

A systematic review of the effectiveness and cost-effectiveness of peer-based interventions to maintain and improve offender health in prison settings

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Scientific summary

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Background

Offender health concerns health and social care for adults and children in contact with the criminal justice system. This population experiences significant health inequalities associated with multifaceted social problems.

Research shows that ill health is more prevalent in the prison population than in the general population. Prison itself can produce adverse health impacts, particularly with regard to mental health. Prisoners are more likely to engage in risky health behaviours, such as drug and alcohol misuse, and there are inequalities in long-term conditions.

The prison setting offers opportunities for improving the physical and mental health of this socially excluded population. Peer-based interventions, in which prisoners provide education, support or advice to other prisoners, are an established feature of prison life in England and Wales. A 2002 survey estimated that 7% of prisoners were involved in peer support roles encompassing substance misuse, violence reduction, translation services, housing and employment advice and mentoring schemes. More recently, health trainers have emerged as a feature of prison health services.

Given the place of peer schemes in current practice, it is important to develop a robust evidence base to inform service commissioning and delivery options.

Objectives

The study aimed to synthesise the evidence on peer-based interventions in prison settings by carrying out a systematic review and holding an expert symposium. The main research question was, 'What are the effectiveness and cost-effectiveness of peer-based interventions to maintain and improve health in prisons and Young Offender Institutions (YOIs)?'. Review questions were: (1) What are the effects of peer-based interventions on prisoner health and the determinants of prisoner health? (2) What are the positive and negative impacts on health services within prison settings of delivering peer-based interventions? (3) How do the effects of peer-based approaches compare with those of professionally led approaches? (4) What are the costs and cost-effectiveness of peer-based interventions in prison settings?

A full study protocol was developed and peer reviewed by the study steering and advisory groups prior to publication in the PROSPERO database (reference no. CRD42012002349).

Methods

Systematic review of effectiveness

Data sources

Twenty electronic databases including MEDLINE, PsycINFO, the Cumulative Index to Nursing and Allied Health Literature and EMBASE were searched for papers published since 1985, with no language restrictions.

Unpublished (grey) literature was identified from contacts with experts, conference and dissertation abstracts, reference lists of key papers, hand searches of relevant book chapters and searches of relevant websites.

Study selection

Two reviewers independently selected studies, according to the following inclusion criteria:

- *Population*: Prisoners resident in prisons and YOIs in any country, all ages, male and female.
- *Intervention*: Any peer-based intervention operating within prisons and YOIs in any country. 'Peer' includes prisoners and ex-prisoners delivering interventions to prisoners.
- *Comparators*: For review question 3, studies comparing peer-led and professionally led approaches to the same health or social problem. For all other questions, studies with any or no comparator (or usual care).
- *Outcomes*: For review question 1, studies reporting any effects of peer-based interventions on prisoner health or determinants of health within the prison setting. For the other review questions, studies reporting organisational/process outcomes and views of prison populations.
- *Study designs*: Quantitative, qualitative and mixed-methods evaluations.

Data extraction and assessment of validity

Data were extracted onto piloted electronic forms by one reviewer and checked by a second. Data extraction fields included bibliographic detail, population details, setting/institution details, intervention details, health or social issue, method of delivery and outcomes.

Two reviewers assessed each study for validity using published checklists. Disagreements were resolved by consensus.

Data synthesis

Quantitative data were combined in a narrative synthesis, grouped by review question and then by intervention mode. When data were suitable for statistical meta-analysis, studies were combined using a fixed-effect model to give relative risks with 95% confidence intervals (CIs) for binary outcomes and weighted or standardised mean differences with 95% CIs for continuous outcomes. Statistical heterogeneity was examined using the I^2 statistic with an I^2 value of $> 50\%$ indicating statistical heterogeneity.

A thematic synthesis of qualitative studies was undertaken using an inductive approach. Two reviewers worked independently to undertake free coding of all of the texts reporting qualitative findings. To develop analytical themes, the complete set of descriptive codes ($n = 99$) was organised into themes and then grouped into thematic categories using an iterative process to obtain the best fit to explain the data. Themes were then mapped back to the review questions.

For review questions 1 and 3, qualitative themes on outcomes were mapped to quantitative results grouped by intervention mode and then type of outcome. For review question 2, a thematic synthesis combined results across heterogeneous studies. The narrative account of the qualitative results was pooled with quantitative results using the themes generated inductively by qualitative analysis as a framework for reporting.

Systematic review of cost-effectiveness

Data sources

In addition to the databases searched for the effectiveness review, systematic searching took place of the economic databases NHS Economic Evaluation Database and Research Papers in Economics (IDEAS) using

an adaptation of the economics search filters developed by the NHS Centre for Reviews and Dissemination combined with the search terms used in the effectiveness literature search strategy.

