

Understanding Aggressive Driving and Ways to Reduce It – Phase 2

Report of Task 2: Testing Bystander Intervention Strategies

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Acronyms & Abbreviations

ANOVA	Analysis of variance
<i>M</i>	Mean
<i>SD</i>	Standard deviation
U.S.	United States

1 Introduction

Traffic crashes are a major public health concern in the United States (U.S.), with an estimated 40,990 lives lost in traffic crashes in 2023 (National Center for Statistics and Analysis, 2024). While there are many causes that contribute to traffic crashes, aggressive driving is considered a leading cause, with evidence suggesting aggressive driving is a cause in approximately 56% of fatal crashes (AAA Foundation for Traffic Safety, 2013). Aggressive driving is also a common behavior among drivers. Before the COVID-19 pandemic, nearly 80% of drivers reported expressing anger, aggression, or road rage while driving at least once in the past year (AAA Foundation for Traffic Safety, 2016). More recently, prevalence research finds that 96% of drivers in the U.S. reported engaging in aggressive driving behaviors at least once in the past year, with nearly all specific aggressive driving behaviors increasing from 2014 to 2025 (Steinbach et al., 2025). Furthermore, there is evidence to suggest that people's perceptions that others are driving more aggressively has increased in the past five years, especially during the COVID-19 pandemic (Stephens et al., 2022).

This research project expands on previous work sponsored by the Traffic Safety Culture Pooled Fund. Phase 1 of this project included a literature review to define aggressive driving, a contextual model to explain its occurrence, a survey of road users to further refine the definition and operationalization of aggressive driving behaviors and refine potential points of intervention as presented in the contextual model, and a resource created for traffic safety practitioners about ways to bolster their current traffic safety efforts to address aggressive driving. Based on the results of the survey, Phase 1 included recommendations and ideas for bolstering existing traffic safety efforts in order to reduce aggressive driving. Specifically, in Phase 1, a number of implications for interventions with drivers emerged. Directly with drivers, we recommended growing prosocial driving, supporting cognitive reappraisal and adaptive responses while driving, and challenging misperceptions; one likely avenue for reaching drivers directly is through media messaging. Phase 1 results also suggested that bystanders, especially spouses, partners, family members, and close friends can be influential in encouraging others to not drive aggressively. Therefore, we recommended engaging bystanders to address aggressive driving. While these ideas were based on the survey data collected in Phase 1, the specific strategies for engaging bystanders were not developed and strategies had not been tested. The final report and resources developed in Phase 1 can be found at <https://www.mdt.mt.gov/research/projects/trafficsafety-ad.aspx>.

In Phase 2, we proposed expanding on Phase 1 work by developing and testing one or more strategies to engage bystanders to discourage aggressive driving. Bystanders are defined as spouses/partners, family members, and close friends of drivers who engage

in aggressive driving behaviors. Additionally, we proposed developing and testing media messages to reduce aggressive driving behavior. In Task 1, we conducted key informant interviews with a sample ($n = 16$) of bystanders to understand their experience with someone important in their life driving aggressively to identify opportunities and potential avenues for intervention. Based on the results of those interviews, we identified key components of effective strategies to engage bystanders. We determined strategies should include support bystanders' comfort and confidence intervening, especially intervening early, including through communication skills, and that strategies should apply the transtheoretical model for behavior change. Additionally, we identified that strategies should support bystanders in connecting to shared values, expressing concern, clarifying misperceptions, and bolstering cognitive reappraisal.

This report summarizes Task 2 of this project. The purpose of Task 2 is to test the bystander intervention strategies with a sample of bystanders who are well-positioned to intervene with people who drive aggressively, namely friends, spouses and partners, and parents. This report includes a summary of the methodology, a detailed description of the intervention, and a presentation of the results of the intervention testing.

2 Method

The protocol was reviewed and approved by the Montana State University Institutional Review Board [2025-2111 EXEMPT] prior to data collection. Participants provided informed consent before participation.

2.1 Participants

Participants were recruited via a purchased Qualtrics panel. To be eligible to participate, participants needed to be comfortable reading and writing in English, at least 18 years old, and live in the U.S. They also had to be concerned about the driving behavior of a close friend or family member (i.e., their spouse/partner, child, or friend) and report that the driver engaged in at least two aggressive driving behaviors. Two data collection activities (surveys) were conducted, separated by at least two weeks. To be included, participants had to complete both surveys. The first survey was completed by 333 participants; 147 participants also completed the two-week follow-up survey. Of the 147 who completed both surveys, 29 were removed during data quality checks due to speeding through the survey ($n = 1$) or inconsistent or implausible responses (e.g., parent participant age the same or older than child driver age, reporting having talked to their person many times (>8) over the past two weeks about their driving *and* reporting that the person does not know they are concerned; $n = 28$). Additionally, 16 participants were removed due to an extended interval (greater than 27 days) between the two surveys. The final sample consisted of 102 participants.

Most participants were friends (43.1%) or spouses/partners (42.2%) of people who drive aggressively. Some parents of children who drive aggressively also participated (14.7%). Participant demographics are shown in Table 1.

Table 1. Participant Demographics

	Parent	Friend	Spouse/ Partner	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>N</i> (%)
Relationship	15 (14.7)	44 (43.1)	43 (42.2)	102 (100)
Age				
18-24	0 (0)	7 (15.9)	2 (4.7)	9 (8.8)
25-34	3 (20.0)	6 (13.6)	11 (25.6)	20 (19.6)
35-44	1 (6.7)	10 (22.7)	13 (30.2)	24 (23.5)
45-54	2 (13.3)	8 (18.2)	6 (14.0)	16 (15.7)
55-64	4 (26.7)	7 (15.9)	4 (9.3)	15 (14.7)
65+	5 (33.3)	6 (13.6)	7 (16.3)	18 (17.6)
Gender				
Man	6 (40.0)	21 (47.7)	24 (55.8)	51 (50.0)
Woman	9 (60.0)	23 (52.3)	19 (44.2)	51 (50.0)

	Parent	Friend	Spouse/ Partner	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>N</i> (%)
Race				
White or Caucasian	13 (86.7)	33 (75.0)	28 (65.1)	74 (72.5)
Black or African American	2 (13.3)	10 (22.7)	9 (20.9)	20 (19.6)
American Indian/Native American or Alaskan Native	2 (13.3)	0 (0)	2 (4.7)	4 (3.9)
Asian	0 (0)	1 (2.3)	4 (9.3)	5 (4.6)
Native Hawaiian or Other Pacific Islander	0 (0)	0 (0)	0 (0)	0 (0)
Other	1 (6.7)	0 (0)	0 (0)	1 (1.0)
Prefer not to say	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Ethnicity				
Spanish, Hispanic, or Latino	3 (20.0)	4 (9.1)	6 (14.0)	13 (12.7)
Licensed Driver				
Yes	14 (93.3)	41 (93.2)	40 (93.0)	95 (91.3)
No	1 (6.7)	3 (6.8)	3 (7.0)	7 (6.9)
State				
Alabama	1 (6.7)	1 (2.3)	1 (2.3)	3 (2.9)
Arizona	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Arkansas	0 (0)	1 (2.3)	0 (0)	1 (1.0)
California	3 (20.0)	5 (11.4)	2 (4.7)	10 (9.8)
Colorado	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Delaware	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Florida	0 (0)	1 (2.3)	4 (9.3)	5 (4.9)
Georgia	4 (26.7)	3 (6.8)	1 (2.3)	8 (7.8)
Idaho	0 (0)	1 (2.3)	1 (2.3)	2 (2.0)
Illinois	0 (0)	2 (4.5)	2 (4.7)	4 (3.9)
Indiana	2 (13.3)	1 (2.3)	0 (0)	3 (2.9)
Kentucky	0 (0)	1 (2.3)	2 (4.7)	3 (2.9)
Maryland	1 (6.7)	1 (2.3)	1 (2.3)	3 (2.9)
Massachusetts	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Michigan	0 (0)	1 (2.3)	4 (9.3)	5 (4.9)
Minnesota	0 (0)	0 (0)	2 (4.7)	2 (2.0)
Missouri	0 (0)	1 (2.3)	0 (0)	1 (1.0)
Nebraska	1 (6.7)	0 (0)	1 (2.3)	2 (2.0)
Nevada	0 (0)	0 (0)	1 (2.3)	1 (1.0)
New Hampshire	0 (0)	2 (4.5)	0 (0)	2 (2.0)
New Jersey	0 (0)	3 (6.8)	1 (2.3)	4 (3.9)
New York	0 (0)	2 (4.5)	4 (9.3)	6 (5.9)
North Carolina	0 (0)	1 (2.3)	1 (2.3)	2 (2.0)
Ohio	0 (0)	3 (6.8)	1 (2.3)	4 (3.9)
Oklahoma	0 (0)	1 (2.3)	0 (0)	1 (1.0)
Oregon	0 (0)	3 (3.8)	1 (2.3)	4 (3.9)
Pennsylvania	1 (6.7)	0 (0)	2 (4.7)	3 (2.9)
South Carolina	0 (0)	2 (4.5)	1 (2.3)	3 (2.9)
South Dakota	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Tennessee	0 (0)	1 (2.3)	0 (0)	1 (1.0)
Texas	2 (13.3)	2 (4.5)	3 (7.0)	7 (6.9)
Virginia	0 (0)	4 (9.1)	1 (2.3)	5 (4.9)
Washington	0 (0)	1 (2.3)	0 (0)	1 (1.0)
Wisconsin	0 (0)	0 (0)	1 (2.3)	1 (1.0)

	Parent	Friend	Spouse/ Partner	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>N</i> (%)
Rurality				
Urban area or large city	2 (13.3)	14 (31.8)	18 (41.9)	34 (33.3)
Suburb near a large city	8 (53.3)	17 (38.6)	17 (39.5)	42 (41.2)
Small city or town	1 (6.7)	6 (13.6)	6 (14.0)	13 (12.7)
Rural	4 (26.7)	7 (15.9)	2 (4.7)	13 (12.7)

Time between when participants completed the baseline survey and received the intervention and when they completed the follow-up survey averaged 17.5 days ($SD = 2.9$) and ranged from 14 to 26 days.

2.2 Procedure

The Qualtrics survey started with a consent form and then questions to determine eligibility (e.g., age, country of residence, language, and if there was someone in their life whose driving concerns them and their relationship to that person). Participants were then asked demographic questions about themselves and the person in their life that drives aggressively. The survey did not use the word “aggressive” to describe driving behaviors. Instead, the instruction said “We have a few questions about your {person} and their driving that concerns you. When you think about their driving, please think specifically about their risky driving that impacts other people, like {x, y endorsed aggressive behaviors}”, where the statement was populated with two example behaviors that the participant endorsed from the inclusion criteria questions. Additionally, throughout the survey, the language to describe the driver was customized to the relationship where “your {person}” was populated with “your child,” “your friend,” “your spouse”, or “your partner,” as appropriate.

Participants were asked how concerned they were about their person’s driving (with two of the endorsed aggressive behaviors provided as examples), whether they had tried talking to their person before, whether the person is aware of the participant’s concern, previous intervention strategies the participant has used, and how confident the participant was in their ability to communicate about their person’s driving and influence them to drive more safely. Participants then received the intervention which is detailed below in the next section. Briefly, the intervention contained information to guide the participant in a three-step conversation with their person to prevent their aggressive driving behaviors. At the end of the intervention, they received a link to a summary of the information they obtained in the intervention. Immediately after the intervention, participants again rated their confidence in being able to intervene and also rated their confidence in being able to implement the new intervention strategies they learned in the intervention period. (See Appendix A for the survey instrument.)

