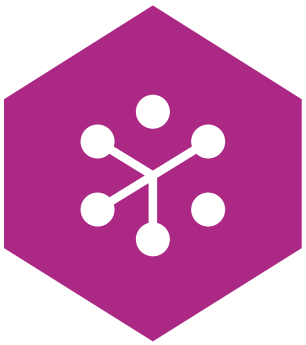

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The Role of Social Capital in Traffic Safety Citizenship

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Abstract: Traffic safety citizenship is an emerging approach to reduce serious injuries and fatalities on our roadways. The goals of this study were to develop a model to identify beliefs and values associated with intention to engage in traffic safety citizenship behaviors with strangers and to explore the role of an individual's perception of social capital in this model. This study focused on two safety citizenship behaviors: intervening as a driver to ask a passenger to wear a seat belt and intervening as a passenger to ask a driver to stop reading or typing on a cell phone while driving. Results showed that one-third of the respondents had been in a situation to intervene with a stranger in the past twelve months. Of those in a situation to intervene, most reported they did not always intervene. They were more likely to intervene about a seat belt than about texting. Intention to intervene was significantly correlated with intervening behavior, and linear regression models revealed that perceived control was the dominant component most predictive of intention to intervene. Social capital did not directly predict intention to intervene but was predictive of the perceived injunctive norm and the perceived descriptive norm, which were both predictive of intention. Results of the study provide a better understanding of the beliefs and values associated with the intention to engage in traffic safety citizenship behaviors and the role of social capital to facilitate engagement in these behaviors. Recommendations to increase safety citizenship behaviors are provided.

Keywords: Social Capital, Safety Citizenship Behavior, Prosocial Behavior, Traffic Safety, Traffic Safety Citizenship, Driver Distraction, Texting While Driving, Occupant Protection, Traffic Safety Culture

Introduction

In 2016, 37,461 people lost their lives on United States roadways (NHTSA 2017a). This accounts for 102 fatalities per day (NHTSA 2017b). Safety on our nation's roadways is an important goal, and while significant progress in roadway safety has been made, more can be done. Research suggests that 94 percent of serious crashes are linked to human behaviors (NHTSA 2017c). To reach zero deaths on our nation's roadways, we must affect change using novel approaches that address human behavior.

Traffic safety citizenship is an approach to traffic safety that leverages the strong, positive road safety culture that already exists to impact the small minority of risky road users most resistant to change (Otto, Finley, and Ward 2016). Traffic safety citizenship behaviors are those that contribute to the individual and collective safety of all road users (Otto, Finley, and Ward 2016). Traffic safety citizenship expands the "safety citizenship" construct first developed by Hofmann, Morgeson, and Gerras (2003) to understand these prosocial behaviors within the context of traffic safety.

Safety citizenship has been used to describe actions taken by individuals in organizations that go beyond the basic expectations of their work roles (Hofmann, Morgeson, and Gerras 2003; Didla, Mearns, and Flin 2009). Safety citizenship is a collection of behaviors that focus on one's own safety and the safety of others, including voicing opinions, intervening to help others, reporting unsafe situations, staying informed, initiating change, and being a steward for existing safety programs (Hofmann, Morgeson, and Gerras 2003; Didla, Mearns, and Flin 2009). Social exchange theories provide insight into the motivations people have for engaging in various

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exchanges between one another (Thomas and Iding 2011). Researchers have suggested that "safety citizenship behaviors are a product of social exchange" (Reader et al. 2017, 363). Through the lens of social exchange, one could postulate that one of the reasons people engage in safety citizenship is because they assume their actions will be reciprocated and benefit them in other ways (Otto, Finley, and Ward 2016). It has been suggested that while the benefits of engaging in safety citizenship behaviors are evident, "engaging in them is inconsistent and identifying ways to encourage them is a priority" (Reader et al. 2017, 363).

