Understanding Aggressive Driving and Ways to Reduce It – Phase 2

Report of Task 1:
Develop Strategies to Support Bystanders in Intervening to Reduce Aggressive Driving Behavior

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Prepared for the
MONTANA DEPARTMENT OF TRANSPORTATION
in cooperation with the
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

February 2025

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Acknowledgments

The authors acknowledge the contributions of Morgan Neavill, M.S., CHSC graduate research assistant, for her assistance conducting key informant interviews and with initial coding.

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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 30 days (AAA Foundation for Traffic Safety, 2016). 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). However, the evidence that aggressive driving frequency is actually increasing is not conclusive (Sullman & Stephens, 2021).

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 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. Additionally, we proposed developing and testing media messages to reduce aggressive driving behavior.

This report summarizes Task 1 of Phase 2 of this project. The purpose of Task 1 is to understand opportunities for bystanders and develop strategies to support bystanders in intervening to reduce aggressive driving behavior. Bystanders are defined as partners, family members, and close friends of drivers who engage in aggressive driving behaviors. 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 key informant interviews, we developed strategies to encourage bystanders to intervene to reduce aggressive driving. This report includes a summary of the key

informant interview methodology and results, how these results informed the development of strategies for bystanders, and a description of the strategy components.

2 Method

To understand the experiences and perspectives of close bystanders (i.e., spouses, partners, family members, close friends) of individuals who engage in aggressive driving behaviors, we conducted key informant interviews. We wanted to learn about how important people in someone's life can influence or intervene to reduce aggressive driving and support safe driving behavior. We explored these bystanders' perceptions of the aggressive driving behavior of their close other and their history of intervention. Interview participants were recruited from the general population, were at least 18 years old, and were concerned about the aggressive driving behavior of someone in their life. A screening survey and interview protocol were developed and submitted to Montana State University's Institutional Review Board (IRB) for review and approval prior to data collection. The screening survey and interview protocol are included in Appendix A.

2.1 Recruitment and Screening

Participants were recruited through online advertisements distributed via social media and email. The online advertisements were promoted through paid Meta ads which included a picture with recruitment language regarding a driving survey and a link to the screening survey. Below are examples of the recruitment ads.

The ads were promoted through our Center for Health and Safety Culture Meta business page. We ran four paid campaigns through Meta and advertisements appeared as Facebook posts, Instagram posts, and Instagram reels. Meta allows for advertisement customization through demographic, interests, and behavior selections. We chose to run two campaigns with a broad target audience and two campaigns with a more customized target audience. The Meta campaigns were set up to run for one week or until we had enough participants screen in. The campaigns ran September 11-12, 2024, reached 970 accounts, and had 1,044 impressions. In addition to the social media promotion, a recruitment email was sent through Montana State University's internal informational bulletin to faculty, staff, and students. The email announcement was sent to the campus community on October 4 and 9, 2024. The recruitment materials did not include information about interview compensation.

2.2 Screening

Individuals who responded to the study advertisements were provided information about the study, consent statement, and screened for eligibility (see Appendix A). The screening survey asked age, whether there was someone in their life whose driving concerned them (and, if so, their relationship to that person), and what driving behaviors the person engaged in that concerned them. The list of driving behaviors included both aggressive driving behaviors and other risky driving behaviors that are not considered aggressive (e.g., driving under the influence, using a telephone while driving, etc.) Participants were considered eligible if they were 18 years or older, affirmed that they are concerned about someone's driving, and endorsed one or more aggressive driving behaviors:

- Tailgating other vehicles or following too close
- Weaving in and out of traffic
- Speeding in heavy traffic
- Cutting off other vehicles and/or braking hard
- Ignoring the right-of-way to "beat" another vehicle
- Responding to other drivers with yelling or rude gestures
- Excessive honking or flashing headlights at other drivers
- Purposefully slowing in front of another vehicle
- Blocking vehicles that are attempting to pass or change lanes
- Forcing other vehicles onto the shoulder or off the road
- Running stop signs or red lights
- Purposefully hitting another vehicle

In addition to the eligibility criteria, the screener also asked for the age and gender of the respondent as well age and gender of the person whose driving is concerning. If a respondent was eligible, they were asked if they would be willing to participate in an interview about driving and the experiences they have had with the individual whose driving concerns them. They were asked to provide their contact information and informed about compensation; if they participated in an interview, they would receive a $50 gift card as compensation for participating.

The screening survey was completed by 199 respondents and 81 were eligible to participate in an interview. Of the 81 eligible participants, 17 were chosen to be invited to an interview. Potential interviewees were selected based on endorsing multiple aggressive driving behaviors and intentionally selected to represent a range of ages, genders, and relationship types. Invitations were not extended to participants who reported being concerned about drivers who engaged in unsafe driving due to old age or unsafe driving due to mental or physical impairment, even when they also endorsed aggressive driving behaviors.

Invitations to participate were sent via email and asked participants to sign up for a 30-45 minute interview with one of two researchers from the Center. Of the 17 participants who were invited for an interview, 16 responded and completed an interview. A copy of the informed consent (see Appendix A) was included in the email for their review.

2.3 Interviews

Interviews, using a semi-structured interview protocol (see Appendix A), were conducted over the phone and recorded using Webex. At the start of each interview, the researcher confirmed that the participant received the informed consent, answered any questions they had, and confirmed their willingness to participate by having them verbally indicate yes or no, and then started the recording. The interviewer provided background information, described that this project is focused on aggressive driving, and described that aggressive driving included tailgating, cutting people off, running red lights, weaving through traffic, using headlights, braking hard, using the horn to "punish" others, or making rude gestures. The interviews focused on these kinds of aggressive-specific behaviors.

