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Preventive Behaviors and Attitudes of the Children as Active Participants in Road Traffic

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Abstract: In Romania, the number of pedestrian fatalities, in 2007, was 1.113 and and the number dropped considerably, in 2016 being 717, according to Traffic Safety Basic Facts 2018. As a comparison, in the European Union, 5320 pedestrians were killed in road accidents, which is 21% of all road fatalities. During the decade 2007-2016, in the European Union, pedestrian fatalities were reduced by 36%, while the total number of fatalities was reduced by almost 41%. The most vulnerable age categories are 0-14 years old and 64+, and the most common causes of road accidents involving pedestrians are: (1) faulty diagnosis - Information failure (between driver and traffic environment or driver and vehicle), (2) observation missed - inadequate plan, (3) observation missed - distraction, (4) observation missed - temporary obstruction to view, (5) Inadequate plan - Psychological stress, (6) Inadequate plan - Insufficient knowledge. Between May 27 and June 11, 2019, a pedestrian trafficking survey questionnaire was applied on a sample of 795 pupils of grades 4 to 8 from 7 elementary schools in Medgidia town of Constanta County, Romania (European Union). The questionnaire contains a set of 15 questions with 3 variants of answer. The objectives of the study were: analyzing pupils' knowledge of road signs and about preventive attitudes in traffic as pedestrians.

Keywords: preventive behavior; preventive attitudes; road traffic; pedestrians; road accidents

1. Introduction

According to a study released by European Road Safety Observatory (Traffic Safety Basic Facts 2018), in 2016, 5320 pedestrians were killed in road accidents in the EU (excluding Lithuania and Slovakia), which is 21% of all road fatalities. During the

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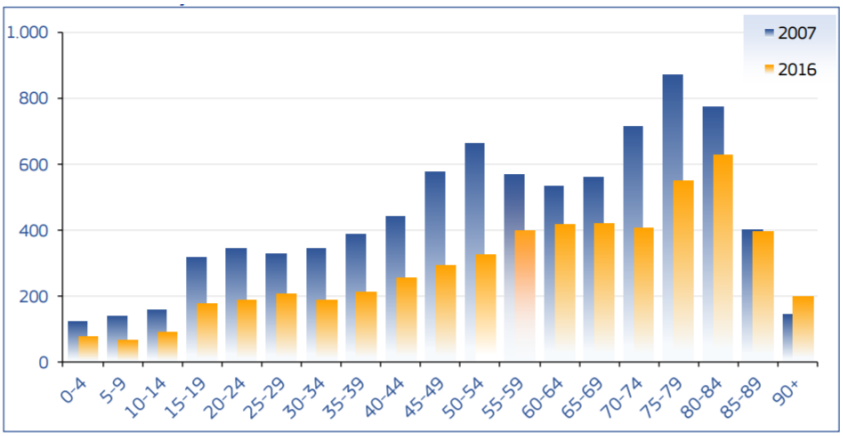
decade 2007-2016, in the European Union, pedestrian fatalities were reduced by 36%, while the total number of fatalities was reduced by almost 41%.

Morever, the same study showed that in Romania, the number of pedestrian fatalities, in 2007, was 1.113 and and the number dropped considerably, in 2016 being 717. The number of fatal road accidents involving pedestrians in the European Union was, in 2007, 8,342 dead pedestrians and the number dropped to 5,320 in 2016. Looking at the situation in terms of age, the most exposed pedestrians in fatal accidents were people over the age of 64. Also found that a relatively high incidence is observed in categories 0-14.

Although a high percentage of child (0-14) fatalities were pedestrians, they only represent 4% of total pedestrian fatalities, in European Union. Unlike the European Union average, the percentage in Romania is higher - 6%, which shows us that the worse road education among children can be a quite important factor when it comes to combating this worrying phenomenon.



Source: CARE database, data available in May 2018

Figure 1. Number of Pedestrian Fatalities by Age Group, EU, 2007 and 2016

Most fatal accidents involving pedestrians occur in the European Union between 16.00 and 19.59 (31%), respectively between 20.00 and 23.59 (19%) and 08.00-11.59 (18%). As a comparison, in Romania, road accidents are more in percentage terms between 16.00 and 19.59 than the EU average, ie 35%, and those between 20.00 and 23.59 - 23%. We also notice that there are more accidents at EU level on Friday and Saturday (16%). Between October and December there is a higher number of road accidents - 35% compared to April - June - 18%.

The most common causes of accidents involving pedestrians are: (1) faulty diagnosis - Information failure (between driver and traffic environment or driver and vehicle), (2) observation missed - inadequate plan, (3) observation missed - distraction, (4) observation missed - temporary obstruction to view, (5) Inadequate plan - Psychological stress, (6) Inadequate plan - Insufficient knowledge.

