Carpooling in times of crisis: Organizational identification as a safety belt

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ABSTRACT

The purpose of this research is to understand how organizational identification and fear of Covid-19 influence individuals' attitudes, trust, and intention to carpool. For this study, 299 participants completed an online questionnaire in which we assessed their organizational identification, fear of Covid-19, perceived risks, attitude, trust, and intention to carpool. Results show that the relationship between individuals and their organization is an effective lever to promote carpooling. Our results confirm that individuals' trust level and attitude strongly determine carpooling intention. The results highlight a negative relationship between perceived risks and attitude, as well as trust; Covid-19 is also identified as an antecedent to perceived risks. Organizations implementing carpooling solutions should focus on developing organizational identification and address fears associated with Covid-19.

1. Introduction

The health crisis we are currently facing has challenged some of our practices regarding the way we live and work (Hite and McDonald, 2020, Kniffin et al., 2021). It has also raised awareness and activism on major societal issues, notably climate change (Marazziti et al., 2021). Environmental challenges are more than ever at the heart of concerns of communities and organizations that seek to emphasize their societal values, especially their environmental ones (Buliung et al., 2010).

Our transportation behaviors are closely linked to our environmental impact (Banister, 2011). More than anything, transportation – and more specifically road transport – is considered one of the most significant sources of air pollution in cities and represents more than a quarter of greenhouse gas emissions (Environmental Protection Agency, 2019). More specifically, commuting behavior represents a substantial share of our environmental impact (Kristal and Whillans, 2020). In the USA, about 128 million people use their car to commute to work, and around 96 million of them commute on their own (United States Census Bureau, 2015).

Changing mobility behaviors during the home-to-work commute represents an important opportunity to reduce the environmental impact of transportation (United States Census Bureau, 2015). For example, carpooling programs in a city like San Francisco could reduce the costs associated with transportation by more than USD 30.0 million per year, saving around 0.45 and 0.9 million gallons of gas (Minett and

Pearce, 2011). Thus, developing alternative mobility solutions such as carpooling is a great way to reduce the environmental impact associated with transportation (Whillans et al., in press). Indeed, developing carpooling represents several major advantages at the societal level as well as at the individual one. On the societal level, carpooling significantly reduces traffic and air pollution in cities (Kuntzky et al., 2013); at the individual level, it cuts costs and trips duration for users, as it can also reduce the number of cars on the road (Wang et al., 2019). As highlighted by Tsai et al. (2021), carpooling itself is rather easy to access since carpoolers only require agreeing on a time and location to meet.

However, setting up carpooling programs in organizations can be difficult if some psychological barriers are not addressed. Considering individuals' attitudes towards carpooling as well as their level of trust towards the carpooling solution developed by their organization thus appears as essential to predict the actual carpooling practices (Becker et al., 2017). Indeed, people might associate a set of risks with carpooling or might not be comfortable with the idea of commuting with someone they do not know (Tsai et al., 2021).

Several studies have evaluated the motivations that lead people to carpool (Buliung et al., 2010; Olsson et al., 2019). However, only a few have focused on carpooling in a professional context, representing an opportunity to address frequent and regular mobility patterns. In addition, several studies have emphasized the difficulty of setting up efficient initiatives to develop carpooling for home-to-work commutes (Kristal and Whillans, 2020; Whillans et al., in press). This can be

explained by the fact that studies do not sufficiently take into account the fact that our behaviors and relationships with others may differ between professional and personal settings. The aim of this paper is to better understand the importance of constructs associated with the work environment and how they predict individuals' behaviors regarding carpooling in this specific environment. More precisely, the first objective of this research will thus be to assess to what extent individuals' organizational identification – meaning, the *"perception of oneness with or belongingness to"* the organization (Ashforth and Mael, 1989, p.34) – predicts their attitude and trust towards carpooling solutions developed within their organization, and, by extension, their intention to take part in such solutions.

