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## Analysis of the effectiveness concerning initiatives for pedestrians' safety on roads: a questionnaire survey

### Abstract

**Introduction.** One of the most important issues and challenges of public safety policy in highly developed countries is the problem of ensuring road safety, along with dealing with health and material losses resulted from accidents. Unfortunately, Poland, in comparison to other EU countries, has one of the worst statistics regarding accidents and mortality ratios, therefore it is essential to undertake long-term actions aimed at improving road safety, as well as educating drivers and pedestrians.

**Aim.** The purpose of this study is to analyse the problem and to investigate whether traffic safety campaigns are effective, and if they reach young audience.

**Material and methods.** The research was conducted in the first quarter of 2018 among the students of Faculty of Health Sciences of the Medical University of Lublin. The study method applied was a diagnostic survey, and the tool was an original questionnaire. The participation was voluntary and anonymous. The obtained results were the subject of later statistical analysis. As many as 153 young respondents aged between 18 and 25 were tested, out of whom 73.68% were women and 26.32% were men.

**Results.** Over half of the surveyed (56.3%) declared walking as the main form of participation in traffic, and 25.9% of the surveyed used public transport. The most numerous group of the examined (34.21%) thought that the Polish roads were rather unsafe. As the reasons for the low safety on the Polish roads the respondents identified: bad condition of the roads (69.1%), drivers' recklessness (67.1%), and maladjustment of the driving style to weather conditions (60.5%). All respondents have encountered campaigns concerning road safety, however not too often (56.58% less than once a month). The surveyed encountered these social campaigns on TV (88.2%), on the Internet (54.6%), and on billboards (23.7%).

**Conclusion.** Promotional campaigns concerning road safety have a greater impact on women. In the examined group, around 67% of women changed their behaviour as a result of the campaigns, and only 42.5% of men. Social campaign which was best remembered, and had the biggest influence on the respondents (50.3%) was „Say STOP to reckless driver you love”.

**Keywords:** road safety, social campaigns, students' opinions, pro-health behaviour.

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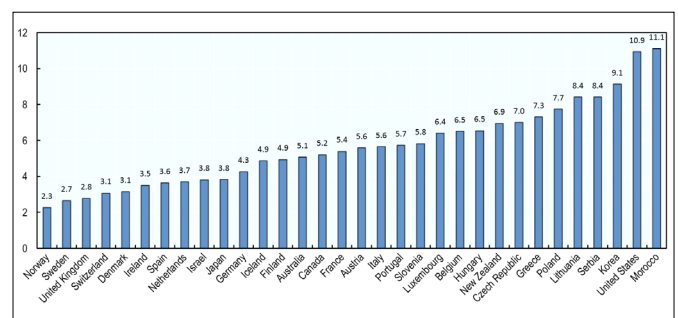
### INTRODUCTION

The development of motorisation, common and easy access to cars has made everyday mobility faster and more comfortable. Unfortunately, along with the development of motorisation, the number of accidents has considerably grown, resulting in injuries causing severe damage of human health or the death of those involved. The growth of transportation and the number of cars on the roads is accompanied by the parallel growth of accident rates. The number of cars on the Polish roads systematically increases (starting from the 90s), for example in 2007 there were 19.471.836 passenger cars, lorries and motorbikes registered, and in 2017, the number grew to – 29.149.178.

In 2017, the police noted 436.469 road collisions, and 32.760 road accidents, which resulted in 2.831 registered deaths, 39.466 injured (including 11.103 seriously injured) [1]. In comparison to earlier years, the situation is steadily improving, and despite the growing number of cars on the roads, there are less accidents.

Despite the improvement of national statistics, the number of road accidents, fatalities, and injured in road accidents in Poland is higher than in other EU countries. According to the

annual report from 2017 carried out by the International Traffic Safety Data and Analysis Group, 7.7 persons per 10.000 registered vehicles die as a result of road accidents in Poland, which is much higher number than in other EU countries. Poland still remains one of the EU countries where mortality rates are among the highest ones (Figure 1) [2].



