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Exploring the Correlation Between Preexisting Knowledge and Public Perception of Self-Driving Cars

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ABSTRACT: Self-driving vehicles (SDVs) possess the potential to provide novel benefits while also presenting new risks. Consequently, SDVs are expected to not only influence the transportation network but also reshape urban landscapes, markets, economies, and public behavior. The public's willingness to utilize or ride in SDVs is a critical factor determining the extent to which their implications can be realized. Previous research has indicated that awareness of SDVs is a key factor influencing the public's decision-making and attitude toward this nascent technology. However, none of these studies have exclusively examined the relationship between the public's level of knowledge about SDVs and their attitudes. Thus, this study employs a questionnaire survey to investigate the relationship between the public's attitudes and their knowledge of SDVs. The study analyzes 2447 complete responses collected from participants in the United States. The findings suggest that individuals possessing prior knowledge of SDVs are more likely to use them. However, participants with intermediate knowledge were the most likely to use SDVs compared to those with no knowledge and those with extensive knowledge. Moreover, the analysis demonstrates that the relationship between the level of knowledge and acceptance of SDVs is non-linear and peaks at the intermediate knowledge level.

KEYWORDS: Interest, Trust, Concern, Self-driving cars; Knowledge, Public attitude

1. INTRODUCTION

The emergence of self-driving vehicles (SDVs) is anticipated to have a transformative effect on cities and people's lives, extending beyond transportation implications. SDVs are expected to have an impact on various aspects of life, including economies, land use, public behavior, markets, jobs, society, equity, and public health (1-3). Although SDVs have the potential to provide multiple benefits, they also pose new risks. For instance, while SDVs can enable passengers to engage in productive activities during travel, it may lead to longer travel times and increased vehicle kilometers traveled, which can exacerbate traffic congestion, transportation emissions, and energy consumption (3-6). The extent of SDVs' implications largely depends on their level of deployment, and studies suggest that significant penetration levels are necessary to fully realize their benefits. To achieve widespread deployment, it is essential to persuade the public to use or purchase SDVs (7-10). Therefore, the public attitude towards SDVs is the primary determinant of their deployment and impact on human life.

The theory of the diffusion of innovations, also known as the "Rogers Theory," provides insight into the adoption of new technologies. Introduced in 1962, the theory identifies four key factors that affect the adoption behavior of the public: the technology itself, communication and public awareness, time, and the social system (11). The theory suggests that the relative advantage of a new technology compared to existing technologies is a critical determinant of its adoption. Thus, early adopters are motivated by the potential benefits that new technologies offer. The level of public awareness about new technologies is also a crucial factor that influences purchasing behavior. This study specifically examines the impact of public awareness on the adoption of SDVs, focusing on the second factor in the Rogers Theory. The diffusion of innovation theory describes a five-stage process of decision making that individuals go through when deciding whether to adopt a new idea or technology. These steps are Knowledge, Persuasion, Decision, Implementation, and Confirmation. In the context of the diffusion of innovation theory, positive and negative knowledge refer to the information that individuals have about a new idea or technology. Positive knowledge refers to information that supports the adoption of the innovation, while negative knowledge refers to information that discourages adoption. Positive knowledge can have a significant impact on the rate of adoption of a new idea or technology. When individuals have positive knowledge, such as information about the benefits and advantages of the innovation, they are more likely to adopt it (12). Positive knowledge can also influence opinion leaders and early adopters, who may help to spread positive word-of-mouth and increase the visibility of the innovation. On the other hand, negative knowledge can slow down or even halt the adoption of an innovation. Negative knowledge may include information about the risks, costs, or drawbacks of the innovation, which can discourage individuals from adopting it. Negative knowledge can also influence opinion leaders and early adopters, who may be more cautious or skeptical if they have heard negative feedback. Overall, the impact of positive and negative knowledge depends on various factors, such as the credibility of the sources of information, the social and cultural context in which the innovation is introduced, and the level of uncertainty or risk associated with the innovation (13, 14). Therefore, it is important for innovators and promoters of new ideas or technologies to be aware of both positive and negative knowledge and to address any concerns or objections that potential adopters may have. In general, the knowledge stage is a critical stage in the diffusion of innovation theory because it is the first step in the decision-making process for individuals who are considering whether to adopt a new idea or technology. During this stage, individuals become aware of the existence