While research to understand safety citizenship in traffic safety is limited, the literature is promising. Research suggests there are many opportunities in which people find themselves in situations where they could intervene to improve traffic safety (Otto, Finley, and Ward 2016). When in those situations, many people, but not all, do intervene (Otto, Finley, and Ward 2016). "People are more likely to intervene with others who are socially closer to them (e.g., family and friends) than with those more socially distant (e.g., acquaintances or strangers)" (Otto, Finley, and Ward 2016, 11). Further, "most people have favorable attitudes and beliefs about intervening" (Otto, Finley, and Ward 2016, 30). The perception of whether most people intervene (e.g., the perceived descriptive norm) may be an important predictor of intervening behavior (Otto, Finley, and Ward 2016). Understanding what factors contribute to engagement in traffic safety citizenship is critical to eliminate crash deaths and serious injuries and to fully realize our goal of zero deaths (Otto, Finley, and Ward 2016).

The purpose of this article is to explore the role of social capital to facilitate engagement in traffic safety citizenship behaviors. Social capital is said to "exist in the relations among persons" (Coleman 1988, S100). Social capital has been defined as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal 1998, 243). The benefits of social capital lie in the resources available through one's connections to others that can be used to initiate action and to help solve collective problems (Coleman 1988; Brehm and Rahn 1997). Social capital is thought to make "possible the achievements of certain ends that in its absence would not be possible" (Coleman 1988, S98).

A variety of frameworks to understand social capital has been developed. Coleman (1988) identified three forms of social capital: (1) obligation, expectations, and trustworthiness; (2) information channels; and (3) norms and effective sanctions. Obligations, expectations, and trustworthiness as forms of social capital provide opportunities for reciprocal social exchanges (Coleman 1988). In other words, doing something for someone and then expecting and trusting that your actions will be reciprocated in the future when needed builds social capital. Mutually, when others do something for you, you have a sense of obligation to give back and reciprocate at some point in the future. Information channels as a form of social capital foster action by facilitating information exchange (Coleman 1988). Essentially, through one's network of relationships, information can be exchanged quickly to provide needed information to the right people at the right times. Norms and effective sanctions as a form of social capital provide guidance for behavior (Coleman 1988). Norms help to enable some behaviors and deter others (Coleman 1988). For example, norms can promote behaviors like selflessness and deter other behaviors like those that serve only one's self-interests (Coleman 1988).

Nahapiet and Ghoshal (1998) articulated three dimensions of social capital: (1) structural, (2) relational, and (3) cognitive. The structural dimension of social capital focuses on the patterns and network ties that are created through relationships (Nahapiet and Ghoshal 1988). The relational dimension of social capital focuses on "the assets created and leveraged through relationships"—trust and trustworthiness are essential features of this dimension, along with shared norms and perceived obligations (Nahapiet and Ghoshal 1998 p. 244). The emphasis of the relational dimension of social capital is on the quality of the relationships people have to one another (Bolino, Turnley, and Bloodgood 2002). The cognitive dimension focuses on a shared understanding amongst people (Nahapiet and Ghoshal 1998). This includes language and

narratives which help people develop shared meaning and ultimately increase understanding (Nahapiet and Ghoshal 1988; Bolino, Turnley, and Bloodgood 2002).

Studies examining the effects of social capital on a variety of important social issues have been conducted including: the impact of social capital on worker safety behaviors (Li, Fan, and Wu 2018), physical health (Mackenbach et al. 2016; Yip et al. 2007), mental health/wellbeing (Rothon, Goodwin, and Stansfeld 2012; Eriksson et al. 2012), and employment outcomes (Hook and Courtney 2011). Studies exploring the role of social capital in traffic safety are more limited, yet the research that does exist suggests social capital positively impacts traffic safety (Nagler 2013a), and it also fosters prosocial behaviors among people sharing the road (Nagler 2013b). Further, research suggests social capital has a "generalized effect," suggesting that the benefits of social capital are not confined by the need to know each another or have a close relationship (Nagler 2013b, 192–93).

