Analysis of factors associated with injury severity in crashes involving young New Zealand drivers - DTU Orbit (21/12/2018)

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Young people are a risk to themselves and other road users, as motor vehicle crashes are the leading cause of their death. A thorough understanding of the most important factors associated with injury severity in crashes involving young drivers is important for designing well-targeted restrictive measures within youth-oriented road safety programs. The current study estimates discrete choice models of injury severity of crashes involving young drivers conditional on these crashes having occurred. The analysis examined a comprehensive set of single-vehicle and two-vehicle crashes involving at least one 15–24 year-old driver in New Zealand between 2002 and 2011 that resulted in minor, serious or fatal injuries. A mixed logit model accounting for heterogeneity and heteroscedasticity in the propensity to injury severity outcomes and for correlation between serious and fatal injuries proved a better fit than a binary and a generalized ordered logit. Results show that the young drivers' behavior, the presence of passengers and the involvement of vulnerable road users were the most relevant factors associated with higher injury severity in both single-vehicle and two-vehicle crashes. Seatbelt non-use, inexperience and alcohol use were the deadliest behavioral factors in single-vehicle crashes, while fatigue, reckless driving and seatbelt non-use were the deadliest factors in two-vehicle crashes. The presence of passengers in the young drivers' vehicle, and in particular a combination of males and females, dramatically increased the probability of serious and fatal injuries. The involvement of vulnerable road users, in particular on rural highways and open roads, considerably amplified the probability of higher crash injury severity.

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