As emphasized in research (Tsai et al., 2021), one of the major obstacles to adopting carpooling is users' perceived risks. Perceived risks will significantly impact individuals' attitudes and trust towards carpooling solutions developed within their organization. Indeed, before accepting to carpool, individuals may legitimately ask themselves several questions about the risks associated with this practice (e.g., Is the driver a good driver? Is the individual I accept in my car an honest individual?). Currently, one of the most significant risks that cannot be ignored is Covid-19 (Ozbilen et al., 2021). Even if Covid-19 represents a major shift in our relationship with interaction and socialization, only a few studies have investigated this impact (Xu et al., 2021). The second objective of this research will be to measure how fears associated with Covid-19 and perceived risks influence carpooling adoption.

The paper is structured as follows: we first review the relevant literature – starting with carpooling, followed by organizational identification and perceived risk and fear of Covid-19 – and develop our model and hypotheses. We then present our method and results. We finally confront our results to the literature, discuss the practical implications of this study as well as its limitations and potential for future research, and provide a conclusion.

2. Literature review & hypotheses development

Carpooling is defined as an arrangement between two or more people to share the use of a private car for a trip (Gheorghiu and Delhomme, 2018). A joint contribution to the driver's expenses is usually considered in this arrangement. In that respect, carpooling is distinct from ride-hailing (services like Uber or Lyft), in which ride-hailing drivers make money and live off their earnings (Young and Farber, 2019). In this paper, we will focus on carpooling to commute. This practice can either be done informally (casual carpooling) or be monitored and promoted by an organization. Indeed, to reduce their environmental impact, organizations may decide to set up carpooling solutions that allow their employees to contact each other and organize their carpooling based on relatively common itineraries and schedules.

Research on carpooling shows the central importance of attitude (Becker et al., 2017; Tayakee, 2017) and trust (Bachmann et al., 2018; Tsai et al., 2021) to promote carpooling.

Attitude is defined as an individual's evaluation of a behavior, namely the evaluative value they place on it (Ajzen, 2011). In the context of carpooling, attitude is generally positive and allows for a real potential for carpooling (Becker et al., 2017). For example, de Almeida Correia et al. (2013) show that positive attitudes toward carpooling significantly predict individuals' intention to engage in carpooling (Becker et al., 2017; Johansson et al., 2006; Margolin et al., 1978). Attitudes toward carpooling are partly determined by the level of intimacy between participants, which is why intrahousehold (internal carpooling) carpooling is effective and widespread. Indeed, the degree of intimacy between participants allows for the development of positive attitudes and participation in actual carpooling practices (de Almeida Correia et al., 2013). But for the same reasons, it is more complicated to implement carpooling programs between people who are not part of the same household (external carpooling) because the development of positive attitudes is more challenging. Indeed, many resistances related

to not knowing the other person well or perceiving greater risks can temper individuals' attitudes (de Almeida Correia et al., 2013). This issue of perceived risk seems important for most individuals (Ciasullo et al., 2018), especially women (Lee et al., 2015) and students (Gallo and Buonocore, 2017). Sharing a ride represents a potential risk for the passenger, who will not be in control of the driving, as well as for the driver, who accepts that an unknown person penetrates inside a private space represented by her/his personal car. Indeed, the emphasis on safety, freedom, and privacy significantly reduces the willingness to carpool (Javid et al., 2017). Therefore, the driver-passenger relationship is essential, and an increase in the practice of carpooling can only be achieved by overcoming the psychological barriers associated with traveling with strangers (Correia and Viegas, 2011).

Although a lot of work supports the importance of attitude in predicting behavior (Ajzen, 2011), the transformation of a positive attitude towards carpooling into an actual intention to carpool is not automatic. Research on the attitude-intention link has yielded contrasting results (Terrier and Marfaing, 2015). For example, Bachmann et al. (2018) highlight that considering individuals' attitudes towards carpooling does not always predict their investment in carpooling. They show that other factors – mainly related to trust in the carpooling program and in the carpoolers – may be even more important.