2.4 Analysis

Interview recordings were auto transcribed by Webex. Draft transcriptions were reviewed and cleaned by the interviewer to ensure accuracy and to remove any identifying information. Final transcriptions were loaded into NVivo for data management and analysis. Demographic characteristics were extracted from the transcriptions and added into NVivo as attributes for each interview. Data analysis began with question-by-question open coding, with codes created for content in each question. Open coding was conducted by three researchers (two interviewers and the lead researcher) and all initial coding was confirmed by a second coder. Disagreements were settled through discussion with all three researchers.

Codes were reviewed by the attribute for participant group type (i.e., friends, spouse/partner, family) to identify commonalities and differences and summarized into themes. Representative quotes were extracted.

3 Results

Interviews were conducted with 16 bystanders who described the concerning aggressive driving behavior of someone close to them as well as their experiences and perceptions related to the person's aggressive driving behaviors. Below we describe the sample and the thematic qualitative results from the interviews.

3.1 Sample

Bystanders spoke about the concerning aggressive driving behaviors of someone close to them. These relationships were grouped into friends (*n*=7), partners or spouses (*n*=5), and parents or children (*n*=4). See Figure 1. The parent or child group included both adult children of older adult parents who were driving aggressively and parents of teenage and young adult drivers who were driving aggressively.

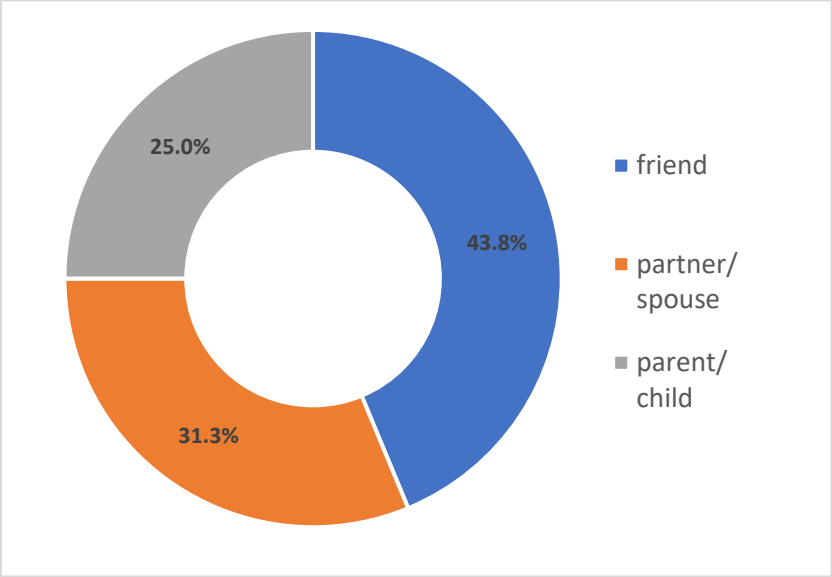

Figure 1. Participant relationship with driver

Participants varied in gender, age, and geography. See Table 1.

Table 1. Participant demographics

Gender	***n***	**%**
Men	6	37.5
Women	10	62.5
Age	***n***	**%**
18-24	1	6.3
25-34	8	50.0
35-44	3	18.8
45-54	2	12.5

55-64	2	12.5
Race	***n***	**%**
Asian	1	6.3
Biracial	1	6.3
Black or African American	9	56.3
White or Caucasian	5	31.3
Geography	***n***	**%**
Rural	1	6.3
Suburban	7	43.8
Urban	8	50.0

Participants also described the demographic characteristics of the driver they were speaking about in the interview (i.e., their friend, spouse/partner, parent/child); the driver demographics also varied across gender and age. See Table 2.

Table 2. Driver demographics

Gender	***n***	**%**
Men	8	50.0
Women	8	50.0
Age	***n***	**%**
18-24	3	18.8
25-34	6	37.5
35-44	3	18.8
45-54	--	--
55-64	1	6.3
65+	2	12.5
Unknown	1	6.3

3.2 Aggressive Driving Behaviors

Participants described the aggressive driving behaviors that their friend or family member engages in and noted a wide variety of behaviors. The most frequently reported behaviors were speeding, responding to others (such as gesturing or cursing), and weaving in traffic; these

behaviors were reported by participants in all three groups (i.e., friends, spouses/partners, parents/children). Participants reported many other aggressive driving behaviors as well, such as blocking other vehicles, cutting off other vehicles or braking hard, excessive honking, ignoring the right of way, running stop sign or red light, and tailgating.

Participants described the times and circumstances when their friend or family member drives aggressively. Participants frequently described negative mood, such as when the driver is upset with their partner or other family members or when they are having a bad day or a bad week. Participants also described other negative emotional states that were common with aggressive driving, such as the person driving aggressively when they were nervous, anxious, sad, or stressed. Participants described aggressive driving as frequently occurring when the driver was in a rush. For some drivers, the time pressure was associated with being late, such as for work. However, participants also described drivers feeling time pressured or impatient in general and not specific to being late. One friend participant said "He's in a rush to go somewhere. A rush to go to work, a rush to go to his friend's house. Even if it's not, I think it's not like necessarily he has to be there in a certain time, he will rush to get there." Another participant described their partner as generally in a hurry to get where they are going and a perception that everyone else is in the way, saying about the driver, "He just wants to get where he has to get and, and he feels like people are in the way that they just shouldn't be on the road."

