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PREDICTORS AND MOTIVATION FOR SEAT BELT USE: A CASE STUDY IN BOSNIA AND HERZEGOVINA

ABSTRACT

The use of seat belts, for drivers and car occupants, results in reducing the rate of fatalities and severe road injuries. In this research, the methodology of the survey was applied through the self-reporting behaviour of the respondents who determined the subjective risk based on the attitudes of the traffic participants. To evaluate the statistical significance of the categorical variables, Pearson's χ^2 test was used. For certain groups of examinees, the results of the relationship (association) between socio demographic characteristics were analysed as predictors of behaviour with the degree of seat belt use. Some other predictors of behaviour, such as the road and mood predictors were analysed as well. Interest was also focused on finding out what motivated certain groups of examinees to use the seat belt. Based on the results of this research, it is possible to classify the drivers and car occupants into certain groups with respect to the seat belt use while driving. This can help in determining the ways of eliminating problems related to the low degree of seat belt use.

KEY WORDS

use of seat belts; predictors; motivation; behaviour;

1. INTRODUCTION

In today's modern society, traveling by car is an essential and common activity. The need for the use of motor vehicles, as well known, contributes to faster movement of people and goods, provides various benefits to users, makes transportation cheaper, etc. However, motorization has negative consequences as well, such as air pollution, noise, and traffic accidents. Road safety is a major problem for most countries, including Bosnia and Herzegovina.

According to the World Health Organization, traffic accidents are a leading cause of death and injuries among people worldwide [1]. Over 1.25 million people worldwide get killed, and millions get injured or disabled in road crashes each year [2].

Analysis of the level of road safety based on reports on traffic accidents is one of the most reliable ways of creating measures for action to reduce the number of traffic accidents and to raise the level of safety in a desired area. First of all, it is necessary to look at the global and regional experiences regarding road safety and to compare them with data for the observed area. In 2015, there were 341 people killed on roads in Bosnia and Herzegovina, while in 2016, 321 persons were killed (source: Agency for Traffic Safety). This corresponds to the degree of public risk for 2016 of 91 people per one million inhabitants in Bosnia and Herzegovina, while at the same time in the European Union, the public risk was 50, and the total for all countries in the world was 174 (Figure 1).

The Law on the basis of Road Traffic Safety in Bosnia and Herzegovina (source: Official Gazette of Bosnia and Herzegovina No. 262/05) prescribes that the driver of a motor vehicle and persons transported by that vehicle are obliged to use seat belts while the

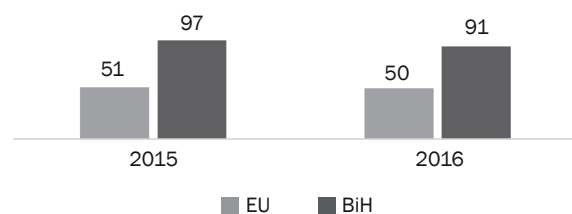


Figure 1 – PUBLIC RISK – Number of fatalities per 1,000,000 inhabitants

vehicle is moving on the road. Based on the Traffic Report (source: IDEEA) for 2016, there were 54,754 offenses committed due to non-use of seat belts while driving.

Seat belts, when used properly, prevent the occurrence of injuries or reduce the degree of their severity for the drivers and passengers involved in the accident. The use of seat belts for drivers and front passenger reduces the risk of death by 45-50% [1], while the risk of heavy and light injuries is reduced by 20% and 45%, respectively [1]. For passengers in the rear or back seat, seat belt reduces the risk of death and the occurrence of serious injury by 25%, while the occurrence of minor injuries is reduced by 75% [1] [3].

It is estimated that the relative risk of death occurring in traffic accidents is four times higher for travelers who do not use a seat belt in correlation to travelers who use the seat belt [4].

In order to reduce the number of fatalities in traffic and to reduce the costs of traffic accidents around the world, it is not sufficient to rely only on information on traffic accidents and their consequences. It is necessary, along with the traditional approach, to develop a modern approach for the management of road safety indicators using road safety, and the next step would be to study the impact of predictors for certain traffic indicators.

2. LITERATURE REVIEW AND RESEARCH MODEL

Based on research studies [5-10], the introduction of many road safety indicators was suggested, in order to collect information about traffic accidents and to determine the efficiency of measures for the improvement of different segments regarding road safety. Eksler [11] states that the indicators of road safety are measured at the national level but it is also important to make comparisons between countries [11-13] in order to establish a positive trend of improving road safety among different countries of the world.

Research studies suggest that the use of seat belts in the rear seats was at least 10% lower than the use of seat belts in the front seats, each year from 2009 to 2012 [14]. Passengers in the vehicle (co-drivers and passengers in the rear seats) sitting on the rear seats make up for 26% of deaths in 2012 (unpublished data, FARS questionnaire 29/10/2014). Among the passengers in the back seat, the use of seat belts can reduce the risk of fatal injuries by 60% [15]. In addition, several studies have documented an increased risk of mortality [16, 17] or serious injury [18] of passengers who use the protection system when there are passengers in the back seat who do not use seat belts. For example, in a frontal collision resulting in death in the United States, the risk of driver fatality in the presence of

passengers who were not buckled up in the back seat was more than double compared to the cases where the passengers in the back seat used a seat belt [16].

