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A study on the effects of seat belt posters on drivers

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Abstract

The primary aim of this study was to identify the effects of several posters designed to encourage the use of seat belts on drivers. Discovering the seat belt use habits of drivers and their reasons for failing to use them constitute the secondary aims of the study. In order to fulfill these aims, four different posters appealing to drivers' safety and normative motivations were designed. The drivers were then asked to choose the poster that impressed them most. Half of the drivers chose the first poster, which drew a parallelism between the casualties of terrorism, earthquake and traffic, as most impressive. The second most impressive poster was the fourth one, which emphasized the link between traffic rules and morality. Female drivers found this poster with a moral message more impressive than males. Another finding of the study was that primary school and university graduates were more impressed by the posters appealing to normative motivation.

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1. Introduction

Every year, traffic accidents in Turkey result in approximately 10,000 casualties, hundreds of thousands of injuries, and massive financial loss. The comprehensive traffic safety report commissioned by the General Directorate of Highways to the Swedish company SWEROAD in 2001 showed annual traffic casualties in Turkey to be around 9,000. However, post-accident casualties were also taken into account in the late 2008 campaign “Alertness in traffic saves 10 thousand lives” when estimating the approximate number of citizens lost to traffic accidents. Considering the number of vehicles and the miles travelled per year in Turkey, the number of casualties is approximately 14 times higher than the European average (Sümer, Lajunen and Özkan, 2002).

Traffic accidents happen as a result of the interaction between the human factor and environmental reasons. In a study about the factors which affect traffic accidents, Gökdeniz and Tolunay (2001) concluded that these factors were culture, education, legal arrangements and physical structure. It is worth noting that all of these factors, with the exception of the last one, are directly related to the human factor. According to Sümer, Lajunen and Özkan (2002), the human factor includes a wide spectrum of aspects, ranging from the frequency of driving to the

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demographics of drivers, and from psychomotor skills to personal characteristics, and that all of these factors are to blame to differing degrees in accidents. Data from the Turkish Statistical Institute also show that human error plays a role in 94% of the traffic accidents which occur in Turkey. According to 2007 statistics, 94% of accidents were related to the human factor, 5% to the vehicle factor, and 1% to road factors (www.tuik.gov.tr). In a study which aimed to identify the beliefs of young drivers about the causes of traffic accidents (Özkan and Lajunen, 2003), the causes were listed as the other driver, participants of the study themselves, other vehicles around, and destiny. The study showed that young drivers took reasonable responsibility for their role in traffic accidents, fines, and risky driving behaviors.

1.1. Seat Belt Use

Seat belt use is an important factor in preventing casualties and serious injuries in traffic accidents. The main factor determining seat belt use is the “traffic culture” in societies. Traffic culture includes drivers’ behaviors, skills and values as well as the economy, infrastructure and vehicles in the country (Şimşekoğlu, 2009; Özkan and Lajunen, 2003). Previous studies conducted in Turkey have shown that seat belt use on city and intercity roads was rather rare. Şimşekoğlu and Lajunen (2005) conducted a study on 4,227 drivers in Ankara and found that only 25% of drivers and front seat passengers on city roads and 35% of those on intercity roads used their seat belts. In the comprehensive traffic safety report prepared by the Swedish company SWEROAD in 2001, seat belt use rates on city and intercity roads were reported as 16% and 35%, respectively. All of this evidence shows that seat belt use in Turkey is rather low.

Seat belt use is determined by demographic factors (e.g. gender and educational status), environmental factors (e.g., road and weather conditions), psycho-social factors (e.g., presence and number of passengers in the car), and beliefs and attitudes related to seat belt use. On the other hand, interventions for increasing seat belt use include seat belt laws, enforcement programs for seat belt use and seat belt technologies (Şimşekoğlu, 2009).

Şimşekoğlu (2009) divided factors affecting seat belt use into 5 groups: safety motivations, normative motivations, perceived physical barriers, behaviors of other drivers and demographic factors. The first group, safety motivations, involves positive attitudes and beliefs related to the safety benefits of seat belts. Normative motivations (i.e., motivations to follow the norms), on the other hand, involve compliance with legal and moral norms of seat belt use, with the opinion of the significant other, and with the seat belt use of other car occupants. Thirdly, perceived physical barriers are related mainly to the physical costs of seat belt use, such as the physical discomfort or insecurity felt while using a seat belt. Fourthly, other drivers may set positive or negative examples for seat belt use with their behaviors. Finally, demographic factors may be exemplified by the facts that female drivers use their seat belts more often than male drivers, and so do people with a higher education degree than those with less education.

