggs Institute Meta-Analysis of Statistical Assessment and Review Instrument.³² Each study was independently assessed and scored (maximum score of 7) by the lead author and one other allocated reviewer prior to inclusion. No studies were excluded because of their quality.

Role of the funding source

The funder had no role in study design, data collection, data analysis, data interpretation or writing of the review. All authors had full access to all the data in the study, and

the lead author had final responsibility for submission for publication.

RESULTS

Study characteristics

We identified 16 anti-stigma intervention studies published between 2014 and 2022, covering 8815 participants across five countries. The majority of the studies (n=11) were conducted in the USA, with others in England (n=2), Canada, Israel and Portugal (n=1 each). No study from low- and middle-income countries (LMICs) was found. The included studies targeted a range of populations, aligned with different levels of stigma. These included: PLEIC; criminal justice professionals, including correctional officers, probation and parole officers and psychiatric staff; general public and criminal justice or psychology students. Notably, only one study each specifically addressed the stigma faced by juveniles³³ and females in prison.³⁴

7 of the 16 studies met six or more of the seven core quality assessment criteria, corresponding to high quality (see online supplemental appendix H). The risk of bias across RCTs was assessed using the Cochrane Risk of Bias tool. Overall, RCTs exhibited a low to moderate risk of bias, and had the highest quality scores, with one meeting all seven quality criteria.³⁵ Weaknesses of RCTs were not justifying sample size or not providing information about the validity and reliability of measures. The main weaknesses of the non-RCT studies were: not providing sample size justification, not discussing sample selection bias and not discussing reliability and validity of outcome measures.

Interventions were delivered across a range of settings: prison-based interventions (n=8), primarily targeting PLEIC; online interventions (n=5), mostly involving the general public or correctional staff; and workplace-based interventions (n=2), involving professionals. One additional intervention was community-based, and another used a hybrid prison/community format. In terms of delivery mode, most interventions were primarily delivered face-to-face, especially for PLEIC and justice professionals, while online delivery was more common for interventions delivered to the general population. Among prison-based interventions, six were delivered individually (ie, one-on-one sessions), while two were group-based. The intervention formats varied greatly, from psychoeducational programmes and sports-based mental health programmes to comedy performances and online training, while the anti-stigma outcome measures primarily focused on improving stigma-related knowledge, attitude and/or behaviour. See online supplemental appendix G for detailed mapping of each study's target population, main features and findings.

All studies used established intervention methodologies. Three were RCTs, and 13 were pre/post-intervention evaluations, primarily using within-group comparisons, and the majority were recruited using convenience

Table 2 Interventions by stigma levels and outcomes

Study	Country	Target population	Stigma level	Design	Knowledge outcome	Attitude outcome	Behaviour outcome	Overall result
Adams <i>et al</i> ³⁸	USA	Healthcare & justice professionals	Public/social	Pre/post	Positive	Positive	N/A	Positive
Bandara <i>et al</i> ³⁶	USA	General public	Public/social	RCT	N/A	Positive	N/A	Positive
Canada <i>et al</i> ⁴⁰	USA	Correctional officers	Public/social	Pre/post	Positive	Positive	N/A	Positive
Calaway <i>et al</i> ³⁷	USA	Criminal justice students	Public/social	Pre/post	Positive	Positive	N/A	Positive
Dum <i>et al</i> ⁴⁵	USA	General public	Public/social	Pre/post	N/A	Mixed	N/A	Mixed
Fix ³³	USA	Justice professionals	Public/social	Pre/post	Positive	Positive	Positive	Positive
Givens <i>et al</i> ⁴¹	USA	Probation officers	Public/social	Pre/post	N/A	Positive	No effect	Mixed
Janssen <i>et al</i> ⁴⁶	USA	General public	Public/social	Pre/post	Positive	N/A	N/A	Positive
Lam <i>et al</i> ⁴⁷	USA	PLEIC (in prison)	Public/social	Pre/post	Positive	Positive	N/A	Positive
Melnikov <i>et al</i> ⁴²	Israel	Prison officers	Public/social	Pre/post	Positive	Positive	Positive	Positive
Tomar <i>et al</i> ⁴⁸	USA	Probation officers	Public/social	Pre/post	Positive	N/A	N/A	Positive
Brazão <i>et al</i> ³⁹	Portugal	PLEIC	Self-stigma	RCT	No effect	No effect	No effect	No effect
Rye <i>et al</i> ⁴³	Canada	Sex offenders	Self-stigma	Pre/post	N/A	N/A	No effect	No effect
Woods <i>et al</i> ³⁵	England	Male PLEIC	Self-stigma	RCT	Positive	N/A	No effect	Mixed
Wright <i>et al</i> ³⁴	England	Female PLEIC	Self-stigma	Pre/post	Positive	No effect	No effect	Mixed
Comartin <i>et al</i> ⁴⁴	USA	Correctional officers	Structural/public	Pre/post	Positive	Positive	Mixed	Mixed

