

Health Educational Technologies for Prevention of Transit Accidents: Integrative Review

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ABSTRACT

Objective: To identify in the scientific literature the educational technologies in health for the prevention of traffic accidents.

Method: An integrative literature review conducted in October 2019 through original articles indexed in the Latin American and Caribbean Health Sciences Literature, Nursing Database, Medical Literature Analysis and Retrieval System Online, Cumulative Index to Nursing and Allied Health Literature, Scopus and Web of Science, without temporal or language restriction. The analysis of the results occurred descriptively.

Results: We found 62 articles, of which eight were included in the study. They were published in international journals, four clinical trials, three qualitative studies and one quasi-experimental. The predominant type of technology was video. The most discussed theme was child safety in traffic.

Conclusion: Educational health technologies in accident prevention proved to be effective, but are still incipient in this area, and further studies are needed to create, validate and apply these technologies, especially for motorcyclists, since no studies have been identified for this public, as it represents the population most exposed to traffic accidents in the world panorama.

INTRODUCTION

Traffic accidents (TA) are considered a growing public health problem to be faced. Since the 1980s, they are the first cause of death in the general mortality. Every year, 1.35 million people die from this cause worldwide, constituting the eighth cause of death in all age groups, with emphasis on the age group from 5 to 39 years^[1,2].

Such growth can be justified by the expansion of circulating vehicles on public roads, given the easy access to goods and services, as well as, due to the non-compliance with traffic laws, structural aspects of the roadways, behavioural

aspects and traffic education, which consequently occurs in the increasing number of accidents involving these means of transport [3].

In this context, accidents involving motorcycles are growing considerably because it is an agile, low cost vehicle for purchase and maintenance, easy to handle, due to the possibility of use as a cruising and work vehicle, in the delivery and people displacement market. However, occupants of this type of vehicle are more vulnerable to injury, sequelae and death, since there are no protections and vehicle structure to absorb the impact on the accident [1,4].

Deaths in TA occur in 90% of developing and underdeveloped countries, which contribute with 54% of global vehicles. It is estimated that there are between 20 and 50 million nonfatal injuries annually and that if no measures are put in place to reduce the impact of morbidity and mortality, traffic accidents will be the fifth leading cause of death in the world population by 2030. It is seen that in addition of fatal victims, traffic results in expensive costs for different sectors of society, with health being the most affected [5,6].

Traffic accidents represent a global health cost of 18 billion/year and, if current conditions are maintained, there will be approximately 2 million traffic deaths worldwide in 2020. In Brazil, between 2010 and 2016 there were 615, 101 hospital admissions for accidents involving motorcycles, which generated an expense of approximately 640 million reais. Of these hospitalizations, 194,796 (32%) were in the Northeast region that ranked second in the ranking by region, justified by the growth of the motorcycle fleet in the country's total vehicles, with an increase of 27% in 2016 and reached 34% in the Northeast region [1,6,7].

In Brazil in 2017, the study of the global burden of diseases, injuries and risk factors identified that only non-fatal trauma from falls and traffic accidents generated short and long term disabilities in 226 million individuals. Fatal injuries accounted for 8% of mortality worldwide, killing 5 million people, an increase of about 2% over 2007 data and an overall mortality rate of 58 per 100,000 inhabitants. That same year, trauma accounted for 12% of the potential 1.65 billion years of life lost [8].

The dynamic and multiple causes of traffic accidents make that several factors be responsible for such occurrences. However, traffic violence is analyzed in most studies, focusing on objective factors such as speeding, problems on public roads and non-compliance with traffic laws. However, among health conditioners and determinants, behavioural aspects are considered fundamental for changes in the area of health promotion, prevention and protection, despite being aspects not commonly addressed in traffic morbidity and mortality statistics [7].

Thus, educational activities and campaigns are an important component of traffic safety strategies, as education is one of the key resources to improving health indicators. However, in the area of health, the educational process of the population respects the same innovation needs that globalization imposes on all other sectors. Therefore, different behaviours need to be combined with multiple learning experiences and educational interventions [9].

It is, therefore, necessary that different methodologies be applied, in order to attract and sensitize drivers of vehicles who are disinterested in lectures, debates and other forms of educational activities, said to be tiring for them. Thus, it can be suggested that educational technologies are useful and indispensable tools to be used in health education, as a facilitating means to provide knowledge and health to the population [4,7].