of the innovation and its potential benefits. Without this knowledge, individuals may not even consider adopting the innovation, and it is unlikely to diffuse throughout a population. The knowledge stage is important for several reasons (15). First, it helps to create awareness of the innovation among potential adopters. Second, it provides individuals with the information they need to make an informed decision about whether to adopt the innovation. Third, it allows innovators and promoters of the innovation to communicate the benefits of the innovation and address any concerns or objections that potential adopters may have. Moreover, the effectiveness of the knowledge stage can have a significant impact on the subsequent stages of the decision-making process. If individuals have limited or inaccurate information about the innovation, it may negatively affect their perceptions and attitudes towards the innovation. On the other hand, if individuals receive clear, compelling, and relevant information about the innovation, they may be more likely to move on to the next stages of the decision-making process and eventually adopt the innovation. In summary, the knowledge stage is an essential component of the diffusion of innovation theory, as it lays the foundation for the subsequent stages of decision making and can influence the success or failure of the innovation (16-19).

In addition, the hype curve of innovation, also known as the "technology adoption lifecycle curve," is a graphical representation of the stages of adoption and acceptance of new technologies or innovations. The curve was first introduced by the research and advisory firm Gartner, Inc., in the mid-1990s (15, 17). The hype curve is a useful framework for understanding the adoption and acceptance of new technologies or innovations. The hype curve typically consists of five stages (16-19):

1. Technology Trigger: In this stage, a new technology or innovation is introduced, and excitement and hype begin to build around it. The technology may be overhyped, and expectations may exceed the actual capabilities of the innovation.
2. Peak of Inflated Expectations: As excitement and hype continue to build, the technology reaches its peak of inflated expectations. There is a lot of buzz and hype around the technology, and many people are excited about its potential.
3. Trough of Disillusionment: In this stage, the hype and excitement around the technology begin to fade as people realize that the technology may not be as transformative or impactful as initially thought. Some early adopters may become disillusioned with the technology and abandon it.
4. Slope of Enlightenment: During this stage, a more realistic and practical understanding of the technology emerges, and people begin to see the actual benefits and limitations of the innovation. Innovators and early adopters continue to experiment and refine the technology.
5. Plateau of Productivity: In the final stage, the technology reaches its plateau of productivity, where it is widely adopted and integrated into mainstream use. The technology is now considered mature and stable, and its benefits are well understood.

In recent years, self-driving vehicles (SDVs) have garnered significant media attention, with various news outlets, journals, and magazines covering different aspects of the technology (20-22). Such coverage has been shown to influence public perceptions and attitudes towards new ideas and technologies. This is particularly relevant for emerging technologies like SDVs, which are not yet on the market and rely on media coverage to shape public understanding and acceptance (23-27). Negative news about SDVs, such as malfunctions, fatal crashes, and other issues, has been increasing in frequency, leading to a shift in the public attitude towards this technology (28, 29). This shift is evident in studies conducted by the American Automobile Association (AAA) in the US, which show that while awareness of SDVs has increased over time, so has the fear of the technology, indicating that negative news can influence public attitudes in a negative direction (30-32). These findings underscore the importance of media coverage in shaping public attitudes towards emerging technologies like SDVs and highlight the need for balanced and accurate reporting to promote informed decision-making.

On the contrary, prior research on the public's attitude towards self-driving vehicles (SDVs) has seldom explored the correlation between knowledge level and public attitude. Two literature review papers (33, 34) have revealed that a mere 6-10% of studies concerning public attitude have marginally discussed this association (35-42). Moreover, while some studies have found that the acceptance of SDVs increases with the level of knowledge or awareness of the technology, other research has shown that public acceptance decreases with greater knowledge. Thus, there remains a debate regarding the influence of prior knowledge or awareness of SDVs on public attitude. This study aims to investigate the relationship between knowledge level and public attitude towards SDVs through a questionnaire survey. Unlike previous research, this study includes two questions to gauge participants' level of awareness and knowledge about SDVs, and subsequently, analyzes the relationship between prior knowledge and attitude towards SDVs. The study aims to validate the findings of prior research that found a positive association between awareness and acceptance of SDVs and draw insights into the relationship between knowledge level and acceptance of SDVs. Therefore, the primary objectives of this study are to validate the relationship between awareness and acceptance of SDVs and to explore the relationship between the knowledge levels and public attitude towards SDVs.