In Bachmann et al. (2018), trust was addressed as a personal tendency to trust others (McKnight et al., 2002). At a more general level, Tschannen-Moran and Hoy (2000, p.556) define trust as "*one party's willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open*". Trust is an essential element in the context of interpersonal exchanges monitored by third-party platforms (McKnight et al., 2002). Tsai et al. (2021) highlight that the more individuals trust carpooling programs and in their ability to take care of them and their mobility needs, the more likely they are to use them. Trust thus seems to be the other determining factor, as confirmed by Tavory, Trop and Shiftan (2020). They show that the difficulty of trusting a stranger for the duration of a trip remains one of the main barriers to carpooling. Considering the psychological aspect of carpooling is therefore essential and is just as important as the practical aspects of the carpooling arrangement. Thus, driving style, courtesy, or even the fact of being a smoker are taken into account to determine whether or not a person will accept to travel with another (Ciari and Axhausen, 2013). In the end, it remains two people or more traveling together. Entrusting another person, potentially a stranger, to do the driving is not a trivial decision for many. A relationship of trust, a connection, must be established. The notion of reciprocity and how cooperation can emerge is of essence in carpooling, as two or more people share a ride, and potentially develop recurring patterns of collaboration. In that respect, Axelrod's work can be useful to understand how cooperation can develop between carpoolers through the iterated prisoner's dilemma and the Tit for Tat strategy (Axelrod, 1984, Axelrod, 1997): carpoolers can adapt their own behaviors to the one of their co-riders and as such develop cooperation or identify cheaters.

Based on this, we can hypothesize that attitudes (H1) and trust (H2) will be positively related to the intention to carpool. In other words, the more positive the attitude, and the greater the trust, the more willing individuals will be to carpool.

2.1. Organizational identification

To overcome potential concerns, Correia and Viegas (2011) suggest establishing carpooling clubs. Within clubs, individuals can come together around shared interests, which could reduce the perception of risk related to traveling with a stranger. In conjunction with the creation of clubs, the creation of carpooling programs restricted to members of a single organization represents an interesting opportunity that several organizations have seized. Indeed, various studies have shown that individuals are more likely to trust and interact with members of their own organization, using group identity to create personal connections

([McKnight et al., 1998](#)). In this scenario, individuals do not necessarily share common interests but may share, to an extent, an organizational identity ([Mael and Tetrick, 1992](#)). In that respect, organization-based carpooling programs would benefit from the identification to the organization of members, which would help overcome the psychological barriers to carpooling.

Organizational identification can be defined as the link between individuals' self-concept and their organizational membership, "*either cognitively (e.g., feeling a part of the organization; internalizing organizational values), emotionally (pride in membership), or both*" ([Riketta, 2005, p. 361](#)). In other words, organizational identification refers to the extent to which individuals define themselves through their membership of an organization. Therefore, highly identified employees will feel a strong sense of belonging to the organization to determine their sense of self ([Blader et al., 2017](#)). Organizational identification is positively related to motivation, performance, and loyalty to the organization ([Riketta, 2005](#)). Highly identified individuals typically develop positive attitudes toward their organization and colleagues ([Blader et al., 2017](#)). This strengthens the ties with other organization members, as they also participate in defining the individual's identity. Scholars highlight the influence of the transition from "I" to "we" in highly identified individuals ([Riketta, 2005](#)). Thus, the organization's goals gain importance for employees who can more easily take ownership of them ([Campbell and Im, 2015](#)). The shared nature of personal and professional identity also fosters the development of stronger bonds with the organization and helps nurture employees' needs for security and esteem ([Campbell and Im, 2015](#)). Therefore, giving so much credit to the organization automatically increases the trust that individuals place in their colleagues, the projects put in place, and shows a strong desire to complete them.

On this basis, we can expect the most highly identified individuals to have more positive attitudes (H3) as well as more trust (H4) towards the actions taken by the organization, such as the implementation of a carpooling program.