Most of the existing literature on predictors for the use of seat belts for adults, focuses on the use of belts, in general (without specifying the seating position in the vehicle) or it relies on data sources (e.g. observation) which are limited by the scope of data that can be collected at the individual level [12, 14, 19].

Based on all of the above, seat belts represent the basic tool for injury prevention as well as the most efficient means of passive passenger protection in the vehicle [20]. Previous research on the use of safety belts while driving on roads in Bosnia and Herzegovina [21] shows a worrying result because the total usage rate does not exceed 55%, as shown by this research (46% for drivers, 38% for passengers and 9% for rear seat passengers). Therefore, the aim of this research has been to improve our understanding of predictors for the seat belt use, as well as the analysis of motivation of participants in traffic for the use of seat belts in the vehicle.

Besides determining the level of use of seat belts by drivers, front passengers and passengers in the back seat of the vehicles, throughout the territory of Bosnia and Herzegovina, the main objective of this study was to make a comprehensive analysis that provides an overview and defines the association of certain factors (predictors) such as socio-demographic predictors, road and mood predictors with a degree of seat belt use for drivers, front and rear seat passengers.

The survey carried out a redefinition of certain groups of traffic participants (participants who consistently use seat belts while driving and participants who occasionally use the seat belt) based on the questionnaire and their self-reported behaviour, in order to be able to analyse and apply adequate tests to selected groups of examinees. In the second part of this paper, the participants' motivation to use seat belts while driving was tested in order to analyse the connection between participants using the seat belt because they want to do it or because they have to do it (DfT, 2008, Road Safety Research Report 98). This should further provide guidelines about different groups of participants in traffic, in order to increase the level of the seat belt use while driving and the level of road safety in Bosnia and Herzegovina.

Accordingly, the following hypotheses can be made:

- Socio-demographic factors in certain groups of examinees do not affect the use of seat belt,
- Road factors for certain groups of examinees do not affect the use of seat belt,
- Mood factors for certain groups of examinees do not affect the use of seat belt,
- Motivation in certain groups of examinees does not affect the use of seat belt.

3. DATA AND METHODOLOGY

The analysis of road safety includes systemic research. One of the goals can be to determine increased risk on a particular territory. In this study, the survey research method through self-reporting behaviour was used. In this way, the subjective risk can be determined on the basis of attitudes of road users who are employees of the public company, with a total of 2,270 employees, which has its business units on the whole territory of Bosnia and Herzegovina, distributed in nine regions and located in the following cities: Prijedor, Banja Luka, Doboj, Brčko, Bijeljina, Zvornik, Sarajevo, Foča and Trebinje.

The survey of examinees ($N=1,033$) was conducted in August and September in 2015. The percentage of returned and completed questionnaires was 93.8% ($N=969$). The study population were traffic participants who use motor vehicles with seat belts, as their means of transportation. The research questionnaire was in a written form, and the examinees answered indirectly. The first group of questions were socio-demographic questions, followed by a group of questions examining the behaviour of participants in traffic, their attitudes and motivation regarding the use of seat belts. After conducting the research survey, the database software package IBM SPSS Statistics 20.0 was created and used for further analysis.

This research, through the self-reporting behaviour to determine subjective risk based on the expressed attitudes of road users, was conducted through a questionnaire designed in accordance with the literary review [21, 23, 33] [FARS questionnaire 10/29/2014] and it included 20 questions. It contains questions about socio-demographic characteristics of the examinees (gender, age, residence, marital status, level of education, level of annual income, length of driving experience, etc.), as well as questions that measure the attitudes and motivation of examinees regarding the use of seat belts. Predicted responses are grouped into categories "always", "nearly always", "occasionally", "rarely", "never", "do not know" and "refused", i.e. in the categories "strongly agree", "somewhat agree", "slightly agree", "slightly disagree", "somewhat disagree", "strongly disagree" and "do not know".

There are various factors which have a self-interfering influence, and relate both to the physical characteristics of travel, and to our social environment. It is not easy to describe and explain this interaction. There are at least three complex concepts that occur when we talk about the psychological processes related to the use or non-use of seat belts:

- Non-use of seat belts is sometimes described as an action (e.g. an example of "protest", or when people pretend to wear a seat belt), but it is usually better to perceive it as an absence of action;
- Whether someone wears a seat belt on any given occasion can be a function of (non-conscious) habits, (conscious) decision-making or a combination of both; and
- Even the distinction between non-conscious habits and conscious decision-making is quite simplified; people can behave unusually without any reason.

