

Original breve

Safety belt and mobile phone usage in vehicles in Barcelona (Spain)



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ABSTRACT

Objectives: To describe the prevalence and correlates of safety belt and mobile phone usage in vehicles in the city of Barcelona (Spain).

Methods: We performed a study using direct observation with a cross-sectional design. We selected 2,442 private cars, commercial vehicles, and taxis from all districts of Barcelona.

Results: The prevalence of people not wearing safety belt was 10.5% among drivers, 4.6% among front seat passengers, and 32.2% among some of the rear passengers. It was higher among the passengers than among the drivers, regardless of the type of the vehicle. The prevalence of mobile phone usage while driving during a moment of the trip was 3.8%.

Conclusion: Our study shows noticeably high prevalence of people not wearing safety belt in the rear seats. Moreover, four out of one hundred drivers still use the mobile phone while driving during a moment of the trip.

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Uso del cinturón de seguridad y del teléfono móvil en los vehículos de Barcelona (España)

RESUMEN

Objetivo: Describir la prevalencia y asociaciones del uso del cinturón de seguridad y teléfono móvil en vehículos en la ciudad de Barcelona.

Métodos: Se realizó un estudio transversal mediante observación directa de los vehículos de la ciudad de Barcelona (n=2.442 vehículos privados, comerciales y taxis).

Resultados: La prevalencia del no uso del cinturón de seguridad fue del 10,5% entre los conductores, 4,6% entre los co-pilotos y 32,2% entre algunos de los pasajeros de los asientos traseros. La prevalencia fue superior en los pasajeros que en los conductores, independientemente del tipo de vehículo. La prevalencia del uso del móvil mientras se conducía en un momento del viaje en todos los vehículos fue de 3,8%.

Conclusión: La prevalencia del no uso del cinturón de seguridad en los asientos traseros fue notablemente alta. Además, cuatro de cada 100 conductores todavía utilizan el móvil mientras conducen en un momento del viaje.

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Introduction

Road traffic injuries are a major public health problem; they are responsible of a great number of years of potential life lost being the ninth cause of mortality and morbidity around the world.¹

Several of the traffic injuries could be prevented by modifying certain drivers' behaviours. The use of safety belt is considered one of the most effective passive systems in preventing traffic injuries. It reduces up to 75% of the mortality in head-on collisions.² Non-use of safety belt is associated with more serious injuries in traffic

collisions.³ Moreover, mobile phone use while driving is also associated with an increased risk of traffic collisions.^{4,5}

The objective of this study was to estimate the prevalence and correlates of safety belt and mobile phone usage in vehicles in the city of Barcelona.

Methods

We conducted a cross-sectional study in the city of Barcelona in 2011 on the use of seatbelt of all occupants of the vehicles and use of mobile phone of drivers during a moment of the trip, through direct observation (n = 2,442 vehicles). The methodology of this study has been previously described.^{6,7} In brief, we selected 40 public roads (4 per district) and a traffic light was selected as point of observation,

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Table 1

Prevalence, crude and adjusted Odds Ratios for non-use of safety belt by drivers in private cars by sex in the city of Barcelona, Spain (2011).

		n	Prevalence		Logistic regression models			Logistic regression models		
			% (95%CI)	p*	ORc	(95%CI)	p	ORa	(95%CI)	p
ALL										
Sex										
Man	1224	2.3 (1.5-3.1)	0.215	1.69	(0.73-3.88)	0.220	1.59	(0.69-3.70)	0.279	
Woman	511	1.4 (0.4-2.4)		1	-		1	-		
Age (years)										
18-34	456	0.9 (0.0-1.8)	0.007	1	-	-	1	-	0.084	
35-64	1154	2.2 (1.4-3.0)		2.50	(0.87-7.23)		2.55	(0.88-7.39)		
≥65	125	4.8 (1.1-8.5)		5.70	(1.58-20.52)		5.40	(1.49-19.54)		0.010
Time										
8-11 h	1019	2.0 (1.1-2.9)	0.847	1	-	0.847	1	-	0.740	
17-19 h	716	2.1 (1.0-3.2)		1.07	(0.54-2.10)		1.12	(0.57-2.21)		
MEN										
Age										
18-34	328	1.2 (0.0-2.4)	0.037	1	-	-	1	-	0.244	
35-64	786	2.3 (1.3-3.3)		1.90	(0.64-5.65)		1.91	(0.64-5.70)		
≥65	110	5.5 (1.2-9.8)		4.67	(1.29-16.88)		4.74	(1.31-17.16)		0.018
Time										
8-11 h	724	2.2 (1.1-3.3)	0.827	1	-	0.827	1	-	0.721	
17-19 h	500	2.4 (1.1-3.7)		1.09	(0.51-2.32)		1.15	(0.54-2.50)		
WOMEN										
Age (years)										
18-34	128	0.0 (0.0-4.1)	0.252	-	-	-	-	-	-	
35-64	368	1.9 (0.5-3.3)		-	-		-	-		
≥65	15	0.0 (0.0-20.4)		-	-		-	-		
Time										
8-11 h	295	1.4 (0.1-2.7)	1.000	1	-	0.975	1	-	0.975	
17-19 h	216	1.4 (0.5-4.1)		1.02	(0.23-4.63)		1.02	(0.23-4.63)		

