Community-based injury prevention interventions
Klassen T P, MacKay J M, Moher D, Walker A, Jones A L

Authors' objectives
To assess the effectiveness of community-based injury control interventions for reducing, or for increasing behaviours that reduce, injury rates in children and adolescents.

Searching
Eight databases were searched for studies published in any language. These included MEDLINE (from 1966 to 1998), EMBASE (from 1974 to 1998), CINAHL (from 1982 to 1998), PsycINFO (1967 to 1998), Current Contents (week 1 to week 25), HealthSTAR (from 1975 to 1998), SPORTDiscus (from 1949 to 1998), and the Cochrane Database of Systematic Reviews (Issue 2, 1998). The databases were searched separately for the following injury categories:

- bicycle, walk, and motor vehicle;
- gun, drown, and choke;
- fall, burn, and electrocution;
- poisoning and cuts; and
- sports and amputation.

Detailed search strategies are available from the corresponding author. The journal Injury Prevention was handsearched from March 1995 to 1998. Due to time constraints, the reference lists of relevant reviews were not examined for potential studies. One additional article was identified through an article found on MEDLINE, and two articles were selected on the basis of expert opinion.

Study selection
Study designs of evaluations included in the review
Any study that used a control group that did not receive the intervention. Letters, comments, or editorials were excluded.

Specific interventions included in the review
Community-based intervention prevention efforts on childhood injuries, safety behaviours, and the adoption of safety devices, which were based in a setting such as a recreational centre, school or day-care centre. The included interventions targeted schools, municipalities, and cities. Most of the interventions relied on an educational approach, sometimes in combination with legislation or subsidies, to reduce the cost of safety devices, e.g. bicycle helmets.

Participants included in the review
Children and adolescents aged 0 to 19 years. The specific age category of the study population targeted varied considerably within the included studies.

Outcomes assessed in the review
Injury rates or change in an injury reducing behaviour were assessed. Articles on sunburn, abuse, and other intentional injuries were excluded. The primary outcome measures assessed by the included studies were: helmet use; bicycle injuries leading to hospital in-patient care (annual change in rate); self-report of risk-taking behaviour; child restraint use; seat belt use; road safety behaviours; safety behaviours in traffic; actions taken during quasi-real-life setup; safety behaviour in simulated traffic; targeted injury rates presented to hospital; injury rates leading to hospital admissions; injury rates based on hospital, physician, and dentist reports; the number of two-parent families who watched at least one programme; drinking and driving knowledge and safety behaviours; seat belt use knowledge and safety behaviours.
How were decisions on the relevance of primary studies made?
Two members of the team independently reviewed all the potentially relevant articles to determine the eligibility of each document. Any disagreements were resolved by consensus.

Assessment of study quality
The studies were assessed for quality using the Jadad scale (see Other Publications of Related Interest). Quality was scored between 0 and 5, with a score of 5 indicating the highest quality. Three members of the team calibrated themselves on the quality assessment instrument, whilst two independently completed the quality assessment of each relevant study. Any disagreements were resolved by consensus.

Data extraction
Pertinent information was extracted from each article by one member of the team using a data extraction form. Data were extracted on the primary outcome of interest, the intervention used, and relevant results. The primary outcome reported the effectiveness of the intervention, and was used to determine which sample size to report for the study. If it was unclear, the outcome which seemed to be the 'most important' to eliminate bias was chosen, e.g., if helmet ownership and helmet use were both outcomes, helmet use was selected. In cases where attitude, behaviour, and knowledge were all examined, behaviour was selected.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
Differences between the included studies were discussed in the text.

Results of the review
Twenty-eight studies (the number of participants was not reported) were included: 6 randomised controlled trials (RCTs) and 22 non-randomised controlled trials.

Bicycle helmet use.
The results of 12 studies (including 2 RCTs) showed that community-based efforts can effectively increase bicycle helmet use among children. However, caution is warranted when interpreting these results due to the study design of the evaluations and the limited outcomes explored. Nearly all of the studies focused on helmet ownership or use and only one looked at actual injuries.