All these are complicated psychological problems [22]. For research purposes, however, things become much simpler at the apparent self-reporting behaviour: every time someone gets into the car, they put on their belt or not. In addition, every time a person is a participant in a traffic accident as a passenger in the vehicle, the seat belt was used or not. This is the level at which studies can have an impact, and which can lead to the reduction in casualties and injuries in traffic.

Therefore, this is the level at which a simple model of motivation research for the use of seat belts, was designed [23]. The model imagines that the individual is a "processor" by entering the ranks of different characteristics of the physical and social context, and the output is the situation whether or not to use a seat belt. This approach is completely neutral and gives the best description of psychological attachment functions of self-reported behaviour and outputs (e.g. decisions or habits?). The illustration (*Figure 2*) shows how appropriate characteristics that are subject of research can present the situation of using or not using the seat belt. On the basis of this model [23], the collection of data about the motivation for the use of seat belts started.

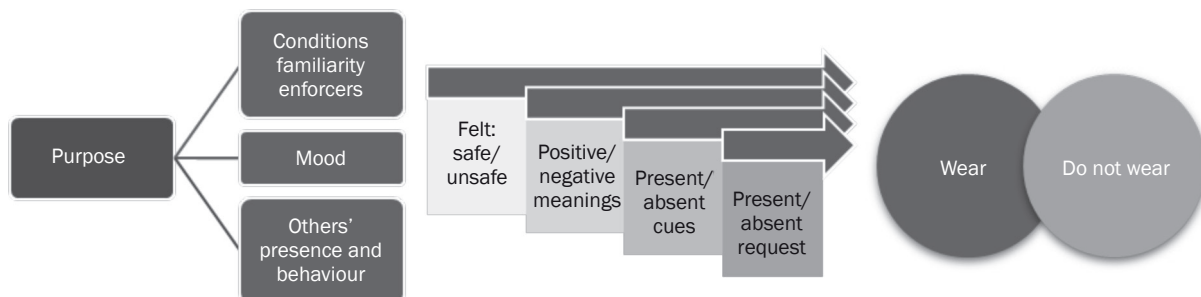


Figure 2 – A simple model of situational seat-belt wearing

Pearson's χ^2 test was used to evaluate the statistical significance in the research, at a significance level of $\alpha = 0.05$, whereby in the formed tables, at least 80% of the cells in the table should contain an absolute frequency equal to or greater than five. The strength of the relationship between the variable is measured over the coefficient *phi*. For testing hypothesis, the degree of freedom (*dF*) was calculated, according to formula $dF = (m-1)(n-1)$, where *m* is the number of rows, and *n* is the number of columns in the table.

4. RESULTS

On the basis of conducted research on the self-reporting behaviour of examinees, a total of 969 examinees responded to the survey question regarding the use of seat belts. There are 445 examinees (45.9%) who always use seat belts when sitting in the driver's seat, 375 examinees (38.7%) who always use seat belts in the vehicle when sitting in the passenger seat, 89 examinees (9.2%) who always use the seat belt in the vehicle when sitting in the back seat. There are 222 examinees (22.9%) who occasionally use a seat belt in the vehicle when sitting in the driver's seat, 282 examinees (29.1%) who occasionally use a seat belt in the vehicle when sitting in the passenger seat, while 127 examinees (13.1%) occasionally use a seat belt in the vehicle when sitting in the back seat.

A certain group of examinees expressed that they do not use a seat belt, use it rarely or did not answer: when sitting in the driver's seat – 302 examinees (31.2%), in the passenger seat – 312 examinees (32.2%) or as a passenger in the back seat – 753 examinees (77.7%).

The data obtained in the research indicate that two specific groups of examinees are dominant: consistent users of seat belts ("always") and occasional users of seat belts ("quite often" and "from time to time"). This made it possible for these two groups to be analysed in more detail from the perspective of predictors which affect such behaviour, as well as through the research of motivation of a particular group for the seat belt use. This was all done in order to determine which factors influence and to what extent the use of seat belts in the car.

The research results conducted among drivers, front passengers and passengers in the back seat regarding the use of seat belts in the vehicle, were grouped into two specific groups ($N=664$) – consistent and occasional users of seat belts, and based on the socio-demographic characteristics these are presented in *Table 1*.

When analysing drivers who use seat belts, there was a highly statistically significant difference in correlation to gender and place of residence, and a statistically significant difference in relation to the length of driving experience. There was no statistically

significant difference with respect to age and marital status. When analysing the front seat passengers there was a highly statistically significant difference in relation to gender, age and place of residence.

There was no statistically significant difference in relation to marital status and length of driving experience. When analysing the results of passengers in the rear seats there was no statistically significant difference in correlation to gender and the length of driving experience. The predictors for which there are no results show that the above-mentioned requirement for testing is to be applied.

