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**Title:** Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver?

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## **Abstract**

**Objective:** It is well established that young men are the riskiest group of all drivers, while men in general more often drive under the influence of alcohol. However, potentially oversimplified representations such as a “young male problem” and “drunk driving as a male problem” can influence action and reinforce existing attitudes by selectively directing attention to stereotypically consistent behavior. The purpose of this study was to test the hypothesis of possible bias towards young male drivers in the context of drunk driving.

**Methods:** We have created a scenario study investigating whether the sex of an imaginary young drunk driver would be associated with a different perceived negligence (ranging from 0=not negligent at all to 10 = extremely negligent) among our participants. These participants were a representative sample of Finnish female driver license holders. The data for the study were gathered as part of a larger survey study on women’s drinking and driving culture.

**Results:** Perceptions of how negligent a person was depended on the age of the respondents such that the older the respondent, the higher the perceived negligence. Perceived negligence was similar for male and female drivers in the scenario; however, there was an interaction effect between driver sex and the age of respondents. The youngest (20-29 yrs) and two oldest (50-69 yrs) groups of our respondents found the young woman to be more negligent, while the opposite was the case for the other two groups.

**Conclusions:** The results of our imaginary scenario study of a representative sample of Finnish female driver license holders do not support a hypothesis that there would be a negative bias towards young male drivers in the context of drunk driving behavior.

**Key words:** Drunk driving, perceived negligence, black sheep effect, gender roles

## INTRODUCTION

It is well established that young men are the riskiest group of all drivers (Shinar, 2007; Elvik et al., 2009). Although this certainly holds on a group level, it has little relevance for how individuals behave in traffic. For example, in a 2001 survey on Finnish 18 to 20-year-old drivers, men were more likely to be involved in accidents (28% vs. 22%; RR=1.27), to be penalized for traffic offenses (20% vs. 4%; RR=5), and to drive while “slightly drunk” (defined as below the legal BAC-level of 0.05% according to own assessment; 33% vs. 21%; RR=1.57) compared to women (Laapotti et al., 2003). Although self-reported risky behavior in that study was more common for young men than for young women, the large majority of young men, however, did not report such aberrant behavior.

The most striking difference between the sexes is in the proportion of those penalized for traffic offenses (20% vs. 4%). This difference persists even when controlled for mileage (Laapotti et al., 2003). Part of this large difference in traffic offenses could possibly be due to police bias towards young men. For example, there is some evidence that men, young in particular, are more likely to receive a ticket after being stopped by a police officer (Homel, 1983; Farrell, 2015). The difference gets smaller, however, with the proportion of female officers in a police department (Farrell, 2015).

Regardless of whether women and older traffic offenders might indeed receive preferential treatment by still predominantly male police force (Prenzler and Sinclair, 2013), it can be stated that many young male drivers worldwide are subject to the stigma of being labeled risky and dangerous road users. The media, other road users, police officers, and even researchers do injustice to many young men who are responsible and safe drivers if they simply talk about the young male problem. In media, young people are “depicted routinely as troubled, troubling, and dangerous” (Bernier,

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2011, p. 159), with young males having more negative representations than their female peers (Levinsen and Wien, 2011).

On the other hand, the results of the Laapotti et al. (2003) study agree with many other studies showing that men in general more often drive under the influence of alcohol (Impinen et al., 2011; Portman et al., 2013). Men are also more likely to be repeat offenders (e.g., Wickens et al., 2016). The widespread scholarly and media scrutiny of drunk driving among men may lead to overly simplified social representations of drunk driving as an inherently male behavior and a notion that habitual reoffending is a symptom of carelessness and disregard by male offenders. We do question the overwhelming evidence showing that men more often drive under the influence of alcohol; however, we instead want to stress the risks of limiting the drunk driving problem to one sex only.