Previous researchers have proposed a reciprocal relationship between social capital and citizenship behaviors (Bolino, Turnley, and Bloodgood 2002). Within an organizational context, it has been suggested that citizenship behaviors play an important role in the development of social capital and similarly, social capital also promotes citizenship behaviors (Bolino, Turnley, and Bloodgood 2002); however, questions remain. Is social capital correlated with engagement of traffic safety citizenship behaviors? If so, in what ways? Safety citizenship with a group of individuals is about creating a shared commitment to the value of safety and the social obligation to behave in ways that support the safety of each other (Safety Institute of Australia Ltd. 2013). Through forms of social capital such as obligation, shared expectations, trustworthiness, information exchange, and norms and sanctions, it is proposed that social capital enhances engagement in traffic safety citizenship.

Social capital plays an important role in supporting community action to tackle complex collective challenges (Coleman 1988; Nahapiet and Ghoshal 1998; Brehm and Rahn 1997). Reducing fatalities on our nation's roadways is a collective challenge that requires novel approaches. Traffic safety citizenship is a novel approach to traffic safety that focuses on human behaviors and leverages the majority of safe road users (Otto, Finley, and Ward 2016). Engaging in traffic safety citizenship behaviors to support one's own safety and support the safety of other road users is an important component of a comprehensive Towards Zero Deaths strategy (Otto, Finley, and Ward 2016). Thus, it is timely to better understand the role of social capital to influence engagement in traffic safety citizenship behaviors.

Goals of Current Study

This study had two goals. The first goal was to develop a model based on the Reasoned Action Approach (Fishbein and Ajzen 2010). The objective was to identify beliefs (e.g., attitudes, perceived norms, perceived control) as well as values associated with intention to engage in traffic safety citizenship behaviors with strangers. The second goal was to explore the role of an individual's perception of social capital in this model.

Methodology

Survey Development

A survey was created based on the Reasoned Action Approach behavioral model (Fishbein and Ajzen 2010), as represented in Figure 1. The survey focused on two traffic safety citizenship behaviors: intervening as a driver to ask a passenger to wear a seat belt and intervening as a passenger to ask a driver to stop reading or typing on a cell phone while driving. These two behaviors are both significant risk factors for serious injuries and fatalities in vehicle crashes in the United States (Pickrell and Li 2016; NHTSA 2017a).

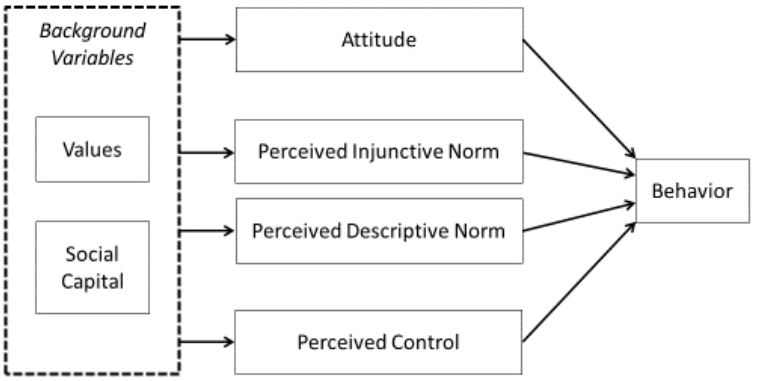

Figure 1 Behavioral Model
Adapted by Authors from Fishbein and Ajzen 2010

Behavior was assessed using two questions: "Thinking back over the last 12 months when you were the driver, how often did you ask a stranger to wear a seat belt (when they were not wearing one)?" and "Thinking back over the last 12 months, how often did you ask a stranger to stop reading or typing on a cell phone while driving?" The same answer choices were used for all three questions: "I was never in that situation," "Never (1)," "(2)," "(3)," "About Half the Time (4)," "(5)," "(6)," and "Always (7)."

Intention was assessed using two questions: "Suppose you are in a vehicle, and a stranger is not wearing a seat belt. How willing would you be to ask them to wear a seat belt?" and "Suppose you are in a vehicle, and a stranger is reading or typing on a cell phone while driving. How willing would you be to ask them to stop?" Answer choices used a seven-point scale from "Not at All Willing (1)" to "Extremely Willing (7)." Intention to intervene on seat belt use was not differentiated between being a driver or a passenger because of space limitations.