Given the above, it is observed the relevance of this study, because it emphasizes a public health problem evident in society, which makes them a priority public for scientific research, since no review studies were found that presented the technologies developed for traffic health education, in which from exploration it is possible to deepen knowledge and develop strategies that can influence their conduct. Thus, this article aims to identify in the scientific literature the educational technologies in health to prevent traffic accidents.

LITERATURE REVIEW

An integrative literature review study, developed in six subsequent steps:

1. Selection of the guiding question
2. Definition of the characteristics of the primary research of the sample
3. Selection, in pairs, of the research that comprised the review sample
4. Analysis of the findings of the articles included in the review
5. Interpretation of results and
6. Presentation of the review, with critical synthesis of the findings [10].

The research question that guided the study was: What technologies are available in the literature for health education to prevent traffic accidents? Structured from the PICO technique, where P refers to the problem (traffic accidents); I, situation of interest of the study (educational technologies) and Co, characterize the context (health education).

To obtain the sample to be included in the review, the survey was conducted in October 2019, by virtual access to the databases: Latin American and Caribbean Health Sciences Literature (LILACS); Nursing Database (BDENF), both via the Virtual Health Library (VHL); *Medical Literature Analysis and Retrieval System Online* (MEDLINE), via PubMed; *Cumulative Index to Nursing and Allied Health Literature* (CINAHL) via Core Collection; Scopus (Elsevier); and *Web of Science*.

To ensure a broad search, the uncontrolled descriptors and terms were associated in different combinations by means of the Boolean operators OR and AND. The articles, in their entirety, were consulted through the portal of journals of the Coordination for the Improvement of Higher Education Personnel (CAPES) and the descriptors in the database of Descriptors in Health Sciences (DeCS), their English equivalents, in *Medical Subject Headings* (MeSH) and the CINAHL Titles. Thus, to search for studies, the advanced search form of the respective databases was used, as can be seen in **Figure 1**, the application of the descriptors and their relative combinations.

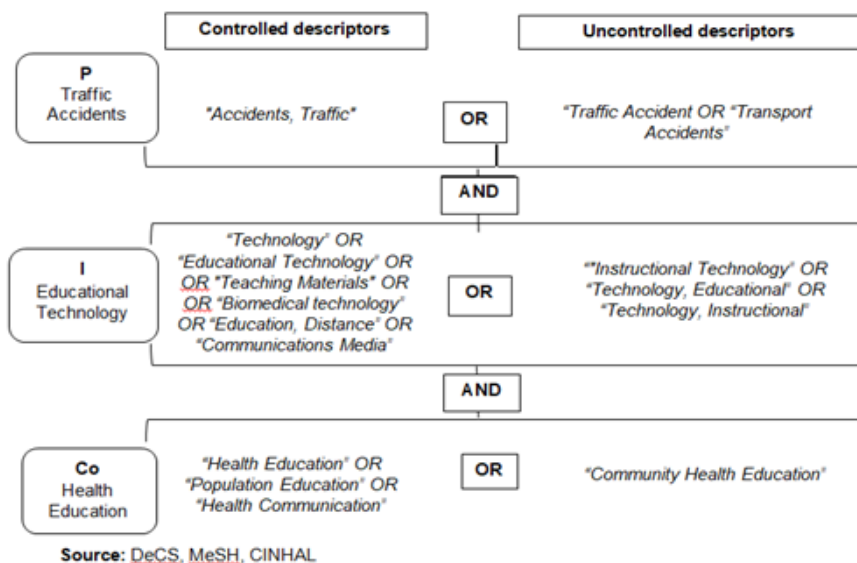


Figure 1. Controlled and uncontrolled descriptors employed in the database search strategy. Teresina, Piaui, Brazil, 2019.

Due to the specific characteristics for access in each database, the search of the studies followed the criteria and manuals of each database, by two independent researchers, who standardized the sequence of application of the descriptors and then compared the results obtained, in order to maintain consistency in the search for articles and avoid possible biases.

