

Media Influence on Risky Driving Behaviors Among Adolescents and Emerging Adults

2014

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MEDIA INFLUENCE ON RISKY DRIVING BEHAVIORS AMONG
ADOLESCENTS AND EMERGING ADULTS

by

KELLY SILBERMAN

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Sciences
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Fall Term 2014

Thesis Chair: Dr. Chrysalis Wright

ABSTRACT

Within the last few decades there has been an abundant increase in the amount of violent video games and movies shown within the media. Many of these violent videogames and movies include reckless driving behaviors or certain car scenarios that engross the viewer into wishing to imitate the actions they see on the screen. With that being said, majority of these viewers are adolescents or emerging adults who are beginning to drive and are prone to replicating what they see as adequate driving behaviors.

The intent of this thesis is to indicate whether or not the amount of risky driving behaviors an adolescent or emerging adult is exposed to, the more likely they are to replicate these scenarios. Through the UCF sona system participants answered questions related to risky driving behaviors, safety habits, and how often they viewed or played certain videogames and movies. Overall, the results of the study indicate that participants exposed to risky driving behaviors in the media replicate these actions themselves. Further research and results should be taken into effect in order to raise awareness among adolescents and emerging adults who are at their early stages of driving.

DEDICATION

Martin Dewinter, I never had the chance to meet you but you have impacted my life in ways unimaginable. Rest in peace,

For my mentors, Dr. Chrysalis Wright, Dr. Maren Fragala and Professor Jason Chesnut for encouraging and guiding me to achieve my goals,
And to my loving father, mother and sister for always believing in me.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to everyone who has made my thesis possible. Thank you to all of the students who have given me great results and made this study possible. Thank you to Professor Tyrell who gave me the inspiration to create this study. To Dr.

Wright, words cannot express how much thanks I owe you. You have handed me so many amazing opportunities throughout my college career and I am grateful for each and every one of them. I wouldn't be the successful and confident person I am today if it wasn't for you. Thank you to Dr. Fragala for always making me feel self-assured and comfortable with my decisions and processes. You have such a warm heart and always know the right things to say. To Professor Chesnut, thank you for guiding me in this long process even though we never actually met during it. I really appreciate the effort and care you put into helping me. To all of my friends, family and teachers, thank you for all that you have done to lead me in the right direction. I have become a more mature, confident and stronger person than I ever was thanks to your guidance.

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CHAPTER ONE: INTRODUCTION

In today's generation there has been an exceeding increase in the amount of violent video games, television shows, and movies that have been viewed by a vast amount of the population. A decent amount of the mass media encompasses car chases or extremely reckless driving behavior. With that being said, with an abundant of irresponsible driving habits viewed within the media, adolescents and emerging adults are most likely to interpret these behaviors as the norm for driving within today's generation. The purpose of this study will be to examine the effects the media has on influencing risky driving behaviors among adolescents and emerging adults. It is hypothesized that adolescents and emerging adults who are exposed to reckless driving habits within the mass media will be more prone to recreate these customs themselves. For the purpose of this study, risky driving behaviors includes anything that entails unsafe driving habits such as speeding, racing, and running red lights.

Theoretical Perspective

The current study is grounded in two theoretical perspectives, the cultivation theory and the social cognitive theory (also referred to as the social learning theory). The social learning theory states that any type of social behavior can be learned by observing the actions of others (Bandura, 1977). The social behavior can also be influenced by being rewarded or punished for these actions. According to Bandura (2001), people are more likely to display modeled behavior if it results in positive effects than if it has unsatisfactory or harsh effects. Adolescents and emerging adults view and observe the actions of famous celebrities displaying risky driving behaviors in a delicate fashion, which leads some of these teenagers and emerging adults wanting to replicate these actions in order to achieve the satisfaction of being like a celebrity.

