Education in trauma: An educational alternative that promotes injury prevention

Jose Daniel Charry, Juan Daniel Ochoa, Jorman Harvey Tejada, Sandra Liliana Navarro-Parra, Nicolas Esquivela, Yolercy Vasques

Research Department, Fundación Universitaria Navarra, Uninavarra, Neiva, Colombia
Department of Medicine, Universidad Surcolombiana, Neiva, Colombia
Research Department, Universidad de Jaén, Spain

ABSTRACT

Purpose: As trauma is a public health problem, different programs have been designed to prevent injuries. The aim of this study was to evaluate the effectiveness of an educational model that measures the adolescents' attitudes towards the rules of road safety, alcohol and road accidents in Colombia.

Methods: A pedagogical model evaluating the effect of road safety education and adolescents' attitudes towards and experiences of alcohol and road accidents in Colombia was created. After the education concluded, this educational process is analyzed by its impact on adolescents' behavior. The educational program included 160 adolescents with the mean age being 17.5 years.

Results: The test results indicated that before the educational program 80% of adolescents did not use a safety element when driving, while after the educational program the percentage of no helmet use among adolescents decreased from 72.5% to 24.3% (p = 0.0001) and driving a vehicle under the state of drunkenness from 49.3% to 8.1% (p = 0.0001).

Conclusion: An educational model aimed at preventing injuries caused by traffic accidents is shown to be effective in generating changes in adolescents' customs of and attitudes towards alcohol and road safety standards in Colombia.

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Introduction

Trauma is of global importance, causing around 5 million deaths a year, of which 1.2 million are related to traffic accidents.1,2 According to a study conducted by World Health Organization on global disease overload, published in 2010,3,4 trauma still remains a public health problem and constitutes a severe burden for the health systems in Latin-American countries; in Colombia, the global load of injuries is more prominent in 12–45 years old males who are economically active.

As a disease burden on global societies, trauma represents an international issue. It accounts for 5 million deaths per year, of which 1.2 million result from traffic accidents. Trauma remains the number one cause of death for the youngest population and leads to more productive years of life lost than cancer, stroke, and heart disease combined. To reduce accidents and deaths among all ages worldwide, the WHO set up the “Decade of Action for Road Safety 2011–2020” initiative in May 2011. In 2014 in Colombia, there were 50,574 traffic accidents, among which 6402 people (12.6%) are dead from fatal injuries.5 The aim of this study was to evaluate the high school senior students' perception of road safety, alcohol consumption and traffic accidents in a capital city of the south of Colombia and to determine the effectiveness of an educational model applied to this specific population group as a life changing experience.

Materials and methods

We proposed an educational model in which individual surveys regarding the use of vehicle safety devices, and attitudes towards alcohol consumption and driving were conducted. Weekly educational workshops have been made for six months, explaining different trauma mechanism, traffic accidents, car crush images, pre-hospital care, surgery, recovery and sequelae that remain after

* Corresponding author. Research Department, Fundación Universitaria Navarra, Uninavarra, Neiva, Colombia.
E-mail address: danielcharry06@gmail.com (J.D. Charry).
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injury. Once this educational process concluded, a second individual survey was applied to summarize the behavioral impact on studied population. Approval from the south Colombian university quality improvement office and the institutional review boards was obtained prior to conducting this study.

The method used for data collection was a simple test. Confidentiality of the content of the records was kept by the investigators and information was only utilized for the research purpose. The results obtained in the study were stored and analyzed in an online statistical software R version 2.15.2; measures of central tendency and dispersion for continuous variables were calculated; as well as frequencies and proportions for the categories. The Shapiro-Wilk, Chi-Square, and Wilcoxon test were applied for statistical confidence. A p value < 0.05 was regarded as statistically significant.

Results

The educational program included 160 young people whose mean age is (17.5 ± 3.91) years. The test results indicated that initially 80% of adolescents did not use a safety element when driving. The demographic characteristics and initial survey are shown in Tables 1–2.