Such oversimplified representations of the “young male problem” and “drunk driving as a male problem” would operate alongside other widely shared and accepted driver stereotypes, such as that of women as unskilled drivers (e.g., Ekehammar et al., 2000). Previous research has shown how the actual, implied, or symbolic presence of members from stereotyped groups results in an increased accessibility of stereotyped information regarding those groups (i.e., stereotype activation) (Wheeler and Petty, 2001). This information can influence action and reinforce existing attitudes by selectively directing attention to stereotypically consistent behavior (Bodenhausen and Macrae, 1998).

The stereotypic view on drunk driving as an exclusively male problem (perhaps) can also be found in criminology studies with drunk driving scenarios which, if they are not in the first-person pronoun, typically describe a male driver who decides to drive despite knowing about the legal limit or being unsure about it. For example, “Michael is out with some friends at a local bar... he is pretty

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sure his blood alcohol level is above the legal limit... Michael decides to drive home” (Armstrong and Boutwell, 2012, p. 37). Although in some studies the sex of scenario characters matches the sex of participants (e.g., Nagin and Paternoster, 1993), the character described in a scientific article is still a male driver. The way in which these things are discussed and portrayed in academic settings reflects, and perhaps even contributes, to the overall societal discourse around drunk driving as a male problem.

In both men and women, alcohol intoxication reduces the ability to spot and react to hazards (Williamson & Feyer, 2000), to divide attention between multiple tasks (Martin et al., 2013), and to maintain lane position and consistent speed (Mets et al., 2011). On-road crash data clearly demonstrates the exponential relationship between alcohol intake and crash risk (Blomberg et al., 2009), and moreover, that intoxicated drivers are more likely to be severely or fatally injured when they are involved in a crash (Kim et al., 2013). As these dangers are present for both sexes, it is important that research and prevention efforts include both male and female drivers.

The purpose of this study was to test the hypothesis of a possible bias towards young male drivers in the context of drunk driving. We have created a simple scenario study investigating whether the sex of an imaginary young drunk driver would be associated with a different perceived negligence among our participants.

## **MATERIAL AND METHODS**

The data for the study were gathered as a part of a larger survey study on women’s drinking and driving culture. A representative sample of Finnish female license holders (N=1200) stratified by age and provinces was randomly selected from a driver record database maintained by Finnish

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Transport Safety Agency (Trafi). Surveys were sent to all but three women whose personal information was not released. The printed survey was given in Finnish and an online version was given in both Swedish and Finnish (about 6% of the Finnish population identify Swedish as their first language). A link to these surveys was provided in the invitation letter.

### **Procedure**

Women were divided into two groups such that the original sample was sorted in alphabetical order and the group selection was based on even and odd numbers. The task in both scenarios was to estimate the negligence of a young driver who decides to drive a car despite he/she is above the legal BAC limit. The scenarios differed only according to the sex of the young driver.

### **Scenario**

The following scenario was given to participants.

“A young woman is having an evening party with her boyfriend at a summer cottage. In the morning, they are both sure that their blood alcohol level is still above the legal limit. The woman opens her email, which she hasn't checked for two days, and notices she has received an invitation to an important job interview in town only 3 hours from now. She was unable to reschedule the meeting or to arrange a lift from friends and family members. Unwilling to pay for a taxi for a 50km ride home, she decides to drive home to change and takes a bus from home to the job interview.”

The question following the scenario was: “Please indicate how negligent is this young woman on the following scale.” The scale ranged from “0=not negligent at all” until “10=extremely negligent.”

In Finnish, the pronoun in the third person is neutral and does not indicate sex; therefore, the differences between scenarios were: young man vs. young woman; girlfriend vs. boyfriend; the man

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vs. the woman; and, this young man vs. this young woman. The differences in the Swedish version fully correspond to differences found in English.

### **The final sample**

Addresses for four women were not current as the envelopes were undelivered and returned to us.