When specifically asked if the driver often drives alone or with passengers and if the presence of passengers seems to affect whether or not they drive aggressively, participants were split. While friends and partners/spouses often reported that the driver drives with others in the car (and often the participant is a passenger), the presence of passengers did not have a sizeable impact on their driving behaviors. One friend described aggressive driving behaviors occurring with the individuals who are passengers most frequently, saying "He can't try that when he's driving his mom or his dad. But it's definitely when he's with us." Like parents riding in the car, children also sometimes acted as a deterrent to driving aggressively. For example, one friend explained "I've been in the car with her and nephew and I've seen that she drives safe. I feel like it's because nephew is a child, you know. I've seen that she drives safe when nephew is in the car with her or when her mom is in the car with her." Safer behavior with parents or young children in the car was not universal, however, with some participants describing their loved one driving aggressively with their own child in the car and parents of young adult children observing aggressive driving as a passenger when their child was driving. Additionally, it is important to note that most participants described that their loved one rarely drove with minor children or parents.

3.3 Concern About Aggressive Driving Behaviors

Participants described why they were concerned about the aggressive driving behavior of their friend or family member. Many participants reported driver safety as the primary reason they were concerned about the driver's aggressive driving behavior. A parent spoke about their young adult driver, saying "Well, it's unsafe… you could have been hurt or you could have hurt somebody."

Participants also described being concerned about the safety of other road users. Some friends and spouses/partners also described concern for their own personal safety as a frequent passenger in the car with the driver who is engaging in aggressive driving behaviors.

> "I'm concerned because it's not safe. It's not safe for her. It's not safe for other drivers. It's not even safe for me when I'm in the car. And I also feel like, you know, it's not nice to be rude to people, especially when they do nothing to you."

Concern about aggressive driving behaviors was also described by some friends and spouses/partners as moral or ethical, with participants describing that driving aggressively is not the "right" thing to do. One friend said "I just feel like it's not the right thing to do and it doesn't, you know, make sense to be rude to people for no good reason."

Finally, participants also described potential consequences other than safety that had them concerned about the aggressive driving. These consequences included getting a ticket, losing license, and financial effects like car repair or increased insurance costs. One partner described having a brand new car and being concerned about their partner damaging the vehicle, saying "He's the reason why I got full coverage on this car."

3.4 Talking to the Driver

All participants indicated that they had tried talking to their friend or family member about their aggressive driving. Many participants described frequent or ongoing attempts to discuss it and try to change the driver's behavior. Multiple participants in the friend group explained that they had tried several different times and utilized different approaches and one friend participant said that multiple friends have tried talking to the driver but none were successful. Instead, the driver minimized the concern; the participant described "She goes like, 'okay, here we go again,' that kind of energy, like that reaction. And you know, that okay, she's already sick of hearing that." Similarly, spouses and partners described trying "all the time" to talk to their driver and had tried different timepoints for the discussion – in the moment in the vehicle, bringing it up later after they were no longer in the vehicle, and even asking the driver in advance to drive differently while planning a trip. Like friends, partners and spouses experienced limited success in talking to their driver, describing instead that their partner or spouse would be dismissive or become defensive. In one case, a spouse explained that they brought up concern after the drive was over that the driver dismissed. The participant explained "After we get out of the vehicle… I bring up some points and he'll say 'well, there's nothing wrong with that. I'm fine; you're fine. We made it here, didn't we?' You know, that drives me insane." Another spouse told a story of getting mad and yelling in the car while the driver was engaging in aggressive behaviors, saying "He gets really mad, of course, because I'm mad and I'm yelling. He wants to drive a little faster to get to his destination to get me out of the car so I can stop bitching about it."

In addition to trying to talk to their driver at different timepoints relative to the aggressive driving circumstances, bystanders also tried different approaches when talking to their friend or family member. Friends described making a joke about the aggressive driving in the moment and trying to get the driver to laugh; one participant who tried this approach indicated that the driver brushed it off and believe that it was "not that serious." Other friends described hinting at the

situation in the vehicle and being careful not to directly confront their friend about the aggressive driving due to previous arguments and not wanting to repeat those arguments. Friends also described being very thoughtful in their approaches. One participant explained that they notice and point out the aggressive driving behaviors after driving, when they believe the driver is more able to discuss it. This friend explained that they try to be non-judgmental about the situation and convey their worry and concern; "I just let her know that it's coming from a place of concern and not, you know, I'm not judging her or something like that." The driver responded more positively than some of the others, indicating they didn't know it bothered the participant and that they would try to be more careful. The participant indicated observing some short-term change but described that those changes did not last.

While one spouse participant described a single incident of getting mad and yelling at the driver in the car, they also described trying other approaches in talking to their spouse about their driving. Other spouses and partners also tried various approaches. One partner described reminding their driver of the rules of the road and that "lives are at stake"; they used this approach after driving situations, discussing at home rather than in the vehicle. Another spouse described similarly reminding of the need for safety and giving advice about safe driving while in the car together, but they described that their spouse responded defensively to this approach. Another spouse explained that they try to be soothing and calming in the car, noting that the driver is stressed and upset so they try not to add to the negative emotional state and take care not to make their partner mad or distracted.