**FIGURE 1. Fatalities per 10.000 registered vehicles in 2015 in various countries.**

source: ITF (2017), Road Safety Annual Report 2017, OECD Publishing, Paris. <http://dx.doi.org/10.1787/irtad-2017-en>

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However, considering the road safety in a global manner, the statistics show that the European roads are ones of the safest in the world. Long-term programs undertaken by the EU countries, aimed at improving road safety, have good effects, and are more effective than ad hoc measures. These operations include:

- speed limits (e.g. to 50 km/h in build-up areas),
- absolute prohibition on driving under the influence of alcohol or psychoactive substances, strict penalties for those driving under the influence of prohibited substances,
- prohibition on transporting a larger number of people than allowed in a given vehicle,
- prohibition on use of mobile phones by vehicle drivers,
- obligation to use seat belts by all passengers,
- obligatory possession (from 2018) of an automatic emergency call system (eCall) in all new cars, in case of an accident,
- obligation to use special child safety seats for children under 12 (safety seats mounted directly to the car construction ISO Fixture or ISOFIX – introduced as a standard in 1999),
- improvement of road infrastructure, new road construction, and city ring-roads,
- introducing changes in drivers' education,
- creating the National Road Safety Council,
- implementing EU act regarding managing road safety,
- social campaigns focusing on the most common causes of road accidents,
- placing boards, billboards encouraging to reduce the speed on express roads,
- promoting safe driving and reducing speed,
- development of an integrated system of managing the accidents,
- implementing Intelligent Transport Systems,
- building and developing automatic systems of traffic supervision [3,4].

Crucial elements of raising the social awareness regarding proper behaviour in road traffic are various social campaigns aimed at affecting the attitudes of its participants – drivers and pedestrians. Social advertising is a process of persuasive communication, and its goal is to provoke desired social changes. It encourages to act in a socially-oriented manner, and discourages attitudes which are socially detrimental (harmful). The goal of social campaigns is changing the current social reality by explaining certain phenomena, sensitizing to certain issues, engaging in social matters, and what is the most important, by changing behaviour [5].

The purpose of this study is the analysis of the problem and attempting to settle whether traffic safety campaigns are effective and if they reach young audience.

## MATERIAL AND METHODS

The research was carried out in the first quarter of 2018 among the group of 153 students of the Faculty of Health Sciences of the Medical University of Lublin.

Research was carried out among young people predominantly because the population of young people aged between 18 and 25 constitutes only 13% of Poland's population, however, young drivers are responsible for 20% of accidents, in which 20-30% of all road accidents fatalities are recorded.

Research method applied in the study was a diagnostic survey, and the tool was an original questionnaire. Completing the survey was voluntary and anonymous. Obtained results were the subject of later statistical analysis.

Data were collected in a Microsoft Excel database using the MS Office 2016 package for Windows 7. Statistical analysis of the results was performed using STATISTICA version 12.5 (StatSoft Poland). Significant differences between the qualitative variables analyses were tested using the Chi-square test. Correlations and differences at  $p < 0.05$  were considered statistically significant.

## RESULTS

As many as 153 young respondents aged between 18 and 25 were tested, predominantly females (73.68%). Over half of the surveyed (56.3%) declared walking as the main form of participation in traffic, 25.9% of the surveyed used public transport, and 17.9% were drivers of their own vehicles. Most of the respondents were interested in issues concerning road safety, the results are presented in Table 1.

**TABLE 1. The opinions of the respondents regarding their interest in issues of road safety divided according to gender.**

Are you interested in issues of road safety?	Gender				Statistical Analysis
	Females		Males		
	N	%	N	%	
Yes	67	59.8	27	67.5	Chi <sup>2</sup> =7.4985 p=0.0235
No	18	16.1	0	0.0	
Difficult to say	27	24.1	13	32.5	

The most numerous group of the surveyed (34.21%) believed that the Polish roads were rather dangerous; 31.58% of the surveyed answered it was difficult to say whether they were safe; and 21.05% thought they were, in fact, safe. For 8.55% of the tested, the Polish roads were definitely dangerous, and none of the respondents chose the answer that the roads were definitely safe. Answers of the respondents divided according to their gender are presented in Table 2.

