Violence prevention interventions: An Umbrella Review protocol

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**Background**

Violence is among the largest causes of disability-adjusted life years worldwide according to the World Health Organization.[1] In the US alone, the yearly impact of violence on health services is in excess of $5 billion.[2] A wide range of studies on violence prevention interventions have been reported, and a synthesis of this evidence would be important for public policy and planning and the development of preventive efforts.[3, 4] Therefore, we propose to conduct an umbrella review on the effectiveness of violence prevention interventions worldwide, and use this review as a basis for recommendations for future prevention programs and research.

**Review objectives**

“What are effective interventions for the prevention of violence?”

**Methods**

**Inclusion criteria**

For inclusion, reviews have to evaluate the effectiveness of primary prevention (aimed at groups regardless of risk), secondary prevention interventions (aimed at high risk groups), or tertiary prevention (aimed at previously violent groups).

**Types of participants**

Participants include general population groups, those considered at high-risk, and previous offenders or previously violent people.
**Interventions**

All types of interventions will be included if they examine effects on violence, defined below.

**Outcomes**

The outcome to be examined in this umbrella review is violence. The definition of the World Health Organization will be used: “The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.”[5] Reviews focusing on self-directed violence (i.e. self-harm and suicide) will not be included.

**Types of studies**

Systematic reviews and meta-analyses of intervention studies will be included. Intervention studies include both randomized and non-randomized designs. Observational studies, theoretical studies, opinion, and non-systematic reviews will not be included.

**Search strategy**

The search strategy used will be:

1 – prevent* OR risk management OR risk reduction OR deter*

2 – violen* OR homicid* OR assault* OR rape OR robber* OR bully*

3 – 1 AND 2

4 – recidiv* OR reoffend* OR repeat offend*

5 – 3 OR 4

6 – systematic review OR meta-analysis

7 – 5 AND 6
The following databases will be searched from inception to the present: Medline, EMBASE, CINAHL, Web of Science, Scopus, the JBI Database of Systematic Reviews and Implementation Reports, the Cochrane Database of Systematic Reviews, DARE, the PROSPERO register, and Epistemonikos. Google and Google Scholar will be searched for grey literature, in particular research syntheses commissioned by policy makers and health organisations. Titles and abstracts will be scanned for potentially eligible reviews, before retrieving full articles. No language restrictions will be applied.

**Assessment of methodological quality**

The methodological quality of included reviews will be assessed using the AMSTAR critical appraisal tool.[6] Reviews will not be excluded based on methodological quality. Quality assessment of individual intervention studies is beyond the scope of this umbrella review.

**Data collection**

A data extraction sheet will be used by two independent reviewers to extract information on the citation, type of review, participants, intervention, setting, relevant outcomes, databases searched, date range, number of studies included, instrument (if any) used to assess the quality of those studies, results, and any additional comments. Discrepancies in extraction will be resolved by a third reviewer.

**Data analysis**

Descriptive analyses will be performed for each systematic review. If more than one review exists on the same intervention, differences in reported conclusions will be examined, and the most recent review retained.
If more than one meta-analysis exists on the same intervention, effect direction, significance and magnitude will be compared. The most recent meta-analysis will be retained for the main analysis.

If a systematic review or meta-analysis includes more than one type of intervention, each type of intervention will be examined separately.

For each meta-analysis, we will estimate summary effect sizes and 95% confidence intervals (using both fixed-effects and random-effects models),[7] $I^2$ statistics, as well as 95% prediction intervals.

The following tests will be applied to each meta-analysis:

(1) Regression asymmetry test to test for small study effects. A two-sided $p<0.10$ cut-off for smaller effects in larger studies will be judged as evidence for small-study effects.[8]

(2) Excess significance test, to assess whether the observed (O) number of studies with statistically significant results ($p<0.05$) exceeds the expected (E) number of significant studies.[9, 10] E is calculated in each meta-analysis by the sum of the statistical power estimates for each component study. We will assume the effect found in the largest study (defined as the study with the smallest standard error) to be the true effect to test $O>E$ (using two-sided $p<0.10$).

All analyses will be performed in Stata 12.

The strength of evidence for each intervention will be assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) [11] and given a rating of ‘high’, ‘moderate’, ‘low’, or ‘very low’ quality, and a ‘weak’ or ‘strong’ recommendation. This will be done using GRADEpro software, and output tables added to the Appendix.
References