Inclusion criteria were: primary articles that presented educational technology for the prevention of traffic accidents, published until September 2019, in any language. Exclusion criteria were: literature review articles, dissertations, theses, editorials, case reports that did not answer the research question. Duplicate studies between databases were counted only once.

We found 62 articles for analysis, 2 from LILACS, 1 from BDENF, 34 from MEDLINE, 16 from CINAHL, 9 from Scopus and 0 from *Web of Science*. The studies found were exported to the *Endnote Web* bibliographic reference manager, available from the *Web of Science*, for better organization of the identified studies and evaluation of duplicity. It is noteworthy that the exportation of articles occurred from the most specific bases for Nursing and Health, to others common in remaining areas [11]. Sample selection was performed based on the guidelines of the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA), which is detailed in **Figure 2**.

The extraction of data from the studies included in the review was performed by means of adapted data collection instrument and proposed by the Red de Enfermeria in Salud Ocupaccional (RedENSO International) [12], which includes identification data of the author, databases, data publication, adopted theoretical reference, year and place of study, methodological characteristics, main results and conclusions and educational technology used for accident prevention.

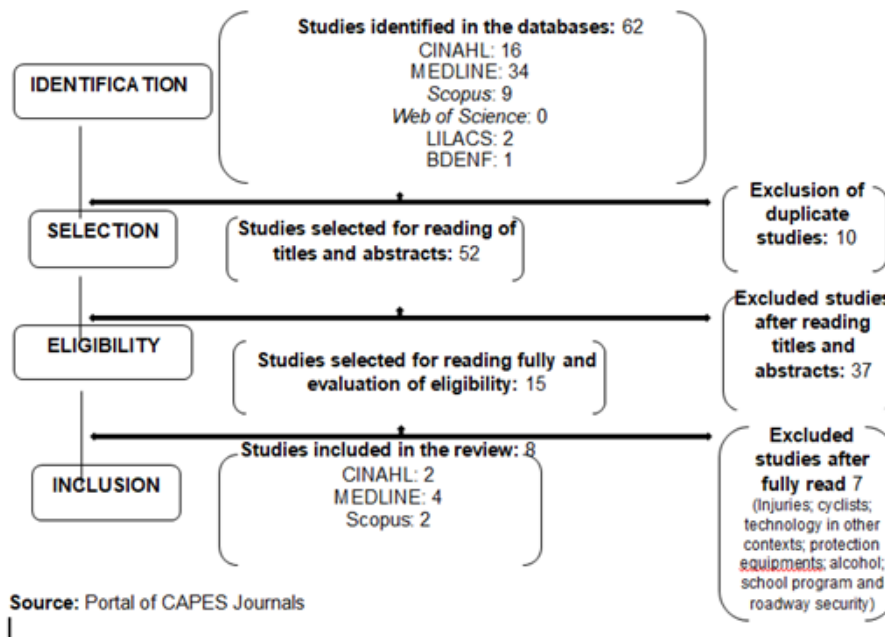


Figure 2. Flowchart of selection of primary studies included in this review. Teresina, Piauí, Brazil, 2019.

The methodological quality of the studies was assessed based on the standardized instruments of the Joanna Briggs Institute (JBI), independently by two reviewers, through the Checklist for Randomized Controlled Trials for randomized studies, consisting of 13 questions, namely: methodology used, with alternatives: yes, no, uncertain or not applicable. For qualitative studies it was used Critical Appraisal Checklist for analytical cross sectional studies containing 8 questions about the research and development of the Checklist for Quasi-Experimental Studies to assess the quasi-experimental study. It is noteworthy that the divergences between the researchers were resolved recurring to the discussion among themselves, when necessary; there was an intervention of a third reviewer.

For analysis of the studies' evidence level were used recommendations of Oxford Centre for Evidence-based Medicine^[13]:

- 1A – A systematic review of randomized controlled trials;
- 1B – A randomized controlled trial with narrow confidence interval;
- 1C – “All or nothing” therapeutic results;
- 2A – A systematic review of cohort studies;
- 2B – A cohort study, including lower quality randomized controlled trial;
- 2C – An observation of therapeutic results or ecological studies;
- 3A – A systematic review of case-control studies;
- 3B – A case-control study;
- 4 – Two case reports, including cohort or lower quality case control;
- 5 – An expert opinion.

