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Transportation Research Part F

journal homepage: www.elsevier.com/locate/trf

Gender-related differences in distances travelled, driving behaviour and traffic accidents among university students



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ARTICLE INFO

Article history:

Received 2 January 2014

Received in revised form 24 May 2014

Accepted 17 September 2014

Available online 10 October 2014

Keywords:

Young car driver

Risky driving behaviour

Traffic accident

Road traffic injuries

ABSTRACT

Although mortality from traffic accident-related injuries is known to be higher in males especially among young drivers, the influence of gender on each link in the causal chain that leads to this outcome is not well understood, particularly in Spain. The aim of this study was to analyse gender-related differences in distances travelled, driving behaviour and the frequency of involvement in traffic accidents in a sample of undergraduate students at the University of Granada.

This cross-sectional study involved a sample of 1574 students recruited during three consecutive academic years from 2007–2008 to 2009–2010 who agreed to complete a questionnaire which evaluated patterns in distances travelled, use of safety devices, risky driving behaviours and involvement in traffic accidents.

The results showed that men drove more kilometres than women, and described themselves as better and faster drivers than women. Male drivers used all safety devices less frequently than women, and were involved in risky driving behaviours more often. Although the crude analysis showed no differences between genders in reported accidents, the adjusted analysis showed a trend for men to report accidents less frequently than women.

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1. Introduction

Morbidity and mortality from injuries caused by traffic accidents are undoubtedly a health issue in which gender differences are evident (Peden et al., 2004). Several studies have shown that worldwide, including developing countries, mortality is greater in males travelling as a car driver, motorcyclist, cyclist or pedestrian (Hanna, Taylor, Sheppard, & Laflamme, 2006; Stimpson, Wilson, & Muelleman, 2013; World Health Organization, 2013; Zhu, Zhao, Coben, & Smith, 2013). Furthermore, the excess road crash-related mortality and morbidity in males is especially relevant among young people (Twisk, Bos, Shope, & Kok, 2013).

From an international perspective, this excess in road crash injuries and mortality in young males has been commonly attributed to their lower perceived risk and sensation-seeking compared to young females (Hatfield & Fernandes, 2009; Waylen & McKenna, 2008). Furthermore, several studies have identified specific factors which can partially explain these

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gender differences in young drivers: on one hand, the greater involvement of men in risky behaviours such as driving longer distances, driving over the speed limit, driving under the influence of alcohol, or driving whilst speaking on a mobile phone (Ainy, Movahedi, Aghaei, & Soori, 2011; Vardaki & Yannis, 2013) and on the other hand, the lower use of safety devices among men, such as seat belts when driving or riding in a car, or helmets when driving a motorbike or cycling (Fernandes, Hatfield, & Soames Job, 2010; Nykolyszyn et al., 2003).

In Spain, the patterns of gender differences in road crash-related mortality and morbidity are consistent with earlier findings: for example, the mortality rate is more than 4.5 times as high in males aged between 20 and 29 years as in their female counterparts (Instituto Nacional de Estadística, 2010). Several studies suggest that the main factors associated with the higher risk of accidents in young men are similar to those reported in the international literature (speeding, drinking, cell phone use, not using a seat belt or helmet, etc.) (Babio & Daponte-Codina, 2006; Fundación Mapfre, 2010; Gras et al., 2006). However, an in-depth understanding of the association between gender and road crash morbidity and mortality requires the specific assessment of the role of gender in each link of the causal chain that leads to injury or death. In its simplest form, this chain comprises three links: (1) intensity of exposure (number of kilometres driven per unit time), (2) involvement, given equal exposure, in driving behaviours associated with the risk of a traffic accident, and (3) susceptibility to the effect of the energy released during a traffic accident, which relates to the use of passive safety devices and the intrinsic resistance of tissues to energy transfer during the accident (Seguí-Gómez, Palma, Guillen-Grima, de Irala, & Martínez-González, 2007). Clearly, studies of gender differences in the links in this causal chain are of particular importance in the younger population, in which morbidity and mortality due to traffic accidents are currently a major health issue (World Health Organization, 2013), and in which excess mortality among males is particularly notable.

On an individual level, evaluating the effect of gender on the causal chain of events that can lead to traffic accident-related injury requires follow-up studies of large cohorts of drivers. This approach is costly, and in fact, on an international level few such studies have been undertaken or completed (Ivers et al., 2006; Nabi et al., 2007).

In Spain, the *Seguimiento Universidad de Navarra* (SUN) cohort (Seguí-Gómez, González-Luque, & Robledo de Dios T., 2007) is currently being studied, and researchers are awaiting data for a period long enough to permit analysable numbers of injuries to accumulate. Meanwhile, the role of gender in different links in the causal chain remains uncertain both for the general population and in young adults. Currently available data provide information only on differences in mortality but do not explain why these differences occur. Studies done in Spain to date have looked into the effect of gender on individual elements in the causal chain, but no studies have attempted to analyse the effect of all links in the chain together (Lardelli-Claret et al., 2009). Against this background, the present study represents what may be the first attempt to clarify the influence of each link in a given population of drivers. We used a cross-sectional design to investigate gender differences in the intensity of exposure, driving styles, use of safety devices and frequency of involvement in traffic accidents reported by a sample of students at the University of Granada.

2. Material and methods

A cross-sectional study was carried out between 2007 and 2010 in university students at the University of Granada, who were surveyed with a self-completed questionnaire. Details about participants, procedures, the questionnaire and the data analysis are given below.

2.1. Participants

The population for this study comprised all students enrolled in courses imparted by the Department of Preventive Medicine and Public Health at the University of Granada during three consecutive academic years: 2007–08, 2008–09 and 2009–10. The total number of students enrolled in these courses was 7418 (74.6% females). From this target population we selected those students who fulfilled two inclusion criteria: (1) attending classes during the first two weeks of the course and (2) agreeing to take part in the study after receiving information about its aims and methods (voluntarily providing personal data, study objectives and voluntary, altruistic participation).

During the three academic years a total of 1595 students (21.5% of the target population) completed the questionnaire. Twenty-one students did not provide information about their sex, so the final sample consisted of 1574 students (98.7% of the original sample). The age of these students ranged from 18 to 47 years (mean 22.7, median 22, standard deviation 4.1 years). Slightly more than three quarters of the participants (76.1%) were women. Regarding their distribution according to the type of road user, 1102 (70%) of them were car and other vehicle drivers, 527 (33.5%) were exclusively car drivers, 18 (1.1%) were exclusively motorbike drivers, 117 (7.4%) were exclusively cyclists and 213 (13.5%) had driven both a car and a motorbike during the previous year.

2.2. Procedure

On one day during the first two weeks of the course, the course instructor informed students about the aims of the study, and at the beginning of the session the instructor provided instructions on how to complete the questionnaire. Then the instructor distributed the questionnaire to be self-completed by students. Sufficient time (about 15 min) was allowed to

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