After one reminder to non-respondents, 425 of 1193 women answered, yielding a response rate of about 36%. This is a response rate similar to other survey studies in Finland. Among the respondents, most (93.9%) answered by returning the printed survey, while 26 answered online.

Only seven women answered the survey in Swedish. For the paper survey, we were able to register who responded. This was arranged in order to save costs as reminders were sent to non-respondents. However, based on this information, of 425 returned surveys, we excluded three women, two due to data reliability (large differences between self-reported age and age according to driver records) and a third woman obviously misunderstood the scenario question as she had underlined the word “bus” in the scenario, indicating her surprise as to why anybody would be negligent about riding in a bus while being above the driving BAC limit.

### **Statistical analysis**

Analysis of variance (ANOVA) using the General Linear Model function available in SPSS, version 21 for Windows, was applied in order to test whether the perceived level of negligence depended on the sex (man vs. woman) of a driver in the imaginary scenario, and on the age of our respondents (five categories, 20-29, 30-39, 40-49, 50-59, and 60-69). The drinking frequency (never, once a month or less often, 2-4 times per month, 2-3 times per week or more often) of the respondents was added as a factor in the model.

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## RESULTS

The mean age of our respondents was 48.3 years (range 21-69 yrs), with no difference between the scenarios ( $t=0.52$ ,  $df=418$ ,  $p=0.61$ ). Most of the participants reported driving a motor vehicle on a daily (61.1%) and weekly (18.7%) basis. Only 2.8% reported never driving and 0.9% have not answered to this question.

Perceived negligence was associated with the age of the respondents ( $F_{(4,396)}=9.41$ ,  $p<0.001$ ,  $\eta_p^2=.087$ ) such that the older the respondent, the higher the perceived negligence (Figure 1). The outcome was similar between scenarios (man vs. woman as a driver;  $F_{(1,396)}=0.33$ ,  $p=0.56$ ); however, there was an interaction effect between the scenario and the age of respondents ( $F_{(4,396)}=2.81$ ,  $p=0.026$ ,  $\eta_p^2 = .028$ ) such that the youngest (20-29 yrs) and two oldest (50-69 yrs) groups of our respondents found the young woman to be more negligent, while the other two groups (30-49 yrs) found the young man to be more negligent. The drinking frequency of the respondents, entered as a factor without interaction effects in the model, was not associated with perceived negligence ( $F_{(1,396)}=.83$ ,  $p=0.48$ ). We also ran our final model with a self-reported drunk driving variable ("Did you drive a car in the past 12 months, although you thought you might be above the legal limit?"). The inclusion of this variable in the model did not change appreciably the results with regards to the age and scenario variables. Therefore, this variable was not included in the final model. A residual analysis suggested our model assumptions were reasonable.

- insert Figure 1 about here -

## DISCUSSION



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The results of our imaginary scenario study do not support our hypothesis that there would be a negative bias towards young male drivers in the context of drunk driving behavior. At least we did not find supportive evidence in our sample of Finnish female license holders.

We have observed a strong age effect, which in our view reflects stricter attitudes towards drunk driving present typically among the elderly (Jewell et al., 2008; Watling and Watling, 2015). The finding that the two oldest (50-69 yrs) groups of our respondents found the young woman to be more negligent could perhaps reflect traditional gender role attitudes more typical for older generations (Berridge et al., 2009). Gender roles are stereotypical beliefs about the intrinsic nature and appropriate behavior of men and women. Being assertive, daring, and to some extent even reckless, can be seen as in line with the traditional male gender role, but not with the female. Indeed, internalized male gender identity and hyper-masculinity in male drivers has also been linked to heightened risky driving (Krahé and Fenske, 2002; Özkan and Lajunen, 2005). As such, although drunk driving is seen as a negative behavior for both sexes, judgment is likely to be harsher for women as this behavior is incongruent with their gender.

