

Preventing Brain and Spinal Cord Injuries: An Assessment of Injury-related Behavioural Intentions in Primary School Children Using HealthScope

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Background

In Ontario, unintentional injury is the cause of ten deaths everyday and costs \$3 billion annually in economic costs alone (Ontario Chief Medical Officer of Health Report, 2002). The Injury Prevention Research Office at St. Michael's Hospital, in conjunction with the Think First Foundation Canada, has implemented a province-wide school-based injury prevention Think First for Kids (TFFK) program and is evaluating its effectiveness in reducing injur



The evaluation study is designed to analyse the effectiveness of safety education on primary school children. Schools were randomly assigned such that they received either no formal safety curriculum until the final (third) year ("pre-program group"), or they received the TFFK curriculum ("program group") based on a rigid time structure for the full three years of the program.

The study is based on a lagged implementation design in which the pre-program schools receive formal safety lessons only in their third year of participation.

The TFFK program includes five modules that teach about safety topics related to water, bicycles, vehicles, sports and recreation, and avoidance of violence.

Research Objective

In this study, guided by Fishbein and Ajzen's Theory of Reasoned Action, we focus on understanding children's intentions to engage in safe and unsafe behaviours and the reasons that underlie their choice.

Methods

To study intentions we developed a scenario-based questionnaire, HealthScope, which is structured around the modules taught in the TFFK curriculum. HealthScope presents children with vignettes that describe decision-making situations in which they must choose between engaging in a safe or unsafe course of action. Children must also give reason for

their choice. Reasons are constructed so that they include influences from friends, parents, personal habits, and the law, as well as concerns about safety.

Subjects

Three school boards were included in the study with approximately 1310 students in program schools and 1504 students in preprogram schools. Sex ratio was almost 1:1 in both program and preprogram groups, and they were split almost equally in grades 1, 2 and 3.

Results

Our analyses from approximately 2800 children in the program and preprogram groups show that across all vignettes children tend to choose the safe course of action more than 80% of the time. Males are less likely to choose the safe response ($p < .0001$). No major differences were found between pre- and post-test and also program and pre program groups. According to Fig.1A, safe decisions were mostly driven by concern for safety (45%) and influences of parents (6%) and friends (6%) were the least important factors. Unsafe decisions (Fig. 1B) were mostly driven by habit (43%).

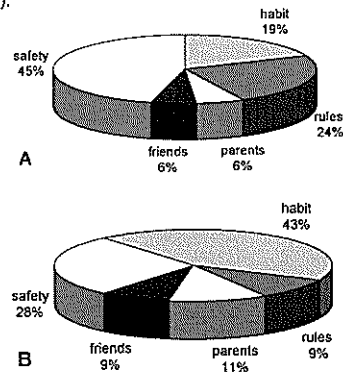


Fig. 1 A. intentions behind safe decisions, B. Intentions behind unsafe decisions.

Conclusions

Children in grade 1-3 mostly chose the safe course of action (>80%) when presented with decision making situations in the HealthScope vignettes. Males were less likely to choose the safe response ($p < .0001$) and TFFK safety program seems to have no apparent effect on their response rate.

Overall, concern for safety was the most important reason (45%) for choosing the safe response and habit was the most important factor (43%) influencing children making the unsafe decision. Interestingly the influence of parents and friends were the least important in both safe and unsafe decisions.

Implications

Understanding intentions through the scenarios presented in HealthScope provides insights into how children might apply the knowledge they gain from TFFK. Such understanding is fundamental to health promotion efforts to encourage children to avoid injuries.

Limitations

- Some of the illustrations in the vignettes may have biased the results. For instance, some of them portray a very dangerous situations where others just impose a situation with very minimal risk. Better illustrations, or no illustrations at all, might give different results.
- Safe responses were overwhelmingly chosen because students may have considered the HealthScope as a test rather than a questionnaire. Therefore, the results may reflect the right answer rather than their true behavioural tendency.