Motor vehicle restraint use.
Several community-based interventions delivered in day-care or school setting were found to increase motor vehicle restraint use among young children (5 studies including one RCT). The use of multiple strategies to promote behaviour change, and a focus on increasing the children's acceptance of the motor vehicle safety seat, appear to be critical to the programme's success.

Pedestrian safety.
Four studies (including 2 RCTs) looked at child pedestrian injury prevention. The results indicated that the benefit of community-based education aimed at improving traffic safety behaviour among young children was limited. The benefit of such interventions delivered in a simulated setting is marginal at best, and there was no evidence to suggest that children would behave the same way in real-life settings. Although some evidence suggested that community-based interventions involving parents or other instructors as supervisors and facilitators can improve children's traffic safety behaviours, this improvement was modest, and even after training, young children remained at substantial risk.
General safety.

The findings from general community-based safety campaigns (4 studies) were mixed. Only the Safety Kids/Healthy Neighbourhoods Coalition reported a statistically-significant decrease in targeted injuries, and even in this study it was questionable whether the decrease in injury rates could be wholly attributed to the intervention. It was noted that general safety campaigns that adopt a broad array of strategies and garner support from numerous community constituencies are promising.

Adolescent alcohol use and vehicle safety.

Three studies (including one RCT) evaluated adolescent alcohol use and vehicle safety. Alcohol use among adolescents appeared to be a difficult behaviour to modify. The results showed that community-based programmes aimed at reducing the likelihood that adolescents will drive, or ride with a driver under the influence of alcohol were unsuccessful. The studies showed that alcohol consumption actually increases with age, and increased knowledge regarding alcohol misuse negatively correlates with subsequent alcohol behaviour.

Authors’ conclusions

Community-based interventions have been successful in some areas of childhood injury prevention. Specifically, the increased use of bicycle helmets and motor vehicle safety seats among children has been associated with effective community-based programmes. For other injury areas, the benefit of community-based strategies was less evident; these areas included child pedestrian safety, adolescent alcohol use and vehicle safety, and general safety campaigns. Lack of success in these areas may be attributed to poorly designed and implemented programmes, inadequate research methodology, or the inherent inability of community-based strategies to alter safety practices or reduce injury outcomes.

CRD commentary

This was a well-conducted review. The aims were clearly stated and a comprehensive literature search was undertaken. However, no attempt was made to identify unpublished studies. A systematic procedure involving two or more reviewers was used to assess the relevancy of retrieved articles and data extraction. The authors also assessed the validity of included trials. Relevant details of the included studies were clearly presented in tabular format and were described in the text. Differences between the studies were briefly discussed and a narrative synthesis of the results was appropriate. The authors' conclusions, which took into consideration the poor quality of the included studies, follow from the results.

Implications of the review for practice and research

Practice: The authors state that to maximise the likelihood of success with regards to bicycle helmet use, efforts should be targeted broadly to: increase parents’ awareness of the importance of helmet use; overcome resistance to helmet use by educating children; subsidise helmet costs; and pass regional legislation enforcing bicycle helmet use. With regards to pedestrian safety, because pre-school age children are not developmentally prepared to learn and react appropriately to traffic, a more effective approach may be to physically separate them from the traffic.

Research: The authors state that additional well-designed RCTs of community-based interventions, which use the strategies evaluated by the included studies, would be useful to corroborate the findings of the numerous non-randomised studies. Future research should investigate the importance of bicycle safety measures. With regards to pedestrian safety interventions, future investigations using rigorous methodological designs are necessary to quantify the benefits or shortcomings of environmental approaches, because these are gaining popularity over educational interventions. Future interventions of alcohol use and vehicle safety among adolescents should explore more innovative and less pedagogical approaches to promote adolescent safety behaviours. Given the increased use of computer technology by youths, for example, internet-based interventions should be tested as a potential venue for influencing adolescent safety behaviours.
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Other publications of related interest

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.