In 2004, the situation of road accidents in which children were victims (0-19 years) was a catastrophic one: 260,000 deaths that is 21% of all fatal road accidents, according to a report published by the World Healt Organization and UNICEF. The study points out that, in Europe, lower-income countries have a fatality rate of 8.3 per 100,000 inhabitants, compared to countries with higher incomes, where the rate is 5.2 per 100,000 inhabitants. Pedestrians, children are most likely to be injured or killed, 5–14 year olds are most at risk, children account for 5–10% of all road traffic deaths in high-income countries, children account for 30–40% of all road traffic deaths in low-income and middle-income countries.

A more recent study released by the World Health Organization (2018) shows an improvement in the rate of fatal accidents in the period 2000-2016. If the number of cars has increased, we can see a decrease in the number of fatal accidents from 135 to 100,000 vehicles (in 2000) to 64 fatal accidents per 100,000 cars (in 2016). Road traffic injury is the 8th leading cause of death for all age groups, up from 9th leading cause of death. It is now the leading cause of death for children and young adults aged 5-29 years, signaling a need for a shift in the current child health agenda, which has arguably neglected road safety. [...] More people now die as a result of road traffic injuries than from HIV / AIDS, tuberculosis and diarrheal diseases (2018).

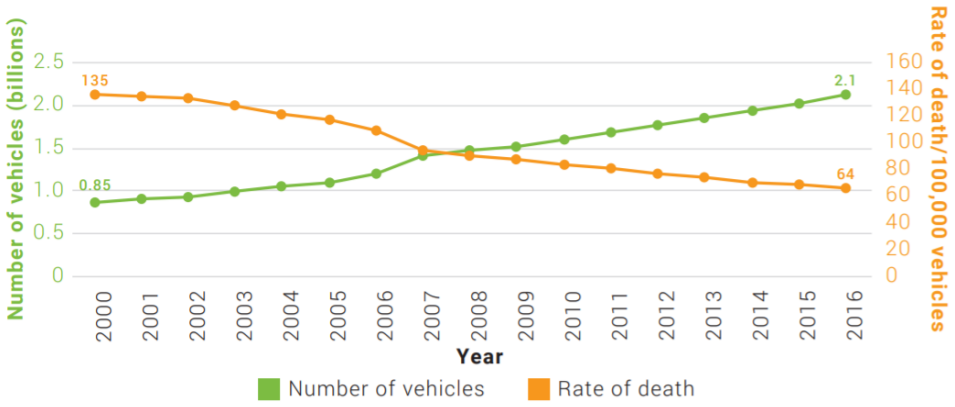


Figure 2. Number of Motor Vehicles and Rate of Road Traffic Death per 100,000 Vehicles: 2000–2016

Regarding attitudes and behavior towards risky driving among adolescents, Suhasini Ramisetty-Milker and Abdulkarim Almakadma (2016) conducted a study in Saudi Arabia which concluded that unequivocally points to pro-attitudes and behavior including a daring personality, not wearing a seat belt and using a mobile phone while driving are significant factors associated with risky driving activity. Another study conducted in the United States (The Children's Hospital of Philadelphia, Centers for Disease Control and Prevention, and Oregon Health & Science University) by Mark Zonfrillo et. All (2014) points out that although CPS - Child Passenger Safety - knowledge is generally high among respondents, gaps in knowledge still exist. Knowledge is associated with attitudes, practices, barriers, and facilitators of CPS guideline dissemination. These results identify opportunities to increase knowledge and implement strategies to routinely disseminate CPS information in the primary care setting.

Yue Yen Lee, Eric Fang et. All (2018) concludes, in a study conducted on a sample of 1243 accidents involving children between the ages of 0 and 16 years in Singapore, as the importance of restraints for motor vehicle passengers or helmets for motorcycle pillion riders and Cyclists in reducing morbidity require emphasis. Suggestions for future prevention and intervention include road safety education, regulation of protective restraints, use of speed enforcement devices and creation of transport policies that minimize kerbside parking.

In an article on behavioral risks and preventive strategies, David Schwebel, Aaron Davis and Elizabeth O'Neal (2012) made a series of recommendations for parents:

First, they must consider the child's development. Young children simply cannot cross streets safely, and should not be permitted to do so. By age 7 or 8, and certainly by age 9 or 10, many children can learn to cross streets safely. To achieve safe pedestrian skills, however, and for adults to feel comfortable allowing children to cross independently, adults must conduct extensive practice, review, and evaluation. Such training ideally would come from multiple sources –parents, teachers/schools, and other professionals in the community. Beyond education, parents and professionals should advocate for safer pedestrian environments. Strategies such as road engineering (e.g., traffic calming; building foot-bridges), use of crossing guards near schools, and community organization of pedestrian safety initiatives should be promoted. Finally, professionals should encourage awareness. Pedestrian injury is the third-leading cause of injury-related death among elementary and middle schoolers in the United States; we should encourage public awareness, public spending, and public infrastructure to be commensurate with the scope of the public health problem (Schwebel et. All, 2012).