Additionally, according to Bandura (1986) the person observing the behavior is most likely to familiarize with the same gender as themselves. Therefore, if the person observing the behavior is male, and the person driving recklessly who is either rewarded for their behavior or not punished for the behavior is also male, the male viewer would be more likely to imitate such driving behaviors.

Another theory that supports the assumption that the media influences risky driving behaviors among adolescents and emerging adults is the cultivation theory. The cultivation theory is a social theory that examines the long term effects of television on the user. The cultivation theory explains that the more people view television or video games, the more likely they are to believe in the social reality played on screen; they are more likely to believe that what they are exposed to is normal (Gerbner, Gross, Morgan, & Signorielli, 1994). Viewers end up misinterpreting what is real and socially acceptable in the real world versus virtual reality scenarios. Adolescents and emerging adults are more prone to believing what is being portrayed on television since they are entering the real world and want to display themselves in the most positive way. Movies, television shows, and video games can create a perfect scene in which a movie star races in a car in order to get away from the cops and manages to speed past cars, run over civilians, and crash into other vehicles. The movie star may then walk away from the scene in a care free manor, which can lead adolescents and emerging adults to believe that what they are seeing on television is real and acceptable in today's society. Other behavioral determinants include parental roles and family structure. A lack of parental guidance when viewing movies, television shows, and video games can lead to serious problems. In fact, the level of cultivation can either increase or decrease with a parental co-viewer present or not (Gerbner, 1998).

Literature Review

Adolescents have been viewed as having an impractical self-confidence as early as when the famous philosopher Aristotle was alive in 300 B.C (Beyth-Marom, et al., 1993). As a result, adolescents have been known to take risks. A risky behavior involves an action that brings about a chance of loss. In other words, risky behaviors are derived decisions that are alternative choices for a specific action. From a decision theory perspective, choosing a risky act can be deemed as satisfactory if the choice defines the values and beliefs of the person that wishes to commit these actions (Beyth-Marom et al., 1993). In today's society the social norm, according to the media, is to be risky and aggressive while driving. Adolescents and emerging adults view what is seen in video games and movies as something that is the new model of today's generation and believe that it is the right decision in order to fit in.

Risky Driving Behaviors

The younger and newer drivers on the road partake in risky driving behaviors, such as speeding and driving under the influence of drugs and alcohol, which contributes to an increase in injuries and accidents on the road (Harbeck & Glendon, 2013). Unsafe driving behaviors are the most common cause of road accidents and emerging adults are responsible for 95% of all fatal crashes (Morisset, Terrade, & Somat, 2010). In 2003, motor vehicle accidents were the leading cause of death in college-age youth in the United States (McCarthy, Lynch, & Pederson, 2007). One of the primary contributing factors to motor vehicle collisions is aggressive driving behavior, which includes various dangerous driving actions such as tailgating, cutting off other vehicles, and speeding. Aggressive driving has contributed to approximately 50% of all motor

vehicle collisions (Wickens, Wiesenthal, Flora, & Flett, 2011). However, there has to be a contributing factor to this aggressive behavior on the road.

Stage in Development

Risk taking usually appears in adolescence and has been labeled as an inevitable part of the developmental stage according to the developmental perspective (Beullens & Vandebulck, 2008). Risk taking has also been studied as a learned phenomenon and explains that individuals acquire how to behave and act from their relatives and peers, but can also learn a vast amount of manners from the mass media which stands as a referent of social norms. Hazardous driving is often accompanied with masculinity, adulthood and the support of peers' acceptance with no safety precautions being made. Television and movie characters commonly promote extremely risky driving behaviors, and in addition to this, characters are seldom threatened with the adverse consequences of their actions (Beullens & Vandebulck, 2008).