Besides the analysis of socio-demographic characteristics of the examinees and their impact on the use of seat belts, for a certain group of consistent and occasional seat belt users, some other variables were explored as well. These include road and mood predictors such as: external conditions, mood, and age of the vehicle. It is considered that the examinees answered with a "positive" attitude if they answered the question with "more than 5 times a week" and "2-4 times a week", while other answers are considered to be with a "negative" attitude. The results of predictors' analysis (road and mood predictors) are presented in *Table 2*.

When analysing drivers who are seat belt users, there was a highly statistically significant difference in relation to predictors "driving at night" and to mood "you feel in a rush", and there was a statistically significant difference in relation to road predictors "driving on rural roads" and "driving on urban roads". There was no statistically significant difference for drivers in all other correlations.

When analysing the front seat passengers who use seat belts, there was a highly statistically significant difference in reference to mood predictors "you feel in a rush" and "you feel nervous", while statistically significant difference was present only in road predictors "driving on urban roads". There was no statistically significant difference for drivers in all other relationships. By analysing the back seat passengers, there was a highly statistically significant difference in correlation only to road predictors "driving on unfamiliar road" and "driving on urban roads", but there was no statistically significant difference in any of the remaining predictors.

Although based on the reports by the World Health Organization [1], we know the importance of using seat belts for drivers and passengers in the vehicle, and how it reduces the risk of death and the occurrence of heavy and light injuries, it is not clear why the individual uses or does not use safety belt at all times while driving. Therefore, in this study we looked at the issue of motivation to use seat belts while driving. By establishing a causal link between motivation and the use of seat belts, we can identify specific target groups for which it is possible to establish corrective measures. That would enable the change of their own

Table 1 – Socio-demographic characteristics in correlation to user groups

Predictors		Drivers		Passenger front seat		Passenger rear seat	
		Always	Occasion	Always	Occasion	Always	Occasion
Gender	Men	259	155	182	174	52	82
	Women	183	67	192	107	37	44
		$\chi^2=7.928, dF=1 \text{ phi}=0.109, p=0.005$		$\chi^2=11.368, dF=1 \text{ phi}=0.130, p=0.001$		$\chi^2=0.983, dF=1 \text{ phi}=0.070, p=0.321$	
Age	Up to 25	24	12	14	19	3	8
	26 - 40	159	77	111	107	28	32
	41 - 60	246	118	232	139	54	83
	Over 60	12	13	14	15	3	3
		$\chi^2=4.113, dF=3 \text{ phi}=0.079, p=0.250$		$\chi^2=11.686, dF=3 \text{ phi}=0.130, p=0.009$		-	
Place of residents	Banja Luka	131	94	110	88	27	34
	Bijeljina	13	6	13	11	2	5
	Brčko	49	4	49	4	9	23
	Doboj	38	32	47	42	5	7
	Foča	30	8	18	22	6	8
	Sarajevo	58	18	57	32	16	16
	Prijedor	62	15	46	19	9	19
	Trebinje	33	25	13	47	8	10
	Zvornik	17	10	13	11	4	5
Refused	14	10	9	6	3	0	
		$\chi^2=43.786, dF=9 \text{ phi}=0.260, p=0.000$		$\chi^2=67.968, dF=9 \text{ phi}=0.320, p=0.000$		-	
Marital status	Not married	102	42	73	70	10	28
	Married	320	157	283	187	72	93
	Divorced	16	15	13	18	7	5
	Refused	7	8	6	7	0	1
		$\chi^2=7.029, dF=3 \text{ phi}=0.100, p=0.071$		$\chi^2=7.542, dF=3 \text{ phi}=0.110, p=0.057$		-	
Level of education	Non-comp. elem. School	0	2	0	0	0	1
	Elementary school	5	3	6	4	0	2
	Secondary school (3 years)	48	17	34	22	10	16
	Secondary school (4 years)	223	109	202	134	59	52
	High school	64	20	52	40	11	27
	Faculty	98	63	76	75	8	27
	Master/Doctor of Science	2	4	1	2	0	1
Refused	5	4	4	2	1	1	
		-		-		-	
Household income	Under 6,000 KM*	68	31	55	36	20	15
	6,000 - 12,000 KM*	264	139	234	170	55	70
	12,001 - 20,000 KM*	91	45	65	61	9	33
	20,001 - 30,000 KM*	1	3	1	2	1	0
	over 30,000 KM*	4	7	4	4	2	1
	Refused	17	7	16	9	2	8
		-		-		-	
Driving experience	Up to 5 years	43	18	26	22	5	10
	6 -10 years	58	24	42	37	10	11
	11 - 15 years	98	52	73	63	17	25
	16 - 20 years	78	42	57	48	13	23
	21 - 30 years	89	51	59	48	18	25
	Over 30 years	46	32	40	28	10	13
Refused	33	3	78	36	16	20	
		$\chi^2=14.097, dF=6 \text{ phi}=0.150, p=0.029$		$\chi^2=7.872, dF=6 \text{ phi}=0.110, p=0.248$		$\chi^2=1.348, dF=6 \text{ phi}=0.080, p=0.969$	