2. The Degree of Knowledge of Pupils on Preventive Behavior in Road Traffic

2.1. Research Objectives

O1: Analyzing pupils' knowledge about road signs

O2: Analyzing pupils' knowledge of preventive attitudes in traffic as pedestrians.

2.2. Research Methodology

Between May 27 and June 11, 2019, a pedestrian trafficking survey questionnaire was applied on a sample of 795 pupils of grades 4 to 8 from 7 elementary schools in Medgidia town of Constanta County, Romania (European Union). The questionnaire contains a set of 15 questions with 3 variants of answer, one of them is true and the others are false.

2.3. Centralization and data analysis

Question No. 1, in places marked with indicators and / or bookmarks, how should pedestrians cross the road? , 70.69% of the respondents answered correctly, namely: in brisk and as much as possible in a group, only on the pedestrian marker or the Pedestrian crossing signs, and 29.31% indicated one of the wrong answer variants.

In question number 2, Pedestrians have priority in crossing the public road when: , 62.39% of the respondents answered correctly, namely: cross the green light of the electric traffic lights or the freeway signal of the traffic agent, as well and where signs or pedestrian crossings are installed , and 37.61% indicated one of the wrong answer variants.

Question number 3, How to get the correct crossing of public roads , 51.95% responded correctly, namely: perpendicular to their axis , and 48.05% indicated one of the wrong answers.

Question number 4, The signal lights for the electric lightning of the pedestrians are: 57.23% of the respondents answered correctly, namely: green and red and 42.77% indicated one of the wrong answer variants.

Question number 5, What is called the following indicator: 30.94% responded correctly, namely: Pedestrian Road , and 69.06% indicated one of the wrong answer variants.

To question number 6, When you get off the minibus, is it advisable to cross the street behind or in front of it? , 67.67% responded correctly, namely: neither through

the face nor behind it. Crossing will only be done in those places specifically designed for crossing, and 32.33% indicated one of the wrong answer variants.

To question number 7, Which of the two road signs allows you to cross a pavement on the other? , 62.26% responded correctly, namely: indicator 1 and 37.74% indicated one of the wrong answers.

In question 8, Where can children use roller skates? , 74.97% responded correctly, namely: In parks, on playgrounds, on campus, in the yards of the children , and 25,03% indicated one of the wrong answers.

Question No. 9, When the pavement is missing, where is the pedestrian allowed to go? , 34.72% of the respondents answered correctly, namely: on the left side of the direction of walking and 65, 28% indicated one of the wrong answer variants.

In question 10, It is forbidden to pedestrians, 50.82% of the respondents answered correctly, namely to occupy the carriageway to prevent traffic and 49.18% indicated one of the wrong answers.

To question 11, Where freedom of children who use roller skates? , 82.26% of respondents answered correctly, ie on sidewalks or on specially designed tracks and 17.74% indicated one of the wrong answers.

For question 12, The indicator in the picture is called: , 46.79% of the respondents answered correctly, namely: Pedestrian crossing advance warning , and 53.21% indicated one of the wrong answer variants.

At question number 13, The indicator in the picture is called: , 71.70% of the respondents answered correctly, namely Access forbidden to pedestrians and 28.30% indicated one of the wrong answer variants.

Question No. 14, Do the traffic lights cross the public roads in front of three-color electric traffic lights? , 38.74% of the respondents answered correctly, No, because these traffic lights only control traffic for vehicles and 61.26% indicated one of the wrong answer variants.

Question No. 15, Which road traffic participants must show a preventive attitude? , 69.69% responded correctly, ie all drivers and pedestrians , and 30.31% indicated one of the wrong answers.

Question number	Type of the topic	TRUE	FALSE
1st	About preventive pedestrian attitude	70.69%	29.31%
2nd	About preventive pedestrian attitude	62.39%	37.61%
3rd	About preventive pedestrian attitude	51.95%	48.05%
4th	About traffic signs	57.23%	42.77%
5th	About traffic signs	30.94%	69.06%
6th	About preventive pedestrian attitude	67.67%	32.33%
7th	About traffic signs	62.26%	37.74%
8th	About preventive pedestrian attitude	74.97%	25.03%
9th	About preventive pedestrian attitude	34.72%	65.28%
10th	About preventive pedestrian attitude	50.82%	49.18%
11th	About preventive pedestrian attitude	82.26%	17.74%
12th	About traffic signs	46.79%	53.21%
13th	About traffic signs	71.70%	28.30%
14th	About preventive pedestrian attitude	38.74%	61.26%
15th	About preventive pedestrian attitude	69.69%	30.31%

3. Conclusion

According to a study carried out on a sample of 795 pupils of grades IV-VIII, the pupils' knowledge is 58.19%. Most students know the main road signs to them and the main rules of conduct as pedestrians (how to cross the street, how to proceed when getting off the minibus, recommended roller skates spaces) but are confused when asked about road signs for the vehicles. At the same time, we find that in Romania the level of knowledge of the main rules of conduct in traffic is not very high, which entrusts us with the belief that the introduction of road education in gymnasium schools.

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