Media Influence

Within in the last ten years or so video games have risen to the top of the market and are a high community among young people, especially in the United States. There are many ways consumers can play these games, such as through the computer, consoles, over cell phones, and other various portable devices. Needless to say, players have access to these video games virtually everywhere and all of the time. Racing games have become one of the top selling game genres among the video game market (Fischer, Kubitzki, Guter, & Frey, 2007). Within photographically realistic virtual environments, players race through urban and suburban traffic. Driving actions in these games often include competitive and reckless driving, speeding and crashing into other cars or pedestrians, or performing risky stunts with the vehicle. Most actions

in racing games imply a very high risk of having an accident or severe crash in a highly realistic virtual road traffic environment. Media violence research has found that aggressive video games increase aggression-related cognitions, affect, and behaviors (Fischer et al., 2007). The National Television Violence Study (Bushman, 1998) expressed that violent content can be found in 60% of television media and the same goes for video games. Violent and sexual acts on television and games are becoming a common phenomenon (Ferguson, Cruz, Martinez, Rueda, & Ferguson, 2010) and there have been multiple debates and theories as to why this uproar of violence and risky related behaviors is becoming so widespread.

Video games serve as an opportunity for many individuals to play the role of different people with consequences that go beyond the actual activities replicated in the game (Fischer et al., 2009). Individuals learn to behave and copy the specific habits in the virtual environment of the game. Risky and unethical actions are typically praised in the virtual game world, which in turn promotes hazardous behaviors in the real world. Racing games, in particular, have been claimed to increase reckless and risky actions on the road. Some of the most common hazardous behaviors that are promoted in video games are speeding, tailgating, running red lights, and going in and out of traffic (Fisher et al., 2009). Fischer et al. (2009) mentioned that “racing games make players more comfortable with breaking traffic rules, which carries over to the risk taking in real driving situations” (p. 1397). Thus, it can be concluded that participating in racing games intensifies the players thrill seeking sensations. However, it seems as though the media is targeting adolescents and emerging adults much more than other age groups. The majority of adolescents are beginning to learn how to drive as well as learning the rules of the road. Emerging adults, on the other hand, have minimal driving experience. They are extremely

inclined to make choices on the road by following what is viewed as acceptable in the media. Conforming and being influenced by peers is regarded as one of the trademarks in adolescent behavior (Brown, Clasen, & Eicher, 1986).

Biological Explanations

Adolescents are more likely than both children and adults to abuse alcohol, use illicit substances, have unprotected sex, commit antisocial acts, drive recklessly, and drive while intoxicated (Pharo, Sim, Graham, Gross, & Hayne, 2011). Aggression, impulsivity, sensation-seeking tendencies, and sociability have all been consistently identified as personality factors that are positively related to adolescent risk-taking. Attitude is an important predictor for both risky driving behaviors and traffic accidents. By their association with behavior, attitudes may also indirectly influence the probability of car crashes and traffic accidents (Iversen, Rundmo, & Klempe, 2005). There is some evidence that shows a positive correlation between the frontal lobe functioning and risk-taking behaviors. It was found that adolescents displayed decreased frontal lobe activity while engaging in decision making tasks and were thus associated with increased risk-taking (Pharo et al., 2011). There is also an indication that under high emotional arousal, adolescents may be more likely to engage in risky behaviors because their limbic system takes over and they do not have the sufficient prefrontal cortical mechanisms in place to suppress their behavior (Pharo et al., 2011).

Overall it has been found that youth and naiveté coincide when it comes to driving and making correct assumptions while on the road. It has even been questioned whether or not new drivers fully comprehend the seriousness of accidents and the risks involved in breaking the rules of the road (Colbourn, Brown, & Copeman, 1981). Younger and inexperienced drivers have been

noted to have a difficult time distinguishing risky driving actions compared to non-hazardous driving actions. This assumption brings researchers to believe that adolescents perceive less risk on the road in order to achieve independence, increase self-esteem, fit in with the desired social groups, or achieve a more mature and adult like status (Harbeck, & Glendon, 2013). It has been determined that exposure to media violence is strongly linked to media-relevant behavior (Hopf, Huber, & Wei, 2008). Additionally, the strong persuasion of media influence has been contributed to the connection between media violence, student's viciousness towards peers and teachers in school, and delinquency.