Two weeks later, participants were invited to answer additional questions intended to assess feasibility and perceived efficacy of the intervention. First, participants indicated whether they were able to talk with their person about their driving over the past 2 weeks. Then, they were asked how many times in the past 2 weeks they did a number of things to intervene with their person, including each of the strategies delivered in the intervention as well as some other common intervention strategies. Example items include: expressed concern to your {person} about their driving and hinted that their driving is unsafe. Participants were asked questions to determine how the conversation went if they indicated they had talked to their person about their driving, including the driver's reaction and the participants' ability to communicate effectively and implement the strategies. After, participants were asked about how their person's driving changed and their current level of concern about their person's driving. They were then asked to indicate their intentions and confidence to intervene in the future and what other strategies they might employ. Finally, participants indicated the degree to which they were able to apply the intervention information, how helpful the intervention information was, whether/how many times they referenced the summary, what other information would have been helpful, and any feedback they had about the intervention. (See Appendix A for the survey instrument.)

2.3 Intervention

For the intervention, the research team developed a three-step plan to help participants intervene with their person (i.e., their friend, spouse/partner, child) who engages in aggressive driving behaviors. Intervention components were based on the findings from key informant interviews completed in Task 1 of this project. Artificial intelligence was used to support initial drafts of content; all intervention content was reviewed, edited, and finalized by the research team.

The first step of the intervention taught participants how to express their concerns to their person about their aggressive driving behaviors and connect to their personal values. Then the second step illustrated how bystanders can compare their person's aggressive driving behaviors to other settings. Finally, the third step gave participants a choice between three different intervention strategies they could employ to discourage their person from driving aggressively. Specifically, participants could choose to help their person correct misperception, encourage their person to respond differently to other drivers, or emphasize preventing harm from aggressive driving. (See Appendix A for an example of the three-step intervention.)

The content was customized based on the participant's relationship to the person driving aggressively (i.e., their spouse/partner, child, or friend), whether the participant believed their person was aware of their driving as a problem (aware versus not aware),

and whether the participant believed their person was open to change (resistant versus not resistant). The content was designed to give participants different intervention strategy options to make the intervention information more flexible and be applicable to a wider range of individuals while also being customized to make the intervention feel individualized. Content was modified based on relationship type for all steps, and, consistent with the transtheoretical model for behavior change (Prochaska, 2008; Rio Szupszynski & Ávila, 2021), content was customized based on the participant's perception of their person's awareness and resistance. With the different strategy options for Step 3, there were 36 different versions of the intervention in total.

As with the survey, throughout the intervention, the content never referred to the driving behaviors as "aggressive driving"; instead, similar to the survey, specific behaviors that the participant indicated they were concerned about with regard to their person's driving were pulled through into the content to orient the participant to the driving behaviors of focus. In the introduction of the intervention participants were reassured that their worries are normal, encouraged that what they do still matters even if the aggressive driving behaviors do not decrease right away, and given tips for communicating with their person. A call-out box described "I statements" and described how to use them. The use of "I statements" helps to reduce defensiveness, de-escalate conflict, and promote understanding (Hargie, 2021; Rogers et al., 2018). Participants then proceeded through each of the three steps detailed below.

The intervention concluded by emphasizing the importance of speaking up and what to do if their driver has a negative response to the conversation. Additionally, participants were provided with a link to download a summary of their customized intervention for future use and participants were informed that they would be invited to another survey in a few weeks. (See Appendix B for links to the summaries for each version of the intervention.)

2.3.1 Step 1: Express Concern and Connect to Values

In Step 1, the participants were encouraged to begin intervening by expressing concern for the person's safety and were given examples of "I" statements they could use to help express that concern. For example, "Hey, I noticed you get really tense while driving. Everything okay?" In this step, the call out box was modified based on relationship type as well as the driver's awareness that their driving is a problem. For example, for a spouse or partner participant who perceives their spouse/partner as aware that their driving is a problem, participants saw a call out box that said, "It sounds like your spouse/partner is aware there is a problem. That is a great step to helping them change. The goal of raising concern is to help them to start or continue to evaluate their choices." However, if the driver was perceived as not aware, the call out box said, "It

sounds like your spouse/partner is not aware that their driving behaviors are a problem. The goal of raising concern is to get them to think about and discuss their driving.”

Next, participants were encouraged to think about their person’s values and were given examples such as “being responsible” or “protecting others.” Then participants were given examples of how to connect with their person based on their relationship and values. For example, if a participant thought their friend valued “individual liberty and freedom of choice,” the example of what they could say was, “Think of it like this: we expect people to respect our space and rights, same goes for the road. Tailgating or cutting someone off takes away their choice to drive safely too.” In contrast, if the participant was the parent of a child driving aggressively who had the same value (“individual liberty and freedom of choice”), the example was, “You’ve always been someone who makes their own choices, but the more you push the limits, the more likely someone else gets to step in and make decisions for you.”

Finally, in this first step, participants were reminded that their efforts may not show immediate results but opens a dialogue with their person in a way that does not make them feel judged and reaffirms their values. The goal of the first step was to support participants in beginning a dialogue with their person and encourage them to reflect on their values and how those may not align with their driving behaviors.

2.3.2 Step 2: Compare to Other Settings

Step 2 described to participants that driving can feel anonymous so drivers may do things that they would not do in other settings. Therefore, the second step is to compare their person’s aggressive behaviors while driving to their behaviors in a different setting. Participants were given examples of things they could say, which differed based on the relationship between the participant and their person. For example, the participant could put their person’s driving behavior in the context of a grocery store and the example for the friend said, “Imagine if we were in a grocery store and someone was taking a second too long to grab something... would we yell at them to move? It’s kind of like laying on your horn.” An example for a parent concerned about their child’s driving said, “Imagine if we were in a grocery store and I started yelling at strangers in the aisle just because they were in the way of the cereal we want. It’s kind of like yelling at other drivers when frustrated.” A call out box also suggested keeping the tone light and humorous to avoid defensiveness. The goal of Step 2 in the intervention was for the participant to help their person further reflect on the inconsistency of their behavior while driving compared to other settings.

2.3.3 Step 3: Choose an Intervention Strategy

Step 3 was broken into three different intervention strategies that the participant could use to help their person drive more safely. Participants could choose to help their driver correct misperceptions, encourage their driver to respond differently to other drivers, or emphasize preventing harm from aggressive driving. The content was customized based on the relationship between the participant and their person as well as their person's resistance to changing their driving behavior. Each intervention strategy option gave example conversations about driving between the participant as a bystander and their person. If a participant chose to learn about correcting misperceptions, participants were encouraged to gently share a more realistic view to help their person better understand the situation in which their aggressive driving behaviors occur. If a participant chose to encourage their person to respond differently, they were shown conversations that try to calm their person and reframe reactions to and assumptions of other driver behaviors that are antecedents to their aggressive driving. Finally, if participants chose to learn how to encourage their person to prevent harm, they were given examples of how to discuss the potentially dangerous consequences to the driver themselves or to others. After receiving the Step 3 content, participants had an option to go back and choose a different option if they felt the strategy did not make sense for their person.

3 Results

In the results that follow, the participant is the bystander who is concerned about the driving behavior of someone in their life. All data is reported by the participant. In some cases, results reference “the driver”; that information is from questions about the driver that were asked of the participant. The relationship categories are labeled based on participant role. The “parent” relationship is the participant as the parent and the driver as the child.

3.1 Driver Demographics

The driver demographics are summarized in Table 2. Drivers were of all ages and most were men ($n = 62$, 60.8%).

Table 2. Driver Demographics

	Parent	Friend	Spouse/Partner	Total
	n (%)	n (%)	n (%)	N (%)
Age				
15-17	2 (13.3)	0 (0)	0 (0)	2 (2.0)
18-24	7 (46.7)	9 (20.5)	2 (4.7)	18 (17.6)
25-34	3 (20.0)	7 (15.9)	12 (27.9)	22 (21.6)
35-44	1 (6.7)	10 (22.7)	11 (25.6)	22 (21.6)
45-54	1 (6.7)	7 (16.9)	7 (16.3)	15 (14.7)
55-64	1 (6.7)	6 (13.6)	4 (9.3)	11 (10.8)
65+	0 (0)	5 (11.4)	7 (16.3)	12 (11.8)
Gender				
Man	9 (60.0)	25 (56.8)	28 (65.1)	62 (60.8)
Woman	6 (40.0)	19 (43.2)	15 (34.9)	40 (39.2)

3.2 Aggressive Driving

The frequency of specific aggressive driving behaviors, the driver’s awareness that their driving is a problem, and the driver’s resistance to change are shown in Table 3.

Bystanders of aggressive drivers were most often worried about them tailgating other vehicles/following too close ($n = 49$, 48.0%), speeding in heavy traffic ($n = 48$, 47.1%), and weaving in and out of traffic ($n = 37$, 36.3%). Additionally, parents tended to also worry about their child responding to other drivers with yelling or rude gestures ($n = 6$, 40.0%). The majority of participants reported that their person was aware of their concern about their aggressive driving but resistant to change ($n = 85$, 83.3%).

Table 3. Aggressive Driving Behaviors, Awareness, and Resistance by Relationship

	Parent	Friend	Spouse/Partner	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>N</i> (%)
Aggressive Driving Behaviors				
tailgating other vehicles or following too close	11 (73.3)	22 (50.0)	16 (37.2)	49 (48.0)
responding to other drivers with yelling or rude gestures	6 (40.0)	14 (31.8)	8 (18.6)	28 (27.5)
weaving in and out of traffic	5 (33.3)	20 (45.5)	12 (27.9)	37 (36.3)
cutting off other vehicles and/or braking hard	1 (6.7)	11 (25.0)	10 (23.3)	22 (21.6)
ignoring the right-of-way to “beat” another vehicle	3 (20.0)	8 (18.2)	11 (25.6)	22 (21.6)
excessive honking or flashing headlights at other drivers	2 (13.3)	7 (15.9)	5 (11.6)	14 (13.7)
speeding in heavy traffic	7 (46.7)	20 (45.5)	21 (48.8)	48 (47.1)
purposefully slowing in front of another vehicle	1 (6.7)	4 (9.1)	9 (20.9)	14 (13.7)
blocking vehicles that are attempting to pass or change lanes	2 (13.3)	8 (18.2)	10 (23.3)	20 (19.6)
forcing other vehicles onto the shoulder or off the road	1 (6.7)	1 (2.3)	6 (14.0)	8 (7.8)
running stop signs or red lights	3 (20.0)	14 (31.8)	10 (23.3)	27 (26.5)
purposefully hitting another vehicle	0 (0)	0 (0)	1 (2.3)	1 (1.0)
Awareness				
Aware	14 (93.3)	39 (88.6)	42 (97.7)	95 (93.1)
Unaware	1 (6.7)	5 (11.4)	1 (2.3)	7 (6.9)
Resistance				
Resistant	14 (93.3)	37 (84.1)	37 (86.0)	88 (86.3)
Non-Resistant	1 (6.7)	7 (15.9)	6 (14.0)	14 (13.7)
Awareness/Resistance				
Aware/Resistant	13 (86.7)	35 (79.5)	37 (86.0)	85 (83.3)
Aware/Not Resistant	1 (6.7)	4 (9.1)	5 (11.6)	10 (9.8)
Unaware/Resistant	1 (6.7)	2 (4.5)	0 (0)	3 (2.9)
Unaware/Not Resistant	0 (0)	3 (6.8)	1 (2.3)	4 (3.9)

3.3 Strategy Selection

Participants could choose which strategy they would like to know more about for Step 3 of the intervention: correcting misperceptions their person may have, helping their person respond differently, or encouraging their person to prevent harm. (See Table 4.)

Most participants chose to learn more about correcting their person's misperceptions ($n = 53, 52.0\%$). This was also true for parents ($n = 10, 66.7\%$) and spouses/partners ($n = 26, 60.5\%$). However, friends were more evenly divided among the three options. The least popular option among parents ($n = 2, 13.3\%$) and friends ($n = 13, 29.5\%$) was helping their drivers respond differently. The least popular choice among spouses/partners was encouraging their significant other to prevent harm ($n = 7, 16.3\%$).