*currency rate KM/EUR= 1.956

Table 2 – Other characteristics in correlation to user groups

Predictors		Drivers		Passenger front seat		Passenger rear seat	
		Always	Occasion	Always	Occasion	Always	Occasion
Conditions familiarity enforcers							
Driving on unfamiliar roads	Pos.	58	23	42	25	20	17
	Neg.	336	172	283	234	55	103
		$\chi^2= 0.942, dF=1$ $phi=0.040, p=0.332$		$\chi^2= 1.518, dF=1$ $phi=0.051, p=0.218$		$\chi^2= 3.913 /1/, dF=1$ $phi=0.155, p=0.048^*$	
Driving on rural roads	Pos.	201	121	156	139	35	62
	Neg.	178	75	169	119	38	56
		$\chi^2= 3.969, dF=1$ $phi=-0.083, p=0.046^*$		$\chi^2= 1.987, dF=1$ $phi=-0.058, p=0.159$		$\chi^2= 0.220 /1/, dF=1$ $phi=-0.045, p=0.639$	
Driving on urban roads	Pos.	288	169	231	207	42	88
	Neg.	89	33	90	53	30	29
		$\chi^2= 4.181, dF=1$ $phi=-0.085, p=0.041^*$		$\chi^2= 4.534, dF=1$ $phi=-0.088, p=0.033^*$		$\chi^2= 5.155 /1/, dF=1$ $phi=-0.177, p=0.023^*$	
Driving at night	Pos.	181	120	144	134	33	61
	Neg.	188	71	169	121	39	56
		$\chi^2= 9.608, dF=1$ $phi=-0.131, p=0.002^{**}$		$\chi^2= 2.407, dF=1$ $phi=-0.065, p=0.121$		$\chi^2= 0.479 /1/, dF=1$ $phi=-0.061, p=0.489$	
Mood							
You feel in a rush	Pos.	61	54	38	59	13	14
	Neg.	282	123	255	173	54	95
		$\chi^2= 10.974, dF=1$ $phi=-0.145, p=0.001^{**}$		$\chi^2= 13.349, dF=1$ $phi=-0.159, p=0.000^{**}$		$\chi^2= 0.916 /1/, dF=1$ $phi=0.088, p=0.339$	
You feel nervous	Pos.	37	24	21	37	8	8
	Neg.	305	147	273	194	59	104
		$\chi^2= 1.126, dF=1$ $phi=-0.047, p=0.289$		$\chi^2= 10.367, dF=1$ $phi=-0.141, p=0.001^{**}$		$\chi^2= 0.669 /1/, dF=1$ $phi=0.081, p=0.413$	
You feel confident and relaxed	Pos.	167	103	129	130	26	48
	Neg.	164	72	146	108	36	61
		$\chi^2= 3.249, dF=1$ $phi=-0.080, p=0.071$		$\chi^2= 3.036, dF=1$ $phi=-0.077, p=0.081$		$\chi^2= 0.011 /1/, dF=1$ $phi=-0.020, p=0.916$	
Car's age							
Less than 3 years old		15	6	12	11	1	4
3 - 6 years		55	20	43	29	9	15
6 - 10 years		121	54	95	78	27	31
More than 10 years old		207	128	164	130	34	63
Do not now		42	13	47	28	16	13
		$\chi^2= 8.093, dF=4$ $phi=0.111, p=0.088$		$\chi^2= 1.873, dF=4$ $phi=0.054, p=0.759$		$\chi^2= 5.603, dF=4$ $phi=0.162, p=0.231$	

$\chi^2/1/$ - χ^2 test with correction according to Yeats

attitudes and behaviour regarding the use of seat belts. Everything is based on a simple rule that individuals behave in a certain way only if they feel it is something that they "have to" and something that they "want to" do. Based on that, we analysed the motivation for the use of seat belts through self-reported behaviour of examinees, by responding to the question whether the use of seat belts is something they "have to" and something they "want to" do. Four key segment users have been identified:

- Strongly agree wearing seat belts is a "have to" and "want to" (H+ W+);
 - Strongly agree wearing seat belts is a "have to" but do not strongly agree it is a "want to" (H+ W-);
 - Strongly agree wearing seat belts is a "have to" but are not sure they "want to" use it (H+ W?); and
 - Are not sure that they "have to" use the seat belt, nor are sure whether they "want to" use it (H? W?).
- Out of the total number of all responses ($N=546$), these four segments which comprise 92.9% ($N=507$) of respondents' answers in connection with motivation

to use the seat belt were identified. *Table 3* includes the analysis results for drivers, front seat and rear seat passengers regarding the use of seat belts in the car. The analysis includes a specific group of consistent and occasional seat belt users.

By analysing drivers who are seat belt users, there was a highly statistically significant difference with respect to motivation. When analysing the front seat passengers who are seat belt users there was also a highly statistically significant difference. There was no analysis for back seat passengers due to low frequency.