The Current Study

The overall purpose of this study is to analyze college student's driving habits and whether or not their driving manners correlate with the amount of risky driving behaviors in media the participant views. It is hypothesized that adolescents and emerging young adults exposed to risky driving behaviors through the mass media will recreate these perilous scenarios and be more susceptible to dangerous driving habits while on the road.

CHAPTER TWO: METHOD

Participants and Procedures

The data gathered for this study consisted of 1,356 participants who completed an online questionnaire via the University of Central Florida's SONA system. Participants received extra credit for their participation. This study was approved by the Universities IRB and was found to be exempt (see Appendix A).

A total of 44 participants were deleted from the study because their answers indicated that they were not involved in the study. Another 134 participants were removed from the study because they were over the age of 25. This study aimed to compare late adolescents (ages 17-19, $n = 716$, 60.8%) and emerging adults (ages 20-25, $n = 462$, 39.2%), therefore participants outside of this age range were removed from analysis.

Measures

Demographic questionnaire

Participants will answer 25 questions pertaining to age, sex, ethnicity, family history, relationship status, and educational background.

Driving Behaviors and Attitudes

Participants will answer a total of 28 questions modified from Harbeck and Glendon (2013) that pertain to their driving behaviors and attitudes on the road. These questions exemplify the certain risky driving behaviors that the driver does on the road and how well the participant is aware of the consequences of such actions. The first 14 questions ask the participant to determine how risky the certain behavior or action mentioned can be. Some of these questions include "racing another vehicle," "texting while driving," and "driving under the

influence of alcohol.” Participants rate each question on a 4-point Likert-type scale with 1 being *not at all risky* and 4 being *extremely risky*. The next 14 questions ask the participant how often they take part in the actions or behaviors and are rated on a 5-point Likert-type scale with 1 being 0 and 5 being *16 or more times*.

The original questionnaire created by Harbeck and Glendon (2013) contained a total of 20 items, with the first 10 assessing driving risk perception and the last 10 assessing reported engagement in risky driving behaviors. Both scales were deemed reliable in the original questionnaire, with alpha levels of 0.91 and 0.80, respectively. In the current study a total of eight additional items were added to the original scale to account for driving behaviors that are relatively new, such as texting while driving.

Fourteen questions were summed to derive a total risk perception of driving score that was used in analyses. Alpha reliability for these items was .85. The remaining 14 items were summed to derive a total risk involvement while driving score that was used in analyses. Alpha reliability for these items was .87. The questionnaire used in this study can be found in Appendix B.

Driving Safety Habits

Participants will answer a total of 33 questions derived from Brown and Copeman (1975) and Colbourn, Brown, and Bopeman (1981) that relate to both covert and overt driving related offenses. These questions assess how well the participant follows the rules of the road, how cautious they are while driving and how alert they are on the street. Some of the questions examine how often the participant “parked where it is specifically prohibited by signs or road markings,” “failed to comply with traffic-light signals,” and whether or not the driver “drove

with defective steering.” Reliability levels were not provided in the original studies. For the current study, alpha reliability was .92. Items are rated on a 5-point Likert scale with 1 being *never* and 5 being *daily*. The items were summed to derive a total score for driving safety habits that was used in analysis. Items can be found in Appendix C.

Media Exposure

Participants were asked how often they have watched a total of 24 movies, on a scale of 1 (0) to 5 (16 or more times), and played a total of 10 video games, on a scale of 1 (*never*) to 4 (*more than once a week*). Following Hull, Draghici, and Sargent (2012), all movies and video games selected contained content of risky driving behaviors, with variations in extremity of depictions. Alpha reliability for the movie list was .91; alpha reliability for the video game list was .79. Items were summed to obtain a total movie exposure score and a total video game exposure score that was used in analysis. The complete list of movies and video games can be found in Appendix D.