Attitudes are a subjective evaluation of the behavior including both emotion (e.g., "speeding is exciting") and perceived utility (e.g., "seat belts are useless") (Fishbein and Ajzen 2010). Attitude was measured using eleven semantic differentials to indicate how respondents felt about "safety encouragement behaviors," which were defined as "getting other people to make safe choices" such as asking them to wear a seat belt or refrain from reading or typing on a cell phone while driving (Krosnick, Judd, and Wittenbrink 2005). The eleven pairs of words were: cool / not cool, dangerous / safe, foolish / sensible, pleasant / unpleasant, good / bad, acceptable / unacceptable, right / wrong, caring / uncaring, respectful / disrespectful, appropriate / inappropriate, and responsible / irresponsible. The answer choices used a seven-point scale.

Perceived norms include both perceptions about injunctive norms (i.e., perceptions about what people are expected to do) and perceptions of descriptive norms (i.e., perceptions about what people typically do) (Fishbein and Ajzen 2010). One way to assess perceived injunctive norms is to ask about the respondent's perception about how most people important to them would feel about the behavior (Fishbein and Ajzen 2010). Perceived injunctive norms were measured using three questions: "In your opinion, to what degree would most people important to you agree or disagree with this statement: 'People should engage in these safety encouragement behaviors.'" (answer choices used a seven-point scale ranging from "Strongly Agree" to "Strongly Disagree"); "In your opinion, to what degree would most people important to you approve or disapprove of people engaging in these safety encouragement behaviors?" (answer choices used a seven-point scale ranging from "Strongly Disapprove" to "Strongly Approve"); and "In your opinion, to what degree would most people important to you support someone who engaged in these safety encouragement behaviors?" (answer choices used a seven-point scale ranging from "Not at all Support" to "Strongly Support").

Perceived descriptive norms were measured using two questions which asked about the respondent's perception of how typical or common the behaviors are: "In your opinion, how often did most drivers (age eighteen and older) ask a stranger to wear a seat belt (when they were not wearing one)?" and "In your opinion, how often did most people (age eighteen and older) ask a stranger to stop reading or typing on a cell phone while driving?" using the following answer choices: "Never (1)," "(2)," "(3)," "About Half the Time (4)," "(5)," "(6)," and "Always (7)."

Perceived control is the perception of one's ability to determine one's own behavior (Fishbein and Ajzen 2010); it was measured by examining two beliefs (comfort and confidence) with respect to both behaviors. The questions were: "If you wanted to, how comfortable would you be in asking a stranger to wear a seat belt?"; "If you wanted to, how comfortable would you be in asking a stranger to refrain from reading or typing on a cell phone while driving?"; "If you wanted to, how confident would you be in asking a stranger to wear a seat belt?"; and "If you wanted to, how confident would you be in asking a stranger to refrain from reading or typing on a cell phone while driving?" Possible answers used seven-point scale ranging from "Not at all Comfortable/Confident" to "Extremely Comfortable/Confident."

Values are ideals to which we aspire and can direct the formation of our belief systems and guide our behavioral choices (Joffe 2003). Four value categories were assessed based on the Short Schwartz Value Survey (Lindeman and Verkasalo 2005): self-transcendence (broad-mindedness and helpfulness), conservation (conformity, tradition, and security), self-enhancement (power and achievement), and openness to change (enjoyment in life, stimulation, and self-direction). Respondents were asked to rate the importance of each of the ten values one at a time using a nine-point scale beginning with "Opposed to My Principles" and then ranging from "Not Important (1)" to "Of Supreme Importance (8)."