For parents and children, some approaches in talking with their family member who drives aggressively were similar to those used by friends and spouses or partners. Some spoke of approaching the issue as a safety concern, with one parent of a young adult driver describing speaking about driving situations after the fact, saying "I try not to like bombard her in the moment because she's already stressed and frustrated. So there's no point adding to that. I don't even approach it like she's doing something wrong. I just approach it like a safety thing, like, I don't want something to happen." This parent found, though, limited success in the safety approach, with their child brushing off their concerns and not agreeing that the driving behavior is dangerous. Another parent of a young adult child described their attempts as "I try to do it with a calm approach and not, like, a motherly approach because then they just tune you out." This parent described reacting in the moment in the vehicle but discussing more thoroughly later on with a discussion that included consequences that the young adult child had experienced, such as the auto insurance dropping them as a driver and the costs associated with that. This parent experienced some improvement in their child's driving, attributing it to both age and monetary consequences, saying the child was "starting to mature a little bit at 25 finally, I hope" and "when it affects the wallet, you know, then they start to understand." Other parents of young adult children had not experienced improvements, despite numerous attempts to speak with their children. One parent described that they frequently point out the behavior in the car and then discuss it later and their child indicates understanding but continues the same behavior of driving aggressively.

Because previous findings indicate that believing important others in our lives disapprove of aggressive driving is associated with less aggressive driving behaviors, participants were asked if they had ever told their friend or loved one that they disapprove of them engaging in aggressive driving behaviors. Participants were split on whether they had or had not expressed disapproval. Some friends and spouses and partners said they had not. Reasons for not expressing disapproval were that friends were worried about reactions and did not want their friend to think they were judging them. Spouses and partners described that they did not think using the word "disapprove" was the right way to approach the situation and that it would not be helpful. Even if they had not specifically indicated disapproval, spouses and partners reflected that their spouse or partner was aware, with one saying they share with their partner that they are uncomfortable and another saying "I'm quite sure he knows that I don't like it."

Other friends and spouses and partners explained that they have said they disapproved. One friend described doing so "in a joking type way, not like tell them in an authoritative voice saying, 'oh, I hate your driving.'" Others said they have conveyed disapproval in more serious situations in order to change the driver's behavior. While some friends said it has resulted in improvements, they describe them as short-lived or temporary and only when the participant friend was in the car with the driver. One friend who used this approach to change driving behavior when concerned as a passenger in the car described that, while effective, "it feels like I'm just being so mean," suggesting they would not do so often. Other friends said they have expressed disapproval numerous times without it having any effect, and that the driver brushes it off and "doesn't really care." One spouse indicated that they had said they disapproved, and that it may have helped, explaining "It probably reduced it because before we got married, he was worse than that."

Parents of young adult children consistently described that they have said they disapprove of their child's aggressive driving behavior. One parent explained that they convey disapproval "all the time" without much impact, that "it's her choice at the end of the day and I won't be able to fix it if it's not on her end." Other parents linked their disapproval to the disapproval of others, namely insurance carriers, describing rising premiums or need to find alternate carriers and associated increased costs.

3.5 Other Intervention Attempts

In addition to speaking with their friend or family member about their aggressive driving behaviors, participants described other things they had done to try to promote safer driving behaviors. Friends talked about involving other people who might be more successful in talking with the driver, such as a girlfriend/boyfriend or parents. One friend described teaming up with the driver's girlfriend, as "I think he respects her a bit more. I think he listens to her a bit more." Similarly, parents were perceived as more respected and influential, with another friend saying they have threatened to "tell the mom that this is what's going on, although I've never done it. But I just like, you know, tell her just so she would take it seriously." Interestingly, parents did not describe involving the friends or peers of their teens and young adult drivers. The parents had not tried much other than talking to their child and indicated limited perceived effectiveness in intervention, saying "What else is there? What am I gonna do? Take the car away? I mean, it's

her car… We tried explaining to her, you know… Unfortunately, they have to learn the hard way."

Adult child participants of older adult parents who drive aggressively also did not indicate trying other things. One indicated "it's almost like you gotta, like, let something bad happen."

Spouses and partners described few other approaches as well. One partner described physically reacting in the car, in perhaps exaggerated ways, in order to convey their nervousness. Attempts at humor were also made; one partner described making jokes but said they do not think that helps and "I just got to learn how to be more serious." Another spouse who was focused on trying to calm down the driver described physically rubbing his shoulder or putting on music in order to help the driver relax. One friend had described something similar, saying they tried to give "a little pep talk before she gets into the car" in order to calm them down and help relax.

Participants described a few additional things they had considered trying or wished they could do. A parent threatened vehicle monitoring but did not actually put it in place despite no improvements in driving behavior. Other parents considered taking away cars or making young adult children pay for their automobile insurance. One adult child participant described remembering a defensive driving course they took as a new driver and wishing their older adult parent would have to take a similar class now.

3.6 Barriers

While speaking of their attempts to talk to or otherwise intervene with their friend or family member who drives aggressively, participants described a number of barriers. Bystanders reported little success in connecting with their loved ones on this topic. Some participants in all groups (i.e., friends, spouses or partners, parents or children) described negative responses, from dismissal to anger, and participants were concerned about alienating their loved one, making them mad, or escalating the driving situation in the moment.

> "Basically what I would want to do is just sit him down… let him know that he is putting all of us in danger." But they have not done so because "I really value this friend a lot… I am kind of hesitant to do that… I don't want to, you know, put our friendship at risk."

Despite repeated attempts at supporting their friend or family member to make change in their aggressive driving behavior, most participants reported little success. In some cases, participants noted that aggressive driving had become habitual; they described brief improvements but that aggressive driving behaviors returned. One partner described it as "Let's say we did talk about the car… I talked to him about the car that's been bothering me. It'll sound good to him. He'll agree with me and that'll be good for like a day or two. And then he's back to what he was doing."

Lack of improvement or sustained improvement led to some participants feeling powerless. Participants also described frustration from their friend or family member, as the topic kept coming up or the participant "wouldn't let it go." One participant described a consistent negative reaction, saying "Whenever I mention it he's like 'all you do is complain. That's all you do is

complain.'" In many cases, the situation was tiresome for both the bystander and the driver and participants were generally pessimistic about the likelihood of a different pattern arising in the future.