CHAPTER THREE: RESULTS

The following sections are used to describe the analysis conducted to complete the study objectives. The sections include: (a) descriptive statistics regarding the driving habits, risk perceptions, and exposure to media that contain risky driving behaviors, (b) intercorrelations of study variables, and (c) a series of linear regression analyses to determine how age, gender, and media exposure to risky driving behaviors predict participant driving habits and risk perceptions.

Driving Habits, Risk Perceptions, and Media Exposure of Participants

Descriptive statistics for participants driving habits, risk perceptions, and exposure to media that contain risky driving behaviors can be found in Table 1. Participants, on average, viewed risky driving behaviors as moderately risky and reported that they engage in such activities rarely. They also reported engaging in safe driving habits. Participants reported playing video games that contain risky driving behaviors monthly and watching movies containing risky driving behaviors in moderation.

Intercorrelation of Study Variables

Intercorrelations of study measures can be found in Table 2. Significant correlations were found between media exposure and risky driving habits. In regards to videogame exposure, correlations were found between age, gender, movie exposure, risk perception, and safety habits. With movie exposure gender, risk perception, risk activity, and safety habits were significantly correlated. For risk perception, there was a strong correlation with gender, videogame exposure, movie exposure, risk activity, and safety habits. Risk activity had significant correlations with age, movie exposure, risk perception, and safety habits. Finally, safety habits had strong correlations with age, videogame exposure, movie exposure, risk perception, and risk activity.

Predicting Risky Driving Behaviors

A series of linear regression analyses were conducted to determine how media exposure to risky driving behaviors predicted participant driving behaviors. Gender, age, videogame exposure, and movie exposure were included as predictors. Dependent variables included driving risk perception, risky driving activities, and participant driving safety habits.

The overall regression model was significant for driving risk perception, $F(4, 1167) = 17.23, p < .001, R^2 = .06$, risky driving activities, $F(4, 1167) = 19.44, p < .001, R^2 = .06$, and driving safety habits, $F(4, 1167) = 14.93, p < .001, R^2 = .05$. Results indicated that age was a good predictor of risk perception and driving safety habits. Exposure to risky driving habits through videogame exposure was a good predictor of driving safety habits. Results also indicated that exposure to risky driving behaviors through movie exposure was a good predictor of driving risk perception and driving safety habits. Results can be found in Tables 3, 4, and 5.

CHAPTER FOUR: DISCUSSION

The aim of this study was to assess the relationship between the amount of media an adolescent or emerging adult is exposed to and their driving habits. Based on the social learning and cultivation perspectives, it was hypothesized that the more risky driving behaviors in the media an adolescent or emerging adult is exposed to, the more likely they are to reenact these events and have dangerous and hazardous driving habits. Confirming the hypothesis, the results of the study indicate that participants exposed to risky driving behaviors in the media replicate these actions themselves. Previous studies have offered similar results in that risky media exposure of adolescents and emerging adults influences their decisions and habits (Fischer et al., 2007; Harbeck, & Glendon, 2013; Hopf, Huber, & Wei, 2008).

Theoretical Perspectives

In the present study, participants seemed to relate to the social learning and cultivation theories. Bandura (1986) theorizes that a person observing a certain behavior is more likely to familiarize themselves with the action if the viewer is the same gender as the character. However, the results of the study indicate that gender does not significantly contribute to the behaviors and actions of those adolescents and emerging adults viewing risky driving behaviors within the media. Gender only positively correlated with risk perceptions of the participants. The social learning theory also indicates that social behaviors can be easily learned by observing. Many of the participants in the current study who viewed a decent amount of risky driving behaviors within the media exemplified higher risk activity and skewed safety habits.