It has been suggested that the complexities of social capital make it difficult to measure using single indicators (Claridge 2004). However, several studies have set a precedence for using measures of trust as indicators of social capital and found meaningful results (Nagler 2013b; Nagler and Ward 2016; Ljunge 2014). For example, in a study to understand the role of social capital in traffic accident prevention, Nagler used a measure of generalized trust: "Most people are honest" (2013b, 182). To check the reliability of the results using this single measure, Nagler also used two other measures of social capital (i.e., "Most people can be trusted" and a social capital investment index consisting of four components related to community engagement) and found consistent findings (2013b, 188). In a study unrelated to traffic safety, Ljunge (2014) explored the relationship between social capital and health. Ljunge conceptualized trust as "part of an individual's cognitive social capital" (166) and measured generalized trust using the question "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (168). Trust has been conceptualized as a form of social capital (Coleman 1988), and following several other studies that have used measures of trust as indicators of social capital research, social capital in this study was measured using two questions about trust: "Please indicate your level of agreement with the following statement: 'Most people are honest'" (with answer choices "I Definitely Agree," "I Generally Agree," "I Moderately Agree," "I Moderately Disagree," "I Generally Disagree," and "I Definitely Disagree") and "Generally speaking, would you say that people can be trusted, or that you can't be too careful in dealing with people?" (with answer choices "People can almost always be trusted," "People can usually be trusted," "You usually can't be too careful in dealing with people," and "You almost always can't be too careful in dealing with people").

Questions about demographics included sex, age, education attainment, and geography (i.e., urban, suburban, and rural). Respondents were also asked the state in which they lived and how often they drove a vehicle. The survey was reviewed and approved by the Institutional Review Board of Montana State University.

Survey Sample

The survey was administered over the internet using a convenience sample from a purchased panel of respondents from Qualtrics of individuals age eighteen and older residing in the United States. This panel was completed between March 2 and March 7, 2016, by 1,260 respondents. To participate, respondents had to indicate they had driven a car in the past thirty days. These individuals received a small incentive to complete the survey provided by Qualtrics. Table 1 summarizes the demographics of the respondents.

Table 1: Demographics of Respondents

Sex		***Age (years)***		***Education Attainment***		***Geography***	
Male	*50%*	*18 to 24*	*23.9%*	*Less than high school degree*	*2.1%*	*Urban*	*28.2%*
Female	*50%*	*25 to 34*	*36.0%*	*High school graduate (GED)*	*20.2%*	*Suburban*	*48.7%*
		35 to 44	*17.1%*	*Some college, no degree*	*26.7%*	*Rural*	*23.1%*
		45 to 54	*10.1%*	*Two-year college degree*	*11.9%*		
		55 to 64	*7.9%*	*Four-year college degree*	*29.0%*		
		65 or older	*5.2%*	*Graduate or professional degree*	*10.0%*		

Otto, Finley, and Ward 2016

Scales

Principal Components Analysis showed each scale only included one principal component. For all the scales except social capital, the scale was calculated by averaging the responses of each item. For social capital, the scale was created by adding the two responses together and subtracting the sum from 11 to reverse code the sum (i.e., higher values of the scale were associated with higher levels of social capital). Overall, most scales had an acceptable internal consistency (as measured by Cronbach's alpha—see Table 2).

Table 2: Summary of Scales and Internal Reliability

Scale	***Number of Items***	***Cronbach's alpha***
Intention	*2*	*0.758*
Attitude	*11*	*0.956*
Perceived Injunctive Norm	*3*	*0.733*
Perceived Descriptive Norm	*2*	*0.773*
Perceived Control	*4*	*0.907*
Self-transcendence	*2*	*0.591*
Conservation	*3*	*0.773*
Self-enhancement	*2*	*0.667*
Openness to Change	*3*	*0.728*
Social Capital	*2*	*0.661*

Data Compiled by the Authors

Results

The results are presented in three sections. The first examines the relative frequency of safety citizenship behaviors and the means of the core components of the behavioral model. The second section uses correlation analysis to examine the relationship between the components of the

behavioral model and social capital. The third section uses linear regression to further enhance this understanding.

Engagement in Safety Citizenship Behaviors with Strangers

Table 3 shows the relative frequency of engagement in safety citizenship behaviors by survey respondents. About one-third of respondents had been in a situation to intervene either about a seat belt or texting in the past twelve months. Of those in such a situation, most reported they did intervene (68.3% intervened about a seat belt and 56.7% intervened about texting); however, only a small portion reported always intervening. They were more likely to intervene about a seat belt than about texting.