2.2. Perceived risk and fear of Covid-19

Although carpooling has a positive image among the general population in most countries, many users still perceive risks in this practice and may be reluctant to make use of it ([Créno and Cahour, 2015](#)). Indeed, when we look at the psychological barriers of carpooling, sharing a ride with another person is often perceived as a risky practice. Whether this risk is related to physical integrity or the protection of their privacy, its perception represents a major barrier to carpooling ([Correia and Viegas, 2011; Créno and Cahour, 2015](#)). Tsai et al. (2021, p. 86) define risk as "*the possibility that an event or a situation causes negative consequences in specific conditions.*" Specifically, for carpooling, these risks are related to the fear of the unknown ([Créno and Cahour, 2015](#)). These risks are inherent to carpooling in which you agree to transfer responsibility for your trip to another person. Similarly, the simple act of accepting another person to enter the personal car's private space can also lead to a perception of risk. Studies show that the level of perceived risk significantly reduces the interest in carpooling ([Ciari and Axhausen, 2013](#)). On this basis, we expect to observe a negative relationship between perceived risk and attitude (H5).

In the same vein, the trust given to carpooling offers is linked to the risk we accept in sharing the responsibility of our trips with other people ([Tavory et al., 2020](#)). Indeed, the more risks an individual perceives in an activity, the more reluctant they will be to trust it ([McKnight et al., 2002](#)). Thus, [Zhang and Yu (2020)](#) have highlighted that the degree of trust granted to a product is strongly determined by the risks perceived by the consumer. Thus, we can expect that a significant risk perception will reduce trust (H6).

Finally, since 2020, the Covid-19 pandemic needs to be added to the list of risks associated with carpooling ([Julagasigorn et al., 2021](#)). Indeed, the Covid-19 pandemic has led to countries implementing strict health and safety measures to mitigate the risks associate with the virus. However, in a car, the simplest measures of social distancing are impossible to respect, which could have a negative impact on the perception of risks related to carpooling ([Molina et al., 2020; Xu et al., 2021](#)). To the best of our knowledge, this link has not been documented. Therefore, we expect to observe a positive relationship between fear of Covid-19 and perceived risks (H7). All the hypotheses are summarized in [Table 1](#) and represented graphically in [Fig. 1](#).

3. Method

3.1. Sample

For this study, 299 US participants completed a 34-item online questionnaire (31.3% Female). The average age of our participants is 33.94 years (S.D = 9.80), 95.7% are employed full-time while 4.3% are part-time. 88.6% of the participants own a car, and the average distance between home and work is 27.76 miles (S.D = 22.01). 69.9% of our participants have previous carpooling experience. 87% of our participants are vaccinated, 3.3% had recovered, 3.7% are vaccinated and recovered and 6% are neither vaccinated nor recovered (previous Covid-19 infection).

3.2. Measures

The reliability of our scales was good and the cronbach's alphas are between 0.70 and 0.88.

Fear of Covid was measured using the 7-item Fear of Covid-19 scale ([Ahorsu et al., 2020](#)) on a 5-point Likert scale ranging from (1) Strongly disagree to (5) Strongly agree (e.g., 2. It makes me uncomfortable to think about coronavirus-19; Cronbach's $\alpha = 0.88$).

Perceived risks were measured by a 3-item Perceived Risks scale adapted from [Tsai et al. (2021](#), adapted from [Yoon and Lee (2017)](#) on the same 5-point Likert scale (e.g., I think that using carpooling would involve some level of risk; Cronbach's $\alpha = 0.70$).

Organizational identification was measured using the 6-item Organizational Identification scale ([Mael and Tetrick, 1992](#)). Participants were asked to rate themselves on a 5-point Likert scale ranging from (1) Strongly disagree to (5) Strongly agree (e.g., when I talk about this organization, I usually say "we" rather than "they"; Cronbach's $\alpha = 0.84$).

Attitude was measured by two items adapted from [Bachmann et al. (2018)](#) on a 5-point semantic differential scale (e.g., generally speaking, using carpooling to get to work is good…bad, $\alpha = 0.71$).

Trust was measured using a 5-item scale adapted from [Tsai et al. (2021)](#). Participants were asked to rate themselves on a 5-point Likert scale ranging from (1) Strongly disagree to (5) Strongly agree (e.g., I believe carpooling would be trustworthy; Cronbach's $\alpha = 0.79$).