3.7 Facilitators

Participants reported trying repeatedly to talk to their loved one about the aggressive driving behavior that concerned them. They tried different approaches and varying points in time (i.e., before, during, and after driving). Some participants reported trying strategies other than verbal communication as well. Overall, bystanders persisted despite limited success. Most interview participants described being concerned about their loved one's safety; some had other concerns, both safety and non-safety related. Regardless of reason for concern, bystanders were motivated to encourage safer driving behaviors.

Interview participants were asked what would make it more likely for them to intervene or what would help them intervene with the driver. Some participants described that they would be more likely to intervene if the situation got worse, such as more extreme aggression. One parent described that they would intervene with their young adult driver "obviously if she was getting into danger where I was very concerned for her life, God forbid, I mean I'm definitely going to intervene," explaining that they would use more extreme measures like taking away the car in that case. Similarly, one friend indicated that they would intervene in the moment if they felt that other people's safety were on the line, such as if other people were in the car or if there were a lot of other traffic. In this way, despite high levels of concern for their loved one's driving behavior, some participants suggested they perceived the current behaviors or circumstances as not serious enough to warrant more elevated intervention. Interestingly, this perspective mirrors the response of many drivers, that the bystander's concern is overblown and that the aggressive driving behaviors are "not that big of a deal."

Participants also described knowledge and skills that would support their ability to intervene with their friend or family member, such as knowing what to say and how to approach the situation with their loved one. Reflecting a challenge in engaging their young adult driver on this topic, one parent also indicated that "knowing how to respond when they're not receptive to it" would be helpful.

> "I would love if there was a way for me to figure out how to have effective communication with him when it comes to the way he drives, because this is an ongoing thing today."

3.8 Confidence Intervening

Participants' confidence in their ability to intervene varied. Across groups (i.e., friends, spouses/partners, parents/children), most participants were somewhat confident. A few participants were not confident. Participants who were less confident were asked what would help them feel more confident. Similar to what would increase the likelihood of intervention, participants described that they would feel more confident by "having the right words to say." One parent explained "knowing how to even approach it is a big thing, probably the biggest thing."

3.9 Responsibility

Participants described feeling large amounts of responsibility to intervene with their loved one regarding their aggressive driving behaviors. Bystanders in the friend group explained that they spend a lot of time with their friend who drives aggressively and that they are very close friends, like family. This closeness of relationship contributed to their feelings of responsibility. "She's my friend, She's like family to me. I feel like I have like a 90% responsibility to do so [intervene about their driving] because I wouldn't want anything to hurt her or any other person." Spouses and partners also described feeling a lot of responsibility. One partner described that they have a child together and that she is the one who should talk to him. Similarly, another spouse explained that they are the spouse's only family and no one else is positioned to intervene. Conversely, one participant indicated that they feel some responsibility, but the majority is on their partner who is driving aggressively, saying "I'm not the driver; he is… I feel like I have some responsibility, but the majority of it is on him." Parent participants also felt large amounts of responsibility to intervene, explaining that it is the parent role to ensure safety and appropriate behavior of their children. One parent described this as "As a parent, it's kind of my job to make sure she's doing things safely. Even once she's 18 like that, my job doesn't stop." While most parents felt large amounts of responsibility, one parent explained their child is over 18 years old and a legal adult and they felt they had done all they could. This parent said "He's edging on 21 where, you know, he can make all the decisions about this life and I really have no say in it. So I'm getting to the point where I'm ready to, you know, when he does turn 21, I give up responsibility. [If something were to happen], will I feel guilty? Yes. Will I feel responsible? No." Participants who were talking about their older adult parent driving aggressively seemed to feel less responsibility to intervene than other participant types, although they still felt some. One participant explained "She's my mom, so I have to, at some extent, you know, I want her around so I think it's important if people are at risk and she's at risk."

4 Strategies

The interview findings inform development of strategies to engage and support bystanders to intervene with their friends or family members who are engaging in aggressive driving behaviors. Strategies contain common elements but are customized for three different specific audiences – friends, partners or spouses, and parents.

Results of the qualitative interviews revealed the need to increase confidence among bystanders, make them feel supported, and encourage them to persist. Therefore, strategies include elements focused on the bystanders, to normalize their experience and to strengthen their perception of the importance of their role and their ability to influence their loved one. Strategies also encourage bystanders to intervene early, before aggressive driving escalates or a serious negative consequence occurs. Because some people who drive aggressively also engage in other aggressive behaviors and interview participants in some cases reported their loved one as angry, strategies prioritize bystander safety and provide guidance to bystanders to only intervene if they believe they can do so safely.

To support bystanders in engaging effectively with their friend or family member who is driving aggressively, strategies include the following elements focused on the bystanders' interaction with the person driving aggressively:

- *Communication skills.*
  Interview participants specifically asked for language they could use when speaking with someone about aggressive driving behaviors. Bystanders indicated that not only did they not know what to say, but they expressed concern that they might say the wrong thing or make an emotionally charged situation worse. Strategy guidance provides example language as well as conversation guidance for bystanders to make language their own and to approach the topic in a way that is natural for them and fits their relationship with the person who is driving aggressively. Additionally, strategies include suggestions to reduce reactance and to manage reactions.