Subsequently, the presentation of results and discussion of data was made descriptively, allowing the reader to evaluate the applicability of this integrative review in clinical practice, as well as the contemplation of the objective proposed by the study. There was no funding for the study, as well as no conflicts of interest in conducting this research. As an integrative literature review, the article did not need to be submitted to the Ethics and Research Committee.

RESULTS

For a better understanding of the results, after searching the articles in the database and applying the inclusion and exclusion criteria, we obtained a final sample of eight articles, which were read and analyzed according to **Table 1**, which presents a detailed synthesis. With data of the authors, year, country, methodological design, objective, applied technology, main results and level of evidence.

In the final sample, publications from 2019 and 2018 dominated in quantity (n=2). The database with the largest number of articles selected was MEDLINE/Pubmed (n=4). Regarding the design of the studies, there was a predominance of randomized clinical trials (n=4) and qualitative studies (n=3). Of the eight articles selected, four addressed child safety technologies for parents, focused on proper seat placement in vehicles.

Table 1. Summary of articles included in the review. Teresina, Piaui, Brazil, 2019.

Authors/Year/ Country	Drawing/Sample	Objective	Educational technology	Main Results	Level of Evidence
Swartz et al. (2019) United States	Randomized controlled study was conducted with 195 parents of children aged 0 to 24 months.	Assess the effectiveness of a media DVD designed to improve knowledge of child and infant car seat installation .	Video	It resulted in significant gains in parents' knowledge and installation of baby seats in cars.	1B
George, Bodiford, Humphries, Stoneburner and Holder (2019) United States	Longitudinal quasi- experimental study	Test a three- component community preventive intervention with alcohol companies to reduce alcohol consumption and direction.	Billboards, mobile apps, television commercials, and reports in newspapers and television stations.	Reduction in monthly percentage of drivers arrested for driving under the influence of alcohol.	2B
Lessa et al. (2018) Brazil	Qualitative, methodological study	Build an educational booklet for teens on traffic accident prevention.	Primer	It proved effective as a support material in educational practices performed by nursing and other professionals.	2C
Griffin, Watt, Kimble and Shields (2018) Australia	Qualitative study	To investigate the effect of an educational intervention at the population level.	Posters	Increased efficacy of post intervention prevention strategies, but not significant.	2C
Gaulda, Lewisa, White and Watson (2016) Australia	Qualitative study with 144 drivers	Validate behavioral, normative beliefs and control over initiating, monitoring/reading and responding to social interactive technology on the smartphone.	Interactive smartphone technology	It identified seven beliefs as potential targets for public education messages, including slow traffic for both monitoring behaviors.	2C
Shenoi, Saz, Jones, Ma and Yusuf (2010) Peru	Prospective randomized study with 274 parents of children under 9 years.	Test the impact of an educational video to improve knowledge of child passenger safety.	Video	Passenger safety could be effectively communicated to parents in the emergency department reviewed.	1B
Snowdon et al. (2008) Canada	Randomized study with 418 families reporting over 732 children .	Seek to improve child safety in vehicles	Computer simulation; Storybook; Slide show	The results indicated that the knowledge increased significantly after the intervention.	1B
Zeedyk and Wallace (2003) Great Britain	Randomized study with 120 families	Evaluate the effectiveness of a video on child road safety.	Video	The study indicated that the video, when used casually, did not have impact on parents or children.	1B
Source: CINAHL, MEDLINE and Scopus					

Regarding the technologies used by the articles, there was a diversity of uses of digital and non-digital technologies in the same study (n=2), as well as only one in the others, such as: booklet, posters, smartphone applications, with predominance of video (n=3). Regarding the level of evidence, it was observed that four were randomized controlled trials with narrowed confidence interval, evaluated at 1B and three were observation of therapeutic outcomes or ecological studies, classified as 2C.

Most of the studies were international (87.5%) with a predominance of publications in the United States and Australia, a fact that demonstrates the need for Brazilian publications on the subject, considering that traffic accidents in this reality display high rates and biased estimates for the coming years.

Regarding the methodological analysis of the randomized clinical trials, it was observed that most of the instrument items were followed by all studies. Regarding the item of concealment of participants, guardians and evaluators and allocation of groups blindly, it was not clear in the studies. In all studies, items that dealt with the random allocation of groups were considered uncertain; whether the measured results were reliable; and if the design was appropriate to the topic of analysis (Table 2).