Finally, we measured participants' intention to use carpooling if their organization made an offer with five items adapted from [Tsai et al. (2021)](#) to which participants were asked to respond on the same 5-point Likert scale (e.g., Participating in carpooling programs within my organization is something I would do in the future, Cronbach's $\alpha = 0.85$).

Table 1
Summary of hypotheses.

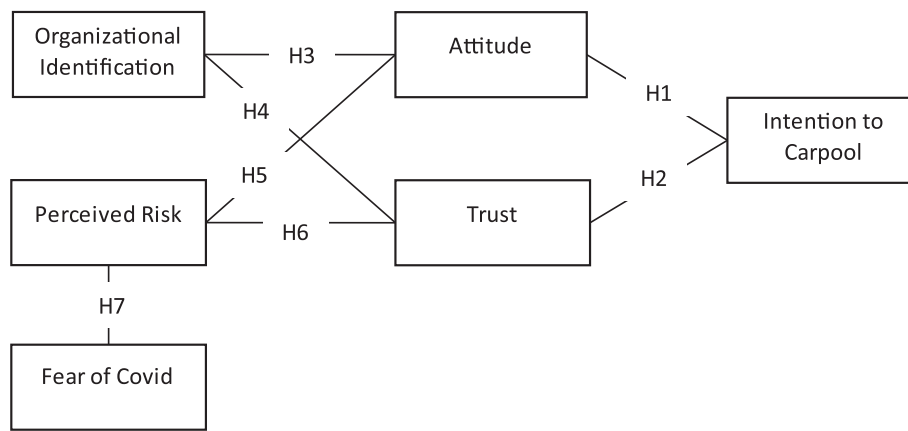|	Hypotheses
H1	Attitudes will be positively related to the intention to carpool
H2	Trust will be positively related to the intention to carpool
H3	Identification will be positively related to attitudes
H4	Identification will be positively related to trust
H5	Perceived risk will be negatively related to attitude
H6	Perceived risk will be positively related to trust
H7	Fear of Covid-19 will be positively related to perceived risk

Fig. 1. Graphical representation of hypotheses.

4. Results

4.1. Descriptive results

In our sample, the mean level of intention to carpool is 3.51 (SD = 1.04), and both attitude and confidence are globally positive (respectively, M = 3.72, SD = 0.86, and M = 3.64, SD = 0.86). The mean level of organizational identification is 3.56 (SD = 0.87). Finally, participants perceive a mean level of risk of 3.48 (SD = 0.87), and the mean fear of Covid score is 3.14 (SD = 1.03).

The analysis of our results shows that women have a higher intention to carpool than men (respectively M = 3.69, SD = 1.06 vs. M = 3.43, SD = 1.02, t(295) = −2.02, p <.05). They also show a higher level of Organizational identification than men (respectively, M = 3.78, SD = 0.78 vs. M = 3.45, SD = 0.89, t(295) = −3.03, p <.00). For the other dimensions, no effect of gender is observed.

The only difference related to employment status shows that full-time employees have a higher intention to carpool than part-time employees (respectively, M = 3.54, SD = 1.02 vs. M = 2.82, SD = 1.30, t (295) = 2.45, p <.05).

Vaccination status has an effect on trust (F(3, 293) = 3.05, p <.05), where non-vaccinated have a significantly lower level of trust (M = 3.11, SD = 0.20 for not vaccinated/not healed, M = 3.69, SD = 0.05 for vaccinated, M = 3.47, SD = 0.27 for healed, and M = 3.40, SD = 0.27 for vaccinated and healed). Vaccination status also has an effect on risk perception (F(3, 293) = 2.87, p <.05), linked to a lower risk perception among the healed (M = 3.53, SD = 0.20 for not vaccinated/not healed, M = 3.52, SD = 0.05 for vaccinated, M = 2.83, SD = 0.27 for healed, and M = 3.06, SD = 0.27 for vaccinated and healed). Unsurprisingly, fear of covid is related to vaccination status (F(3, 293) = 26.14, p <.00), and participants who report greater fear are those who have been vaccinated (M = 1.84, SD = 0.21 for not vaccinated/not healed, M = 3.33, SD = 0.05 for vaccinated, M = 1.81, SD = 0.29 for healed, and M = 3.21, SD = 0.29 for vaccinated and healed). Finally, there is an association between vaccination status and organizational identification (F(3, 293) = 4.60, p <.01), which shows a higher level of organizational identification in vaccinated individuals (M = 2.94, SD = 0.20 for not vaccinated/not healed, M = 3.62, SD = 0.05 for vaccinated, M = 3.45, SD = 0.27 for healed, and M = 3.10, SD = 0.27 for vaccinated and healed).