- *Application of the transtheoretical model for behavior change.*
  The transtheoretical model for behavior change has a strong evidence base for intentional behavior change, particularly for a wide range of health-related behaviors. The transtheoretical model describes behavior change as an intentional process rather than coincidental; in the process, people's readiness can vary and they pass through stages of change from precontemplation to maintenance. Utilizing the transtheoretical model includes tailoring support to various stages in order to grow or sustain motivation and support change(Prochaska, 2008; Prochaska et al., 2009).

  While aggressive driving behaviors may sometimes be more reactionary than intentional, interview participants described persistent patterns of aggressive driving and ongoing attempts to support their friend or family member in changing their aggressive driving behavior. Components of the transtheoretical model can be useful in helping bystanders assess their friend's or family member's willingness and readiness to change and to adjust their approach accordingly in order to increase motivation to change among the driver themself.

- *Ways to connect to shared values.*
  Strategies include recommendations for bystanders to find common ground regarding aggressive driving. One way to do this is to connect with shared values, such as concern for safety (including traffic safety), caring for others (including neighbors and fellow road users), or financial prudence. Not only can shared values provide common ground, but they can also help illuminate beliefs and behaviors that are inconsistent with those shared values, which can be a useful strategy in supporting behavior change. For example, if someone has a shared value of respect for all community members, a belief that others on the road are only in their way and do not deserve to be there would be incongruent. Highlighting that discrepancy between values and beliefs can be helpful in changing beliefs that influence behaviors.

- *Expressing concern and clarifying misperceptions.*
  A number of bystanders interviewed described that their friends or family members brushed off their concerns and did not think their aggressive driving behaviors were problematic. Strategies provide bystanders with recommendations to convey their concern and the potential realistic consequences of aggressive driving without fearmongering. Some bystanders also believed that their loved one's aggressive driving needed to get worse before they could intervene. Correcting misperceptions by bystanders that aggressive driving behavior that concerns others is "not a big deal" and by bystanders that "it's not bad enough," strategies support earlier intervention.

- *Bolstering cognitive reappraisal and modifying hostile attributions.*
  Phase 1 of this project identified the value of cognitive reappraisal in reducing aggressive driving. Results of the bystander interviews provided confirmation, finding that some of the friends and family members who drive aggressively are impatient and make hostile attributions for the behavior of other road users. Strategies support bystanders in assisting their loved one in utilizing cognitive reappraisal skills in traffic situations and modifying hostile attributions in order to remain more neutral. For example, instead of attributing other driver's errors to their poor character or driving skills, reappraisal provides explanations that are neutral or that lean positive, such as everyone makes mistakes or the driver has an emergency.

In Task 2, we will test these strategies with a sample of bystanders. Bystanders will be recruited into each of the three groups – friends, spouses or partners, and parents of teen or young adult drivers – and will receive customized strategy content for that group. Strategies will be delivered virtually, and feedback will be gathered immediately and two weeks later to assess whether the bystanders were able to utilize the strategy and their perceived effectiveness of the strategy. We will explore whether bystanders' satisfaction and feasibility varied across strategy components.

5 Conclusion

Bystanders of people who drive aggressively are well-positioned to intervene to prevent or reduce aggressive driving behavior. These people include friends, spouses and partners, and family members such as parents of teenage or young adult drivers. We conducted interviews with bystanders to understand their perspectives on their loved one's aggressive driving and their experiences attempting to intervene. Results indicate that bystanders exhibit significant amounts of concern over aggressive driving and feel large amounts of responsibility to intervene with their loved one. Many bystanders have tried repeatedly over time to address their loved one's aggressive driving and have attempted different approaches, often persisting despite limited success and not seeing much improvement. Bystanders also experience barriers in intervening, including not knowing what to say or having effective communication skills to address this challenging topic. Bystanders also vary in their confidence and their perceived ability to influence their loved one's driving behavior.

Interview findings are useful for informing development of strategies to support bystanders in intervening with their loved ones regarding aggressive driving behaviors. The strategies will be tested in Task 2 and, informed by the results of those tests, tools and resources to engage bystanders will be developed as part of Task 4.

6 References

AAA Foundation for Traffic Safety. (2013). *Road rage: How to avoid aggressive driving*. https://exchange.aaa.com/wp-content/uploads/2013/06/Road-Rage-Brochure.pdf

AAA Foundation for Traffic Safety. (2016). *Prevalence of self-reported aggressive driving behavior: United States, 2014*. AAA Foundation for Traffic Safety. https://aaafoundation.org/prevalence-self-reported-aggressive-driving-behavior-united-states-2014/

National Center for Statistics and Analysis. (2024). *Early estimate of motor vehicle traffic fatalities for the first 9 months (January-September) of 2024* (Crash Stats Brief Statistical Summary No. DOT HS813 670). National Highway Traffic Safety Administration. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813670

Prochaska, J. O. (2008). Decision making in the transtheoretical model of behavior change. *Medical Decision Making, 28*(6), 845–849. https://doi.org/10.1177/0272989X08327068

Prochaska, J. O., Johnson, S., & Lee, P. (2009). The transtheoretical model of behavior change. In *The handbook of health behavior change, 3rd ed* (pp. 59–83). Springer.

Stephens, A. N., Trawley, S., Ispanovic, J., & Lowrie, S. (2022). Self-reported changes in aggressive driving within the past five years, and during COVID-19. *PloS One, 17*(8), e0272422–e0272422. https://doi.org/10.1371/journal.pone.0272422

Sullman, M. J. M., & Stephens, A. N. (2021). Driver aggression and anger. In R. Vickerman (Ed.), *International encyclopedia of transportation* (Vol. 7, pp. 121–129). Elsevier. https://doi.org/10.1016/B978-0-08-102671-7.10670-0

7 Appendix A

7.1 Screening Survey

The Center for Health and Safety Culture is asking for your input. We are learning about ways to improve driving by helping individuals to support others in their lives to drive more safely. We invite you to complete this brief survey that asks questions about you, important others in your life, and driving. We will use the information we gather from this survey to invite those who qualify to participate in an interview to discuss supporting others to drive more safely.