Table 4. Step 3 Selected Strategy by Relationship

	Parent	Friend	Spouse/Partner	Total
	n (%)	n (%)	n (%)	N (%)
Strategy Selection				
A. Correct Misperceptions	10 (66.7)	17 (38.6)	26 (60.5)	53 (52.0)
B. Respond Differently	2 (13.3)	13 (29.5)	10 (23.3)	25 (24.5)
C. Prevent Harm	3 (20.0)	14 (31.8)	7 (16.3)	24 (23.5)

3.4 Bystander Concern

Bystander concern and bystander intervention initiation was measured pre-intervention and 2 weeks post-intervention. Participants reported their concern about their person's driving as "a little concerned" (1), "somewhat concerned" (2), or "very concerned" (3). Prior to the intervention, most commonly participants ($n = 43, 42.2\%$) were very concerned about their person's driving behaviors ($M = 2.25, SD = 0.73$). At follow-up, concern has reduced to somewhat ($n = 49, 48.0\%$; $M = 1.89, SD = 0.72$). The trend of decreasing concern from pre-intervention to follow-up was the same for all relationship types. A paired samples t -test indicated that concern for their person's driving behavior decreased significantly from pre-intervention to follow-up, $t(101) = 3.93, p < .001, d = 0.93$.

3.5 Bystander Discussion of Aggressive Driving Behaviors

Bystanders were also asked if they talked to their driver about their driving at both pre-intervention and within two weeks of the follow-up. Specifically, participants were asked, "Have you ever tried talking to your [person] about their driving, especially [endorsed aggressive driving behavior] or [another endorsed aggressive driving behavior]?" before they received the intervention. The majority of participants had talked to their person about their driving within the past month ($n = 62, 60.8\%$), with several more reporting having discussed their person's driving over a month ago ($n = 36, 35.3\%$). Only four (3.9%) participants had never talked to their person before the intervention.

At follow-up, participants were asked, “Were you able to talk with your [person] about their driving over the past 2 weeks?” Most participants reported that they had talked to their person about their driving ($n = 72$, 70.6%) or at least tried to initiate the discussion ($n = 19$, 18.6%). However, some reported that they had not talked to their person nor tried to bring up the discussion ($n = 11$, 10.8%), but many of those participants still indicated that they engaged in some bystander behaviors ($n = 8$, 72.7%). Therefore, while they may not have engaged in an explicit discussion about driving with their person, they engaged in other behaviors such as “tried calming the driver while in the vehicle” or “hinted that their driving is unsafe.”

3.6 Bystander Behaviors

Frequency of bystander intervention behaviors at pre-intervention and 2-week follow-up are shown in Table 5.¹ The behaviors were recoded into 0, 1-2, and 3+ where 0 indicates that they did not engage in a behavior, 1-2 times indicates that they tried a bystander behavior, and 3 or more times indicates that the participant engaged in the behavior more frequently. Some behaviors were specific to the parent/child relationship and were asked only of parents (see Appendix C), and behaviors specific to the Step 3 intervention choice were asked only at follow-up to the participants who had selected that strategy.

Table 5. Bystander Behaviors at Pre-Intervention and Follow-Up

	Pre-Intervention			Follow-Up		
	0	1-2	3+	0	1-2	3+
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Behavior						
(Step 1) Expressed concern to your [person] about their driving.	10 (9.8)	36 (35.3)	56 (54.9)	7 (6.9)	42 (41.2)	53 (52.0)
Hinted that their driving is unsafe	3 (2.9)	30 (29.4)	69 (67.6)	12 (11.8)	31 (30.4)	59 (57.8)
Communicated that their driving is unsafe	15 (14.7)	29 (28.4)	58 (56.9)	13 (12.7)	30 (29.4)	59 (57.8)
(Step 2) Used jokes or humor to bring up their driving	33 (32.4)	19 (18.6)	50 (49.0)	19 (18.6)	25 (24.5)	58 (56.9)
Expressed disapproval of their driving	12 (11.8)	33 (32.4)	57 (55.9)	18 (17.6)	31 (30.4)	53 (52.0)
(Step 1) Discussed how their driving aligns with their values	40 (39.2)	13 (12.7)	49 (48.0)	32 (31.4)	24 (23.5)	46 (45.1)

¹ Table of bystander behaviors by relationship can be found in Appendix C.

(Step 2) Compared their driving to behavior in other settings	35 (34.3)	22 (21.6)	45 (44.1)	28 (27.5)	25 (24.5)	49 (48.0)
Discussed the safety consequences of their driving	21 (20.6)	29 (28.4)	52 (51.0)	12 (11.8)	37 (36.3)	52 (51.0)
Discussed the financial consequences of their driving	29 (28.4)	25 (24.5)	48 (47.1)	22 (21.6)	29 (28.4)	50 (49.0)
Tried calming the driver while in the vehicle	24 (23.5)	30 (29.4)	48 (47.1)	26 (25.5)	28 (27.5)	48 (47.1)
Step 3 Specific Behaviors*						
(Step 3A) Identified and corrected misperceptions your [person] has about their driving				9 (17.0)	14 (26.4)	30 (56.6)
(Step 3B) Encouraged your [person] to respond differently while driving				1 (4.0)	7 (28.0)	17 (68.0)
(Step 3C) Talked to your [person] about how to prevent harm while driving				7 (29.2)	8 (33.3)	9 (37.5)
*only asked those who selected each strategy						

Intervention specific behaviors for Step 1 and Step 2 increased overall from pre-intervention to follow-up. However, participants were more likely to implement Step 2 behaviors more consistently (3+ times) from pre-intervention to follow-up but less likely to implement Step 1 behaviors more consistently from pre-intervention to follow-up. Prior to the intervention, the most common intervention techniques were hinting that their person's driving is unsafe, expressing concern about their driving (Step 1), and expressing disapproval of their driving. At follow-up, expressing concern (Step 1), discussing the safety consequences of their driving, and hinting that their person's driving was unsafe were most common.

For Step 3, people were most likely to engage in the behavior they learned about in the third step when they chose respond differently (3B), with only 1 of those participants (4.0%) reporting not utilizing that strategy at follow-up, compared to 17.0% of participants who chose correcting misperceptions and 29.2% of participants who chose preventing harm. Participants who chose respond differently were also more likely to consistently use this strategy compared to participants who had chosen the other two strategies. Looking at engagement by relationship type (see Appendix C), many parents who chose correct misperceptions reported not utilizing that strategy. On the other hand, encouraging drivers to respond differently was successfully implemented across each type of relationship.

Participants were also asked an open-ended question about other strategies they used to intervene. Responses included asking for specific actions that would make their

driving safer, setting an example by driving safe themselves, recruiting others into the discussion, setting boundaries, and exaggerating reactions to unsafe driving.

3.7 Bystander Self-Efficacy

Participants reported their confidence in intervening before and after receiving the intervention. For each item, participants indicated whether they were “not at all confident” (1), “a little confident” (2), “somewhat confident” (3), “fairly confident” (4), or “extremely confident” (5). See Table 6 for means (M) and standard deviations (SD).

At pre-intervention, the participants on average felt fairly confident that they could communicate effectively ($M = 3.10$, $SD = 1.26$) but less confident in their ability to influence their person to drive more safely ($M = 2.92$, $SD = 1.45$). After receiving the intervention, participants were asked the same two items as in the pre-intervention, as well as confidence in implementing step-specific behaviors. Post-intervention, participants felt somewhat to fairly confident in communicating with their person ($M = 3.48$, $SD = 1.15$), influencing their driving ($M = 3.32$, $SD = 1.27$), and all steps of the intervention (M ranges from 3.45-3.67). Confidence was consistent at post-intervention for Step 3, with no differences based on relationship ($p = 0.28$) or selected strategy ($p = 0.45$).

Examining confidence from pre-intervention to post-intervention using a mixed 2 (time: pre vs. post) by 3 (relationship type: parent, friend, vs spouse/partner) analysis of variance (ANOVA), participants felt more confident post-intervention in communicating effectively with their person about their driving compared to pre-intervention ($F(1, 99) = 8.13$, $p = 0.01$, $\eta_p^2 = 0.08$). Importantly, there was no main effect for relationship type ($F(2, 99) = 1.88$, $p = 0.16$, $\eta_p^2 = 0.04$) nor a time by relationship type interaction ($F(2, 99) = 1.18$, $p = 0.31$, $\eta_p^2 = 0.02$).

Similarly, participants felt significantly more confident post-intervention compared to pre-intervention in their ability to influence their person's driving ($F(1, 99) = 10.33$, $p < 0.01$, $\eta_p^2 = 0.09$). Although there was no time by relationship type interaction ($F(2, 99) = 0.26$, $p = 0.77$, $\eta_p^2 = 0.01$), there was a significant main effect for relationship ($F(2, 99) = 4.30$, $p = 0.02$, $\eta_p^2 = 0.08$). Specifically, post-hoc analyses demonstrated that spouses/partners had higher overall confidence in influencing their person's driving ($M = 3.53$, $SD = 1.30$) compared to parents ($M = 2.73$, $SD = 1.10$; $p = 0.03$) or friends ($M = 2.85$, $SD = 1.18$; $p = 0.01$). Parents and friends did not significantly differ from one another ($p = 0.75$).

Table 6. Bystander Confidence by Relationship at Pre- and Post-Intervention

	Pre-Intervention				Post-Intervention			
	Parent	Friend	Spouse/ Partner	Total	Parent	Friend	Spouse/ Partner	Total
<i>How confident are you that you can...</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Communicate effectively with your [person] about their driving	2.73 (1.28)	3.00 (1.20)	3.33 (1.29)	3.10 (1.26)	2.93 (1.10)	3.57 (1.11)	3.58 (1.18)	3.48 (1.15)
Influence your [person] to drive more safely	2.60 (1.24)	2.61 (1.42)	3.35 (1.47)	2.92 (1.45)	2.87 (1.13)	3.09 (1.18)	3.72 (1.31)	3.32 (1.27)
(Step 1) Express concern to your [person] about their driving					3.40 (1.06)	3.64 (1.20)	3.79 (1.26)	3.67 (1.21)
(Step 1) Connect to values that matter to your [person]					3.20 (0.86)	3.34 (1.18)	3.65 (1.17)	3.45 (1.14)
(Step 2) Compare their driving in other settings					3.33 (1.05)	3.68 (1.10)	3.74 (1.02)	3.66 (1.06)
(Step 3A) Correct misperceptions your [person] has about their driving					3.50 (0.71)	3.24 (1.15)	3.65 (1.33)	3.49 (1.17)
(Step 3B) Help your [person] respond differently					1.50 (0.71)	3.85 (0.90)	3.70 (1.34)	3.60 (1.23)
(Step 3C) Help your [person] understand how to prevent harm					3.67 (0.58)	3.43 (1.40)	3.43 (1.51)	3.46 (1.32)

At the follow-up, participants were asked to rate “To what extent do you feel you were able to...” for the same items, with a response scale from “not at all” (1) to “very much so” (5). See Table 7 for means and standard deviations. Overall, participants reported that they were able to communicate with their person ($M = 3.19$, $SD = 1.15$), influence their person’s driving ($M = 3.08$, $SD = 1.23$), and implement Step 1 and 2 of the intervention (M ranges from 3.06-3.45). Most items did not significantly differ by relationship (all $ps > 0.05$), except for comparing their person’s driving to different settings (Step 2; $F(2, 99) = 3.12$, $p = 0.049$), where spouses/partners ($M = 3.42$, $SD = 1.22$) were more successful than friends ($M = 2.82$, $SD = 1.32$; $p = 0.03$). For Step 3, participants who chose to correct their person’s misperceptions (3A) were most able to implement the strategy ($M = 3.26$, $SD = 1.24$), compared to those who chose to help their person respond differently (3B; $M = 2.92$, $SD = 1.50$) or help their person understand how to prevent harm (3C; $M = 2.92$, $SD = 1.28$), though these differences were not statistically significant ($p = 0.27$) and did not differ by relationship ($p = 0.78$).