ORc: crude odds ratio

ORa: adjusted odds ratio derived from a logistic regression model adjusted for all the variables in the table.

CI: confidence interval

* Chi-square test and Fisher's exact test

from where a trained observer conducted the direct observation of the vehicles. The observations were made when the traffic light was red for vehicles. We systematically selected the first two vehicles in the adjacent lane to the observer. We excluded adjacent lanes when they were exclusive for buses and bicycles. The study included all private cars, commercial vehicles, and taxis.

The driver's variables were: use of the safety belt (yes/no), use of the mobile phone or its manipulation with the hands to talk or to send a text message during a moment of the trip (yes/no), approximate age (18-34/35-64/≥65 years old) and sex (man/woman). We only included the use of handheld mobile phone, excluding the use of headset and hands-free mobile phones. Passengers' variables (front seat and rear passenger) were only: total number of passengers (excluding the driver) and number of passengers using the safety belt. We also collected contextual variables (time and number of lanes of the public road).

We calculated the prevalence rates and used chi-square test to compare those rates among drivers. We also fitted logistic regression models to obtain the adjusted odds ratios.

Results

The prevalence of people not wearing safety belt in all vehicles was 10.5% among drivers, 4.6% among front seat passengers, and 32.2% among some of the rear passengers. The prevalence of non-use of safety belt was higher among some of the rear passengers, regardless the type of the vehicle (table I of the Appendix).

There was a statistically significant difference in the prevalence of drivers who were not wearing safety belt according to age in all vehicles ($p=0.001$), particularly in private cars ($p=0.007$). In the bivariate analysis, only the variables age (≥65 years old) was

significantly related to non-use of safety belt in private vehicles (Table 1).

The prevalence of use of mobile phones while driving during a moment of the trip was 3.8%. It was higher in private cars (4.1%), in women (5.5%), and when the drivers were alone (5.2%). There was also an inverse trend of the prevalence with age (p for trend <0.001) (Table 2). Bivariate logistic regression models showed the mobile phone use while driving was higher when the driver was a woman, had an age range of 18-34 years old, when drivers were alone, and the vehicle type was a private or commercial one (Table 2).

The prevalence of non-use safety belt and use of mobile phone during a moment of trip according to type of vehicles are shown in table II and III of the Appendix in the online version of this article.

Discussion

The prevalence of passengers not wearing the safety belt in the rear seat of vehicles was noticeably higher than the prevalence observed in drivers and front seat passengers in the urban area of Barcelona.

The prevalence of drivers not wearing the safety belt observed in our study is lower than those reported in Italy⁸ and England⁹ studies, using also direct observation (24.3% and 15.3%, respectively) and even lower if compared to data obtained by questionnaires in 2002 in Spain.¹⁰ At that time, before of the introduction of the penalty point system,¹¹ the prevalence of non-use of safety belt in the urban area was 40% among drivers, 45% among front seat passengers, and 80% among some of the rear passengers.¹⁰ As in Spain the use of safety belt is not compulsory among taxi drivers in urban streets and roads,¹¹ the figure of the non-usage that we observed could be understandable. But is not the case of the taxi passengers, for whom its use is always compulsory. However, we found

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