2. METHODOLOGY

Although the previous discourse has illuminated the controversy surrounding the correlation between the degree of familiarity with self-driving vehicles (SDVs) and public attitude, no existing research has specifically investigated the interdependence of these two variables. In general, it is expected that the negative news encompassing SDVs would have an impact on public attitude. In this cross-sectional study, a questionnaire survey was employed to exclusively scrutinize the relationship between public knowledge and acceptance of SDVs during the period in which the survey was conducted, spanning from August 2022 to January 2023. The survey collected a total of 2447 responses from respondents residing throughout the United States.

The survey comprised three distinct sections. In the first section, respondents were provided with general information about the survey and SDVs, without presenting any information regarding the benefits or drawbacks of the technology. Following the introductory information, participants proceeded to the second section which focused on their demographic properties, including age, gender, and location, such as country and state of residence. The final section, i.e., section three, constituted the main part of the survey and was designed to elicit the participants' opinions about SDVs. Specifically, this section aimed to collect data on the participants' level of awareness and acceptance of SDVs. To assess the level of awareness, participants were initially asked a binary yes or no question pertaining to their familiarity with SDVs, similar to previous studies that analyzed the level of aware-

ness of SDVs. If the respondent indicated "no," indicating a lack of prior knowledge about SDVs, the survey proceeded as usual with the acceptance questions. Conversely, if the respondent indicated "yes," suggesting prior knowledge, an additional question appeared to gauge the extent of their knowledge about SDVs, asking them to indicate their level of familiarity, ranging from "knowing a bit" to "knowing a lot." The primary objective of this terminology was to validate the findings of previous research and to analyze the initial question separately to compare the acceptance levels of respondents with and without prior knowledge about SDVs. The analysis was subsequently expanded to include responses to both questions, with the aim of investigating the attitude of respondents with varying levels of prior knowledge or awareness about SDVs. Regarding the public acceptance questions, participants were instructed to rank their level of trust, interest, and concern about SDVs on a five-point Likert scale, ranging from one (low) to five (high).

Prior to public release, the survey underwent a pretest by a group of transportation-focused academics who provided feedback on the survey's comprehensibility, usability, and navigability. Based on their feedback, the survey was revised accordingly. The survey was later administered using the SurveyMonkey platform from August 2022 to January 2023, garnering responses from various US states. To enhance the quality of the results and allow for more effective comparison, the data was analyzed on a state-by-state basis. However, the limited number of responses from certain states precluded a state-level analysis. Consequently, the analysis was conducted at the regional level, with the US being partitioned into 9 regions: New England (NE), Middle Atlantic (MA), East North Central (ENC), West North Central (WNC), South Atlantic (SA), East South Central (ESC), West South Central (WSC), Mountain (M), and Pacific (P).

Figure 1 shows the states encompassed by each of the nine regions, and regional analysis was undertaken to ensure that a sufficient number of responses were available to facilitate meaningful analyses and conclusive results. To authenticate the veracity of the responses, Figure 2 provides a summary of the number and percentage of responses received from each region and compares them to the total population of the United States to ascertain the representativeness of the sample. The findings of Figure 2 reveal that the responses are highly representative of the population, with a maximum error in the number of responses of 3.7%. In addition, Table 1 shows a summary of the demographic properties of the survey participants compared to the overall population of the US and the table shows that the sample is accurately representing the population and the maximum error on any of the age or gender errors is 1.6%. The analysis is bifurcated into two phases, with the first phase examining the link between public acceptance and the degree of knowledge across the nine regions by examining the initial awareness question, which is a binary Yes/No query akin to previous research. The main aim of this phase is to scrutinize the attitudes of respondents with and without prior knowledge of SDVs and authenticate the outcomes of past research. In the second phase, the analysis delves deeper into investigating the acceptance level of respondents with varying levels of knowledge. The two knowledge queries mentioned previously are included in the analysis, unmasking the nexus between the knowledge level and acceptance across the nine regions.