**TABLE 2. Respondents' opinions regarding Polish road safety, divided according to gender.**

Do you think that Polish roads are safe?	Gender				Statistical Analysis
	Females		Males		
	N	%	N	%	
Definitely yes	0	0.00	7	17.5	Chi <sup>2</sup> =27.5668 p=0.0003
Yes	24	21.4	8	20.0	
Difficult to say	37	33.0	11	27.5	
No	40	35.7	12	30.0	
Definitely not	11	9.8	2	5.0	

As the reasons for the low safety on the Polish roads, the surveyed enumerated bad condition of the roads (69.1%), drivers' recklessness (67.1%), maladjustment of the driving style to weather conditions (60.5%), driving under the influence of alcohol and other intoxicating substances (56.6%), as well as lack of attention of pedestrians (52%).

All respondents met with campaigns concerning road safety, however not too often: 56.58% less than once a month,

28.29% several times a month, 7.89% about once a week, others more often (7.24%). The campaigns mentioned as the most memorable, by the surveyed, are: I drank – I don't drive! (79.0%), Say STOP to reckless driver you know (76.3%), 10 less. Slow down (65.8%), Alcohol and car keys? NO (35.3%), Speed kills (25.7%). The campaigns which influenced the respondents the most were: Say STOP to reckless driver you know (50.3%), 10 less. Slow down (35.6%), and I drank – I don't drive! (28.9%); results are shown in Figure 2.

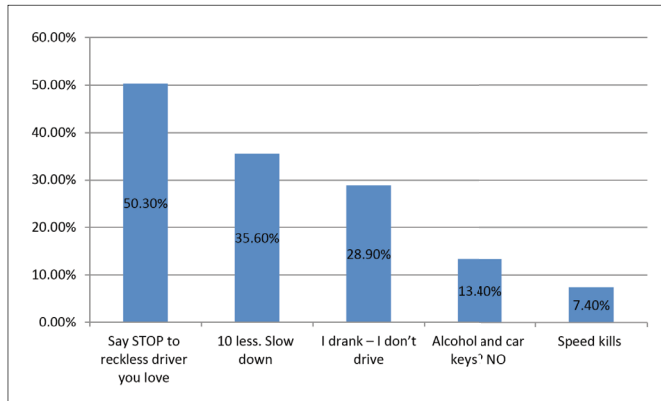


FIGURE 2. Campaigns which mostly influenced respondents.

The surveyed encountered social campaigns on TV (88.2%), on the Internet (54.6%), on billboards (23.7%), on posters (14.5%), and on the radio (11.2%). These sources were enumerated as the most appropriate for popularizing these types of campaigns: TV (84.9%), the Internet (78.3%), billboards (51.3%), advertisements on public transportation (32.2%), and the radio (26.3%). The respondents said that in social campaigns they paid the most attention to: shocking images (60.5%), subject-matter (46.7%), visual effects (38.8%), slogans (34.2%), showing human tragedy (22.4%).

Most respondents admitted that thanks to social campaigns they had changed their behaviour on the roads, however it more affected women than men; the results are shown in Table 3.

TABLE 3. Influence of social campaigns on the surveyed divided according to gender.

Did you change your behaviour after seeing social campaigns?	Gender				Statistical Analysis
	Females		Males		
	N	%	N	%	
Yes	75	67.0	17	42.5	Chi <sup>2</sup> =7.3833 p=0.0066
No	37	33.0	23	57.5	

## DISCUSSION

Social campaigns are an important and effective tool to influence the society by raising awareness and moulding desired attitudes. Campaigns promoting road safety bring good results [6], however they need more evaluation and undertaking of long-term actions [7].

From own study, it appears that social campaigns regarding road safety affect women more than men. In the surveyed group, 67% of women changed their behaviour, and only 42.5% of men. Those results are confirmed by other studies concerning road safety [8]. According to Özkan T. and Lajunen T., the reasons for such findings are the differences stemming

from the perception of own driving skills between men and women [9,10].