Table 3: Relative Frequencies of Intervening Behaviors

	I was never in that situation	***Never or rarely***	***About half the time***	***Usually or always***
Asking a stranger to wear a seat belt	*60.4%*	*12.5%*	*9.8%*	*17.3%*
Asking a stranger to stop texting	*67.4%*	*14.1%*	*9.4%*	*9.1%*

Data Compiled by the Authors

Among those in a situation to intervene, their intention to intervene (as measured by the scale noted above) was significantly correlated with their self-reported intervening behaviors. For those who were in a situation to ask a stranger to wear a seat belt (n = 499), the Spearman correlation coefficient between intention and intervening behavior was .46 ($p < 0.001$, two-tailed). Similarly, for those who were in a situation to ask a stranger to stop texting (n = 411), the Spearman correlation coefficient between intention and intervening behavior was 0.31 ($p < 0.001$, two-tailed).

Table 4 summarizes the means and standard deviations for each of the core components of the model as well as the four values and social capital. Overall, intention to intervene was high (5.6 mean out of 7). On average, respondents had a positive attitude about intervening (5.9 out of 7) and had strong perceived injunctive normative beliefs about intervening (6.0 out of 7). However, on average, respondents thought most people would intervene less than half the time (3.0 out of 7), and their sense of perceived control was modest (5.3 out of 7). On average, respondents rated self-transcendence the highest and self-enhancement the lowest.

Table 4: Means and Standard Deviations of Model Components

Component	***Mean***	***Standard Deviation***
Intention[1]	*5.6*	*1.54*
Attitude[1]	*5.9*	*1.31*
Perceived Injunctive Norm[1]	*6.0*	*0.96*
Perceived Descriptive Norm[1]	*3.0*	*1.69*
Perceived Control[1]	*5.3*	*1.62*
Self-transcendence[2]	*7.3*	*1.48*
Conversation[2]	*6.3*	*1.80*
Self-enhancement[2]	*5.1*	*1.90*
Openness to Change[2]	*6.5*	*1.59*
Social Capital[3]	*5.2*	*1.62*

1. Range from 1 to 7.
2. Range from 1 to 9 where higher numbers indicate greater importance of value.
3. Range from 1 to 9 where higher numbers indicate more social capital.

Data Compiled by the Authors

Association of Safety Citizenship Beliefs and Social Capital

Spearman correlations were used to examine the relationship between social capital and the various beliefs (Table 5). Intention was statistically significantly correlated with all other scales except the value self-enhancement. Social capital was statistically significantly correlated to the perceived injunctive norm, the perceived descriptive norm, and the values of self-transcendence and conservation. Social capital was not significantly correlated with perceived control or the values of self-enhancement or openness to change.

Table 5: Spearman Correlation Coefficients between Model Components

Component	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Intention	*1.00*	*.27****	*.31****	*.20****	*.80****	*.17****	*.16****	*0.02*	*.10****	*.06**
2. Attitude		*1.00*	*.46****	*-0.05*	*.25****	*.27****	*.19****	*0.02*	*.12****	*0.05*
3. Perceived Injunctive Norm			*1.00*	*0.05*	*.31****	*.25****	*.22****	*0.04*	*.14****	*.10****
4. Perceived Descriptive Norm				*1.00*	*.18****	*0.06*	*0.04*	*.11****	*.07**	*.11****
5. Perceived Control Norm					*1.00*	*.14****	*.14****	*0.05*	*.11****	*0.04*
6. Self-transcendence						*1.00*	*.30****	*.16****	*.39****	*.10****
7. Conservation							*1.00*	*.26****	*.18****	*.10****
8. Self-enhancement								*1.00*	*.54****	*.06**
9. Openness to change									*1.00*	*0.03*
10. Social Capital										*1.00*

*Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).
***Correlation is significant at the 0.001 level (two-tailed).

Data Compiled by the Authors

Predicting Intention to Engage in Safety Citizenship Behaviors with Strangers

Linear regression was used to examine the proposed behavioral model relating beliefs to intention to intervene. A regression model predicting intention to intervene based on attitude, perceived injunctive norm, perceived descriptive norm, perceived control, each of the four values (self-transcendence, conservation, self-enhancement, and openness to change), and social capital revealed that the values and social capital did not significantly contribute to the prediction of intention (i.e., coefficients were not statistically significant at $p < 0.05$). The four remaining components resulted in a significant regression model: $F(4,1255)= 570.8$ ($p < 0.001$) predicting 65 percent of the variation of intention. Table 6 summarizes the coefficients of the linear regression model using the four core components of the behavioral model.