Study selection

The cost-effectiveness review inclusion and exclusion criteria were in line with those of the effectiveness review. Additionally, the criteria included papers reporting resource use/cost and/or outcome comparisons between peer-based interventions and standard care.

Data extraction and assessment of validity

The included studies were summarised and critically appraised by two reviewers. The quality of each paper was assessed using good practice guidance on economic evaluations.

Data synthesis

The results of the effectiveness review were used to develop an economic model to establish the cost-effectiveness of a peer-led educational intervention and a professionally led educational intervention compared with a 'do nothing' scenario to prevent future human immunodeficiency virus (HIV) infections among offenders in prison settings and their partners when they are released from prison.

Expert symposium

Fifty-eight delegates attended the expert symposium. Invited experts represented organisations including the prison service, the NHS, charities and academic institutions. Some ex-prisoners from organisations representing service users participated as lay experts. Experts discussed two key questions in discussion groups:

1. What factors affect whether and how well peer-based interventions work in prison?
2. What are the positive and negative impacts of peer-based interventions?

The discussion groups were audio-recorded with the permission of delegates. The verbatim transcripts and accompanying notes were analysed using framework analysis.

Results

The literature search identified 15,320 potentially relevant papers. In total, 57 studies were included in the review of effectiveness and one study was included in the review of cost-effectiveness. A substantial proportion of the studies were carried out in the UK. A typology of interventions was developed with working definitions for the major intervention modes: peer education, peer support, the Listener scheme, the Insider scheme, the Peer Support Team programme, prison hospice volunteers, peer mentoring, health trainers, peer advisors and other intervention modes. Peer education was the most studied intervention mode followed by peer support.

The majority of included studies were of poor methodological quality, with only five judged to have good internal validity.

Review question 1: what are the effects of peer-based interventions on prisoner health?

There is moderate evidence from quantitative studies that peer education interventions are effective at reducing risky behaviours; however, peer education is not prominent in current practice in English and Welsh prisons.

There is moderate evidence from qualitative and quantitative studies that peer support is an acceptable source of help within the prison environment and has a positive effect on recipients and peer deliverers.

There is consistent evidence from three qualitative studies and one quantitative study that the Listener scheme is effective in providing targeted emotional support for prisoners who identify need. There is weak evidence on the impact on suicide and self-harm. Positive effects on listeners' mental health and well-being are consistently reported in six qualitative studies, although there can be an associated emotional burden. Listener schemes operate across most prisons in England and Wales.

Two interventions, health trainers and peer mentors, focused on changing behaviours. There is weak evidence from one study that mentoring results in positive effects on health behaviours, treatment adherence, abstinence from drug taking and propensity to reoffend. There was moderate evidence from two studies that becoming a health trainer had positive effects on knowledge, attitudinal and behaviour change, self-esteem and development of transferable skills. There was little evidence of effects on health trainer clients; however, limited evidence showed that health trainers discussed a range of lifestyle issues with clients and referred them to other services.

There is consistent evidence from a large number of predominantly qualitative studies that being a peer worker is associated with positive effects on mental health and its determinants. These findings were consistent across a number of different models including peer education, peer support, the Listener scheme, prison hospice volunteers, health trainers and peer advisers (housing). Skills development, including having transferable employment skills, was also identified in relation to peer advisors and health trainers. There were some negative effects in relation to experiencing a burden of care, particularly in roles involving emotional support. Much of the evidence comes from interventions that feature across prisons in England and Wales; therefore, the results have high relevance for health services.

Review question 2: what are the positive and negative impacts on health services in prison settings of delivering peer-based interventions?

Factors relating to security and risk management often featured in selection criteria for peer positions, along with interpersonal skills, knowledge and likely length of stay. There is very little evidence on selection procedures, except for the Listener scheme.

Training processes varied in terms of content, duration and intensity. There is weak evidence suggesting that mental health topics should be covered in training and that training should be flexible. A link between participation in training and individual benefits such as the development of skills and confidence is suggested, although it is difficult to separate training from other aspects of the peer experience. The added value of gaining accreditation was identified, also a theme in the expert symposium.

There is strong evidence from qualitative studies that retention of peer deliverers, and attrition because of prisoner movement between prisons, was an important process issue. This finding was reflected in the expert symposium.

The importance of role boundaries and confidentiality were recurring themes. Moderate evidence suggests that peer deliverers can recognise role boundaries and when to refer to staff or other professionals, but problems such as dependency may arise. Ongoing supervision of peer deliverers was found to be helpful.

Factors that influence prisoners' choices not to use peer-based interventions were lack of awareness, personal need, concerns about confidentiality and breaches of trust, preferences for support from other sources, language barriers and fear of demonstrating weakness.