Table 2. Evaluation of the methodological quality of the included randomized controlled trials. Teresina, Piaui, Brazil, 2019.

Questions	Shenoi et al.	Swartz et al.	Snowdon et al.	Zeedyk and Wallace
1. Was the treatment group allocation truly random?	Uncertain	Uncertain	Uncertain	Uncertain
2. Was the allocation to groups blind?	Not	Not	Not	Not
3. Were treatment groups comparable at baseline?	Yes	Yes	Yes	Yes
4. Was treatment concealed from participants?	Yes	Yes	Yes	Not
5. Was it concealed from those responsible for applying the treatment in which group the participants were allocated?	Not	Not	Not	Not
6. Was it concealed from the outcome assessors the group in which were allocated the participants?	Not	Not	Not	Not
7. Were the different study groups treated identically, except for the above intervention?	Yes	Yes	Yes	Yes
8. Has the follow-up been completed, and if not, has the use of strategies to address its absence been addressed?	Yes	Yes	Yes	Yes
9. Were participants analyzed in the groups to which they were randomized?	Yes	Yes	Yes	Yes
10. Were the results evaluated in the same way for all groups?	Yes	Yes	Yes	Yes
11. Were the results measured reliably?	Uncertain	Uncertain	Uncertain	Uncertain
12. Was the statistical analysis used appropriate?	Yes	Yes	Yes	Yes
13. Is the study design appropriate to the topic under analysis, and was any deviation from the standard design evident during the development or analysis phases?	Uncertain	Uncertain	Uncertain	Uncertain
Source: Prepared by the authors				

Regarding the qualitative studies, they obtained positive responses to the criteria analyzed (Table 3). The quasi-experimental study was uncertain in the control group and statistical analysis items (Table 4).

Table 3. Evaluation of the methodological quality of qualitative studies included. Teresina, Piaui, Brazil, 2019.

Questions	Silva et al.	Gauld et al.	Griffin et al.
1. Were the inclusion criteria clearly defined?	Yes	Yes	Yes
2. Were the study subjects and scenario described in detail?	Yes	Yes	Yes
3. Has exposure been measured in a valid and reliable manner?	Yes	Yes	Yes
4. Were objective and standard criteria used to measure the condition?	Yes	Yes	Yes
5. Have confounding factors been identified?	Yes	Yes	Yes

6. Have strategies for dealing with confounding factors been stated?	Yes	Yes	Yes
7. Were results validly and reliably measured?	Yes	Yes	Yes
8. Was the appropriate statistical analysis used?	Yes	Yes	Yes
Source: Prepared by the authors			

Table 4. Evaluation of the methodological quality of quasi-experimental studies included, Teresina, Piaui, Brazil, 2019.

Questions	George et al. (2019)
1. Is it clear from the study what is the cause and effect?	Yes
2. Are the participants included in any comparison similar?	Yes
3. Did included participants receive similar treatment/care beyond exposure or intervention of interest?	Yes
4. Is there a control group?	Uncertain
5. Were there multiple outcome assessments before and after the intervention/exposure?	Yes
6. The follow-up period was complete and, if not, follow-up was adequately described and used strategies to deal with the loss?	Yes
7. Were the results of the included participants equally assessed?	Yes
8. Were results reliably evaluated?	Yes
9. Was appropriate statistical analysis used?	Uncertain
Source: Prepared by the authors	

DISCUSSION

This review of the literature revealed that the educational technologies for health education in the prevention of traffic accidents were mainly videos, posters, brochure and applications for smartphones, as well as other types of technology in use with others methodologies, which demonstrates that technologies accompany technological advances and have good results in the transfer of educational information. However, in two studies different educational technologies were used, which hinders the analysis of effectiveness, as well as the aspects related to their applicability.

Thus, it is observed that investments for the construction, application and evaluation of these materials are indispensable, in order to expand the possibilities of the population's orientation, since in the case of traffic accidents, it is observed that there is still a shortage in the literature, of studies addressing the applicability of digital or non-digital technologies for health in traffic education.