The cultivation theory is also observed within the present study. The cultivation theory expresses that those constantly enveloped within the media will begin to lose sight of what is actually acceptable within reality (Gerbner et al., 1994). Within this study, there is a strong correlation between participant's media exposure and driving habits. Results of the current study indicate that the longer one is exposed to risky driving behaviors within videogames and television, the more likely they are to engage in risky activity on the road and neglect safety. The cultivation theory also emphasizes that adolescents and emerging adults are more likely to be influenced by what they observe in the media since they urge for the need to belong and desire to display themselves of those within the media. The results of the study confirm that participants between the ages 17 to 25 show a strong correlation between their exposure to risky media and their safety habits, risk activity, and risk perceptions on the road.

Media Exposures

The results of the study indicate that participants who were more exposed to risky driving behaviors shown in videogames and movies were more likely to partake in these behaviors themselves. Participants answered a series of questions in relation to what movies they watched, how frequently they watched them, as well as what videogames they played, and how often they played them. Those that expressed that they played or watched these movies or videogames quite often reported having reduced safety habits, skewed perception, and higher risk activity while driving on the road. The results of this research confirm Fischer's et al. (2007) assumption that media violence does in fact increase aggression and risky behaviors among those that observe the behaviors.

It was also hypothesized that with an increase in violent videogames and movies there would more violence and outrageous behaviors among the viewers. Previously noted by Ferguson and colleagues (2010), the phenomenon of driving videogames and car chases in movies has brought about a new era of risky behaviors and skewed perceptions of drivers. The study indicates that there is a high correlation between videogame exposure and risky activity, as well as safety habits. There is also a high correlation between movie exposure and risk activity and safety habits. Videogame exposure also strongly correlated with movie exposure. In other words, those that expose themselves to risky driving videogames will most likely envelop themselves in watching risky driving movies or vice versa.

Risky Driving Behaviors

According to Fischer et al. (2007), media violence research has found that aggressive video games increase aggression-related cognitions, affect, and behaviors. The results of the current study found a significant correlation between risky driving behaviors and exposing oneself to aggressive driving media. There was a strong correlation between risk activity and safety habits along with movie and video game exposure. Within the study there was a negative correlation between risk perception and video game exposure, movie exposure, safety habits, and risk activity. Participants within the research indicated that their video game exposure and movie exposure had little impact on their risk perception while driving. Within the research it was found that there is negative correlation between gender and video game exposure, movie exposure, risky activity and safety habits. The genders of each participant had a small influence on the exposure and behaviors they endured. Gender had the least amount of impact on videogame exposure and had the strongest positive correlation with risk perception. The results

of the study also indicated age as a strong predictor of media exposure in correlation to risk perception, risk activity and safety driving habits. Previous findings from Brown, Clasen, & Eicher (1986) conclude that conformation and peer pressure is essential in an adolescent's life. With that being said, studies from Pharo et al., (2011) found that adolescents displayed decreased frontal lobe activity while making decisions and were more likely to partake in risky behavior. The current findings within this study confirm that adolescents and emerging adults do participate in a high amount of risk behaviors when they are exposed to the mass media popularity of driving behaviors.

Limitation of Study

There are some limitations of the current study that merit discussion, such as the limited generalizability of the findings and the use of retrospective data. With respect to effect size, although the regression analyses were significant, some specific hypothesized links were marginally significant. This study was conducted at only one university which resides in Florida, which may limit the generality of the study.

Furthermore the study was conducted as an online survey. Not only could participants alter their answers to their liking but it is difficult to indicate whether or not their driving habits were truly influenced by the movies they watch when their driving is not being recorded. Ultimately the data analyzed could be skewed based on the participant's observations and perspectives on whether or not they follow proper driving safety guidelines.

Further Research

Although the results of the study help identify questions regarding the amount of hazardous driving behaviors a participant views in media in correlation to their driving habits, they also pose implications for future research. In particular, future research should go more in depth with what particular driving scenes from movies or video games that influence a participant the most. Future research should also have face to face questionnaires with participants and record a longitudinal study of their media exposure and driving behaviors. Observing a participant throughout their adolescent and emerging adult years could give a more accurate and precise result of the driving habits they endure whilst exposing themselves to certain types of media. Additionally future research should also focus more on the influence of media behavior on gender. Further studies could shed light on Bandura's assumption that gender views within the media impacts certain behaviors.