At the end of this paper, there is a segmentation section of examinees depending on whether they are drivers or non-drivers, based on the answer from the questionnaire, which is shown in *Table 4*.

The results obtained using the χ^2 test showed no statistically significant differences between drivers and non-drivers with respect to motivation, when expressed as "have to", or "want to" use a seat belt.

The results of the analysis of the largest group of examinees-drivers, based on socio-demographic characteristics, and in connection with motivation for the use of seat belts, are presented in *Table 5*.

By using χ^2 test and by monitoring only the respondents who have a driver's license - drivers, there was no statistically significant difference either in gender, or in the level of annual income, or in the length of driving experience, as well as regarding the marital status, where the involved ones were single ones and married couples compared to the motivation, and whether they had to or wanted to use the seat belt (H and W). When observing the respondents who have a driver's license with reference to motivation regarding "have to" or "want to" use seat belts, in correlation to age of 40 and over 40, by applying the χ^2 test, there was a highly statistically significant difference.

There was also a highly statistically significant difference in female examinees who have a driver's license under the age of 40 and over 40. There was a statistically significant difference in male examinees regarding "have to" or "want to" use a seat belt.

The results of the analysis of the most represented group of respondents with the status of drivers who use seat belts because they "have to" and "want to", in relation to other motivation groups, based on some frequently present factors for the use of seat belts such as driving, behaviour, mood and intentions while driving, are presented in *Table 6*.

By applying the χ^2 test, there was a statistically significant difference only in the case of "driving on urban roads" and mood "you feel in a rush". In all other cases, there was no statistically significant difference in relation to external driving conditions, behaviour, mood and intentions while driving.

5. DISCUSSION

Determination of the current rate of seat belt use in drivers and passengers in the vehicle is the first step of monitoring and analysing the indicators of road safety [5-9, 24]. Based on self-reported behaviour, the research has found that only 45.9% of respondents reported that they constantly use seat belts in the driver's seat, 38.7% in the passenger front seat and only 9.2% of adults reported that they always wear the seat belt when riding in the back seat of the car. The results on the use of seat belts in Bosnia and Herzegovina are similar to the research by Lipovac et al. [21]. Although studies have shown that the use of seat belts for passengers who sit in the front and rear seats

Table 3 – Motivation for using seat belts in correlation to user groups

Motivation		Drivers		Passenger front seat		Passenger rear seat	
		Always	Occasion	Always	Occasion	Always	Occasion
Seat belt use Have to (H) & Want to (W)	H+ W+	278	109	242	159	61	89
	H+ W-	21	34	17	29	2	9
	H+ W?	20	29	11	38	1	2
	H? W?	7	9	3	6	0	1
	Other	30	9	25	18	4	8
		$\chi^2=43.650, dF=4$ $phi=0.283, p=0.000$		$\chi^2=33.379, dF=4$ $phi=0.247, p=0.000$		-	

Table 4 – Motivation for seat belt use in relation to drivers and non-drivers

Segmentation of the respondents	Drivers	Non-drivers
Have to & Want to (H+ W+)	386	65
Have to & do not Want to (H+ W-)	57	6
Have to & not sure that they Want to (H+ W?)	57	7
Not sure that Have to & not sure that Want to (H? W?)	22	4
	$\chi^2=1.603, dF=3$ $phi=0.052, p=0.659$	

Table 5 – Socio-demographic characteristics in correlation to drivers' motivation

Drivers: socio-demographic characteristics	Total	H+ W+	H+ W-	H+ W?	H? W?	
Male	333	243	42	37	11	$\chi^2=4.965, dF=3$ $\phi=0.098, p=0.174$
Female	187	142	14	20	11	
Age (years) - Men						
Up to 25	21	14	4	2	1	$\chi^2=8.532, dF=6$ $\phi=0.162, p=0.036$
26-40	125	101	14	10	0	
41-60	166	119	18	20	9	
Over 60	15	6	4	4	1	
Age (years) - Women						
Up to 25	9	8	0	1	0	$\chi^2=15.768, dF=6$ $\phi=0.291, p=0.001$
26-40	73	62	2	9	0	
41-60	100	68	12	10	10	
Over 60	4	3	0	0	1	
Household income						
Less than 12,000 KM	374	281	44	38	11	$\chi^2=6.562, dF=3$ $\phi=0.114, p=0.088$
More than 12,000 KM	129	91	12	16	10	
Driving experience						
Up to 5 years	45	32	5	4	4	$\chi^2=18.292, dF=15$ $\phi=0.188, p=0.249$
6 – 10 years	77	59	7	10	1	
11 – 15 years	131	96	16	16	3	
16 – 20 years	97	73	8	11	5	
21 – 30 years	97	79	10	5	3	
Over 30 years	69	42	10	11	6	
Marital status						
Not married	126	96	13	13	4	$\chi^2=0.247, dF=6$ $\phi=0.022, p=0.970$
Married	368	273	39	43	13	
Divorced	21	13	4	0	4	

increase over time, the use of seat belts has remained at a low level, and is particularly low in the back seats compared to other seat positions [14, 25-28].