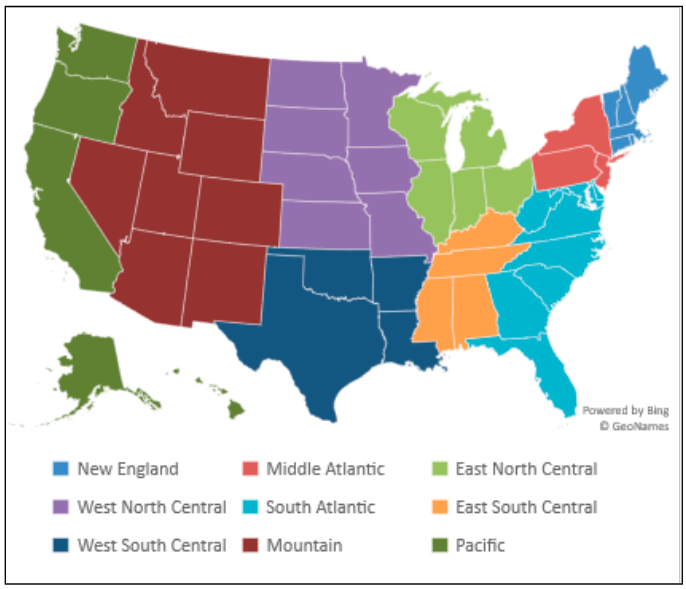

Figure 1. The nine regions included in this study with their states.

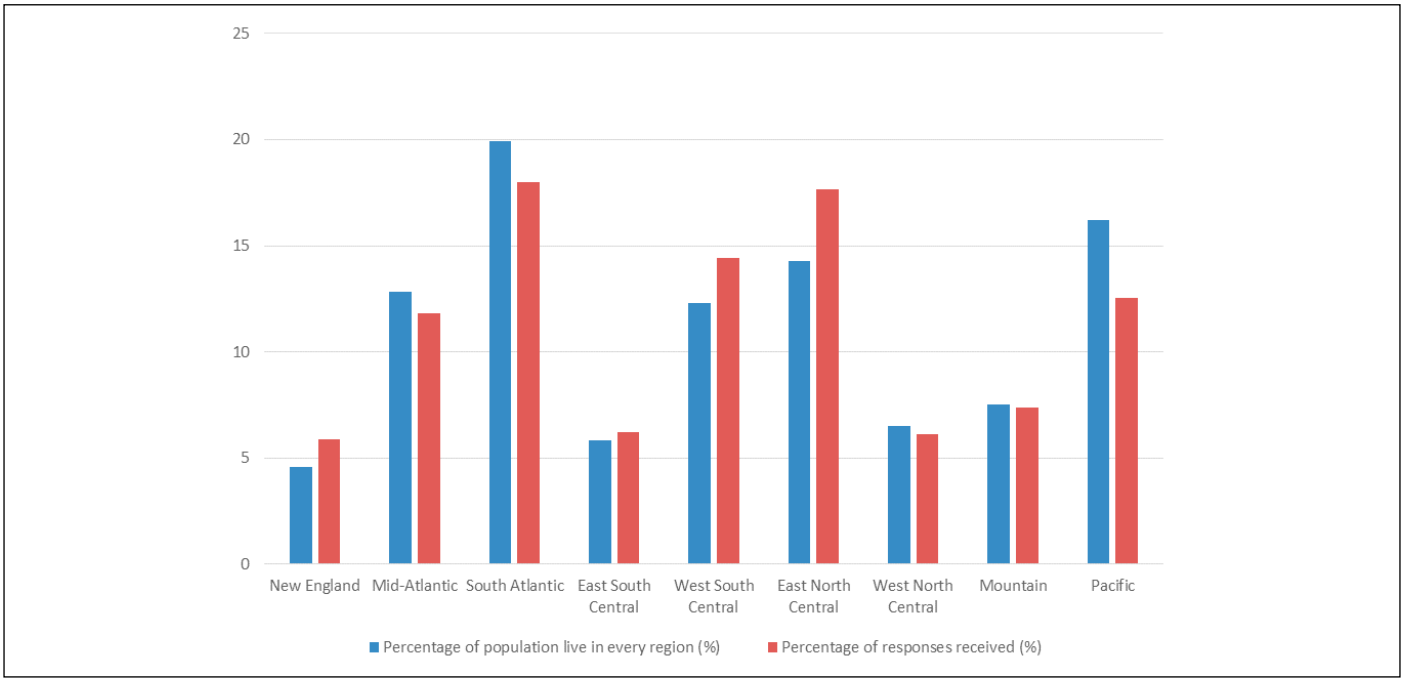

Figure 2. Comparison between the percentage of responses received from every region and the percentage of the population that lives in the area (43).

		Percentage responses Received	% of population (43)
Gender	**Male**	48.66	49
	Female	51.34	50
Age	**18-29**	22.4	50.4
	30-44	30.8	
	45-60	22.9	24.5
	>60	23.9	25.1

Table 1. Summary of the demographic properties of the participants in comparison to the overall US population.