On the other hand, the fact that the youngest (20-29 yrs) women were less sympathetic towards the female driver could perhaps be explained by the “black sheep effect,” where in-group members are judged harshly if they exhibit more deviant behavior in relation to a relevant group norm (i.e., we young girls do not drink and drive) (Eidelman and Biernat, 2003). For example, in a study with university students, there was an interaction between a social drinking context (alone/anti normative vs. social/pro-normative) and group membership (student/in-group vs. older employee/out-group), such that alcohol consumption of an in-group member was evaluated less favorably than of an out-group member in the anti normative context, while the opposite was the case in the pro-normative context (Lo Monaco et al., 2011).

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The only age group that found the young man to be more negligent were women of ages between 30 and 49. Speculatively, as they were somewhat older they did not identify themselves with the young woman in a scenario (no “black sheep effect”), but also they did not belong to the oldest generation with more traditional gender role attitudes (no “boys will be boys” attitude). Underlying reasons aside, these results indicate that perceptions of drunk driver negligence is perhaps better examined at sub-population level where the influence different experiences and values can be taken into account.

Regardless of our attempts to make sense of our results by referring to gender role theory or failing to find a more appropriate theoretical frame, the fact that there was no bias towards young males in our sample remains. Had there been a strong bias towards young males, we would have been able to detect it in our sample and with our experimental design.

The main limitation in our study is that we had only women in our sample. It would be of great interest to test whether similar or different findings would be obtained from male participants especially given that there are many jurisdictions with the overrepresentation of one sex, where possible bias and stereotyping can have direct consequences. This would be in a line with the Farrell (2015) study showing that the sex of police officers matters when it comes to preferential treatment. However, we have surveyed women sampled from a general population rather than from a specific profession such as police officers, whose direct encounter with traffic offenders represents a completely different kind of context.

Similarly, it would be interesting to test possible biases against different sex and age groups; however, this would require a full factorial design with a much larger sample. Another limitation

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relates to a typical, but still relatively low, response rate. Given the sensitivity of the main issue of the survey, it is possible that some women decided not to respond as they were not willing to share with us information about their drinking habits. However, the low response rate does not necessarily mean high response bias (Groves & Peytcheva, 2008; Fuchs, Bossert & Stukowski, 2013). Furthermore, the biased results are “more likely to be present when examining a simple univariate distribution than when examining the relationship between variables in a multivariate model” (Rindfuss et al., 2015, p.797). In our analysis, we controlled for drinking frequency (and self-reports about driving while possibly above the legal BAC limit), the variable that could have possibly been related to perceived negligence. Whether and what kind of response bias happened and what kind of impact this would have on the results is difficult to know. Nevertheless, caution is advised in interpreting the results. Despite these limitations, we conclude that no bias was found towards young male drivers in a drunk driving scenario.

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## **References**

Armstrong, T.A., Boutwell, B.B., 2012. Low resting heart rate and rational choice: Integrating biological correlates of crime in criminological theories. *J. Crim. Justice* 40, 31–39.

<https://doi.org/10.1016/j.jcrimjus.2011.11.001>

Radun, I., Watling, H., Radun, J., Kaistinen, J., & Olivier, J. (2018). Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver? *Traffic Injury Prevention*, 19, 675-679. doi: 10.1080/15389588.2018.1480833

Ben-David, S., Schneider, O., 2005. Rape perceptions, gender role attitudes, and victim-perpetrator acquaintance. *Sex Roles* 53, 385-399. <https://doi.org/10.1007/s11199-005-6761-4>

Bernier, A. 2011. Representations of youth in local media: Implications for library service. *Library & Information Science Research*, 33, 158–167.