Table 7. Bystander Self-Efficacy by Relationship at Follow-Up

	Follow-Up			
	Parent	Friend	Spouse/ Partner	Total
<i>To what extent were you able to...</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Communicate effectively with your [person] about their driving	2.93 (1.03)	3.11 (1.22)	3.35 (1.11)	3.19 (1.15)
Influence your [person] to drive more safely	2.87 (0.99)	2.93 (1.28)	3.30 (1.25)	3.08 (1.23)
(Step 1) Express concern to your [person] about their driving	3.53 (0.92)	3.50 (1.27)	3.37 (1.25)	3.45 (1.21)
(Step 1) Connect to values that matter to your [person]	3.13 (1.25)	3.09 (1.38)	3.28 (1.30)	3.18 (1.32)
(Step 2) Compare their driving in other settings	2.73 (1.10)	2.82 (1.32)	3.42 (1.22)	3.06 (1.27)
(Step 3A) Correct misperceptions your [person] has about their driving	3.10 (0.99)	3.06 (1.30)	3.46 (1.30)	3.26 (1.24)
(Step 3B) Help your [person] respond differently	1.50 (0.71)	3.00 (1.53)	3.10 (1.52)	2.92 (1.50)
(Step 3C) Help your [person] understand how to prevent harm	3.67 (1.16)	2.86 (1.41)	2.71 (1.11)	2.92 (1.28)

3.8 Driver Response

Further measures at two-week follow-up were used to examine outcomes of the intervention. Specifically, participants were asked on six dimensions of communication how the conversation went with their person. Each dimension of communication used a semantic differential from 1-5. Participants rated their person during the interaction from closed-minded (1) to open-minded (5), unconcerned (1) to concerned (5) about their driving, withdrawn (1) to engaged (5) in the conversation, unwilling (1) to willing (5) to change their driving, negative (1) to positive (5) attitude, and angry or upset (1) to happy (5). Results are illustrated in Figure 1. Overall, participants reported that drivers tended to be open-minded ($M = 3.14$, $SD = 1.43$), engaged in the conversation ($M = 3.17$, $SD = 1.30$), willing to change ($M = 3.06$, $SD = 1.31$), positive ($M = 3.04$, $SD = 1.28$), and happy ($M = 3.16$, $SD = 1.19$). However, at follow-up, participants indicated that overall drivers tended to be unconcerned about their driving ($M = 2.95$, $SD = 1.31$). These results did not differ by relationship group (all $ps > 0.05$) or Step 3 strategy selection (all $ps > 0.05$).

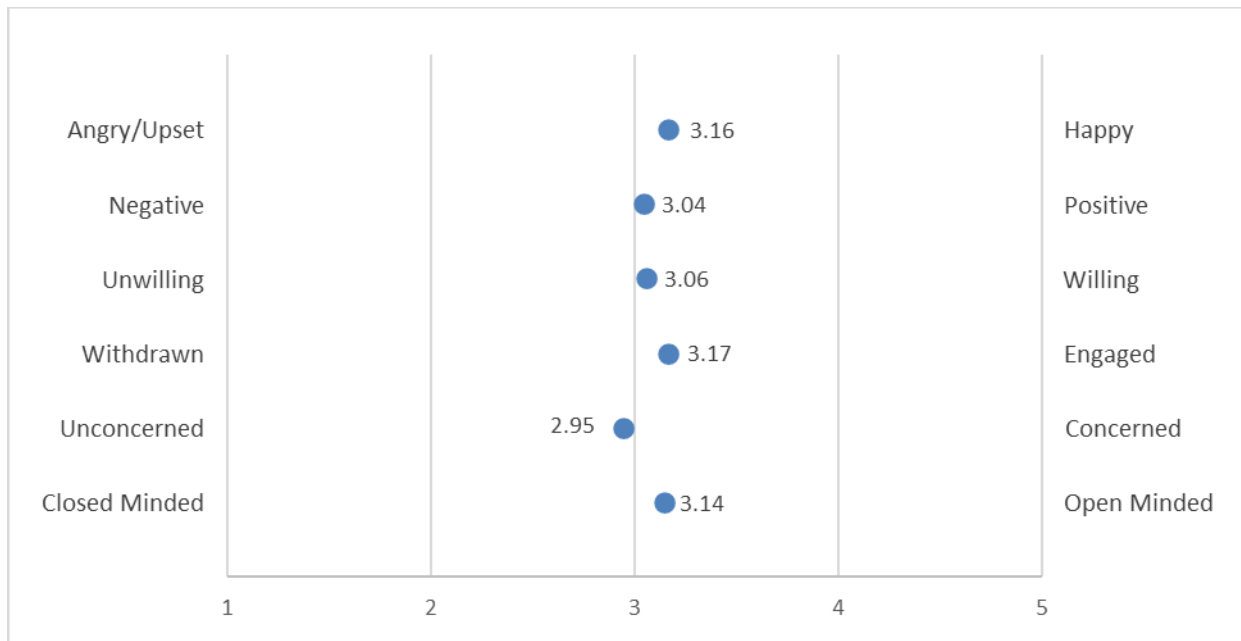


Figure 1. Mean Ratings of Driver During Interactions

At follow-up, participants were also asked how the frequency of their person's aggressive driving behavior changed over the past 2 weeks. Participants reported whether their person drives that way much less often (1), somewhat less often (2), about the same (3), somewhat more often (4), or much more often (5), with the distribution illustrated in Figure 2. Overall, participants indicated that the aggressive driving behaviors occurred less often to about the same ($M = 2.45$, $SD = 0.98$), with no difference across relationship groups ($p = 0.77$). Participants were also asked how their person's driving safety changed from a lot better (1), somewhat better (2), about the same (3), or somewhat worse (4), with the distribution illustrated in Figure 3. Most participants felt their person's driving was somewhat better to about the same ($M = 2.39$, $SD = 0.81$). The patterns did not differ across relationship groups, $p = 0.49$.

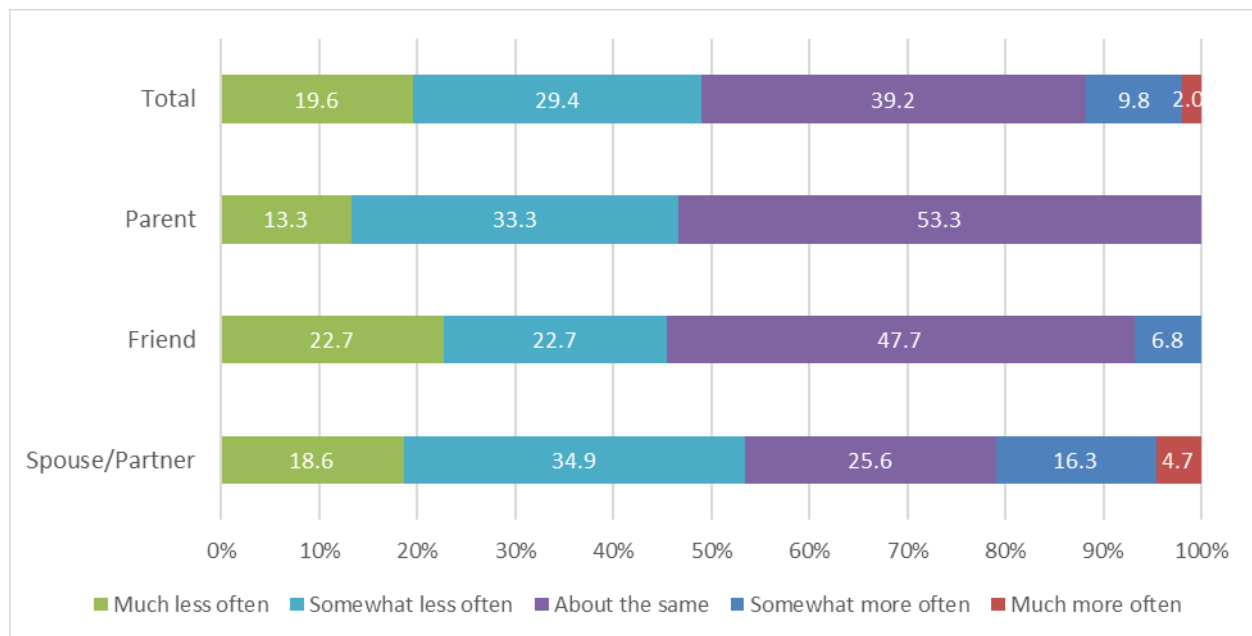


Figure 2. Aggressive Driving Frequency Change Reported at Follow-Up

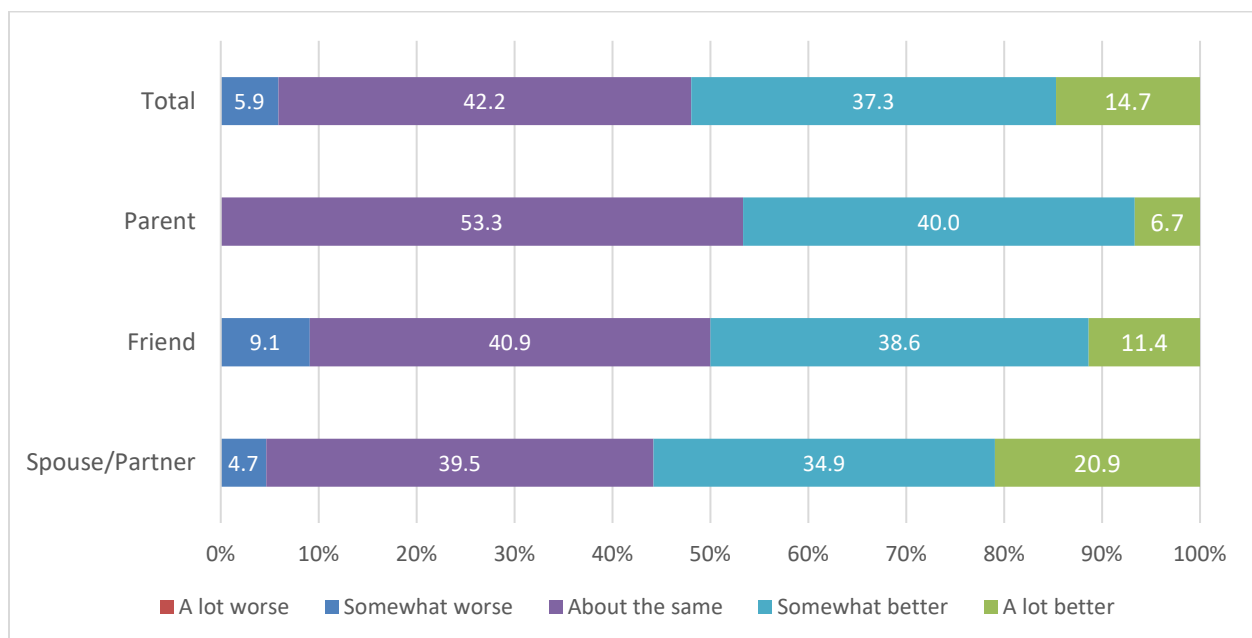


Figure 3. Driving Safety Change Reported at Follow-Up

Participants were asked how likely they thought it was that their person would change their driving in the future to be safer. Response options were not likely at all (1), a little likely (2), somewhat likely (3), quite likely (4), and extremely likely (5). Results are shown in Figure 4. Overall, participants tended to think that their driver was somewhat likely to drive more safely in the future ($M = 3.01$, $SD = 1.17$), with no significant differences by relationship type ($p = 0.50$).