3. RESULTS

The current study aimed to evaluate the attitudes of the general public towards self-driving vehicles (SDVs) in the United States, using a sample size of 2447 complete responses. The research methodology involved two main phases of analysis. The initial phase focused on examining the public attitude towards SDVs in relation to their prior knowledge of this technology, as measured by their response to the first knowledge question. The second phase aimed to investigate the correlation between the public's level of awareness of SDVs and their attitude towards this technology, utilizing both knowledge questions in the analysis. The regional analysis was conducted subsequent to the overall data analysis to capture any geographical differences in the trends of the data.

3.1 Phase 1

The primary aim of this phase is to examine the public perception of self-driving vehicles (SDVs) among individuals with varying levels of prior knowledge, focusing on their levels of interest, trust, and concern. Existing studies have reported contradictory findings regarding the relationship between knowledge levels and the public attitude towards SDVs. While some studies suggest that individuals with higher levels of awareness of SDVs are more likely to adopt the technology, others indicate that public opinion declines as knowledge levels increase. Prior studies have typically used a yes or no question to assess knowledge levels, prompting the present study to utilize two questions to evaluate participants' knowledge levels. The first question required participants to indicate whether they had prior knowledge of SDVs or not, with subsequent analyses performed based on their response. Figure 3 illustrates the public attitude towards SDVs among participants with and without prior knowledge in terms of their average levels of trust, interest, and concern, with a percentage change in the averages between the two groups presented as well. Additionally, a hypothesis test was conducted using the t-test to assess whether the differences in attitude between participants with and without prior knowledge were significant with a confidence level of 95% adopted for the analysis. A p-value lower than 0.05 indicates a significant difference in attitude, while a p-value higher than 0.05 suggests no significant difference. The results of Figure 3 indicate that the p-values for the three attitude variables were less than 0.05, indicating that there was a statistically significant difference in attitude between participants with and without prior knowledge of SDVs.

Figure 3 displays that individuals possessing prior knowledge about self-driving vehicles (SDVs) exhibit a higher inclination towards adopting the technology in comparison to their counterparts lacking awareness regarding the technology. Participants who possess awareness about SDVs depict a greater degree of interest and trust in SDVs, and a lower level of apprehension about riding in them. The differences between the two groups of participants were found to be statistically significant across all three public attitude parameters across the nine regions as summarized in Table 2. Therefore, the study infers that knowledge about SDVs is positively related to the adoption of SDVs, in accordance with earlier research (33-43).

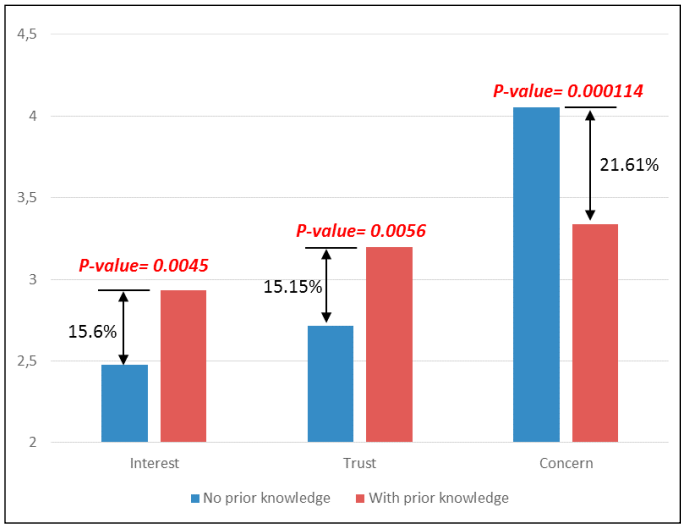

Figure 3. Public attitude towards SDVs (in terms of the average levels of interest, trust, and concern) for participants with and without prior knowledge about SDVs.

3.2 Phase 2

In contrast to the prior analysis, which was geared towards confirming previous research results, this investigation centers on establishing the correlation between public attitude and awareness levels with regards to self-driving vehicles (SDVs). Instead of relying on only one awareness question, as in the previous phase, this analysis is expanded to include two questions on awareness. The initial query is dichotomous and determines if the participant has prior knowledge of SDVs. If the response is negative, the survey advances to the public attitude questions. Conversely, if the answer is positive, a subsequent question asks about the participant's knowledge level of SDVs, with two possible options: knowing a lot or knowing a bit. This enables an understanding of the influence of awareness levels on general attitudes towards SDVs. The primary objective of this analysis is to comprehend and draw conclusions about the relationship between SDV knowledge levels and public attitudes. The analysis is split into two stages: the first stage assesses overall survey responses, as shown in Figure 4, while the second stage examines the data regionally to identify trends across various regions, depicted in Table 3.

