

The relationship between chronic sleep deficits and distractions in young adult drivers

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Abstract

This study reports the relationship between chronic sleep deficits and distractions on driving mistakes in university undergraduates (age 19-23 years). All participants were asked to complete a questionnaire about their sleeping habits and to drive a fixed-base driving simulator housed in a Fiat Cinquocento. Drivers were distracted either by being asked to read a map, operate a radio, take a drink, open a sweet wrapper or discuss with the experimenter (on a mobile phone during the drive). The results showed that drivers had more speed limit exceedances and more road edge excursions when distracted. There was also a significant difference in speed exceedances between participants who had sufficient sleep and those that had a chronic sleep debt. Significant positive correlations were found between speed exceedance and obtaining too little sleep, and between feeling uncomfortable during the day in the distracted drivers. There was also a significant negative correlation between speed exceedances and actual hours of sleep. Even when not distracted, a positive correlation existed between the number of collisions and difficulty in waking up. The results of this study indicate that young drivers with chronic sleep deficits are more likely to make driving errors when distracted.

Keywords – Chronic sleep deficit, distraction, young adult drivers

1. Introduction

Several variables have been suggested in an attempt to explain the high rate of vehicle crashes for young drivers. These include inexperience, driving fast [1], distraction or inattention [2] and sleepiness related to time of day [3,4]. Most studies investigating the relationship between sleep and incidence of vehicle crashes among young adults have concentrated on driving behavior [5]. This study reports the relationship between chronic sleep habits and distractions on driving mistakes in university undergraduates (age 19-23 years). In Britain, car drivers aged between 17-21 years account for 4.4% of license holders, but represent 13% of all car drivers involved in accidents [5]. Distraction during driving has been shown to be a main factor in traffic accidents [6] particularly in young drivers [7].

The American Automobile Association Foundation for Traffic Safety defines distraction as “when a driver is delayed in the recognition of information needed to safely accomplish the