Berridge, D., Penn, R., Ganjali, M., 2009. Changing attitudes to gender roles: A longitudinal analysis of ordinal response data from the British Household Panel Study. *Int. Sociol.* 24(3), 346-367. <https://doi.org/10.1177/0268580909102912>

Blomberg, R. D., Peck, R. C., Moskowitz, H., Burns, M., & Fiorentino, D., 2009. The Long Beach/Fort Lauderdale relative risk study. *J. Saf. Res.* 40, 285–292. <https://doi.org/10.1016/j.jsr.2009.07.002>

Bodenhausen, G. V., Macrae, C. N., 1998. Stereotype activation and inhibition. In R. S. Wyer (Ed.), *Stereotype activation and inhibition: Advances in social cognition* Stereotype activation and inhibition: Advances in social cognition volume XI. London: Lawrence Erlbaum Associates.

Eidelman, S., Biernat, M., 2003. Derogating black sheep: Individual or group protection? *Journal of Experimental Social Psychology*. 39 (6): 602–609. doi:10.1016/S0022-1031(03)00042-8

Elvik, R., Høye, A., Vaa, T., Sørensen, M., 2009. *The handbook of road safety measures*. Second edition. Bingley, U.K.: Emerald Group Publishing Limited.

Radun, I., Watling, H., Radun, J., Kaistinen, J., & Olivier, J. (2018). Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver? *Traffic Injury Prevention*, 19, 675-679. doi: 10.1080/15389588.2018.1480833

Ekehammar, B., Akrami, N., Araya, T., 2000. Development and validation of Swedish classical and modern sexism scales. *Scand. J. Psychol.* 41, 307-314. <https://doi.org/10.1111/1467-9450.00203>

Farrell, A. 2015. Explaining Leniency: Organizational Predictors of the Differential Treatment of Men and Women in Traffic Stops. *Crime & Delinquency*, 61, 509–537.

Fuchs M., Bossert, D., Stukowski, S., 2013. Response Rate and Nonresponse Bias - Impact of the Number of Contact Attempts on Data Quality in the European Social Survey. *Bulletin de Methodologie Sociologique*, 117, 26-45.

Groves, R. M. Peytcheva, E., 2008. The Impact of Nonresponse Rates on Nonresponse Bias: A Meta-Analysis. *Public Opinion Quarterly*, 72, 167-189.

Homel, R., 1983. Young men in the arms of the law: An Australian perspective on policing and punishing the drinking driver. *Accid. Anal. Prev.* 15, 499–512. [https://doi.org/10.1016/0001-4575\(83\)90032-5](https://doi.org/10.1016/0001-4575(83)90032-5)

Impinen, A., Mäkelä, P., Karjalainen, K., Haukka, J., Lintonen, T., Lillsunde, P., Rahkonen, O., Ostamo, A., 2011. The association between social determinants and drunken driving. A 15-year register-based study of 81,125 suspects. *Alcohol Alcohol.*, 46, 721–728.  
<https://doi.org/10.1093/alcalc/agr075>

Jewell, J. D., Hupp, S. D. A., Segrist, D. J., 2008. Assessing DUI risk: Examination of the Behaviors & Attitudes Drinking & Driving Scale (BADDS). *Addict. Behav.* 33(7), 853-865. <https://doi.org/10.1016/j.addbeh.2008.02.002>

Radun, I., Watling, H., Radun, J., Kaistinen, J., & Olivier, J. (2018). Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver? *Traffic Injury Prevention*, 19, 675-679. doi: 10.1080/15389588.2018.1480833

Kim, J. K., Ulfarsson, G. F., Kim, S., Shankar, V. N., 2013. Driver-injury severity in single-vehicle crashes in California: a mixed logit analysis of heterogeneity due to age and gender. *Accid. Anal. Prev.* 50, 1073-1081. <https://doi.org/10.1016/j.aap.2012.08.011>

Krahé, B., Fenske, I., 2002. Predicting aggressive driving behavior: The role of macho personality, age, and power of car. *Aggress. Behav.* 28, 21-29. <https://doi.org/10.1002/ab.90003>