Age and car ownership do not affect our different variables.

4.2. Hypothesis testing

Our hypotheses were tested using hierarchical regressions with the software IBM SPSS Statistics 27. For each of these analyses, all demographic variables presented above were controlled in a first step, and our IVs were entered in a second step. The results obtained validate all the hypotheses.

4.2.1. Attitude and trust predicting carpooling intention

The first regression was made to test our two first hypothesis. First, consistent with our hypotheses, attitude and trust significantly predicted intention to carpool (F(9, 287) = 46.85, p <.00; R2 = 0.58, p <.00; see Table 2). Thus, the more favorable the participants' attitude, the greater the intention to carpool (p <.00). Similarly, the greater trust, the greater the intention to carpool (p <.00). In the final model (Step 2), we observe that gender (p <.05) and commute distance remain significant (p <.05).

4.2.2. Organizational identification and perceived risk predicting attitude and trust

In accordance with our third and fourth hypothesis, the results of our second regression demonstrate that organizational identification and perceived risks predict attitudes (F(9, 287) = 12.21, p <.00; R^2 = 0.27, p <.00; see Table 3) and trust (F(9, 287) = 14.17, p <.00; R^2 = 0.30, p <.00; see Table 3). Specifically, we observe that the more participants identify with their organization, the more favorable their attitudes (p <.00) and the more trust they place in carpooling (p <.00). Age is also

Table 2

Hierarchical regression analysis of Attitude and Trust predicting Carpooling Intention.

	Step 1	Step 2
Gender	0.36**	
Employment status	−0.39	
Age	−0.00	
Vaccination status	0.11	
Car ownership	−0.24	
Commute distance	0.012***	
Carpooling Experience	0.56***	
R^2	0.20***	
Gender		0.16*
Employment status		−0.36
Age		−0.00
Vaccination status		0.02
Car ownership		−0.05
Commute distance		0.00*
Carpooling Experience		0.12
Attitude		0.48***
Trust		0.44***
R^2		0.59***
ΔR^2		0.39***

Note: Gender: (0) Male, (1) Female; Employment status: (1) Full-time, (2) Part-time; Vaccination status: (1) Not vaccinated, not healed, (2) Healed, (3) Vaccinated, (4) Vaccinated & healed; Car ownership: (0) No, (1) Yes; Carpooling experience: (0) No, (1) Yes.
* p <.05; **p <.01; ***p <.00.

Table 3

Hierarchical Regression Analysis of Organizational Identification and Perceived Risk predicting Attitude and Trust.

	Attitude		Trust	
	Step 1	Step 2	Step 1	Step 2
Gender	0.15		0.22*	
Employment status	0.04		−0.14	
Age	−0.00		0.00	
Vaccination status	−0.01		0.14*	
Car ownership	−0.23		−0.19	
Commute distance	0.00***		0.00***	
Carpooling Experience	0.46***		0.48***	
R^2	0.14***		0.18***	
Gender		0.03		0.11
Employment status		0.14		−0.03
Age		−0.01**		0.00
Vaccination status		−0.05		−0.08
Car ownership		−0.20		−0.16
Commute distance		0.00**		0.00**
Carpooling Experience		0.35***		0.37***
Organizational Identification		0.36***		0.36***
Perceived risks		−0.15**		−0.15**
R^2		0.27***		0.30***
ΔR^2		0.13***		0.12***

Note: Gender: (0) Male, (1) Female; Employment status: (1) Full-time, (2) Part-time; Vaccination status: (1) Not vaccinated, not healed, (2) Healed, (3) Vaccinated, (4) Vaccinated & healed; Car ownership: (0) No, (1) Yes; Carpooling experience: (0) No, (1) Yes.
* $p <.05$; **$p <.01$; ***$p <.00$.

linked to attitude ($p <.01$).