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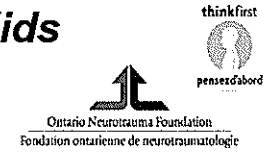


Injury Prevention Education Improves Student Injury-Related Behaviours: Feedback from Teachers Implementing Think First For Kids



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Background

In Ontario, unintentional injury is the cause of ten deaths everyday and costs \$3 billion annually in economic costs alone (Ontario Chief Medical Officer of Health Report, 2002). The Injury Prevention Research Office at St. Michael's Hospital has implemented a province-wide school-based injury prevention Think First for Kids (TFFK) program and is evaluating its effectiveness in reducing injuries. Elementary school students receive this formal curriculum on injury prevention principles and safe behaviours.



The evaluation study is designed to analyze the effectiveness of safety education on primary school children. Schools were randomly assigned such that they received either no formal safety curriculum until the final (third) year ("pre-program group"), or they received the TFFK curriculum ("program group") based on a rigid time structure for the full three years of the program.

The study is based on a lagged implementation design in which the pre-program schools receive formal safety lessons only in their third year of participation.

Participating teachers, after implementing the TFFK program lasting ten weeks, describe their observations and perspectives on many aspects of teaching injury prevention including the amount of time spent teaching safety lessons, the number of injuries observed, changes in students' daily behaviour, and the effect of participation on safety perspectives revealed in written questionnaires.

Teacher feedback provides insight into the daily classroom setting and activities, teacher attitudes towards injury prevention, as well as choices students make as a result of peer pressure and classroom influences. This feedback is necessary to understand the results of the program and to understand ways of improving the transfer of knowledge of health promotion and injury prevention to schools and children.

Research Objective

The purpose of this study was to determine if teachers recognize any change in student safety behaviours as a result of participating in TFFK.

Methods

This longitudinal evaluation is being implemented in 23 school boards across Ontario. The study currently includes a sample size of 50,000 children in grades one, two and three from over 350 schools. Each year, at the end of the study period, teachers were asked to complete written feedback questionnaires. The questionnaire, slightly expanded in 2003 in length and depth compared to 2002, included both open-ended and closed-ended questions.

In the second year of the study, 442 of 994 participating teachers returned completed feedback questionnaires (response rate of 42%). A sample of 165 Pre-Program ("no experience") and 255 Program ("two years experience") teacher responses have been analyzed.

In the third year of the study, 341 of 987 participating teachers returned completed feedback questionnaires (response rate of 35%). A sample of 142 Pre-Program ("one year experience") and 199 Program teachers ("three years experience") responses have been analyzed.

This analysis tracks the teacher feedback results from the initial five school boards that began the study in 2001 and the next 15 school boards that began the TFFK program in 2002.

The pre-program and program schools of the five boards were compared for the changes in student behaviour after either one year or three years of safety lessons. The pre-program schools in 2003 received formal lessons in their final (2003) year of study ("one year experience"), while the program schools taught safety for each of the three years ("three years experience").

The 15 school boards that participated beginning in 2002 were analyzed similarly. The pre-program schools, receiving no safety education, were compared to program schools that taught the TFFK program for two years by the end of 2003.

Mantel-Haenszel chi-square was used to determine the significance of the findings.

Results

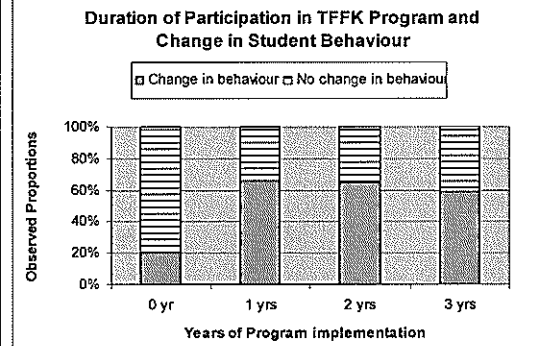


Figure 1. A significant change in student behaviour was observed after one year of teaching TFFK safety lessons (Mantel-Haenszel chi-square, $p < .005$). After the first year, there were no further significant differences in numbers of observed behavioural changes. Changes in behaviour were lowest at 20% with no education, while the highest was at 66% for those implementing safety lessons for one year. There was a non significant trend for schools who began as pre-program schools to show more changes when they went from not teaching TFFK in year two to teaching TFFK in year three than in program schools who implemented TFFK from the start of the study period.