Laapotti, S., Keskinen, E., Rajalin, S., 2003. Comparison of young male and female drivers' attitude and self-reported behaviour in Finland in 1978 and 2001. *J. Saf. Res.* 34, 579–587. <https://doi.org/10.1016/j.jsr.2003.05.007>

Levinsen, K., Wien, C. 2011. Changing media representations of youth in the news – a content analysis of Danish newspapers 1953–2003. *Journal of Youth Studies*, 14, 837-851. <http://dx.doi.org/10.1080/13676261.2011.607434>

Lo Monaco, G., Piermatteo, A., Guimelli, C., & Ernst-Vintila, A., 2011. Using the black sheep effect to reveal normative stakes: The example of alcohol drinking contexts. *Eur. J. Soc. Psychol.* 41, 1–5. <http://dx.doi.org/10.1002/ejsp.764>

Martin, T. L., Solbeck, P. A., Mayers, D. J., Langille, R. M., Buczek, Y., Pelletier, M. R., 2013. A review of alcohol-impaired driving: The role of blood alcohol concentration and complexity of the driving task. *J. Forensic. Sci.* 58, 1238-1250. <http://dx.doi.org/10.1111/1556-4029.12227>

Radun, I., Watling, H., Radun, J., Kaistinen, J., & Olivier, J. (2018). Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver? *Traffic Injury Prevention*, 19, 675-679. doi: 10.1080/15389588.2018.1480833

Mets, M. A., Kuipers, E., Senerpont Domis, L. M., Leenders, M., Olivier, B., Verster, J. C., 2011. Effects of alcohol on highway driving in the STISIM driving simulator. *Hum. Psychopharm. Clin* 26, 434-439. <http://dx.doi.org/10.1002/hup.1226>

Nagin, D. S., Paternoster, R., 1993. Enduring individual differences and rational choice theories of crime. *Law Soc. Rev.* 27, 467–498. <https://doi.org/10.2307/3054102>

Portman, M., Penttilä, A., Haukka, J., Rajalin, S., Eriksson CJ, Gunnar, T., . . . Kuoppasalmi, K., 2013. Profile of a drunk driver and risk factors for drunk driving: Findings in roadside testing in the province of Uusimaa in Finland 1990-2008. *Forensic Sci. Int.* 231, 20-27. <https://doi.org/10.1016/j.forsciint.2013.04.010>

Prenzler, T., Sinclair, G., 2013. The status of women police officers: An international review. *Int. J. Law Crime Justice* 41, 115-131. <http://dx.doi.org/10.1016/j.ijlcj.2012.12.001>

Rindfuss, R.R., Choe, M.K., Tsuya, N.O., Bumpass, L.L., Tamaki, E., 2015. Do low survey response rates bias results? Evidence from Japan. *Demographic Research*, 32, 797-828.

Shinar, D., 2007. *Traffic safety and human behavior*. Elsevier, Oxford.

Watling, C. N., Watling, H., 2015. Sleepy driving and drink driving: attitudes, behaviours, and perceived legitimacy of enforcement of younger and older drivers. Paper presented at the Australasian Road Safety Conference 2015, Gold Coast Convention and Exhibition Centre, Queensland, Australia.

Radun, I., Watling, H., Radun, J., Kaistinen, J., & Olivier, J. (2018). Women judging: is a young male drunk driver perceived as more negligent than a young female drunk driver? *Traffic Injury Prevention*, 19, 675-679. doi: 10.1080/15389588.2018.1480833

Wheeler, S. C., Petty, R. E., 2001. The effects of stereotype activation on behavior: A review of possible mechanisms. *Psychol. Bull.* 127, 797. <http://dx.doi.org/10.1037/0033-2909.127.6.797>

Wickens, C. M., Flam-Zalcman, R., Mann, R. E., Stoduto, G., Docherty, C., Thomas, R. K., 2016.

Characteristics and predictors of recidivist drink-drivers. *Traffic Inj. Prev.* 17, 564-572.