There is strong and consistent evidence from qualitative studies of the importance of organisational support within the prison. Resistance from staff was identified as a negative factor inhibiting implementation of peer-based interventions.

There is equivocal evidence of the impact of peer-based interventions on prison culture and ethos; the most positive effects were reported in relation to peer support, prison hospice volunteers and the

Listener scheme. Some studies reported that having a cadre of peer workers can increase service capacity, but there was limited evidence on the impact on the prison workforce or health services. The review identified that peer interventions may increase security risks as peers often have enhanced freedoms. The expert symposium also highlighted that security concerns and risks require active management.

Overall, the review findings indicate that peer interventions cannot be considered 'stand-alone' interventions that are independent of the organisation of the prison. Instead, there are multiple interactions between the intervention and different levels of the prison system, in line with understandings of complex interventions.

Review question 3: what is the effectiveness of peer delivery compared with the effectiveness of professional delivery?

There is consistent evidence from 10 qualitative studies that peer delivery was preferred to professional delivery, with cross-cutting themes including peer deliverers demonstrating empathy because of lived experiences, being non-judgemental, being trusted by prisoners and being able to offer more time than staff. Accessibility was also a theme, with prisoners feeling more at ease talking to peer deliverers.

There is consistent evidence from four quantitative studies that peer educators are as effective as professional educators in the prevention of HIV infection.

Review question 4: what is the cost-effectiveness of peer-based interventions in prisons?

Only one study was identified that assessed the cost or cost-effectiveness of peer-based interventions to improve and maintain health in prisons and YOIs. The focus of this study was costs rather than health outcomes and the programme aim was poorly described. Evidence from the study shows savings in management costs in prisons through the use of a therapeutic community (TC) programme in the short term, albeit these were relatively small compared with the overall costs. The findings suggest that TC activities or the existence of the TC environment may help to reduce or control prison management costs.

The economic model, although based on data of variable quality and a number of assumptions, suggested that both peer-led and professionally led educational interventions to prevent future HIV infections among offenders in prison settings were cost-effective compared with a 'do nothing' alternative. In addition, the peer-led intervention was dominant when compared with the professionally led intervention (more effective and less costly). Although the model is surrounded by considerable uncertainty, the dominance scenario was confirmed in all of the one-way sensitivity analyses conducted and in the probabilistic sensitivity analysis.

Limitations

Thirty-seven included studies were conducted outside the UK and therefore some caution is needed when considering the application of some findings to English and Welsh prisons. Studies published before 1985 or which reported only non-health outcomes were not included in the review. Studies of prison health and of interventions delivered by non-professionals are not well indexed in electronic databases and therefore some relevant studies may have been missed. Clinical heterogeneity in outcomes and interventions between the included studies precluded meta-analysis for most outcomes.

Conclusions

This study adds to existing knowledge about the effects of peer-based interventions and the way that these interact with the prison environment. A typology of peer-based interventions was developed. The findings confirm that there is considerable heterogeneity in the range of peer interventions.

The 58 included studies, which represent the best available evidence, were on the whole of poor methodological quality.

Overall, current evidence is strongest in terms of evaluating effects on peer deliverers, with some evidence on impact on prison services. There is less evidence on outcomes for recipients of peer interventions and more generally on the prison population. There is strong and consistent evidence from a large number of qualitative studies that being a peer worker is associated with positive effects on mental health and its determinants, and these were consistent across a number of models.

There is consistent quantitative evidence that peer educators are as effective as professional educators in HIV prevention outcomes, and stronger qualitative evidence that peer delivery was preferred to professional delivery. Research into cost-effectiveness is sparse, with little economic evaluation even of schemes with evidence of effectiveness. A limited economic model, although based on data of variable quality and a number of assumptions, suggested that both peer-led and professionally led educational interventions are cost-effective compared with a 'do nothing' alternative, with the peer-led intervention being dominant.

More research is needed to assess the effectiveness and cost-effectiveness of peer support/mentoring interventions delivered in prison settings in England and Wales. The current evidence base is dominated by qualitative research, much of which looks only at the effects on the peer workers. There is much less evidence on outcomes for recipients of peer interventions and more generally on the prison population. Well-designed intervention studies are needed to provide robust evidence including assessment of outcomes for the target population, economic analysis of cost-effectiveness and impacts on prison health services. More research is needed to examine issues of reach, utilisation and acceptability from the perspective of recipients and the perspective of those who choose not to receive peer support. There is scope for more interventions designed to improve or maintain physical or mental health, manage long-term conditions or reduce health risks associated with prison.

In conclusion, peer-based interventions can be considered a valuable mechanism to maintain or improve health and well-being in the prison setting; however, the current evidence base needs strengthening. The study has identified a number of implications for the management and implementation of peer schemes.

Study registration

This study was registered as PROSPERO CRD42012002349.

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