Conclusions

• Change in student behaviour was observed after one year of program implementation. This change was statistically significant (Mantel Haenszel chi-square, $p < .005$).

• The biggest difference was observed between giving no education (20%) and teaching TFFK lessons for one year (66%). There was very little change in student behaviour from one year to three years of program implementation. This change was statistically insignificant ($p > .005$)

Discussion

• Possible reasons for the 46% increase in changed behaviour from zero years of program implementation to one year may be the increased awareness of safety issues, increased discussion, and integration of knowledge from the classroom and home settings.

Implications

• Education is effective in changing injury-related behaviour of students

• Continuous reinforcement in children so that knowledge becomes practice may prevent a decay of this knowledge and behaviour

Limitations

• Program teachers may have reported more changes in students' daily safety behaviours because of their participation in the TFFK Evaluation. This phenomenon is known as the Hawthorne Effect.

• Teacher turnover may also affect data collection and response for the TFFK program by its third year.

• Fluctuations in response rate may have influenced the significance of the findings. For instance, the response rate in 2003 was 35% compared to 42% in 2002.

• Schools participating in the program may differ. Further analysis will explore certain characteristics of the boards, such as differences in rural and urban locations.

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Knowledge Translation in Communities: Community Readiness for Injury Prevention Programming

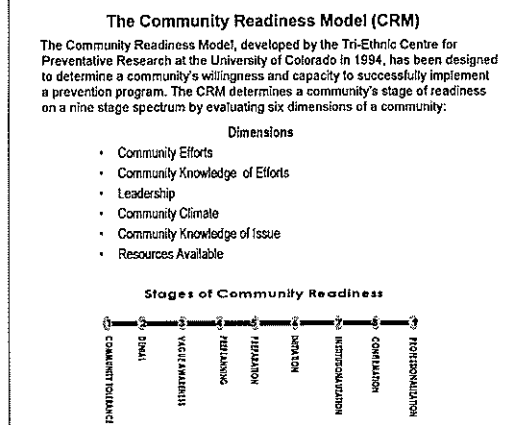
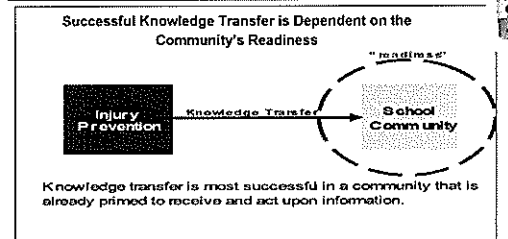
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Introduction

Injury is the leading killer of people 1-44 years of age. In Ontario, more than 2000 people get injured daily and ten of these cases result in death. Everyday 118 people are admitted to hospitals due to unintentional injuries. The economic cost of unintentional injuries can amount to \$8.2 million daily. Research has suggested that ninety percent of injuries are preventable. For these reasons, injury prevention initiatives must be undertaken to reduce and prevent further injuries.

It is important to understand that the effectiveness of a prevention program may vary in different communities due to the differences in community resources and political/social climate. For a prevention program to be successful, a community must be ready for its implementation.



The Coalition Readiness Model

The Coalition Readiness Model assesses a community's level of awareness, concerns and actions (A,C,A) across multiple social levels within a collaborating group of organizations. The collaborating organizations refer to communities with partnerships with professional interest groups. For this study, the community is each participating elementary school and the professional interest group is the Injury Prevention Research Office (IPRO).

Think First for Kids Evaluation

The Think First for Kids (TFFK) Injury Prevention Program is a curriculum taught to elementary school children across Canada.