Data on socio-demographic characteristics of drivers and passengers in the car as the behaviour predictors which influence the degree of use of seat belts in Bosnia and Herzegovina, or some other predictors such as road and mood predictors based on the observed sample and on the self-reported behaviour of examinees in traffic, have proven to be important variables. These results correspond to previous studies where it was found that the participants' views and subjective norms are important predictors of the intended behaviour [29-34].

The socio-demographic characteristics of the respondents, in terms of their gender, the length of driving experience and the place of residence, have significance on the use of seat belts for specific groups of respondents according to whether they are consistent or occasional users of the seat belt.

Female drivers and front passengers use seat belts more than male drivers and front seat passengers. The male drivers use their seat belts significantly less while driving compared to female drivers [35]. The length of driving experience had a significant influence

among drivers. The more they drive the less they use the seat belt. There is also a great difference in the level of use of seat belts depending on the residence. Drivers and front passengers from the region of Brčko, Prijedor and Sarajevo used the belt more consistently compared to other towns. The level of education, marital status and age were not predictors which affected the use of seat belts in either group of respondents.

The road predictor "driving on urban roads" proved to be significant in defined groups of respondents, when they are on the front passenger seat or on the back seat. For examinees who are drivers, there was significance for all types of road predictors in relation to defined groups, except for the predictor "driving on unfamiliar roads". For the mood predictor, "you feel in a rush" in relation to the defined groups of respondents, a relationship has been established for the respondents when they are both in the driver's seat and in the passenger's front seat, while for the predictor "You feel nervous" there is a connection in examinees who are in the passenger's front seat. The age of the vehicle did not affect the use of the seat belt.

Finally, there are characteristics of the occasional use of seat belts related to certain groups of people, where the phenomenon of the seat belt use is

Table 6 – Other characteristics in correlation to drivers' motivation

Drivers		H+ W+	Other
Conditions familiarity enforcers			
Driving on rural roads	Pos.	219	90
	Neg.	211	97
$\chi^2= 0.409, \phi= 0.026, p=0.522, dF=1$			
Driving on urban roads	Pos.	321	126
	Neg.	103	68
$\chi^2= 7.698, \phi=0.112, p=0.006^{**}, dF=1$			
Driving at night	Pos.	208	93
	Neg.	211	99
$\chi^2= 0.076, \phi=0.011, p= 0.782, dF=1$			
Behaviour			
Driving with children (up to 14 years)	Pos.	109	45
	Neg.	278	133
$\chi^2= 0.512, \phi=0.030, p=0.474, dF=1$			
The front-seat passenger puts their seat belt on	Pos.	182	70
	Neg.	198	96
$\chi^2= 1.524, \phi=0.053, p=0.217, dF=1$			
Mood			
You feel in a rush	Pos.	70	50
	Neg.	322	129
$\chi^2= 7.516, \phi= -0.115, p=0.006^{**}, dF=1$			
You feel nervous	Pos.	40	23
	Neg.	350	153
$\chi^2= 0.969, \phi= -0.041, p=0.325, dF=1$			
You feel confident and relaxed	Pos.	196	75
	Neg.	184	97
$\chi^2= 3.013, \phi= 0.074, p=0.083, dF=1$			
Purpose			
Setting out on a long journey	Pos.	27	17
	Neg.	362	162
$\chi^2= 1.121, \phi= -0.044, p=0.290, dF=1$			
Popping down to the shops	Pos.	126	69
	Neg.	262	113
$\chi^2= 1.628, \phi= -0.053, p= 0.202, dF=1$			

associated with the behaviour of individuals in a certain way, and it occurs as a result of motivation that an individual uses a seat belt.

How can we convince those who occasionally use their seat belts to do so more often or, ideally, all the time while driving? In this section, we started with a slightly different emphasis on providing people with the opportunity to reflect on their behaviour regarding the use of seat belts. Everything is based on a rule of behaviour of an individual in a certain way if they feel

that is something they "have to" and something that they "want to" do. The results showed that there is no difference between drivers and non-drivers.

The research has shown that there is a relationship (association) between motivation and the use of seat belts, i.e. that an individual who believes that the use of seat belts is a legal obligation which has to be respected, and at the same time wants to do it, belongs to the group of respondents on the driver's seat (78.1%) and front passenger's seat (81.2%) who

always use seat belts. At the same time, in case of examinees on the driver's seat (57.4%) and front passenger seat (63.6%) who occasionally use seat belts, there is a strong relationship with the intention and desire to use them.