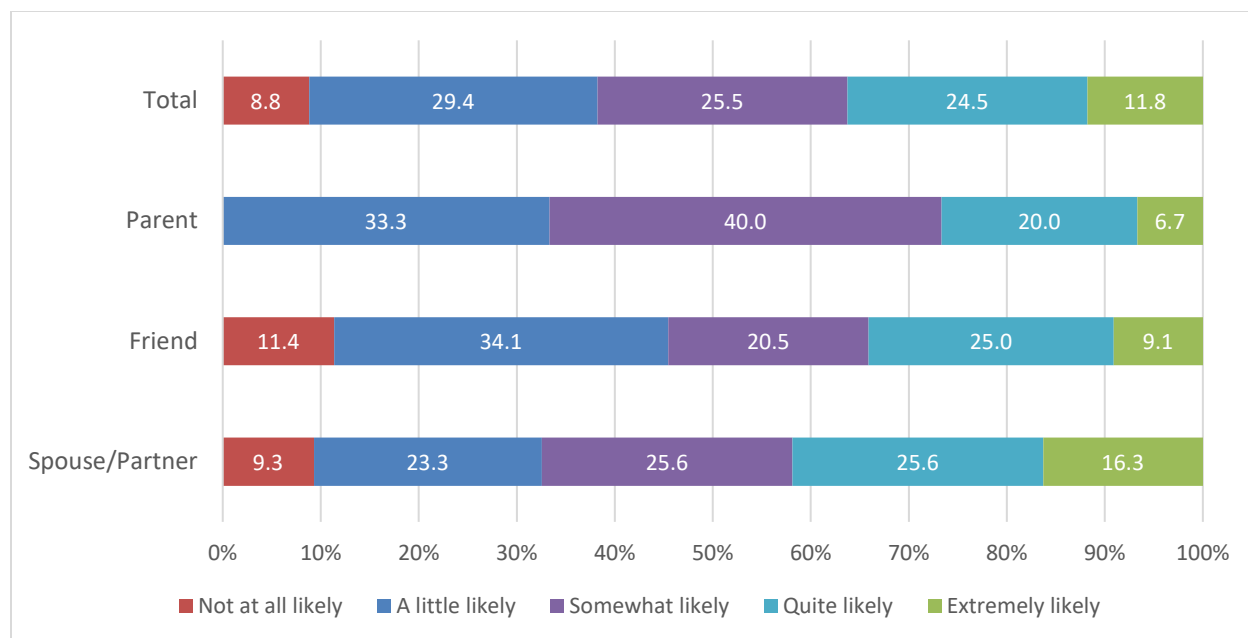


Figure 4. Likelihood that Driver Would Change in Future to be More Safe

3.9 Further Bystander Intervention

To understand whether bystanders would continue to implement what they learned, participants were asked how likely they were to talk to their person about their driving in the future, from not likely at all (1) to extremely likely (5). The distribution of responses by relationship is shown in Figure 5. Few participants ($n = 21$; 20.6%) indicated that it not at all likely or only a little likely that they would have future conversations. On average, participants reported that they were somewhat to quite likely to talk to their person ($M = 3.41$, $SD = 1.10$), with no differences across relationship types ($p = 0.60$).

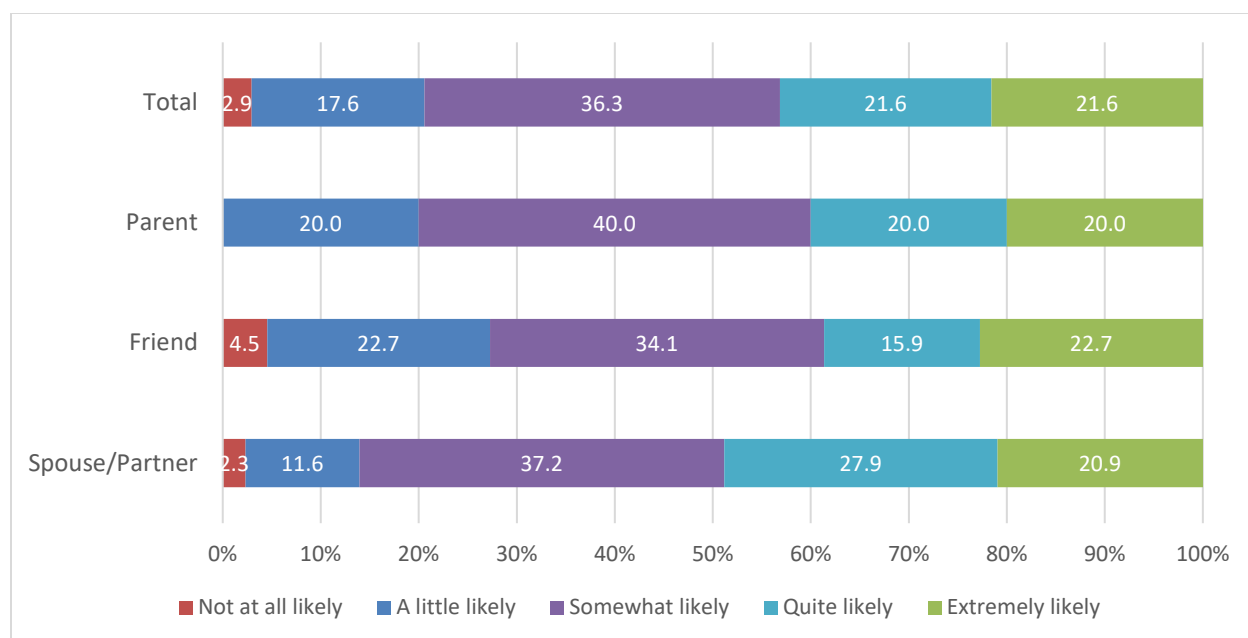


Figure 5. Participant Likelihood of Future Discussion About Driving

We also asked participants in an open-ended question what else they would do in the future to support their person to drive more safely. Parents emphasized calm communication and monitoring of their child's driving. They also discussed positive reinforcement. One parent noted that they would, "Express what they are doing right, instead of just concentrating on the negative." Friends tended to focus on the importance of continued conversations and asking for specific safer driving behaviors. One even noted that they would support their person saying, "I will go to driving school with them to support their driving issue." Spouses/partners focused on how to be supportive and comforting with their partner and even willing to practice safe driving with their significant other. One spouse/partner similarly said that they would, "Encourage regular breaks, provide gentle reminders, and attend driving safety courses together."

3.10 Intervention Feedback

Importantly, participants were asked about their application and perceived helpfulness of the intervention information. Participants rated whether they were able to apply the information they learned to their interactions with their person on a scale from not at all (1) to very much (5). Overall, participants tended to feel that they were somewhat able to apply the information they learned ($M = 3.41$, $SD = 1.07$), which did not change by the type of relationship ($p = 0.50$). They were also asked how helpful the information was overall from not at all helpful (1) to extremely helpful (5). Overall, participants tended to find the information somewhat to very helpful ($M = 3.57$, $SD = 1.03$). However, this differed by relationship as determined by a one-way ANOVA ($F(2,99) = 3.89$, $p =$

0.02, $\eta_p^2 = 0.07$). Specifically, spouses/partners ($M = 3.88$, $SD = 0.93$) found the information more helpful compared to both parents ($M = 3.20$, $SD = 1.08$; $p = 0.03$) and friends ($M = 3.39$, $SD = 1.04$; $p = 0.02$) whereas parents and friends found the intervention equally helpful ($p = 0.54$). Many participants used the one-page summary provided to them after the intervention ($n = 42$, 45.1%). About half of parents ($n = 7$, 46.7%) and spouses/partners ($n = 22$, 51.2%) referred to the summary between the intervention and the follow up, but fewer friends did ($n = 17$, 38.6%).

In open-ended questions, we also asked what other information would have been helpful and what feedback they had for the intervention. Most indicated that they did not need more information ($n = 69$, 67.6%) and had positive or no feedback ($n = 92$, 90.2%). One participant noted, “The content was clear and well-organized. A quick reference checklist at the end would make it even more actionable.” Others also noted that information about how to navigate emotions would be helpful such as, “how to deescalate [the] situation.” Participants also indicated that examples of consequences, examples of how to drive safer, and video demonstrations would have been helpful to include.

4 Discussion

Bystanders are well-positioned to support safer driving behaviors in their close friends and family members and the role of bystanders to reduce aggressive driving is understudied. This study focused on determining feasibility and perceived effectiveness of an intervention to support bystanders in interacting with important others in their lives to reduce aggressive driving. Findings suggest that parents, friends, spouses, and partners can indeed feasibly utilize educational materials to support interactions with their loved ones toward reductions in aggressive driving behaviors.

Overall, following intervention, participants reported increased confidence in their ability to communicate with their person and to influence their person to drive more safely. This is an important step, as prior research indicates that perceived self-efficacy is a critical factor in whether bystanders attempt to intervene in risky behaviors (Krieger et al., 2017; Sjögren et al., 2020). By providing practical guidance with relationship-specific examples and customizable strategies, the intervention supported bystanders in overcoming barriers and effectively interacting with their person to address aggressive driving. However, differences by relationship type highlight potential nuances. For instance, spouses and partners consistently expressed greater confidence and greater perceived ability to influence their person's driving compared to friends and parents. This may reflect greater frequency of shared driving experiences among partners or the stronger potential leveraged afforded by intimate relationships. In contrast, parents often reported lower confidence, suggesting that intergenerational power dynamics may limit perceived influence.

The intervention's responsive and flexible design, which allowed participants to choose their own Step 3 strategy, appears to have been effective. Participants who chose to support their person in responding differently were especially likely to implement the strategy consistently, suggesting that this option may be particularly accessible or actionable in real-world contexts. By contrast, strategies emphasizing correcting misperceptions or harm prevention were not applied as consistently. It is possible these approaches require greater skill, comfort, or repeated practice.

While bystanders generally described drivers as open-minded, engaged, and willing to consider change, many also perceived drivers as unconcerned about their own behavior. This reflects a tension common in risk communication: bystanders may succeed in initiating dialogue, but drivers' resistance to acknowledging harm limits the potential for immediate change. Nonetheless, a meaningful proportion of participants perceived reductions in aggressive driving frequency and modest improvements in

safety at follow-up, suggesting that even short-term interventions can yield positive outcomes.

It is critical to consider the findings of this study in light of its limitations. First, the participants were recruited from an online panel and may differ from the general population. That is, their experiences and perceptions may not generalize to the larger population of U.S. adults. Further, we recruited a relatively small sample size; while appropriate for a feasibility study such as this one, the small sample size further restricts generalizability. While participants from each relationship group (i.e., parents, friends, spouses/partners) were included, the parent group in particular was small. Especially for subgroup analyses that further restricted group size within parents, such as analyses around Step 3 strategy selection, the ability to draw conclusions is limited. Additionally, as this was a feasibility and acceptability study, we assessed participants' perceptions of effectiveness but did not gather information from drivers directly nor include objective measures of driver behavior.

Despite these limitations, the current study demonstrates that bystanders of people who drive aggressively can increase their confidence in interacting to improve their loved one's driving by engaging with educational materials. Further, bystanders were generally able to utilize the strategies with their loved one and many reported less engagement in aggressive driving behaviors and safer driving.

5 Conclusion and Next Steps

This study provides promising evidence that bystanders can be supported in playing an active role in reducing aggressive driving. Traffic safety culture emphasizes the collective responsibility of communities to promote safe road use, and these findings highlight how close social networks can contribute to that effort. By empowering bystanders with relationship-tailored tools and encouraging early, values-based conversations, interventions can extend the reach of traditional traffic safety campaigns beyond drivers themselves.