While normative motivation refers to the legal arrangements about seat belt use, moral norms include using seat belts to reveal that one is a responsible person and a good role model for others (Şimşekoğlu, 2009). According to Hazlitt (2006), traffic rules embody the most common principles of both law and morality. Starting from Aristotle’s proposition that “He who wants to be good cannot be good unless he does good”, Gough (2002) emphasizes the importance of habit development in his book about the place of personal morals in daily life. Giving an example from his own life, he elaborates on how he developed the habit of using seat belts. Indeed, habit seems to be a strong factor in safety belt use. Therefore, different reminders should be used until the individual starts responding automatically. In the case of seat belts, these reminders may include traffic controls, short films, posters or notices.

1.2. Posters

Posters are two-dimensional visual materials which can be used without place constraints. Many sectors make use of posters prepared on scientific principles in order to give information, raise awareness and convince audiences. The educational effectiveness of a poster is determined by its contents, design and readability level (Yalın, 2005). Effectively prepared visuals have the advantages of simplifying complicated topics, increasing performance, providing better learning, and being cheaper (Clark, Nguyen, Sweller, 2006). Posters are usually displayed on the billboards in streets and on the bulletin boards in public buildings. As they can be used as an effective tool in continuous driver training, they have been used for traffic education in Turkey for a long time. The poster design

competition organized by the General Directorate of National Security once again on 9th October 2009 also reveals that posters are still considered to be effective materials.

In the present study, four posters containing messages aimed to increase drivers' safety and normative motivations were designed. In order to raise drivers' safety motivation, comparisons were used in the posters. The message which aimed to increase normative motivation, on the other hand, mentioned that traffic rules are an important part of the moral system. The present study investigated the effects of these four different posters on drivers, who were asked to examine the posters and pick the one that impressed them most. Thus, the primary aim of the study was to establish the effects of seat belt posters on drivers, while the secondary aim was to determine whether drivers used seat belts and what reasons they had not to do so.

2. Method

The study was designed as a survey. In such studies, the aim is to collect information about the events or phenomena that occur over a given time for a population or sample. The study was conducted on drivers residing in the city center of Kırıkkale and Yozgat. The sample was chosen by paying attention to age, gender, socioeconomic level and educational status.

1.3. Data Collection Tool

The data collection tool used in this study was designed in two parts. The first part gathered personal information from the drivers and their opinions about seat belt use, while the second part aimed to identify the effects of posters designed to increase seat belt use. In the first part, drivers were asked whether they used seat belts and, when not, they were asked to agree or disagree with a number of statements. In preparing the posters, the literature was surveyed and samples from other countries were reviewed. When writing poster content and the statements, the motivations affecting seat belt use (Şimşekoğlu, 2009) and the literature on persuasion and impression techniques were surveyed (Demirtaş, 2004; Hogg and Vaughan, 2007; Cialdini, 2000). Expert opinion was then obtained about the two dimensional visuals which had been based on the literature and previous examples, and revisions were made.

In the first poster, the number of traffic casualties is compared to terrorism and earthquake casualties. In the second poster, traffic casualties in Turkey and the EU are compared. The third poster establishes a link between car crashes at low speed and falling from a high building. The aim here is to draw attention to risk of death and injuries. The final poster, on the other hand, establishes a parallelism between complying with traffic rules and morality. It is stated in this poster that traffic rules are an inherent part of the moral system. The first three posters address safety motivation, while the last one addresses normative motivation. In all four posters, a picture downloaded from (<http://i38.tinypic.com/2vafj14.jpg>) was used as background. The posters were shown to drivers and they were asked to pick the poster that affected them most. They could only pick one single poster. The posters are given in the Appendix.

1.4. Data Analysis

Data were computed and analyzed using SPSS for Windows. Data interpretation was performed with mean values ($\bar{X}$) and standard deviation (Sd). The Chi Square Test was used to establish whether a meaningful relationship existed between the two discrete variables. However, as the number of cells where the expected values were below 5 exceeded 20%, data interpretation was made only by using frequencies and percentages from the cross table (Büyüköztürk, 2005).

3. Results (Findings)

Of the drivers in the sample, 40% were aged between 26-35 years and 33,1% between 35-50 years. Of the participants, 30,8% were high school graduates and 24,6% were primary school graduates. The rate of university graduates was 25,4%.

The percentage of drivers who stated that they always wore their seat belts while driving around the city was 15,4 and that of drivers who stated that they always wore their seat belts on intercity roads was 43,1. Of the participants, 67,5% agreed with the statement that “Wearing a seat belt makes me uncomfortable”, 45,8% agreed with the statement that “I don’t wear a seat belt as no one else does”, and 27,8% agreed with the statement that “I don’t wear a seat belt as I’m a good driver”. The least commonly agreed statement was “I don’t see seat belts as a protective element” (5.39%). These findings showed that drivers found seat belts discomfoting, and were affected by the negative behaviors of other drivers.