Your participation is voluntary and you can stop at any time. You can choose to not answer any question you do not want to answer. Your responses are confidential. We will store the information securely and delete all survey responses and data after we invite people to participate in interviews.

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). Your participation will not impact your relationship with Montana State University, the state of Montana, or the FHWA.

This study has been approved by the Montana State University (MSU) Institutional Review Board (IRB). If you have questions or comments about the survey, please contact Dr. Bridget Hanson with the Center for Health and Safety Culture at bridget.hanson@montana.edu. If you have questions about your rights as a participant, you may contact the MSU Institutional Review Board (IRB) at irb@montana.edu [IRB Protocol #2024-1603]

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

Screening Questions

First, we'd like to know a little about you.

- What is your gender?
  - Man
  - Woman
  - Transgender
  - Another gender, describe:
- What is your age?
  - Under 18 [*not eligible… survey ends*]
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55-64
  - 65+

- Is there someone in your life whose driving concerns you?
  - Yes
  - No *[if no, survey ends]*
- What is your relationship to this person?
  This person is my….
  - Spouse
  - Fiancé or partner (not married)
  - Significant other
  - Friend
  - Child
  - Parent
  - Other family member
  - Other. Please describe: _____
- What kinds of driving behaviors does this person engage in that you are concerned about? (Select all that apply.) *[list order randomized]*
  - **Tailgating other vehicles or following too close**
  - **Weaving in and out of traffic**
  - **Speeding in heavy traffic**
  - **Cutting off other vehicles and/or braking hard**
  - **Ignoring the right-of-way to "beat" another vehicle**
  - **Responding to other drivers with yelling or rude gestures**
  - **Excessive honking or flashing headlights at other drivers**
  - **Purposefully slowing in front of another vehicle**
  - **Blocking vehicles that are attempting to pass or change lanes**
  - **Forcing other vehicles onto the shoulder or off the road**
  - **Running stop signs or red lights**
  - **Purposefully hitting another vehicle**
  - Speeding
  - Driving too fast for weather conditions
  - Driving under the influence of alcohol
  - Driving under the influence of cannabis/marijuana
  - Driving under the influence of other substances
  - Using their phone while driving
  - Other distracted driving
  - Driving when drowsy or tired
  - Not wearing their seat belt
  - Not ensuring passengers use seat belts or appropriate restraints
  - Unsafe driving due to old age
  - Unsafe driving due to mental or physical impairment

  [*selecting one or more bold items = satisfy inclusion criteria; if no bold items, survey ends*]

To ensure we have information from a variety of people, we would like to gather some basic demographic information. Thinking about the person whose driving concerns you…

- What is their gender?
  - Man
  - Woman
  - Transgender
  - Another gender, describe:
- What is their age?
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55-64
  - 65+

[*if eligible*] Thank you for filling out this survey! Based on your responses, you may be eligible to participate in a follow-up interview. If you are willing to participate in an interview about driving and the experiences you've had with the individual whose driving concerns you, please provide your contact information below. The interview will be scheduled at a time that is convenient for you. It will take about 30 minutes and you will be compensated with a $50 gift card.

If you are willing to be contacted for an interview, please provide your email address: _____

To make sure we have it right, please provide your email again: _____

- Are you able to participate in an interview about driving in English?
  - Yes
  - No
    - What language would you prefer? _____

Thank you! We will be in touch soon to provide more information about the interview. If you have any questions, you can email us at chsc@montana.edu

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

7.2 Semi-Structured Interview Protocol

[Interviewer to introduce self, thank participant, confirm receipt of consent form, and review elements of informed consent, including voluntariness, risk and benefits, and compensation.]

Do you have any questions about the consent form or this interview?

I'd like to record this interview. We'll use the recording to develop a transcription and remove any identifying information. Then we'll delete the recording. Is it okay with you if I record the interview? [If yes, begin recording and proceed. If no, thank the participant and end conversation.]

Background Information

We are interested in learning about how important people in someone's life can influence or intervene to reduce aggressive driving and support safer driving behavior. Examples of the kinds of driving we're taking about are tailgating, cutting people off, running red lights, weaving through traffic, using headlights, braking hard, using the horn to "punish" others, or making rude gestures. The term aggressive driving covers a large range of behaviors, from mild to extreme.

Background Questions

- Who is the individual you are concerned about?
    - What is your relationship to this person? Probe for closeness of relationship and length of time.
    - We're going to talk about this person quite a bit while we talk today so it'll be easiest to have a name to refer to them by. What should we call them? Feel free to use a nickname or fake name if you do not want to use their real name.

Concerns and Specific Behaviors

- What kinds of driving behaviors does [name] engage in that concern you?
    - Probe for aggressive-specific, if needed.
- Why do you think [name] drives this way, like [aggressive behaviors]?
- And thinking specifically about [aggressive behaviors], can you tell me about why you are concerned about these driving behaviors?
    - Probe as needed for safety of self, driver, others; possible consequences like tickets, insurance costs, vehicle damage

Context

- Thinking about times when [name] drives in this way, like [aggressive behaviors], are there certain times or circumstances that make it more likely?
    - Do they typically have passengers in the car? If yes, who?
    - Probe for familiar vs unfamiliar areas, commute vs pleasure trips, time-pressured vs not.
- Do you think [name] drives differently alone compared to when others are in the car? Does this depend on the person?
    - How often do you ride with them? How often do they ride with you?