Table 6: Linear Regression Coefficients of Behavioral Model

Component	*Standardized Beta*	*Significance*
Attitude	*0.04*	*0.026*
Perceived Injunctive Norm	*0.05*	*0.018*
Perceived Descriptive Norm	*0.08*	*<0.001*
Perceived Control	*0.76*	*<0.001*

Data Compiled by the Authors

Four linear regression models were used to explore the relationship between the values (self-transcendence, conservation, self-enhancement, and openness to change) and social capital with these four cultural components that predict intention (i.e., attitude, perceived injunctive norm, perceived descriptive norm, and perceived control). Table 7 summarizes the models. Each model predicted less than 10 percent of the variation of the dependent variable.

Table 7: Summary of Linear Regression Models Predicting Various Model Components

	Dependent Variable			
	Attitude	***Perceived Injunctive Norm***	***Perceived Descriptive Norm***	***Perceived Control***
F	*F(5,1254)=15.691 (p<0.001)*	*F(5,1254)=22.761 (p<0.001)*	*F(5,1254)=8.401 (p<0.001)*	*F(5,1254)=7.439 (p<0.001)*
R^2	*0.06*	*0.08*	*0.03*	*0.03*
Standardized Beta				
Self-transcendence	*0.21***	*0.18***	*N.S.*	*0.08**
Conservation	*N.S.*	*0.13***	*N.S.*	*0.08**
Self-enhancement	*N.S.*	*-0.08**	*0.11***	*N.S.*
Openness to change	*N.S.*	*0.08**	*N.S.*	*N.S.*
Social capital	*N.S.*	*0.08***	*0.12***	*N.S.*

*p<0.05; **p<0.01; N.S.= not statistically significant

Data Compiled by the Authors

The models revealed that people with stronger values of self-transcendence (i.e., broad-mindedness and helpfulness) were more likely to have positive attitudes about intervening with others, were more likely to believe that they were expected to intervene (i.e., higher perceived injunctive norm), and were more likely to have higher levels of comfort and confidence in intervening (i.e., higher perceived control). Individuals with stronger values of conservation (i.e., conformity, tradition, and security) were more likely to believe they were expected to intervene and were more likely to have higher levels of comfort and confidence in intervening. Those with higher values of self-enhancement (i.e., power and achievement) were less likely to believe that they were expected to intervene but were more likely to believe others actually do intervene (i.e., higher perceived descriptive norm). Those with higher values of openness to change (i.e., enjoyment in life, stimulation, and self-direction) were more likely to believe that they were expected to intervene. Those who reported higher levels of social capital were more likely to believe that they were expected to intervene and more likely to believe that others actually do intervene. Beliefs about social capital did not influence attitudes or perceived control about intervening.

Discussion

The frequency analysis of the two safety citizenship behaviors revealed two important results. First, one-third of the respondents had been in a situation to intervene with a stranger in the past twelve months. This result is large considering that 90 percent of the US population wears a seat belt (Pickrell and Li 2016). Furthermore, these were situations with a stranger. Previous research has shown that situations to intervene with family members, friends, and coworkers are more

prevalent than with strangers (Otto and McMahill 2015; Otto, Finley, and Ward 2016). Situations to intervene represent important opportunities to influence someone engaging in a risky behavior. In 2015 in the United States, about half of the 22,441 occupants killed in motor vehicles were unrestrained (National Center for Statistics and Analysis 2017).

Second, of the one-third of respondents in a situation to intervene, most did not always ask the unrestrained occupant to wear a seat belt. Thus, while individuals are in a situation to intervene, they are choosing not to do so. This represents an important opportunity for interventions to grow safety citizenship behaviors. If more people intervened, fewer people may engage in risky behaviors. Research has shown that people who are likely to intervene with strangers are even more likely to intervene with individuals in closer social relationships (Otto and McMahill 2015; Otto, Finley, and Ward 2016). The results were similar for texting.