This report serves as Task 2 for the Understanding Aggressive Driving and Ways to Reduce It, Phase 2 project. Tools and resources based on these findings will be developed in a later task and included in the final report.

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Appendix A: Survey and Intervention

Consent Form

SUBJECT CONSENT FORM FOR PARTICIPATION IN HUMAN RESEARCH AT MONTANA STATE UNIVERSITY (MSU)

Researchers at the Center for Health and Safety Culture (CHSC) at Montana State University are asking you to participate in a research study to help people support others in their lives to drive more safely. This form describes this study to you and explains how you can ask questions. This study is being led by Dr. Bridget Hanson, a researcher at CHSC.

What the study is about

The purpose of this research is to understand how people might help important others in their lives to drive more safely. We have developed a survey designed to learn about driving behaviors of your friends or family and a brief set of strategies that you could use to support someone in your life to drive more safely. The information we learn in this study will help us understand ways to decrease risky driving.

What we will ask you to do

We are asking you to participate in a survey at two different times, approximately two weeks apart. The first survey will take 10-15 minutes, including receiving information. The second survey will take 5-10 minutes.

Risks and discomforts

We anticipate that this study will be minimally disruptive. Participating in surveys and/or reviewing the information may challenge some of your perceptions or give you new information to think about. If you try talking to someone in your life about their driving, you may feel uncomfortable or they may respond negatively. You are not required to have discussions with others in order to participate in this study and you should only do so if you feel safe.

Benefits

You may benefit from learning strategies and tips for supporting others in driving more safely. Information from this study will be used to understand ways to decrease risky driving and help people improve their driving.

Funding

This project is funded through a grant to Montana State University's Center for Health and Safety Culture from Montana Department of Transportation and the Federal Highway Administration (FHWA). There are no costs to you. Your participation will not impact your relationship with Montana State University or the state of Montana.

Compensation for participation

If you choose to participate in the study, you may receive credit or compensation from Qualtrics or their survey partners.

Privacy/Confidentiality/Data Security

All information you provide will be kept confidential. No identifying information will be collected with the research data. Data will be securely stored and access to the data will be limited to Center staff who are working on this project. Results from the study will be reported in aggregate and will not include details that may identify you. After completion of the project, data will be securely maintained and retained for three years.

Taking part is voluntary

Participation is voluntary, and you can choose to not answer any questions you do not want to answer and/or you can stop at any time.

If you have questions

The main researcher conducting this study is Bridget Hanson, PhD, a researcher at CHSC. You may contact her by email if you have any questions about the study at bridget.hanson@montana.edu. If you have any questions or concerns regarding your rights as a participant in this study, you may contact the MSU Institutional Review Board (IRB) at irb@montana.edu. [IRB protocol #2025-2111]

Consent

Proceeding with this survey indicates your consent to participate. Thank you!

Eligibility

What is your age?

- ☐ Under 18 (*ineligible*)
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

Are you comfortable reading and writing in English?

- ☐ Yes
- ☐ No (*ineligible*)

Is there someone in your life whose driving concerns you?

- ☐ Yes
- ☐ No (*ineligible*)

You indicated you are concerned about someone's driving. What is your relationship to this person? **This person is my...**

Note for parent-child relationships: If you are the parent, please select **child** (This person is my child). If you are the child, please select **parent** (This person is my parent.)

- ☐ spouse
- ☐ partner
- ☐ friend
- ☐ child
- ☐ parent (*ineligible*)
- ☐ other. Please describe: _____ (*ineligible*)

What kinds of driving behaviors does this person engage in that you are concerned about? (Select all that apply.)

- ☐ tailgating other vehicles or following too close (*aggressive driving behavior*)
- ☐ responding to other drivers with yelling or rude gestures (*aggressive driving behavior*)
- ☐ weaving in and out of traffic (*aggressive driving behavior*)
- ☐ cutting off other vehicles and/or braking hard (*aggressive driving behavior*)
- ☐ ignoring the right-of-way to "beat" another vehicle (*aggressive driving behavior*)
- ☐ excessive honking or flashing headlights at other drivers (*aggressive driving behavior*)
- ☐ speeding in heavy traffic (*aggressive driving behavior*)
- ☐ purposefully slowing in front of another vehicle (*aggressive driving behavior*)
- ☐ blocking vehicles that are attempting to pass or change lanes (*aggressive driving behavior*)
- ☐ forcing other vehicles onto the shoulder or off the road (*aggressive driving behavior*)
- ☐ running stop signs or red lights (*aggressive driving behavior*)
- ☐ purposefully hitting another vehicle (*aggressive driving behavior*)
- ☐ speeding (*non-aggressive driving behavior*)
- ☐ driving too fast for weather conditions (*non-aggressive driving behavior*)

- driving under the influence of alcohol (*non-aggressive driving behavior*)
- driving under the influence of cannabis/marijuana (*non-aggressive driving behavior*)
- driving under the influence of substances other than alcohol or cannabis/marijuana (*non-aggressive driving behavior*)
- using their phone while driving (*non-aggressive driving behavior*)
- distracted driving other than using their phone while driving (*non-aggressive driving behavior*)
- driving when drowsy or tired (*non-aggressive driving behavior*)
- not wearing their seat belt (*non-aggressive driving behavior*)
- not ensuring passengers use seat belts or appropriate restraints (*non-aggressive driving behavior*)
- unsafe driving due to old age (*non-aggressive driving behavior*)
- unsafe driving due to mental or physical impairment (*non-aggressive driving behavior*)

(Order of responses randomized. Participants needed to endorse at least two aggressive driving behaviors to be eligible.)

Ineligible Message

Thank you for completing the survey! Based on your responses, you are not eligible for this research project.

Demographics

To ensure we have information from a variety of people, we would like to gather some basic demographic information.

Thinking about your **[Person]** whose driving concerns you...

What is their gender?

- ☐ Man
- ☐ Woman
- ☐ Transgender Man
- ☐ Transgender Woman
- ☐ Non-binary
- ☐ Another gender, describe: _____

What is their age?

- ☐ 15-17
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

We'd also like to know a little more about you.

Are you currently a licensed driver?

- ☐ Yes
- ☐ No

How do you describe your gender?

- ☐ Man
- ☐ Woman
- ☐ Transgender Man
- ☐ Transgender Woman
- ☐ Non-binary
- ☐ Another gender, describe: _____

Choose one or more races that you consider yourself to be

- ☐ White or Caucasian
- ☐ Black or African American
- ☐ American Indian/Native American or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other
- ☐ Prefer not to say

Are you of Spanish, Hispanic, or Latino origin?

- ☐ Yes
- ☐ No

What state do you live in?

- | | | |
|---|--------------------------------------|--------------------------------------|
| <input type="radio"/> I live outside the U.S. | <input type="radio"/> Kentucky | <input type="radio"/> North Dakota |
| <input type="radio"/> Alabama | <input type="radio"/> Louisiana | <input type="radio"/> Ohio |
| <input type="radio"/> Alaska | <input type="radio"/> Maine | <input type="radio"/> Oklahoma |
| <input type="radio"/> Arizona | <input type="radio"/> Maryland | <input type="radio"/> Oregon |
| <input type="radio"/> Arkansas | <input type="radio"/> Massachusetts | <input type="radio"/> Pennsylvania |
| <input type="radio"/> California | <input type="radio"/> Michigan | <input type="radio"/> Rhode Island |
| <input type="radio"/> Colorado | <input type="radio"/> Minnesota | <input type="radio"/> South Carolina |
| <input type="radio"/> Connecticut | <input type="radio"/> Mississippi | <input type="radio"/> South Dakota |
| <input type="radio"/> Delaware | <input type="radio"/> Missouri | <input type="radio"/> Tennessee |
| <input type="radio"/> Florida | <input type="radio"/> Montana | <input type="radio"/> Texas |
| <input type="radio"/> Georgia | <input type="radio"/> Nebraska | <input type="radio"/> Utah |
| <input type="radio"/> Hawaii | <input type="radio"/> Nevada | <input type="radio"/> Vermont |
| <input type="radio"/> Idaho | <input type="radio"/> New Hampshire | <input type="radio"/> Virginia |
| <input type="radio"/> Illinois | <input type="radio"/> New Jersey | <input type="radio"/> Washington |
| <input type="radio"/> Indiana | <input type="radio"/> New Mexico | <input type="radio"/> West Virginia |
| <input type="radio"/> Iowa | <input type="radio"/> New York | <input type="radio"/> Wisconsin |
| <input type="radio"/> Kansas | <input type="radio"/> North Carolina | <input type="radio"/> Wyoming |

How would you describe the area where you live?

- ☐ Urban area or large city
- ☐ Suburb near a large city
- ☐ Small city or town
- ☐ Rural

Previous Bystander Intervention

Next we have a few questions about your **[Person]** and their driving that concerns you. When you think about their driving, please think specifically about their risky driving that impacts other people, like **[First endorsed aggressive driving behavior]** and **[Second endorsed aggressive driving behavior]**.

How concerned are you about these driving behaviors?

- ☐ A little concerned
- ☐ Somewhat concerned
- ☐ Very concerned

Have you ever tried talking to your **[Person]** about their driving, specifically **[First endorsed aggressive driving behavior]** or **[Second endorsed aggressive driving behavior]**?

- ☐ Yes, within the last month
- ☐ Yes, more than a month ago
- ☐ No

Thinking about unsafe driving behaviors like **[First endorsed aggressive driving behavior]** or **[Second endorsed aggressive driving behavior]**, which of the following best describes your **[Person]**?

- They don't know that I am concerned, and I don't think they are aware that it is a problem. (*Not aware; Shows next question*)
- They know I am concerned, but they don't think it's a problem. (*Aware; Resistant*)
- They realize their driving is sometimes unsafe or otherwise an issue, but they resist changing. (*Aware; Resistant*)
- They realize their driving is sometimes unsafe or otherwise an issue, and they are considering changing or trying to improve. (*Aware; Not resistant*)

If you were to bring it up, how open do you think they would be to changing their driving behavior?

- Very open to change (*Not aware; Not resistant*)
- Somewhat open to change (*Not aware; Not resistant*)
- Somewhat resistant to change (*Not aware; Resistant*)
- Very resistant to change (*Not aware; Resistant*)

How many times have you done each of the following in the past 2 weeks?

	0	1	2	3	4	5	6	7	8+
Expressed concern to your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hinted that their driving is unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicated that their driving is unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used jokes or humor to bring up their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Expressed disapproval of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had a heated conversation about their driving (for example, with either person shouting or yelling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed how their driving aligns with their values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared their driving to behavior in other settings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed the safety consequences of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed the financial consequences of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried calming the driver while in the vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Threatened to take away driving privileges (<i>shown if person = child</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited driving privileges as a consequence (<i>shown if person = child</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased monitoring of driving (<i>shown if person = child</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How confident are you that you can:

	not at all confident	a little confident	somewhat confident	fairly confident	extremely confident
Communicate effectively with your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Influence your [Person] to drive more safely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Transition to intervention:

You said you were concerned about your **[Person]**'s driving. Specifically, you are concerned about behaviors such as **[First endorsed aggressive driving behavior]** and **[Second endorsed aggressive driving behavior]**. We have some suggestions on how to approach the subject with your **[Person]**. This information will be specific to you and your **[Person]** to help you have a meaningful and successful conversation with them about their driving.

Intervention

Introduction

It's normal to feel unsure or nervous about talking to your **[Person]** about their driving. Many people have felt the same — worried about safety, unsure what to say, or afraid of hurting the relationship. You're not alone if you feel frustrated or like nothing is changing.

But what you do still matters. You can help them make safer choices. Your care, concern, and willingness to speak up are important, even if you experience resistance, or things don't change right away. It may not be easy to say something, but your voice can make a difference.