The Injury Prevention Research Office at St. Michael's Hospital is conducting an Ontario-wide school-based implementation and evaluation of the TFFK injury prevention program funded by the Ontario Neurotrauma Foundation.

Research Objectives

Objective 1: To determine the stage of readiness of Ontario elementary schools for injury prevention programming

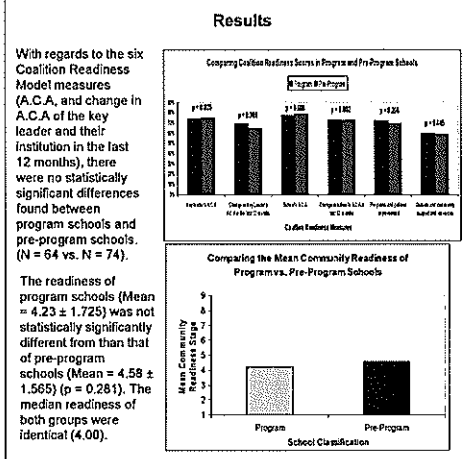
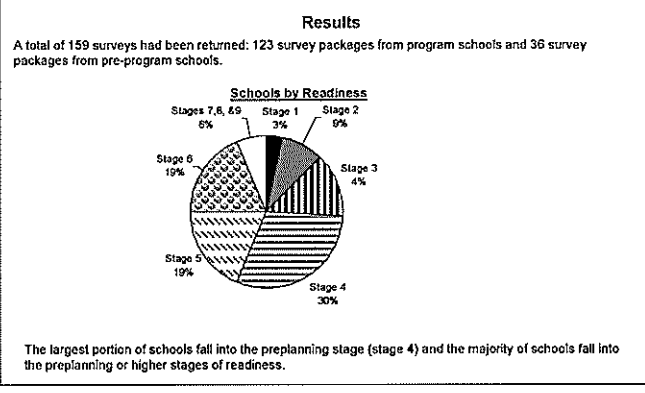
Objective 2: To compare the readiness of TFFK program schools and TFFK pre-program schools

Methods

- Principals and school council chairs were identified as key leaders in the school community where information regarding community readiness was to be obtained.
- Community Survey packages, containing a key leader survey, a program inventory survey, and an interview consent form, were sent to 736 principals and school council chairs from 460 schools.

Key Leader Survey - assesses the readiness of the school using questions based on the Community Readiness Model and the Coalition Readiness Model. It also captures the key leader's opinions, comments and initiatives regarding injury prevention.

Comparisons were made between TFFK program schools and TFFK pre-program schools. A program school implements TFFK from the start of the 3-year evaluation, and a pre-program school uses a regular health and safety curriculum prior to implementing TFFK in the final year of the evaluation.



Discussion

The majority of schools (74%) were found to be in the preplanning stage (stage 4) or above. The largest portion of schools were found to be in the preplanning stage (26%).

When comparing program and pre-program schools, the mean and median readiness stage of both groups correspond to the preplanning stage (4th stage).

There were limitations during this analysis that may have affected the results. The first limitation arises when the readiness of the school community as a whole is being assessed by two individuals, the principal and the school council chair. A more accurate assessment of community readiness may require more sources in the community. Secondly, the key leaders may have over-assessed their school community's readiness due to the fact that they knew they were being evaluated, similar to the Hawthorne effect. Finally, key leaders that did not perceive injury prevention to be an issue were less likely to complete and return the survey. Therefore, they are underrepresented in our sample. This fact may be responsible for the large portion of schools that are pre-planning or above.

The largest portion of schools fall into the preplanning stage, a stage that indicates recognition of a problem and agreement that something must be done. Prevention programs will undoubtedly be more effective when a community is ready and willing to accept the information being taught.

Conclusion

- The mean, median readiness of all schools lie in the preplanning stage.
- Comparisons between program and pre-program schools showed no statistically significant difference in readiness.
- The CRM and the Coalition Readiness Model were effective tools in assessing community readiness.