PLEIC, people with lived experience of incarceration; RCT, randomised control trial.

sampling. The length and number of sessions were not found to be correlated with the outcomes. Interventions ranged from single sessions^{33–37} to multi-session programmes,^{38–44} with some not providing clear information.^{45–48} The longest intervention spanned 5 months,³⁸ while the shortest reported session lasted 75 min.³⁵ Most had their final outcome assessment directly at the end of the intervention; however, three studies^{35 43 44} reported follow-up assessments.

To better contextualise the findings, we grouped the findings according to (1) stigma levels (table 2) and (2) impacts on knowledge, attitudes and behaviour (table 3).

Effects of anti-stigma interventions according to stigma levels

Public/social stigma interventions

11 interventions were designed to reduce public stigma toward PLEIC by educating external audiences (eg, correctional staff, students, public) and shifting their knowledge, attitudes or behaviours. These included interventions delivered using lectures, video testimonies, discussion groups or experiential activities (eg, prison tours).

Self-stigma interventions

Four studies directly targeted internalised stigma among PLEIC. These were typically psychoeducational or therapeutic interventions delivered within prison settings.

Structural stigma interventions

We identified only one intervention (Crisis Intervention Team (CIT) training) with a partial structural focus—aiming

to shift institutional practices among probation officers. The impact on behaviour was mixed, with changes in only four of eight measured behavioural items.

Effects of anti-stigma interventions according to impacts on knowledge, attitudes and behaviours

See table 3 for a breakdown of studies evaluating post-intervention impact on knowledge, attitude and behaviour. Overall, 10 studies reported positive effects; 4 were mixed, and 2 had no effect. Of these 10 studies, 9 were pre/post and 1 was RCT. All 10 focused on either perceived, internalised or experienced stigma (see online supplemental appendix C for definitions).

Table 3 Summary of studies evaluating the post-intervention impact on knowledge, attitude and behaviour

Impact evaluated	Breakdown across studies (N)
Knowledge AND attitude AND behaviour	5 ^{33 34 39 42 44}
Knowledge AND attitude	4 ^{37 38 40 47}
Knowledge AND behaviour	1 ³⁵
Attitude AND behaviour	1 ⁴¹
Knowledge only	2 ^{46 48}
Attitude only	2 ^{36 45}
Behaviour only	1 ⁴³



Effects on stigma-related knowledge (n=12)

Out of the 16 studies, 12 investigated the impacts on knowledge. The majority of these studies (n=11) reported positive effects, indicating that perceived knowledge improved post-intervention. However, an exception was noted in one RCT.³⁹ This RCT conducted across three Portuguese prisons used the Growing Pro-Social programme to address anger, paranoia and external shame in adult prisoners. Despite this being a structured rehabilitation programme, conducted over 40 weeks, no significant differences were observed in knowledge, attitude and behaviour between treatment and control groups. This suggests that although anti-stigma interventions can be effective in improving knowledge about stigma, we must recognise the complexity associated with stigma-related issues and the need for multifaceted solutions.

Effects on stigma-related attitudes (n=12)

12 studies assessed the impact of interventions on attitudes. Of these, eight targeted the general public, correctional personnel or students, aiming to reduce public/social stigma towards PLEIC. Seven out of these eight reported significant improvements in post-intervention public/social attitudes towards PLEIC. For example, Fix³³ found improved empathy and reduced implicit bias among justice professionals, and Bandara *et al*³⁶ observed reduced social distance in a large online trial. Four interventions involved PLEIC themselves. Two out of four showed some improvement in self-perception or reducing self/internalised stigma. However, a pre-post intervention³⁴ and an RCT,³⁹ conducted with adult sentenced prisoners, were exceptions. Similar to Brazão *et al*,³⁹ Wright *et al*⁸⁴ evaluated knowledge, attitude and behaviour among adult female prisoners in a psychoeducational pre/post-intervention, 'Cracking up', where participants watched a comedy performance to explore mental health-related self-stigma. While the intervention improved knowledge, no changes in attitude or behaviour associated with self-stigma were observed (see online supplemental appendix G). This distinction reinforces the importance of framing attitude-related outcomes according to the population receiving the intervention and the level of stigma being targeted.