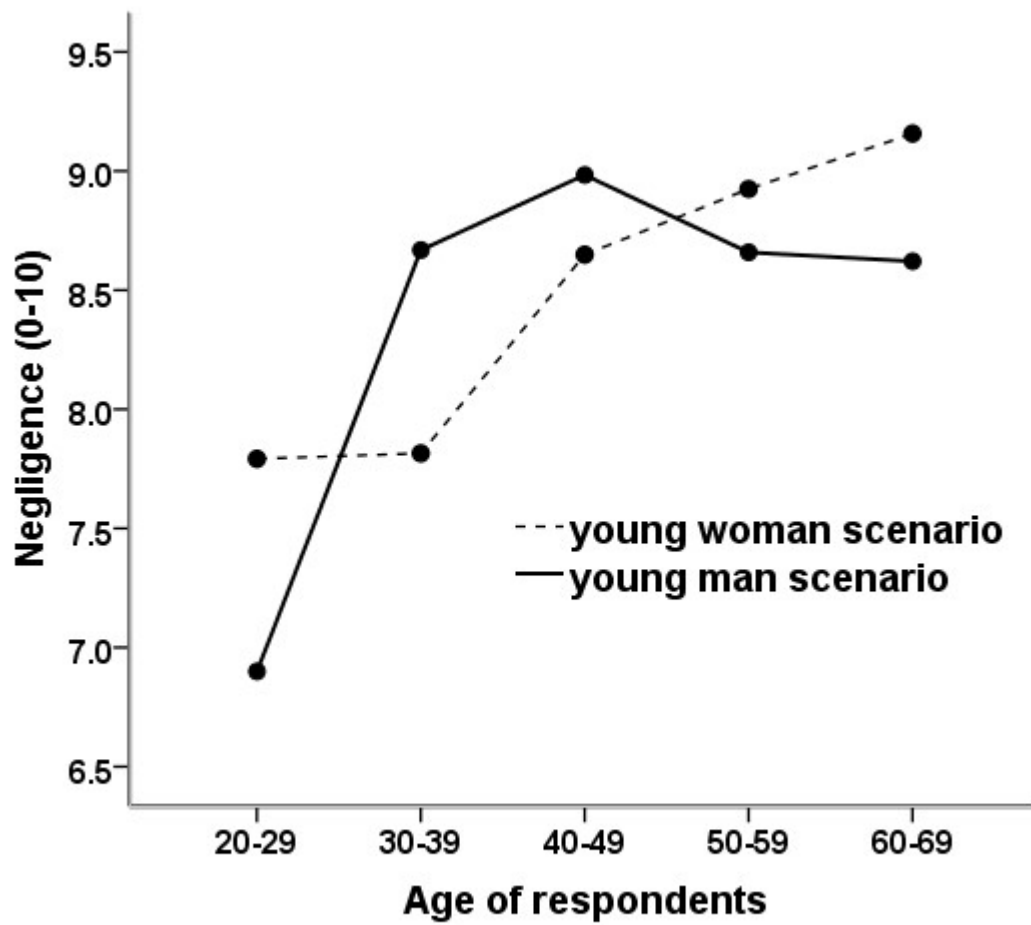
<http://dx.doi.org/10.1080/15389588.2015.1125477>

Williamson, A. M., Feyer, A. M., 2000. Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication.

*Occup. Environ. Med.* 57, 649-655. <http://dx.doi.org/10.1136/oem.57.10.649>

Özkan, T., Lajunen, T., 2005. Why are there sex differences in risky driving? The relationship between sex and gender-role on aggressive driving, traffic offences, and accident involvement among young Turkish drivers. *Aggress. Behav* 31, 547-558. <http://dx.doi.org/10.1002/ab.20062>





**Figure 1.** Perceived negligence (0=not negligent at all, 10=extremely negligent) of a young drunk driver by the driver’s sex and the age of respondents