In this three-step process, you will learn from example conversations and simple tips to help you talk to someone you care about who drives unsafely. These tools can help you share your concerns in a calm way, connect to values you both care about (like safety or respect) and show why some driving behaviors don't make sense in other daily situations. You'll also learn ways to bring up common problems like speeding or yelling at other drivers.

Along the way, you'll also be reminded of communication strategies that help the conversation, such as:

- Use "I" statements to talk about how you feel instead of blaming or accusing.
- If emotions are running high, wait for a calmer moment to talk.
- If the conversation gets heated, take a break and come back to it later.
- Speak up early. You don't have to wait until a crash or something else bad happens.

The following example conversations and tips are meant to make it easier for you to speak up and feel more confident.



USING "I" STATEMENTS

Using "I" statements means expressing your thoughts, feelings, and needs by focusing on your own experience. This communication technique promotes clarity, reduces defensiveness, and helps resolve conflict more constructively.

A basic structure you can use is "I feel [emotion] when [situation or behavior] because [impact or reason]. I would like [need or request]."

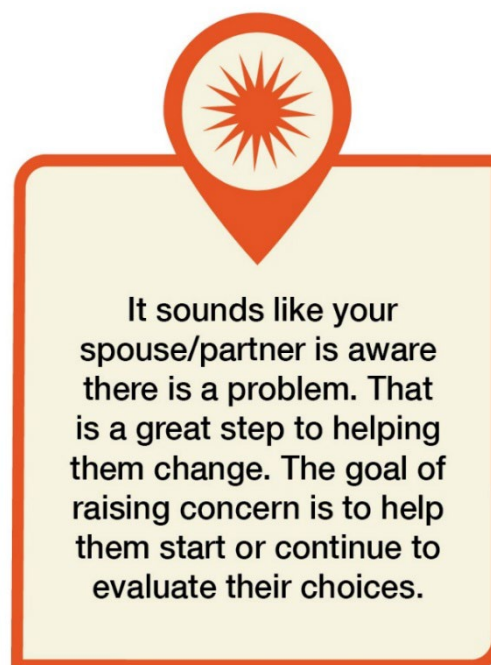
Step 1: Express Concern and Connect to Values

STEP 1 Express Concern and Connect to Values

If this is the first time you are speaking with this person about their driving behavior or you do not think they are aware of the problem, start by expressing concern. Let your **[Person]** know that you are concerned for their safety. You are not trying to nag or annoy them. Even if you've talked about their driving before, it can be helpful to take a step back, clearly express concern, and let them know that you are coming from a place of concern.

Remember to use “I” statements and describe how you feel. This might sound like:

- “Hey, I noticed you get really tense when driving. Everything okay?”
- “I worry about your safety when you drive so fast.”
- “I know you’re a capable driver, but I still worry when I see you **[First endorsed aggressive driving behavior]**.”



It sounds like your spouse/partner is aware there is a problem. That is a great step to helping them change. The goal of raising concern is to help them start or continue to evaluate their choices.

(Example of spouse/partner is aware that their driving is a problem.)

Next, try connecting to what matters to your **[Person]**, what they value.

Values are at the core of how people see themselves. When a message connects to what someone deeply values, it can reveal how their current behavior, like unsafe driving, doesn't quite match who they believe themselves to be. By starting with value-aligned language, you help the conversation feel respectful, less critical, and emotionally safe. Instead of leading with disapproval, you focus on what matters to them, which builds trust and opens the door to change. Take a moment to think about the person in your life whose driving is unsafe. What seems important to them?

Self-focused values might include:

- independence or personal freedom,
- self-control and discipline,
- being responsible,
- strength or safety of self,
- avoiding hassles and negative consequences.

Community-focused values might include:

- protecting others or caring for the family,
- being a role model,
- respecting rules or fairness,
- contributing to the community,
- moral responsibility.

Now that you've thought about what drives them, here's how to frame your message in a way that speaks to those values.

If they value protecting others or being a provider, you might connect with that value by saying something like:

(Example of spouse/partner content.)

"I know you care about keeping your family safe. Driving more calmly can help make sure we all get home."

If they value respecting others, you might connect with that value by saying something like:

(Example of spouse/partner content.)

"Part of how you live your life is treating others with respect even people you don't know. That includes the people you share the road with."

If they value their individual liberty and freedom of choice, you might connect with that value by saying something like:

(Example of spouse/partner content.)

"I know you drive the way you do because you're confident and in control, but one wrong move from someone else and it could cost us more than just a fender."

Connecting your message to your **[Person]**'s values won't guarantee immediate change, but it helps them listen without feeling attacked. It reminds them of who they are and who they want to be. When your concern is grounded in care and your message reflects what matters most to them, it's more likely to be heard.

Keep the tone calm and genuine, and don't worry about getting the words perfect. If the message doesn't land the first time, that's okay. These conversations are often part of a longer journey. What matters most is that you're showing up with care, respect, and a belief that change is possible.

Step 2: Compare to Other Settings

STEP 2 Compare to Other Settings

When we're behind the wheel, it's easy to forget we're still part of a social world. Driving can feel anonymous and fast-paced and, sometimes, that leads to behavior we'd never accept in other settings.

Imagine doing the same things in a grocery store, walking down the sidewalk, or waiting in line at a coffee shop. Suddenly, what seems normal in traffic feels... absurd. These comparisons can be a powerful tool for bystanders. They help reframe unsafe driving by showing how it clashes with everyday social norms and with the values we usually live by.

The following are example messages you can share with your **[Person]**. These may not match the exact behaviors your **[Person]** engages in, and that's okay. If they don't quite fit, take a moment to think about the specific behaviors you've seen and try creating your own comparison to a real-life situation your person might relate to. A familiar, everyday example can help them see things in a new light.

Here are some examples of what you could say:

(Example of friend content.)

"Imagine if we were in a grocery store and someone was taking a second too long to grab something... would we yell at them to move? It's kind of like laying on your horn."

"If you were walking through a park and someone was inches behind you, breathing down your neck, wouldn't that feel uncomfortable? We give each other personal space when walking, why not when driving?"

"Would you ever walk right up behind someone on the sidewalk and yell at them to move faster? Tailgating is kind of the same thing."



Keep It Light — Use Humor

This section is meant to spark insight, not guilt.

The goal is to share everyday examples that help your spouse/partner see their driving in a new light. Humor can lower defenses and open the door to change. It's not about shaming or scolding; it's about helping them see the disconnect in a way that feels safe, relatable, and even a little funny.

These everyday comparisons don't shame or scold; they invite your [Person] to see their driving from a new angle. By highlighting how certain behaviors would feel out of place in public, you help them recognize that their behaviors while driving aren't just unsafe, it's out of step with how they usually carry themselves. These reframes can spark reflection, reduce defensiveness, and gently challenge habits that may have become automatic.

Use them with curiosity and care, and be open to what resonates. Sometimes, a simple shift in perspective is all it takes to start a meaningful conversation.

Step 3: Choose an Intervention Technique

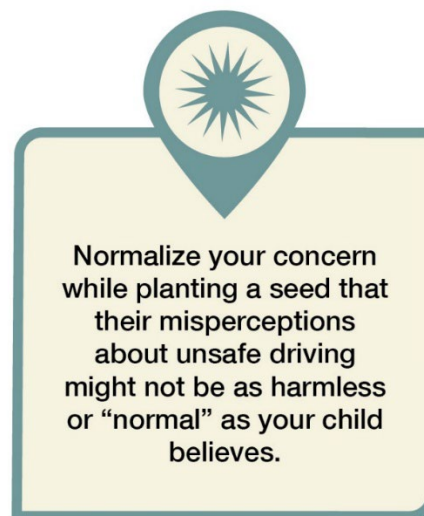
Choose adventure Okay, so we've reviewed connecting to values and pointing out how these kinds of actions aren't normal behavior for your [Person] in other settings. For the last step, please choose one of the following options to get a strategy to try with your [Person].

- (A) Does your [Person] have misperceptions about their driving, like that they are completely in control or that other drivers are the problem and their driving is fine? Choose this to get some suggestions to help correct those misperceptions.
- (B) Does your [Person] react strongly to other drivers? Perhaps they think everyone else is a terrible driver or that other drivers are targeting them purposefully. Choose this for suggestions to help your [Person] respond differently to other drivers.
- (C) Does your [Person] underestimate how risky or dangerous their driving is? Do they think nothing bad will happen? Choose this for suggestions to help your [Person] prevent harm to themselves and others.

Step 3A – Correct Misperceptions

STEP 3 Correct Misperceptions

Correcting misperceptions means helping your **[Person]** understand that what they believe might not be true. It's a way to gently share accurate information so they can see a situation more clearly.



(Example content for child that is resistant to change.)

Here are examples of how to frame your message and help your **[Person]** correct their misperceptions
(Example conversation with child that is resistant to change.)

They may say something like:

*"I'm just driving like everyone else.
It's not a big deal."*

You could respond:

"I get that you're just trying to keep up with traffic, and even small things like tailgating or speeding can increase the risk of something going wrong."

Or maybe they say things like:

*"I've got it under control.
You don't need to worry."*

And you could respond:

"I trust that you're doing your best. I just want to make sure you feel safe and in control, and I want to keep supporting you however I can."

Step 3B – Respond Differently

STEP 3 Respond Differently

Responding differently means purposely thinking about a situation in a calmer or more helpful way. Instead of assuming someone did something to be rude or mean, it helps to imagine other reasons, like maybe they made a mistake or are having a bad day. Here are examples of how to frame your message and help your **[Person]** respond differently while driving.



(Example content for child that is not resistant to change.)

(Example conversations with a child that is not resistant to change.)

They've admitted getting angry in traffic affects their mood.

They may say something like:

"Ugh, this traffic jam is killing me."

You could respond:

"I get that. I like that you can see how it affects your mood. Sometimes I try to flip it, like, 'Hey, I get a few extra minutes to breathe.' It doesn't always work, but it helps me stay calm."

Or maybe they say something like:

"That jerk saw me coming and did it on purpose! I wish it didn't bother me."

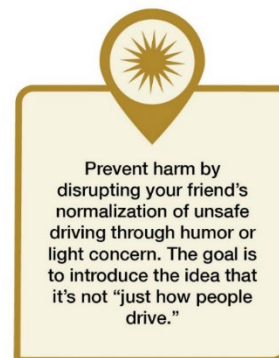
And you could respond:

"Ugh, I can see how that felt personal, but sometimes people really are just distracted. I've noticed when I reframe it like that, it helps me stay a lot calmer. Might be worth a try?"

Step 3C – Prevent Harm

STEP 3 Prevent Harm

Preventing harm (to self or others) means reflecting on how actions could hurt your **[Person]** or someone else. It's about realizing the risks, so safer choices are made before something bad happens. Here are examples of how to frame your message and help your **[Person]** prevent harm to themselves or others.



(Example content for a friend that is resistant to change.)

(Example conversations with a friend that is resistant to change.)

You might say:

"Dude, I trust your driving, but it gets wild sometimes. One wrong move from someone else, and suddenly we're both in the ER. That's not how I want to end the day."

Or you could say something like:

"We've got good stories from the road, but I'd rather not have the 'I totaled my car because some guy cut me off and I flipped out' kind of story."

Choose Different Strategy

It's okay if the strategy you chose doesn't quite feel right or doesn't make sense for your **[Person]**. These conversations can take time. If it doesn't feel natural, or you think your **[Person]** won't respond well, select a different option below. The goal isn't to be perfect. It's to be thoughtful, respectful, and persistent in showing you care. You know your **[Person]** best; trust yourself to find the message that fits.