Effects on stigma-related behaviour (n=8)

It is noteworthy that while improving knowledge and changing attitudes is a significant step, it does not necessarily translate to behavioural changes. This is also evident from our results, where only 25% (2 of 8) of studies evaluating behaviour reported positive effects, with one reporting mixed behavioural outcomes (online supplemental appendix G).

Turning to the only two studies reporting positive effects on behaviour, Melnikov *et al*⁴² implemented a psychiatric nurse-led psychoeducational workshop for Israeli prison officers, combining theoretical learning and observational experience in psychiatric wards with

workshop activities. This intervention reported significantly lower stigmatisation levels and increased perceived knowledge, attitude and ability to manage interactions with inmates with mental illness. Similar results were reported by Fix³³ who conducted a 3-hour implicit bias training for justice and non-justice professionals in the USA, combining brief lectures, group discussions, videos and case study exercises, followed by individual implicit association tests. Fix reported significant improvements in knowledge, attitude and behaviour. Notably, these two studies uniquely used multiple forms of social contact, while remaining studies used either one or two forms of social contact.

Comartin *et al* reported mixed results for behaviour after five sessions of 8-hourly CIT training for probation officers.⁴⁴ While the study reported positive changes in Correctional Officer's (CO's) knowledge and attitudes towards PLEIC with mental health issues, only four out of eight behavioural outcome scale questions showed positive changes. None of the remaining were significantly different from pre to post-intervention.

Role of key active ingredients

Online supplemental appendix I presents the KAI score, based on how well the interventions followed best-practice principles for anti-stigma interventions. The majority of the studies scored ≤ 5 ,^{34 36 37 39-41 45-47} with four studies^{33 35 42 43} scoring ≥ 6 out of 8. Overall, no correlation was observed between the KAI score and the overall effectiveness of the interventions. However, on closer inspection, it emerged that the most commonly observed KAI in studies reporting any positive effect was to 'engage in myth-busting' (12 out of 14 interventions reporting positive effects included this ingredient).

Even though the score did not necessarily reflect the intervention's effectiveness, the studies that scored five or less often lacked several KAI, for example, person-centred codesign approach, behavioural change skills, multiple first voice speakers, multiple points of contact and personal testimonies.

Of the eight studies evaluating behaviour, the two that were positive included myth-busting as an important component of their interventions, whereas the five that had null effects did not contain this ingredient. Similarly, for attitudes, while 10 out of 12 studies showed positive effects, of note, only the 2 studies that did not engage in myth-busting had no impact on stigma-related attitudes. Likewise, for knowledge, the only study that did not engage in myth-busting had no impact on stigma-related knowledge. However, it is noteworthy that the effectiveness of these KAI may vary based on the specific context and population of each study.

Potential modifying factors

We further tested potentially modifying factors to identify any correlation with positive outcomes. First, we disaggregated studies by stigma outcome type, experienced (n=3), internalised (n=3), perceived (n=2) or combinations of

experienced, internalised, perceived, anticipated or affiliated (n=8). There was no difference in effects across these studies. All interventions focused on inter-personal, intra-personal or community levels, with seven targeting combinations of these.^{34 38 39 42 45-47} Again, no clear differences were observed. Both online (n=6) and in-person (n=10) delivery formats were equally effective.

DISCUSSION

We evaluated 16 anti-stigma interventions, revealing a series of important findings. First, while the majority of the interventions significantly improved knowledge and attitudes, this did not fully translate into behavioural changes. This variation may be attributable to the population and stigma type targeted, as well as distinct intervention components. Short intervention durations, limited follow-up time and the complexity of translating attitudinal shifts into sustained behavioural outcomes may further explain this finding. Second, although several KAI have been hypothesised to improve the effectiveness of anti-stigma interventions, in this small review, we did not find a clear link between their implementation and overall effectiveness. Of note, however, the KAI 'myth-busting' appeared to correlate with greater intervention effectiveness. Third, online and face-to-face delivery were equally effective.

As with all systematic reviews, ours has some notable limitations. Therefore, the findings should be interpreted with caution. First, our review was restricted to studies published in English, and drew heavily on studies from the USA, limiting the generalisability of findings. Second, although our comprehensive search captured peer-reviewed papers from multiple databases, it excluded grey literature. This could have excluded effective unpublished anti-stigma interventions or trainings. Third, we did not exclude studies based on quality, thereby including weaker study designs with higher risks of bias. Heterogeneity in study methods and outcome measures precluded meta-analyses.⁴⁹ To address this limitation, however, we conducted a detailed comparative analysis across factors such as study design, type of stigma, level of interventions and KAI.