Among the articles included in this review, the first technology applied was in 2003 and dealt with child vehicle safety in traffic, developed for parental guidance. However, it was observed that in the years 2018 and 2019 the production of such technologies grew gradually, in different approaches from the initial one, focusing on traffic orientation and alcohol use and directed to adolescents and the general population. Despite the growth in the 21st century, the production of educational materials in this area should be stimulated, especially directed at motorcyclists, as it is a group commonly involved in traffic accidents at the national level.

The articles found were developed in different countries, especially the United States and Australia. In Brazil, only one study was identified, a worrying fact when faced with estimates for the coming years, increased production of the vehicle fleet, and the high rates of traffic accidents currently is occurring in this reality.

The predominance of randomized clinical trials was observed as methodological designs of the studies, which demonstrates the rigor obtained in the development of the analyzed technologies. Studies that present these types of methodologies are important and relevant, since they denote a control and organization from the allocation to the results. However, in the studies analyzed it is clear that some methodological aspects were not described in detail, which made it difficult to further analyze the results.

Given the above, we highlight the use of new tools in health education of the population and educational technologies that can be effective in this process as well. The importance of knowing the target audience, regardless of the type of technology to be developed, is evident. This knowledge provides greater interaction with the public and adequacy of content with the intended reality.

Another important aspect to consider, as found in the revised literature, is that the language approached in technologies must make it easy for the unaware population to understand so that it can be really effective. In addition, the association of theory with practice as it could be visualized is a strategy that can be used to assimilate past content. Therefore, professionals need to be aware of the ease of use of technologies, because the greater the ease of use, the better the assimilation and dissemination of content.

All studies included in this review used at least one type of educational technology as a method of health education in the prevention of traffic accidents, with different approaches and audiences, which proved to be practical, efficient and accessible. Video, among the technologies analyzed was the most used. Regarding the approach used by researchers to analyze the effects of technologies, the individual appreciation of the results was highlighted.

The effectiveness of a video on road safety of 5-year-old children in Great Britain in 2003 ^[14] was evaluated, in which the methods used produced no evidence that the video played an effective educational role for both parents and children, after a 30-day post-intervention assessment. However, parents saw video as an effective educational tool.

One of the things that may have contributed to the negative assessment of the educational aspect of the video could be related to methodological issues, as perhaps a month may not have been sufficient to acquire a change in children's knowledge or parental awareness. Another factor of influence would be that the items used in the evaluations are not sensitive to detect change.

Another study conducted between 2006 and 2007 ^[15] with the application of an educational video on child safety education for passengers, to 274 parents in the emergency department, showed significant improvement in the knowledge of the intervention group after one month of evaluation. Despite limitations due to loss of follow-up and selection of initial sample for convenience.

Although the results were statistically significant, education programs solely are not sufficient to effect a change in safety behaviours. It is necessary and understanding of risks of driving, the benefits of safety intervention and the ability the socioeconomic and cultural barriers in the context analyzed. But clearly the impact of education on strengthening knowledge and awareness of the risk of children in parents' vehicles is clearly seen.

Another study conducted in the United States, with educational videos targeted at parents on vehicle safety, resulted in significant gains after a traditional assessment based on knowledge and a realistic simulation of the safety seat installation, if it was done inadequately. The results point out, that the method adopted may teach, demonstrate and facilitate the change of desired behaviour, using modelling of behaviour and providing parents with visual examples, the application context. The format also accommodates busy parent schedules, time constraints, and family obligations, making it a resource for repeated use and reinforcement of knowledge.

In a study to analyze the behaviour, knowledge and attitudes of drivers about accidents with children and vehicles at low speed, it was observed in the pre-intervention that no interviewee was categorized as appropriate behaviour in relation to attitudes towards safe entry of cars as: walk around the car, look around, lock the car, physically hold the child when someone else is driving the vehicle. The importance of educational campaigns with media involvement was evidenced during the study in the post-intervention phase, with a 51% increase in the appropriate behaviour category ^[16].

It was found in their study on vehicular safety in child transport carried out in Canada that after the intervention there was a significant increase in caregiver knowledge of the correct age to safely transition a child to a forward facing seat as well as the correct height to move from a rear-facing seat to a front-facing seat. Regarding the indication of a professional to guide the use of seats, the participants who had this attitude had a higher chance of knowing about the subject ^[17].