APPENDIX A: APPROVAL OF EXEMPT HUMAN RESEARCH



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Chrysalis L. Wright and Co-PI: Kelly Silberman

Date: August 07, 2013

Dear Researcher:

On 8/7/2013, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Media and College Student Driving Behaviors
Investigator: Chrysalis L Wright
IRB Number: SBE-13-09514
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 08/07/2013 03:23:17 PM EDT

A handwritten signature in black ink that reads "Joanne Muratori".

IRB Coordinator

APPENDIX B: DRIVING BEHAVIORS AND ATTITUDES
QUESTIONNAIRE

Please rate how risky you feel the following behaviors are using the following scale: .85

(a) not at all risky, (b) somewhat risky, (c) moderately risky, (d) extremely risk

1. Driving under the influence of alcohol
2. Racing another vehicle
3. Not wearing a seatbelt
4. Unsafe overtaking (passing another car)
5. Speeding (20 km/h over speed limit)
6. Using a cell phone (hand-held)
7. Driving while fatigued
8. Tailgating
9. Speeding (10 km/h over speed limit)
10. Using a cell phone (hands free device)
11. Texting while driving
12. Texting while at a stop light
13. Yelling at another driver
14. Driving under the influence of illegal drugs

Please rate how often you have engaged in the following behaviors within the past 30 days: .87

(a) 0, (b) 1-5 times, (c) 6-10 times, (d) 11-15 times, (e) 16 times or more

15. Driving under the influence of alcohol
16. Racing another vehicle
17. Not wearing a seatbelt
18. Unsafe overtaking (passing another vehicle)
19. Speeding (20 km/h over speed limit)
20. Using cell phone (hand-held)
21. Driving while fatigued
22. Tailgating
23. Speeding (10 km/h over speed limit)
24. Using a cell phone (hands free device)
25. Texting while driving
26. Texting while at a stop light
27. Yelling at another driver
28. Driving under the influence of illegal drugs

APPENDIX C: DRIVING SAFETY HABITS QUESTIONNAIRE

Please rate how often you have done the following: Reliability = .92

(a) Never (b) rarely (c) sometimes (d) weekly (e) daily

1. Parked where it is specifically prohibited by signs or road markings.
2. Parked where no signs or road markings prohibit it, but where it could obstruct traffic.
3. Failed to comply with traffic-light signals.
4. Failed to comply with signs giving directional information (e.g., in one-way streets, at traffic islands, at lane changes on motorways, etc.).
5. Failed to give right of way to other vehicles.
6. Drove excessively fast where the view ahead is obscured by other traffic, or at road junctions.
7. Passed another car where visibility is obscured by other traffic, fog, a hill, or a bend.
8. Passed another car where it is specifically prohibited by law, or by signs or road markings (e.g., on inside lanes of motorways, in narrow roads, etc.).
9. Exceeded a displayed speed limit by between 10 and 20 miles per hour.
10. Exceeded a displayed speed limit by more than 20 miles per hour.
11. Turned in a road where U-turns were prohibited.
12. Passed another car near, or on, a pedestrian crossing.
13. Failed to comply with a "STOP" sign.
14. Failed to give right of way to pedestrians at marked pedestrian crossings.
15. Failed to give right of way to pedestrians when turning at traffic lights.
16. Drove without a license for that type of vehicle.
17. Drove with one or more defective tires.
18. Drove under the influence of drugs (other than alcohol) which have not been medically prescribed to you.
19. Drove with defective brakes.
20. Drove while under the influence of alcohol, with a blood alcohol content only slightly over the legal maximum.
21. Drove while under the influence of alcohol, with a blood alcohol content considerably (say more than 50%) higher than the legal maximum.
22. Drove while excessively fatigued.
23. Drove in darkness with inadequate lights.
24. Drove while suffering from an untreated physical impairment (e.g., heart trouble, diabetes, epilepsy, etc.).
25. Drove with defective steering.
26. Drove when the vehicle is overloaded by more than about 50%.
27. Stopped, started, or turned without giving a signal.
28. Drove when a license has been withdrawn because of some previous offense.
29. Drove while uninsured against "third party" risks (i.e., claims for damage or injury caused to another road user).
30. Cursed/used profanity while driving.
31. Hit or damaged another car because you were upset at the driver.
32. Sped up at a yellow traffic light.