- I like the strategy I chose and want to continue.
- Does your **[Person]** have misperceptions about their driving, like that they are completely in control or that other drivers are the problem and their driving is fine? Choose this to get some suggestions to help correct those misperceptions.*(Shown if not chosen)*
- Does your **[Person]** react strongly to other drivers? Perhaps they think everyone else is a terrible driver or that other drivers are targeting them purposefully. Choose this for suggestions to help your **[Person]** respond differently to other drivers.*(Shown if not chosen)*
- Does your **[Person]** underestimate how risky or dangerous their driving is? Do they think nothing bad will happen? Choose this for suggestions to help your **[Person]** prevent harm to themselves and others.*(Shown if not chosen)*

Conclusion

Speaking up about unsafe driving isn't always easy, but your voice matters. Whether or not change happens right away, you are making a difference by starting the conversation. Even small steps can help plant a seed for safer choices down the road.

You might not always get the response you hope for, and that's okay. Your **[Person]** may get defensive, brush off your concerns, or push back. That doesn't mean you shouldn't say anything. Here are a few ways to keep the conversation going, even when it gets tough:

- If they dismiss your concerns, you can say:

"I get that you don't think it's a big deal but imagine if people acted like that walking down the sidewalk. It would feel ridiculous, right?"

- If they get defensive, try saying:

"I'm not saying you're a bad driver. I just care about your safety and everyone else's too."

- If they push back against your advice, remind them:

"I'm not saying this to lecture you. I just care about you and want to make sure you're safe."

These kinds of responses can help you stay calm, respectful, and focused on your values — even when the conversation is uncomfortable.

Thank you for being willing to speak up. Your concern, your care, and your words can make a difference. Here is a summary of the information: [\[Person_Step 3_Resistance\].pdf](#)

Save this link or download this handout to reference as you talk with your friend. We will check back in two weeks to see how it goes.

Before you go now, we have just a few more questions.

Post-Intervention

How confident are you that you can:

	not at all confident	a little confident	somewhat confident	fairly confident	extremely confident
Communicate effectively with your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Influence your [Person] to drive more safely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Express concern to your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connect to values that matter to your [Person]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compare their driving to behavior in other settings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Correct misperceptions your [Person] has about their driving (If 3A is selected)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help your [Person] respond differently (If 3Bis selected)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help your [Person] understand how to prevent harm (If 3C is selected)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2-Week Follow-Up

Were you able to talk with your **[Person]** about their driving over the past 2 weeks?

- ☐ No. I didn't try to bring it up.
- ☐ No. I tried to bring it up, but we did not talk about it.
- ☐ Yes, we talked about it. How many different times did you mention their driving or talk about it with them, even if just briefly? _____

How many times have you done each of the following in the past 2 weeks?

	0	1	2	3	4	5	6	7	8+
Expressed concern to your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hinted that their driving is unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicated that their driving is unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used jokes or humor to bring up their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Expressed disapproval of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had a heated conversation about their driving (for example, with either person shouting or yelling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed how their driving aligns with their values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared their driving to behavior in other settings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed the safety consequences of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed the financial consequences of their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried calming the driver while in the vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Threatened to take away driving privileges (<i>Parent</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited driving privileges as a consequence (<i>Parent</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased monitoring of driving (<i>Parent</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identified and corrected misperceptions your [Person] has about their driving (<i>If 3A is selected</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encouraged your [Person] to respond differently while driving (<i>If 3B is selected</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talked to your [Person] about how to prevent harm while driving (<i>If 3C is selected</i>)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you do anything else to try to engage with your **[Person]** about their driving? If yes, please describe:

Overall, thinking about the conversations you had with your **[Person]** about their driving, how would you describe them during those interactions? *(Shown if they indicated they were able to talk to their person)*

	1	2	3	4	5	
Close-minded	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Open-minded
Unconcerned about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concerned about their driving
Withdrawn from conversation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Engaged in conversation
Unwilling to change their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Willing to change their driving
Negative attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Positive attitude
Angry or upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Happy

To what extent do you feel you were able to...

	not at all	a little bit	somewhat	a fair amount	very much so
Communicate effectively with your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Influence your [Person] to drive more safely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Express concern to your [Person] about their driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connect to values that matter to your [Person]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compare their driving to behavior in other settings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Correct misperceptions your [Person] has about their driving <i>(If 3A is selected)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help your [Person] respond differently <i>(If 3B is selected)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help your [Person] understand how to prevent harm <i>(If 3C is selected)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thinking about your **[Person]** and their driving behaviors that impact other people, such as **[First endorsed aggressive driving behavior]** or **[Second endorsed aggressive driving behavior]**...

How has the frequency of those driving behaviors changed in the past 2 weeks?

- ☐ They drive this way much less often
- ☐ They drive this way somewhat less often
- ☐ They drive this way about the same
- ☐ They drive this way somewhat more often
- ☐ They drive this way much more often

How has your **[Person]**'s driving safety changed in the past 2 weeks?

- ☐ A lot better
- ☐ Somewhat better
- ☐ About the same
- ☐ Somewhat worse
- ☐ A lot worse

Currently, how concerned are you about these driving behaviors?

- ☐ A little concerned
- ☐ Somewhat concerned
- ☐ Very concerned

How likely do you think it is that your **[Person]** will change their driving behavior in the future to be more safe?

- ☐ Not at all likely
- ☐ A little likely
- ☐ Somewhat likely
- ☐ Quite likely
- ☐ Extremely likely

How likely are you to try talking to your **[Person]** about their driving in the future?

- ☐ Not at all likely
- ☐ A little likely
- ☐ Somewhat likely
- ☐ Quite likely
- ☐ Extremely likely

What else will you do in the future to support your **[Person]** to drive more safely?

Finally, we have a few questions about the information you received to support you in talking to your **[Person]** about their driving.

Were you able to apply the information in interactions with your **[Person]**?

- ☐ Not at all
- ☐ A little bit
- ☐ Somewhat
- ☐ Quite a bit
- ☐ Very much

Overall, how helpful was the information?

- ☐ Not at all helpful
- ☐ A little helpful
- ☐ Somewhat helpful
- ☐ Very helpful
- ☐ Extremely helpful

Did you look at or use the one page summary during the past two weeks?

- ☐ Yes Approximately how often or how many times? _____
- ☐ No

What other information would have been helpful?

What other feedback do you have about the information or materials?

Appendix B: Intervention Summaries

Table 8. Summaries for Each Version of the Intervention

	Parent	Friend	Spouse/Partner
Resistant	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm
Not Resistant	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm	Step 3A: Correct Misperceptions Step 3B: Respond Differently Step 3C: Prevent Harm

Appendix C: Supplementary Table

Table 9. Bystander Behaviors at Pre-Intervention and Follow-Up by Relationship

Behavior	Parent						Friend						Spouse/Partner					
	Pre-Intervention			Follow-Up			Pre-Intervention			Follow-Up			Pre-Intervention			Follow-Up		
	0	1-2	3+	0	1-2	3+	0	1-2	3+	0	1-2	3+	0	1-2	3+	0	1-2	3+
(Step 1) Expressed concern to your [person] about their driving.	1 (6.7)	7 (46.7)	7 (46.7)	3 (20.0)	6 (40.0)	6 (40.0)	7 (15.9)	18 (40.9)	19 (43.2)	4 (9.1)	25 (56.8)	15 (34.1)	2 (4.7)	11 (25.6)	30 (69.8)	0 (0)	11 (25.6)	32 (74.4)
Hinted that their driving is unsafe	0 (0)	9 (60.0)	6 (40.0)	5 (33.3)	4 (26.7)	6 (40.0)	3 (6.8)	15 (34.1)	26 (59.1)	5 (11.4)	18 (40.9)	21 (47.7)	0 (0)	6 (14.0)	37 (86.0)	2 (4.7)	9 (20.9)	32 (74.4)
Communicated that their driving is unsafe	2 (13.3)	6 (40.0)	7 (46.7)	5 (33.3)	4 (26.7)	6 (40.0)	9 (20.5)	17 (38.6)	18 (40.9)	8 (18.2)	17 (38.6)	19 (43.2)	4 (9.3)	6 (14.0)	33 (76.7)	0 (0)	9 (20.9)	34 (79.1)
(Step 2) Used jokes or humor to bring up their driving	6 (40.0)	4 (26.7)	5 (33.3)	3 (20.0)	5 (33.3)	7 (46.7)	17 (38.6)	10 (22.7)	17 (38.6)	13 (29.5)	15 (34.1)	16 (36.4)	10 (23.3)	5 (11.6)	28 (65.1)	3 (7.0)	5 (11.6)	35 (81.4)
Expressed disapproval of their driving	2 (13.3)	7 (46.7)	6 (40.0)	7 (46.7)	3 (20.0)	5 (33.3)	7 (15.9)	17 (38.6)	20 (45.5)	11 (25.0)	16 (36.4)	17 (38.6)	3 (7.0)	9 (20.9)	31 (72.1)	NA	12 (27.9)	31 (72.1)
(Step 1) Discussed how their driving aligns with their values	11 (73.3)	0 (0)	4 (26.7)	7 (46.7)	3 (20.0)	5 (33.3)	21 (47.7)	7 (15.9)	16 (36.4)	18 (40.9)	13 (29.5)	13 (29.5)	8 (18.6)	6 (14.0)	29 (67.4)	7 (16.3)	8 (18.6)	28 (65.1)
(Step 2) Compared their driving to behavior in other settings	9 (60.0)	3 (20.0)	3 (20.0)	6 (40.0)	4 (26.7)	5 (33.3)	20 (45.5)	11 (25.0)	13 (29.5)	16 (36.4)	15 (34.1)	13 (29.5)	6 (14.0)	8 (18.6)	29 (67.4)	6 (14.0)	6 (14.0)	31 (72.1)
Discussed the safety consequences of their driving	5 (33.3)	5 (33.3)	5 (33.3)	4 (26.7)	6 (40.0)	5 (33.3)	12 (27.3)	15 (34.1)	17 (38.6)	7 (15.9)	21 (47.7)	16 (36.4)	4 (9.3)	9 (20.9)	30 (69.8)	1 (2.3)	10 (23.3)	31 (72.1)
Discussed the financial consequences of their driving	6 (40.0)	3 (20.0)	6 (40.0)	5 (33.3)	5 (33.3)	5 (33.3)	18 (40.9)	13 (29.5)	13 (29.5)	14 (31.8)	15 (34.1)	15 (34.1)	5 (11.6)	9 (20.9)	29 (67.4)	3 (7.0)	9 (20.9)	30 (69.8)
Tried calming the driver while in the vehicle	8 (53.3)	3 (20.0)	4 (26.7)	7 (46.7)	2 (13.3)	6 (40.0)	13 (29.5)	15 (34.1)	16 (36.4)	16 (36.4)	13 (29.5)	15 (34.1)	3 (7.0)	12 (27.9)	28 (65.1)	3 (7.0)	13 (30.2)	27 (62.8)
Threatened to take away driving privileges	9 (60.0)	2 (13.3)	4 (26.7)	11 (73.3)	4 (26.7)	0 (0)												
Limited driving privileges as a consequence	10 (66.7)	3 (20.0)	2 (13.3)	13 (86.7)	2 (13.3)	0 (0)												
Increased monitoring of driving	8 (53.3)	2 (13.3)	5 (33.3)	6 (40.0)	3 (20.0)	6 (40.0)												
(Step 3A) Identified and corrected misperceptions your [person] has about their driving				6 (60.0)	1 (10.0)	3 (30.0)				2 (11.8)	9 (52.9)	6 (35.3)				1 (3.8)	4 (15.4)	21 (80.8)
(Step 3B) Encouraged your [person] to respond differently while driving				0 (0)	0 (0)	2 (100.0)				1 (7.7)	4 (30.8)	8 (61.5)				0 (0)	3 (30.0)	7 (70.0)
(Step 3C) Talked to your [person] about how to prevent harm while driving				0 (0)	2 (66.7)	1 (33.3)				6 (42.9)	6 (42.9)	2 (14.3)				1 (14.3)	0	6 (85.7)