On the contrary, the perception of risk leads participants to have a less favorable attitude ($p <.01$) and less trust ($p. < 01$).

Finally, commute distance ($p <.05$) and carpooling experience ($p <.00$) are positively related to attitude and trust. Note here, that the significant effect of carpooling experience confirms most of the work conducted on carpooling (Julagasigorn et al., 2021).

4.2.3. Fear of Covid-19 predicting perceived risks

Finally, results of our final regression confirm the fact that fear of Covid increases risk perception in our participants ($F(8, 288) = 11.43$, $p <.00$; $R2 = 0.24$; see Table 4). In other words, the greater the fear of

Table 4

Hierarchical Regression Analysis of Fear of Covid-19 predicting Perceived risks.

	Step 1	Step 2
Gender	0.22*	
Employment status	−0.16	
Age	−0.00	
Vaccination status	−0.05	
Car ownership	−0.20	
Commute distance	0.01***	
Carpooling Experience	−0.12	
R^2	0.08***	
Gender		0.08
Employment status		−0.05
Age		−0.00
Vaccination status		−0.14*
Car ownership		−0.19
Commute distance		0.00
Carpooling Experience		−0.18
Fear of Covid		0.41***
R^2		0.24***
ΔR^2		0.16***

Note: Gender: (0) Male, (1) Female, (2); Employment status: (1) Full-time, (2) Part-time; Vaccination status: (1) Not vaccinated, not healed, (2) Healed, (3) Vaccinated, (4) Vaccinated & healed; Car ownership: (0) No, (1) Yes; Carpooling experience: (0) No, (1) Yes.
* $p <.05$; **$p <.01$; ***$p <.00$.

Covid among participants, the more they perceive risk in carpooling. Finally, as seen previously, participants' vaccination status can predict their fear of Covid-19 level ($p <.05$).

5. Discussion

The first objective of this research was to integrate the organizational dimension when studying carpooling. Carpooling solutions developed within organizations offer a very interesting way to reduce the environmental impact of companies. However, research in this specific context has only been scarce. Our results show that the quality of the relationship between individuals and their organization is fundamental to promote carpooling. The more individuals identify with their organization, the more they will trust it (Campbell and Im, 2015), and the more they will consider carpooling within the same organization. This is partly due to the fact that organizational identification contributes to a better transfer of values between the employee and the organization (Mael and Tetrick, 1992). In that respect, employees with high levels of organizational identification are more likely to develop trust and interest in carpooling solutions set up by their organizations. These results offer a promising research avenue as they tie organizational variables with employees' practices that go beyond their professional activity and can be of utter importance in developing solutions against global warming.

Our results support previous research and confirm that carpooling is strongly determined by individuals' trust level (Wu and Neill, 2020). Indeed, our results, in line with Tsai et al. (2021) highlight a direct effect from trust on the intention to carpool. We also observe that building on the organizational lever seems like a very useful way to influence the trust parameter.

Our results do not diverge from those of previous studies showing that attitude predicts intention to carpool (de Almeida Correia et al., 2013; Becker et al., 2017). These results however differ from Bachmann et al. (2018) who do not find this relationship. This could be explained by the nature of trips investigated, as Bachmann et al. (2018) do not specifically focus on home-to-work commutes. This would suggest that attitude is even more relevant if the behavior being assessed is a frequent and regular behavior such as carpooling between home and work. In that sense, and especially in the case of carpooling solutions developed by organizations, the evaluation of behavior seems to become central.