Looking at the socio-demographic characteristics of groups of drivers (who own a driving license) with respect to the motivation for the use of seat belts, it was found that only the age of respondents affects their behaviour in a way that older drivers (over 40 years of age) are aware of the needs and desires to use a seat belt, whereas a particular gender (male or female), financial situation, length of driving experience and marital status are irrelevant to the questionnaire on how they will be motivated to behave during the car drive.

If we look at a large number of respondents with the status of drivers who are determined to use the seat belt because they must do it and want to do it in relation to other motivation groups, there is no specific connection with the conditions of the road, behaviour, and intentions while driving, except in two cases, when "driving on urban roads" and when "you feel in a rush".

As we can see, for the most significant factors affecting the degree of seat belt use, there is a connection for the defined groups of respondents. The connection also exists when speaking of motivation for using seat belts. This research has rejected all hypotheses that have been set up. This allows us to define, according to certain groups, efficient measures that will lead to a greater degree of the seat belt use for target groups.

The research was carried out among the employees of a public company, which employs a large number of people, with business units throughout the territory of Bosnia and Herzegovina. These business units are located in urban centres, so it is to be expected that the presence of urban population among the respondents plays a dominant role in relation to the non-urban population. On the other hand, the research was conducted in a public company, and hence the unemployed population on the whole territory has not been covered. In the questionnaire, certain respondents did not supply answers to all questions, or where the frequency was small the requirement for the methodology application could not have been met.

6. CONCLUSION

A number of traffic accidents, with fatalities and the injured, for a long time now have not been sufficient indicators of road safety, and therefore the indicators of road safety have been introduced. One of those indicators is the degree of seat belt use. The analysis of the current situation has shown that for some time, as was also stated in the research by Lipovac et al. [21], there has been a low percentage of use of seat belts throughout Bosnia and Herzegovina. Therefore, it was necessary to analyse and consider this issue in a more

detailed way, including predictors of socio-demographic characteristics of respondents, the road and mood predictors in order to determine the reasons for such behaviour. This was all conducted in order to find a way how to change drivers' and passengers' habits regarding the use of seat belts.

As it turned out, two specific groups of respondents, those who consistently use seat belts and those who do it occasionally, have been identified. It has been determined that there is a certain relationship between the characteristics of drivers or passengers (gender, place of residence, length of driving experience) with the degree of the seat belt use. This connection was also evident among the road predictors (outside the settlement or within the settlement) and among the mood predictors ("you feel in a rush").

Also, the motivation of respondents to use the safety belt while driving, because they want it or because they have to do it, has proven to be a factor of statistical significance, regardless of whether they are drivers or passengers in the vehicle.

The findings of this study suggest possible actions for increasing the use of seat belts on the roads in Bosnia and Herzegovina. First, the advertising campaign should be used to inform the drivers and passengers regarding the efficiency of seat belts to prevent serious injuries or death casualties on the roads. This should reduce the number of drivers who still do not understand that the seat belt is an efficient method of avoiding death or reduction of injuries resulting from traffic accidents. Moreover, this can reduce the negative relations between experiences and attitudes about the use of seat belts, through increased awareness and motivation of drivers and passengers to use the same. Finally, the future work should focus on the target groups defined in this study to eliminate the problems associated with occasional use of seat belts, in order to increase road safety on a higher level [36, 37].

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PREDIKTORI I MOTIVACIJA ZA KORIŠTENJE SIGURNOSNOG POJASA: STUDIJA SLUČAJA U BOSNI I HERCEGOVINI

SAŽETAK

Upotreba sigurnosnog pojasa, za vozača i putnike u automobilu, ima kao rezultat smanjenje stope smrtno strada- lih i teško povrijeđenih na putevima. U ovom istraživanju je

primjenjena metodologija putem anketnog istraživanja kroz samoprijavljeno ponašanje ispitanika kojim se utvrđuje subjektivni rizik na osnovu stavova učesnika u saobraćaju. Za procjenu značajnosti razlike (povezanosti) kategorijskih promjenljivih korišten je Pearson-ov χ^2 test. Analizirani su rezultati povezanosti socio-demografskih karakteristika kao prediktora ponašanja sa stepenom upotrebe sigurnosnih pojaseva ali i nekih drugih prediktora poput prediktora puta ili prediktora raspoloženja. Takođe, zanimalo nas je da se istraži i motivacija određenih grupa ispitanika za korištenje sigurnosnog pojasa, zbog prisustva pojave povremenog korištenja sigurnosnih pojaseva koja se dovodi u vezu sa ponašanjem pojedinca na određen način kao rezultat njegove motivacije da to čini. Na osnovu rezultata ovog istraživanja, moguće je vozače i putnike u automobilu svrstati u određene grupe u pogledu upotrebe sigurnosnog pojasa tokom vožnje što nam pomaže da se utvrde i načini otklanjanja problema u vezi sa niskim stepenom korištenja sigurnosnih pojaseva.

KLJUČNE RIJEČI

korištenje sigurnosnih pojaseva; prediktori; motivacija; ponašanje korisnika;

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