33. Threatened or yelled at another driver for not driving up to your standards.

APPENDIX D: MEDIA EXPOSURES QUESTIONNAIRE

How often have you watched the following movies: .91

(a) 0, (b) 1-5 times, (c) 6-10 times, (d) 11-15 times, (e) 16 times or more

1. The Fast and the Furious (all movies work)
2. 2 Fast 2 Furious
3. The Fast and the Furious: Tokyo Drift
4. Fast and Furious
5. Fast Five
6. Fast and Furious 6
7. Due Date
8. Gone in 60 seconds
9. Dukes of Hazard
10. Transformers
11. Transformers: Revenge of the Fallen
12. Transformers: Dark of the Moon
13. Death Race
14. Death Race 2
15. Death Race 3
16. Drive
17. Batman Begins
18. The Dark Knight
19. The Dark Knight Rises
20. The Hangover
21. The Hangover 2
22. The Hangover 3
23. Bad Boys
24. Bad Boys 2

How often do you play the following video games: .79

(a) Never, (b) Once a month or less, (c) once a week or less, but more than once a month, (d)
more than once a week

1. Grand Theft Auto (Any Edition)
2. Need for Speed (Any Edition)
3. Mario Kart (Any Edition)
4. Forza Motorsport (Any Edition)
5. Project Gotham Racing (Any Edition)
6. Burnout (Any Edition)
7. Split Second
8. Far Cry (Any Edition)
9. Gran Turismo (Any Edition)

10. Motorstorm (Any Edition)

APPENDIX E: TABLES

Table 1: *Descriptive Statistics of Participant Driving Habits, Risk Perception, and Media Exposure*

<i>Variable</i>	<i>M</i>	<i>SD</i>
Risk Perception	42.69	6.3
Risk Activity Total	26.25	9.1
Safety Habits Total	57.63	.05
Videogame Exposure	12.6	3.1
Movie Exposure	39.84	9.6

Table 2: *Intercorrelation of Study Variables*

	1.	2.	3.	4.	5.	6.	7.
1.Age		.11**	-.10**	.04	.04	.11**	.09**
2.Gender	.11**		-.42**	-.24**	.22**	-.01	-.04
3.Videogame Exposure	-.10**	-.42**		.35**	-.11**	.07*	.13**
4.Movie Exposure	.04	-.24**	.35**		-.13**	.23**	.20**
5.Risk Perception	.04	.22**	-.11**	-.13**		-.35**	-.38**
6.Risk Activity	.11**	-.01	.07*	.23**	-.35**		.53**
7.Safety Habits	.09**	-.04	.13**	.20**	-.38**	.53**	

* $p < .05$; ** $p < .01$

Table 3: *Regression Coefficients for Driving Risk Perception*

	Risk Perception
Age	.10*
Gender	.04
Videogame Exposure	.03
Movie Exposure	.22*
R^2	.06
F	17.23*

* $p < .01$

Table 4: *Regression Coefficients for Risky Driving Activities*

	Risk Activities
Age	.11
Gender	-.01
Videogame Exposure	.08
Movie Exposure	.23
R^2	.06
F	19.44*

* $p < .01$, ** $p < .05$

Table 5: *Regression Coefficients for Driving Safety Habits*

	Safety Habits
Age	.08*
Gender	.02
Videogame Exposure	.07**
Movie Exposure	.17*
R^2	.05
F	14.93*

* $p < .01$, ** $p < .05$

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