Thus, these tools are of paramount importance for parent education as traffic accidents continue to account for a significant percentage of unintentional child deaths each year and the installation and use of adequate child safety seats can reduce fatal injuries to children of up to 71%, and surveys say about 1 in 5 child passengers use seats that are age-inappropriate. In view of this, prevention programs aimed at the appropriate use of child safety seats are urgently needed, as well as the reach, accessibility, and engagement of parental instructions ^[14,15,18].

A booklet for traffic education for adolescents was created in 2017 ^[19], which was divided into different sessions: pedestrians, cyclists, motorcyclists and drivers, road signs and tips, with the respective images directed to each context, which was entitled booklet Traffic Education for Teenagers, as it is a group that commonly exposes itself to traffic risks due to inexperienced behaviours. And it is seen that the dissemination of knowledge about appropriate traffic behaviours is an indispensable tool in the formation and improvement of vehicular driving.

It is noteworthy to reassert that the very elements that characterize the adolescent phase and male gender in particular are responsible for the occurrence of traffic accidents, a fact that is commonly related to impulsivity and the need for self-affirmation. It is represented that by the transition between childhood and adulthood changes regarding the affective, emotional and social aspect can make this audience less sensitive to orientation. In this sense, self-care in traffic is often neglected.

The interest of the adolescent public in receiving interventions on risky behaviour is perceived, thus revealing a preference of up to 93% for those presented in the form of technologies, either by telephone, in person or in print. It is seen that this exposes how attractive the use of modernizations in adolescent approach can be, providing opportunities to attract attention not conquered by other educational means. However, the use of the mobile phone is emphasized as an important risk factor for traffic accidents involving young drivers, as they increase the exposure to the risk of accidents as a result of deviation of attention.

A study was conducted in Queensland, Australia ^[20], with 114 young drivers aged 17-25 years, for the application of interactive social technology on smartphones. We have seen that not only the use of the mobile device reduces the safety of the direction of conductors, but also affects awareness. However, although they continue to use their cell phones while driving, it is believed that they can do so safely, as young drivers accessed social interactive features, particularly in portable mode, theoretical guidance was necessary to avoid trauma. On the road and the potential loss of young lives.

Another factor that commonly relates to traffic accidents is the use of alcohol and other drugs. Aiming at reducing alcohol consumption and driving after drinking alcohol, a study ^[21] conducted an intervention involving a beverage company to develop health education care practices, with a series of visits to public places and a supportive media campaign using different technologies such as billboards, mobile apps, television commercials and more. With this it was possible to achieve a reduction in the monthly percentage of drivers arrested for driving under the influence of alcohol, decline in alcohol accidents in the last 12 months post-intervention period.

In this context, it is emphasized that nursing can act both in traffic health education interventions, as well as in the construction and validation of educational technologies, and that these interventions be applied as a priority, given the epidemiological context and future estimates for traffic accidents. Further, that action such as these must take place continuously and with different methodologies depending on the audience to which it is directed, as well as such measures have the desired effect ^[19].

As a limitation of this review, we highlight the small number of studies identified in the databases researched and directed to child safety, a fact that restricted the results and directed to this public, as well as the scarcity of studies with educational technologies for children. motorcyclists, because although this type of accident is more frequent in underdeveloped countries, a large portion of the population uses this type of vehicle for cruising and as a working tool, reaffirming its relevance to such discussions and interventions.

CONCLUSION

The scientific evidence showed that the educational technologies used for health education for the prevention of traffic accidents were varied, but there was a predominance of educational, followed by printed materials and technologies mediated by smartphones and computers about child vehicle safety, focused on transportation and seat placement on vehicles. Studies have shown that contents have been understood and that rates have improved in response to the effectiveness of their use for health education.

It is evident that the national and international scientific literature is still scarce regarding the publication of educational technologies for traffic guidance for the general public, and especially for motorcyclists, who, by the world and Brazilian panorama, are among those with the highest traffic accident rates. Therefore, greater attention to this area is suggested, with the creation and application of new technologies, as well as the evaluation of existing ones in the long term, with verification of changes in behaviour, attitude and practices and, consequently, the elaboration of strategies that may influence their conduct in traffic.

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