Before the educational sessions it was observed that 78.75% of the young people do not have a comprehensive knowledge about road safety standards. Educational sessions were held weekly for 2 h per session with a 100% attendance over the six months. Among the studied population, 58.12% of them visited the emergency department trauma center where the victims of traffic accidents were taken care.

After the educational program on road safety, it was found that the percentage of no helmet use decreased from 72.5% to 24.3% (p = 0.0001), driving a vehicle under the state of drunkenness from 49.3% to 8.1% (p = 0.0001), and driving a vehicle without a seat belt from 75.6% to 20.0% (p = 0.0001).

Discussion

Trauma, as one of the pathologies that cause great disability and mortality globally, generates about 5 million deaths per year, affecting people of the ages between 14 and 45 years who are young and more productive in terms of labor force.6,7 Given that, it has been encouraged to create different programs and campaigns to educate the population to increase prevention and avoid injuries.8–11

It is known that preventive programs and laws are an excellent solution in the long run.6–10 The program “Prevention of Trauma Related to Alcohol Use in Youth” PARTY is an initiative aimed at encouraging the youth between 14 and 18 years to attend activities in hospital to raise their awareness about the risks of driving under the influence of alcohol.12 This study seeks to educate the population and improve their knowledge about the dangers exposed by not using safety equipment when driving or driving under intoxication. The response from the youth participating in the education model was rather favorable, as can be seen in the fact that before attending the session, 80% of the young people did not use any security element, while after the application the percentage of adolescents who did not use helmet decreased from 72% to 24%, driving a vehicle without a belt security from 65% to 20% and driving under intoxication from 49.3% to 8.1%. Similar with other studies, the results of this study can be regarded favorable with a positive effect for the care of people.9–13

Some behaviors in the adolescent population, such as not using safety measures when driving or driving under the effect of alcohol, could eventually be reduced to reference behaviors around them. Therefore, if the teen observe helmet use, safety belt use and caution their parents against driving under the influence of alcohol, the young will seek to drive safely; however, if the young person gets only examples of reckless behavior, they will tend to imitate.14

In conclusion, based on our experience, a prevention-oriented model for traffic accidents proves to be effective in generating changes in adolescents' behavior regarding and attitudes towards alcohol and road safety standards. However, it is necessary to conduct a more accurate study using multivariate analysis to define specific factors influencing young population's decision making regarding road safety behavior.

Conflicts of interest/disclosures

The authors declare that they have no financial or other conflicts of interest in relation to this research and its publication.

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Table 1

Demographic characteristics and initial survey (n = 160).

| Variable                          | n (%)       |
|----------------------------------|-------------|
| Gender                           |             |
| Male                             | 93, 58.12   |
| Female                           | 67, 41.88   |
| Age (years)                      | 17 ± 3.91   |
| Current use of safety driving devices |         |
| Yes                              | 32, 20.00   |
| No                               | 128, 80.00  |
| Alcohol consumption when driving |             |
| Yes                              | 79, 49.37   |
| No                               | 81, 50.63   |

Table 2

Evaluational impact on studied population (n = 160).

|                          | Before education | After education | p value |
|--------------------------|------------------|-----------------|---------|
| Seat belt use when driving |                  |                 |         |
| Yes                      | 39, 24.37        | 128, 80.00      | 0.0001  |
| No                       | 121, 75.63       | 32, 20.00       |         |
| Helmet use when driving  |                  |                 |         |
| Yes                      | 44, 27.50        | 121, 75.63      | 0.0001  |
| No                       | 116, 72.50       | 39, 24.30       |         |
| Alcohol consumption when driving |          |                 |         |
| Yes                      | 79, 49.37        | 13, 8.12        | 0.0001  |
| No                       | 81, 50.63        | 147, 91.88      |         |
| Seat belt use as a car passenger |            |                 | 0.0185  |
| Yes                      | 75, 46.87        | 78, 48.75       |         |
| No                       | 85, 53.13        | 82, 51.25       |         |
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