Several limitations also arose from the included studies. For example, interventions varied in duration and, overall, tended to be brief. Only three interventions had follow-up after initial post-intervention evaluation, which may have resulted in a failure to detect behavioural impacts that can take longer to accrue. Interventions varied in frequency and delivery modes, with additional methodological variability complicating direct comparisons across interventions and ascertaining implementation fidelity. Even though young incarcerated people, arguably one of the most stigmatised population groups, are rapidly increasing, only one study³³ focused on their specific stigma challenges. Future research is needed to evaluate how anti-stigma interventions affect this group, particularly those with intersections of disadvantage (eg,

aboriginality, fetal alcohol spectrum disorder, illiteracy, sexuality issues, homelessness, drug use, mental illness). Finally, future research should test the effectiveness of addressing systemic or structural stigma.⁹

Notwithstanding these limitations, this review provides valuable insights into the current state of research on anti-stigma interventions for PLEIC. To the best of our knowledge, it is the first systematic review examining the evidence for factors that shape the success or failure of anti-stigma interventions for PLEIC. Our findings suggest that these interventions are mostly inexpensive, and since both online and in-person formats work similarly, the potential for scaling up is promising. Overall, interventions had a greater impact on knowledge and attitudes, which is plausible since these are amenable to rapid changes. The effects on behaviour were more elusive but could reflect the relatively short durations and follow-ups. These patterns are consistent with prior reviews focusing on the intersection of incarceration with mental health^{15 22 23} or substance use problems.²³ Although not the focus of our review, studies focusing on anti-stigma interventions on general populations (ie, not just incarcerated) with mental health problems also reported rapid effects on knowledge and attitudes, little impact on behaviours, highlighting challenges of translating knowledge and attitudinal changes into behavioural changes.^{50 51}

While there is an emerging consensus that anti-stigma interventions would be more effective if they incorporate KAI, our study did not detect a relationship between KAI scores and the overall effectiveness of interventions. This could relate to methodological challenges of applying the KAI framework to the included studies, where the sample was both heterogeneous and specifically focused on PLEIC. Such diversity may have limited cross-intervention comparability and reduced attention to implementation fidelity, thereby introducing measurement errors. However, our descriptive mapping exercise with KAI provides preliminary insights into ingredients such as 'myth busting', and contact-based strategies that were more commonly found in effective anti-stigma interventions for PLEIC, particularly those that improved knowledge and attitudes.

Our study points to several important directions for future research and practice. Importantly, there is a need to better standardise and contextually adapt anti-stigma interventions for PLEIC. Lack of standardisation impedes the ability to reproduce studies in different settings. It is worth investigating whether knowledge and attitudinal changes persisted, as several interventions were short-term or single sessions, which may have yielded only immediate effects. Additional research is needed to test the 'gold standard' or 'best practices', beyond the current speculation of what may constitute KAI for success.

Considering the complexity of stigma faced by PLEIC and their changing needs, long-term engagement and follow-up support at regular intervals is necessary to consolidate intervention effects and address stigma as a



chronic social issue. Improved adaptation of stigma interventions to diverse contexts and special needs within the justice system is also needed. For instance, incarcerated adolescents often have significant exposure to trauma at early stages of life (eg, exposure to adverse childhood circumstances, dysfunctional homes), where they are less equipped to cope, requiring additional resources and support.^{52 53} These experiences can lead to substance use, mental health issues, family problems and subsequent re/offending.^{52 53} Also, there is a need for disaggregated studies by gender, as men, women and people with other diverse identities have unique challenges and different histories of trauma and experiences inside prisons.^{54 55} Furthermore, developing a comprehensive understanding of systemic challenges specific to these individual circumstances and adapting evidence-based interventions accordingly is needed.

Additionally, there were no studies from LMICs. These settings may lack comprehensive policies already existing in high-income settings, making it difficult to implement the anti-stigma interventions studied in this review. We need to address 'helicopter research', whereby external experts define goals and content of interventions, which are then 'dropped' onto recipient populations. Future work needs to co-design projects with researchers to understand the barriers to implementing effective interventions and adapt them to cultural sensitivities.^{56 57}

CONCLUSION

Addressing stigma is a more humanistic method for achieving the broader goals of the correctional system, such as recidivism, integration or re-integration into society and improved survival times. In doing so, anti-stigma interventions are a key component of an alternative system that places less priority on penalisation, but more on the well-being of PLEIC, providing them with appropriate support for recovery and, eventually, lowering recidivism. Continued research on stigma can help develop environments where cultures of hate and self-loathing need not reign but can be balanced by evidence, facts and individual freedom.

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