The correlation analysis and regression models revealed that perceived control was the dominant component most predictive of intention to intervene. Perceived control measured the respondents' comfort and confidence in intervening with a stranger. These results are similar to those found by the authors in previous studies (Otto and McMahill 2015; Otto, Finley, and Ward 2016). For the most part, attitudes and perceived injunctive norms are supportive of intervening. In other words, people recognize the potential benefits from intervening and have a sense that they should intervene, but they do not know how to do it in a way that makes them feel comfortable and confident to intervene. Thus, efforts to grow bystander engagement do not need to focus as much on why people should intervene or that people should intervene. Instead, efforts should seek to build people's comfort and confidence in intervening by showing them how to do it.

While the analyses revealed that perceived control was the strongest predictor of intention, values and social capital were themselves predictive of perceived control (as well as attitudes and perceived norms). Generally, efforts to grow safety citizenship would not likely seek to change values as values are slow to change (Fishbein and Ajzen 2010; Joffe 2003). Instead, efforts may seek to use values as a way to frame communications to bolster a sense of trust and enhance adoption. For example, one popular strategy used by federal, state, and local agencies to address traffic safety is the use of traffic safety campaigns. These campaigns could be an opportunity to intentionally promote connection within a community and foster a greater sense of trust between citizens. While this might not be the primary focus of the campaign, such efforts could enhance social capital and thereby improve bystander engagement. Based on the results of this study, efforts to increase bystander engagement may want to connect to the values of self-transcendence (i.e., broad-mindedness and helpfulness) and conservation (i.e., conformity, tradition, and security). Furthermore, traffic safety campaigns could be examined through the lens of social capital, and messages that perhaps foster mistrust could be reduced or eliminated.

Social capital was not directly predictive of intention to intervene. However, social capital was correlated with the perceived injunctive norm and the perceived descriptive norm which were both predictive of intention. This is consistent with the concept of social capital as an indication of an individual's sense of connection to others. As people feel more connected to others, they are more likely to feel they are expected to intervene to protect others (i.e., have a higher perceived injunctive norm) and would believe that others would be more likely to intervene as well (i.e., have a higher perceived descriptive norm).

It is important to note that these analyses can only reveal association and not causation. One can imagine that communities with higher levels of social capital may be more receptive to safety citizenship to improve traffic safety. Likewise, efforts to grow safety citizenship to improve overall traffic safety of a community could grow social capital. Nonetheless, existing social capital in a community may be an appropriate precondition to foster safety citizenship to improve traffic safety.

Conclusions

Traffic safety has been and remains a significant public health issue. Traffic safety citizenship offers a novel approach to address this issue. Intervening with strangers engaging in potentially risky behaviors like not wearing a seat belt and texting while driving is an example of one component of safety citizenship. Social capital, an indication of the strength of social relationships in a community, may influence adoption of safety citizenship.

A behavioral model was developed to better understand the prevalence of safety citizenship behaviors as well as the values and beliefs predictive of such behaviors. Two behaviors were explored: intervening as a driver to ask a passenger to wear a seat belt and intervening as a passenger to ask a driver to stop reading or typing on a cell phone while driving. A convenience sample of 1,260 adults in the United States was used to explore the model.

The results revealed that about one-third of respondents had been in at least one situation to intervene with a stranger to address these risky behaviors. Of those in a situation to intervene, most did not. Analysis revealed that intention to intervene was significantly correlated with intervening behavior, and linear regression models revealed that perceived control was most predictive of intention to intervene. Social capital did not directly predict intention to intervene but was predictive of the perceived injunctive norm and the perceived descriptive norm. These results indicate that efforts to increase safety citizenship to improve traffic safety should increase an individual's comfort and confidence in intervening and that communities with higher social capital may be more likely to engage in safety citizenship behaviors.

There are important limitations to the results. While there is extensive research behind the behavioral models used in this study, this study was only correlational and thus cannot establish causation. These results are based on one sample. Analyses with additional samples exploring various demographic groups should be conducted. This study examined only one aspect of social capital—perceived trust among individuals. Additional studies should be performed to better understand the relationship between other aspects of social capital and safety citizenship.

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