Own study shows that the respondents believed that the reasons for the low safety on the Polish roads were bad condition of the roads (69.1%), drivers' recklessness (67.1%), maladjustment of the driving style to weather conditions (60.5%), driving under the influence of alcohol and other intoxicating substances (56.6%), and lack of attention of pedestrians (52%). Long-term diagnosis regarding road safety in Poland indisputably shows that the reasons for road accidents is speeding maladjusted to road conditions. Main circumstances of accidents are drivers faults (around 30% of the cases), and in accidents with fatalities these statistics are higher, around 40% [11].

Our study shows that the campaign which made the biggest impression on most of the respondents (50.3%) was „Say STOP to reckless driver you know”; it was also one of the most often picked (76.3%) as the most memorable (out of 13 listed). It can be assumed that it was so well remembered by the young audience thanks to a different approach from most of similar campaigns, it did not contain shocking content, such as harmful effects of reckless driving, images of human tragedy, and stigmatization of breaking road codes. The campaign was not addressed directly to drivers, but to their loved ones (relatives, friends) who are important to drivers, and for whom risky road behaviour is worth rethinking. Campaign included, amongst other actions, giving out blue paper hearts, which could be given to the loved ones. The hearts had phrases on them encouraging safe driving, and also had place meant for own notes for the family. This heart, hang inside the car, was meant to prompt a moment of reflection.

Campaign was carried out on behalf of PZU foundation and lasted until July 2014. Despite the passing time, it is still definitely the one remembered by the respondents. From own study, it can be deducted that the main factor deciding on the success of the social campaign is its main slogan. The surveyed best remembered: I drunk- I don't drive!; Say no to reckless driver you know; 10 less. Slow down; Alcohol and car keys? NO; Speed kills. Among the most memorable, all had characteristic, strong and precise subject-matter of the slogan. Those with more general, vague slogans “Let's be safe together”, “My choice - life” did not resonate as much with the audience. Other authors believe that not all campaigns reach their goals and do not cause desired changes in attitudes and behaviours [12,13]. One of the first social campaigns made in 1992 confirms the value of a strong slogan. It was realised in a modern way, in the frame of social marketing, on behalf of the Ministry of Health, the Social Welfare and the Anti-Smoking Association [14]. It was entitled “Cigarettes suck”. The slogan and the poster for the campaign had a long and strong impact on the audience.

In own study, the respondents stated that in social campaigns they paid the most attention to: shocking images (60.5%), subject-matter (46.7%), visual effects (38.8%), slogans (34.2%), showing human tragedy (22.4%). As less important, they mentioned appearances of famous people and authorities (2.04%). In their opinion, the campaigns should not be meant as funny. As Sarbinowska, Jędrzejek and Synowiec-Piłat [15] report, the key to social activation is encouraging engagement, and undertaking certain action or starting a discussion in order to provoke own stand in the dispute.

Another crucial element is to reach as large audience as possible. In our study, the surveyed declared, that they most

often encountered social campaigns on TV (88.2%), on the Internet (54.6%), on billboards (23.7%). Exactly the same sources are recognised as the most appropriate for spreading social campaigns: TV (84.9%), Internet (78.3%), billboards (51.3%). Very similar results were obtained by Piekutowska et al. [16].

Own study shows that as a result of social campaigns concerning road safety, 60.53% of the surveyed changed their behaviour (67% women and 42.5% men), whereas 39.47% declared that they were not influenced by them (33% women and 57.5% men). Piekutowska et al. carried out research among 600 students regarding their knowledge of various social campaigns and their influence on the surveyed. It appears that the social campaigns connected with road safety have the biggest impact on the surveyed. Students assessed various social campaigns which they encountered, including those concerning changes in dietary habits, encouraging physical activity, performing prophylactic tests. However, the respondents declared *abiding the road code* as the change which they made as a result of a social campaign [16].

## CONCLUSION

From the research of young people's opinion, it appears that social campaigns are a good tool for influencing the society and moulding desired social attitudes. As observed from respondents' declarations, men are less affected by social campaigns concerning road safety than women. The surveyed best remembered the campaigns with explicit and precise slogans. The best channels for spreading social campaigns are TV and the Internet.

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