Previous Interventions

- Have you ever tried to talk to [name] about their driving?
    - If so, what did you do?
        - If needed, probe for timing, location, context.
    - How did [name] respond?
- Have you ever tried anything else to encourage [name] to not drive like [insert behaviors] or to drive more safely?
    - Prompt that this could include non-verbal or other behaviors.
    - If so, what?
- Have you ever explicitly told them you didn't like their driving or otherwise indicated you disapprove?
    - How did that affect the situation?

Considering Intervention

- Have you ever thought about trying to intervene but haven't?
    - What kinds of strategies have you considered for intervening?
    - What stopped you?
    - Are there any other reasons why it's hard to intervene?
- What would make it more likely for you to intervene?
- In general, how confident do you feel intervening with [name] about their driving behaviors like [aggressive driving examples]?
    - What do you think would help you feel more confident?

Emotional and Psychological Impact

- How does [name's] driving behavior make you feel?
- Can you describe any specific incidents that particularly affected you?

Others' Reactions

- Have you observed how other passengers react to [name's] driving, especially when they [aggressive driving examples]?
- Have you discussed [name's] driving with other passengers? What were their thoughts?
    - Have they ever tried to talk to [name] or done anything else to try to intervene?

Personal Driving Behavior

- How often would you say you yourself engage in risky or aggressive driving behaviors?
- Does thinking about your own driving make you more or less likely to encourage [name] to drive more safely?
    - Probe for own driving behavior been used against you, feelings of hypocrisy to criticize, etc.

Personal Responsibility and Influence

- How much responsibility do you feel you have to intervene?
    - Why?
- How influential do you think you are in changing [name's] driving behavior?
    - And how confident do you feel that you can make a difference?
    - What if I told you that research shows your relationship with [name] matters and that you can be effective in supporting them to drive more safely?
- Are there other people who you think would be effective in intervening?
    - What is their relationship to [name]? And why them?
        - Probe for what specifically they might do or say.

Demographics

We are interested in understanding the characteristics of people who participate in these interviews and the drivers they are describing. Any answers you provide will help further our research and email addresses and names are not connected to the responses, but you are not required to provide an answer if you are not comfortable doing so.

- Is [name] married?
- Does [name] have children?
- What race or ethnicity do you identify as? Common answers to this might include White, Black or African American, Asian, Hispanic or Latino, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, etc.
- Which geographic region do you currently live in (Northeast, Midwest, South, or West)?
- How would you describe the area where you live? I have four choices: urban area or large city, suburb near a large city, small city or town, or rural?

Closing

Those are all of my questions. This has been very helpful. Thank you so much for your participation! Is there anything else you wanted to share?

We'll be following up with your $50 gift card within the next two weeks. We'll send it to the same email where you got the consent form. [*Confirm email address.*] Your options are Amazon or Target. Which would you prefer?

That's all then. Thanks again! Have a good day!

7.3 Informed Consent

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

IRB Protocol #2024-1603

Researchers at the Center for Health and Safety Culture (CHSC) are asking you to participate in a research study to better understand ways to improve driving by learning how individuals support people in their lives to drive more safely. This form describes this study and explains how you may ask questions. This study is being led by Dr. Bridget Hanson, a Senior Research Scholar at CHSC.

What the study is about
The purpose of this research is to develop resources that educate and empower individuals to encourage safe driving among the people in their lives. A crucial step in this process is understanding how people might typically respond to unsafe driving behaviors. Your responses in this interview will help us understand if, how, and why people might interact with an individual engaging in unsafe driving behaviors. This information will be used to develop resources that will help others encourage safe driving.

What we will ask you to do
We will ask you to participate in an interview that will take about 30-45 minutes.

Risks and discomforts
We will ask questions that may be sensitive and of a personal nature such as questions about uncomfortable driving experiences or potential conflicts. These questions may make you feel uncomfortable. You can skip any questions you don't want to answer.

Benefits
You may benefit from reflecting on your own experiences encouraging safe driving behaviors. The conversation may provide insights that will be helpful. Information from this study will be used to inform the development of resources that will educate others on how to encourage safe driving behaviors and empower them to do so.

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). Your participation will not impact your relationship with Montana State University, the state of Montana, or the FHWA.

Compensation for participation
If you choose to participate in the study, you will receive a $50 gift card to either Amazon or Target which will be sent after the interview to the email address you provide.

Audio recording
We will audio record the conversation and use the recording to develop a transcription. Following transcription, the audio recording will be deleted. By participating in the interview, you agree to be recorded.

Privacy, confidentiality, and data security
Your email address, names discussed in the interview, and any other identifying information will be removed from the transcriptions and not stored. Access to the data will be limited to Center staff who are working on this project. Data will be analyzed for common themes and results will be reported in summary format. We may use brief direct quotes to illustrate themes but will ensure they do not contain detail that may identify you.

Taking part is voluntary
Your participation is voluntary. You may choose not to participate without penalty or impact on your relationship with MSU or CHSC. If you choose to participate in the interview, you may skip any questions you do not wish to answer or discontinue your participation at any time.

If you have questions
The main researcher conducting this study is Bridget Hanson, PhD, a Senior Research Scholar at CHSC. You may contact her at bridget.hanson@montana.edu. You will also have a chance to ask questions of the interviewer before the interview. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) for Human Participants at 406-994-4706 or access their website at http://www.montana.edu/orc/irb/index.html.

Consent
Proceeding with the interview indicates your consent to participate.