The effectiveness rates of posters prepared to address different motivations according to drivers is given below.

Table 1. Effectiveness Rates of Posters as Reported by Drivers

Poster No	Poster	Motivation	N	%
1	Comparison between earthquake, terrorism and traffic casualties	Safety	66	50.8
2	Comparison of casualties per car (EU-Turkey)	Safety	16	12.3
3	Relationship between crashing at low speed and falling from a height	Safety	16	12.3
4	Relationship between traffic rules and morality	Normative	32	24.6
Total			130	100.0

Half of the drivers chose the first poster, which compared traffic casualties to terrorism and earthquake casualties, as most impressive. The second most impressive poster was the fourth one, which suggested a link between traffic rules and morality. Approximately one fourth of the drivers found this poster effective. Posters which made comparisons between different countries and those that drew attention to the risks of slow speed crashing were found less effective. The drivers seemed impressed by the relationship between terrorism, earthquakes and traffic accidents. This may be attributed to the ongoing terrorism in the country which has caused great loss within the last 30 years, and the ongoing psychological effects of the great Marmara earthquake in 1999. Furthermore, the relationship between moral rules and traffic was also found impressive.

When the drivers’ gender and their thoughts about different posters was compared, it was seen that males who picked the first poster as most impressive outnumbered females who did so. More precisely, 52,1% of males and 38,5% of females thought that the message comparing traffic casualties to those in terrorism and earthquakes was effective. On the other hand, 38,5% of females and 23,1% of males found the third poster, which established a link between traffic rules and morality, effective. These findings suggest that female drivers found the poster with a moral message more effective than males did.

An examination of drivers’ educational status and their thoughts about the posters showed that the first poster was found most effective at all educational levels. Of the drivers with a secondary school degree, 68,8% found the first poster effective, while 52,5% of high school graduates did so too. Those other than high school graduates thought that the fourth poster, which made a link between morality and traffic rules, was the second most effective poster. Of the drivers who found this poster most effective, 30,3% were university graduates, 33,3% had graduate degrees, and 28,1% were primary school graduates. Drivers with primary school, university and graduate degrees thought that the poster which compared the number of casualties per vehicle in the EU and Turkey was the least effective one. These findings reveal that the fourth poster which contained a moral message was found to be more effective by the least and most educated groups.

4. Conclusion and Recommendation

The findings have revealed that 15,4% of the drivers who participated in the study always used their seat belts on city roads, while 43,1% used it at all times during intercity trips. This finding is similar to those of Şimşekoğlu and Lajunen (2005), who studied 4,227 drivers in Ankara, and to those of the comprehensive traffic safety report prepared by the Swedish company SWEROAD in 2001. When the results are considered together, seat belt use in the country seems to be 15-25% on city roads, and 35-45% on intercity roads. Of those who stated not to use their seat belts, two thirds said they did not use them because they were uncomfortable. In a study by Şimşek (2009), the underlying reasons of no seat belt use were reported as: traveling short distances on city roads, no relevance to safety, discomfort and no habit. In the same study, physical discomfort was shown to be a determining factor for seat belt use. At the same time, approximately half of the drivers in the present study stated that they did not use

their seat belts as no one else does so. This finding emphasizes the importance of having positive role models in traffic and in the entirety of social life. As maintained by Albert Schweitzer, “Setting an example is not the most important thing in life. It is the only thing.” (cited in Gough, 2002).

The second part of this study aimed to determine how impressed the drivers were by the posters designed to appeal to different motivations. Half of the drivers thought the most effective poster was the first one with a link between terrorism, earthquakes and traffic accidents. One-fourth of the drivers mentioned the fourth poster, which established a link between morality and traffic, and appealed to normative motivation, as more effective. The cross table, which shows the relationship between gender and the effects of posters, reveals that female drivers found the fourth poster with a moral message more effective. Another finding of the study has been that primary school and university graduates were more affected by posters which were designed to appeal to normative motivation.

In light of these findings, it may be recommended that comfortable seat belts are produced and projects are prepared to exemplify the importance of setting a good example in traffic. In addition, messages that appeal to not only the safety but also the normative motivations of drivers should be used in the educational materials to be designed.

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Appendix



Poster 1. 30,000 people have been lost to terrorism over 15 years; 50,000 to earthquakes over 30 years; 100,000 to traffic over 10 years. Buckle up, don't become a statistic!



Poster 2. The number of casualties per every 1,000,000 vehicles is 820 in Turkey, 310 in the EU. Buckle up, enjoy a long life!



Poster 3. The impact of a 50 kmph crash on car occupants equals falling four floors. Buckle up, don't risk your health!



Poster 4. Traffic rules are an important part of the moral system. Buckle up, don't be a rule-breaker.