Our results further highlight a strong negative relationship between perceived risks and attitude. The more individuals consider that carpooling represents a risk, the more negatively they assess the activity. This result echoes existing research (Créno and Cahour, 2015; Correia and Viegas, 2011; Julagasigorn et al., 2021; Tsai et al., 2021) and confirms that perceived risk in regular activities creates negative attitudes. In the same way, perceived risks also reduce trust in carpooling, confirming the importance of these risks (McKnight et al., 2002).

Finally, this study also highlighted the importance of a major and current antecedent to perceived risk that is Covid-19. We hypothesized that there was a link between the fear of Covid-19 and perceived risks. Our results confirm this hypothesis: the more individuals are afraid of Covid-19, the more likely they are to perceive risks in carpooling. This result, thus, answers Julagasigorn and his coauthors call to study the impact of Covid-19 on transportation habits (Julagasigorn et al., 2021). In line with Xu et al. (2021), our results show a negative impact of Covid-19 on carpooling. Further studies should test this relationship and deepen our understanding of how Covid-19 impacts our perception of collective mobility.

5.1. Practical implications

Implementing carpooling programs within organizations represents a major opportunity for organizations to reduce their environmental impact and to develop best practices for society (Julagasigorn et al., 2021). Based on our results, we can see that adoption of organization-

developed solutions depends heavily on the relationship between employees and their organization. Studies have highlighted the difficulty to motivate people to actually change their behavior and adopt alternative mobility practices (Kristal and Whillans, 2020). Organizational identification might be the missing parameter to create change: fostering identification with the organization through various measures might appear as an effective way to promote organization-developed carpooling solutions. This means that efforts to develop carpooling should not solely focus on setting up an efficient logistical solution (Whillans et al., in press), but that much upstream work should be done to develop organizational identification in order to develop positive attitudes and trust.

Just as organizational attractiveness increases organizational identification (Dukerich et al., 2002), participation in carpooling must be valued both inside and outside the organization. Similarly, to benefit from organizational identification, organizations must implement solutions explicitly based on the needs of their employees (He and Brown, 2013). Finally, the price issue must be carefully considered to maintain an accurate perception of procedural justice and foster employee identification (He and Brown, 2013).

Carpooling solutions should also consider the global environment of individuals: further studies should focus on identifying specific fears to design solutions that overcome them. For example, the specific fears associated with Covid-19 should be investigated to find solutions that would efficiently assuage these fears. Thus, it seems essential to reinforce sanitary measures such as maintaining sufficient distance, adopting responsible behaviors, or disinfecting spaces to reassure participants about the risks specifically associated with Covid-19 (Shen et al., 2020).

5.2. Limitations and future research

This research has emphasized the weight of organizational variables in carpooling. Further research should deepen this investigation to identify organizational variables that are the most likely to impact employees' intention to carpool. Further research should also study specific organizational measures (associated with organizational identification or more tightly linked with carpooling initiatives) and their influence on actual carpooling practices. The main limitation of this study is related to the characteristics of the sample. Indeed, if the number of participants owning a car is aligned with the national characteristics, the proportion of people vaccinated in our sample is higher than the proportion of people vaccinated in the USA. This could have an impact on the results obtained, particularly the risks associated with Covid. Indeed, as our results shows vaccination status is strongly linked to fear of Covid-19. Therefore, future research should consider this. Finally, assessing carpooling behaviors rather than intention would provide even more precise results.

6. Conclusion

This paper focused on the importance of constructs associated with the work environment and how they predict individuals' behaviors regarding carpooling in this specific environment. The results showed that the quality of the relationship between individuals and their organization is fundamental to promote carpooling, and that carpooling is strongly determined by individuals' trust level. This research emphasized the weight of organizational variables in carpooling and thus offers new research avenues for carpooling research in analyzing a new set of factors that influence carpooling intention. Moreover, the results give interesting leads for organizations willing to implement carpooling programs and the focus on organizational identification that said programs should entail.

CRediT authorship contribution statement

Lohyd Terrier: Funding acquisition, Conceptualization,

Methodology, Writing – review & editing. **Bertrand Audrin:** Methodology, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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