Figure 4 displays the public attitude towards SDVs by averaging the levels of interest, trust, and concern for respondents with different levels of awareness. The figure also illustrates the percentage of change in attitude variables for individuals with varying degrees of knowledge compared to those without any prior knowledge. Additionally, hypothesis testing was conducted, similar to the previous phase's analysis, with two hypothesis tests carried out for each attitude parameter. The tests examined the differences in means between individuals with basic or extensive understanding of SDVs and those with no knowledge of the technology. The analysis was conducted with a 95% confidence level.

Region		Interest		Trust		Concern	
		No	Yes	No	Yes	No	Yes
Average Values	**NE**	3.1	3.122	3.44	3.9532	3	2.107
	MA	3.666667	3.88	3.245	3.388	3.78	3.249
	ENC	2	2.661773	3	3	4	3.485227
	WNC	1.99	2.234	2.89	2.986	3.54	2.9495
	SA	2.714286	2.980715	2.857143	3.092769	3.428571	3.413231
	ESC	3	3.364	2.5	2.607667	4.89	4.066667
	WSC	2	2.605333	2	3.23	4.64	3.6
	M	2	3.172882	2.5	3.361059	4.42	3.489235
	P	1.8	2.367385	2	3.1756	4.8	3.653
Change (%)	**NE**	0.71		14.92		-29.77	
	MA	5.82		4.41		-14.05	
	ENC	33.09		0.00		-12.87	
	WNC	12.26		3.32		-16.68	
	SA	9.82		8.25		-0.45	
	ESC	12.13		4.31		-16.84	
	WSC	30.27		61.50		-22.41	
	M	58.64		34.44		-21.06	
	P	31.52		58.78		-23.90	
P-value	**NE**	0.047428521		0.004609352		0.02181636	
	MA	0.007682462		0.021297201		0.012489825	
	ENC	0.001574751		0.017314378		0.000972689	
	WNC	0.041966387		0.018919431		0.028547458	
	SA	0.011669394		0.032416619		0.001168647	
	ESC	0.017848216		0.009068698		0.00182651	
	WSC	0.000229649		3.0442E-05		0.036800586	
	M	3.44307E-05		0.000211468		0.000918696	
	P	0.000232778		0.028437576		0.041225944	

Table 2. Summary of the average levels of, inters, trust, and concern for participants with and without prior knowledge about SDVs with the percentage of change and the p-values.

The results of the hypothesis test illustrated in Figure 4 indicate that all p-values resulting from the t-tests are statistically significant ($p < 0.05$), and therefore, the null hypothesis cannot be rejected. These results demonstrate that there is a significant difference in the attitudes of participants towards self-driving vehicles (SDVs) based on their level of knowledge about SDVs. Moreover, the relationship between knowledge and attitude towards SDVs is not linear, but instead peaks at intermediate knowledge levels. Participants who reported having some knowledge about SDVs showed the highest levels of interest and trust, and the lowest levels of concern regarding riding in SDVs compared to those with no prior knowledge. However, participants who reported having a lot of knowledge about SDVs demonstrated a lower willingness to travel in SDVs but exhibited higher levels of trust and lower levels of concern than those with no prior knowledge. A comparison between participants who had a lot of knowledge about SDVs and those with no prior knowledge showed that the former group exhibited higher levels of trust and lower levels of concern, while the latter group displayed a higher level of interest in riding in SDVs. Overall, the findings suggest that the level of interest and trust in SDVs is similar for participants with a lot of knowledge about SDVs and those with no prior knowledge, while the former group exhibits lower levels of concern.

In the second phase of the analysis, data was collected on public attitude parameters for participants from different regions in the US, categorized by their level of prior knowledge. Table 3 reveals that participants who possessed moderate knowledge about SDVs exhibited the highest levels of interest and trust in the technology, with the lowest level of concern. Conversely, no clear patterns emerged regarding the public attitude of individuals with no prior knowledge or those who were highly knowledgeable about SDVs, in terms of their levels of trust and interest. However, those with no prior knowledge consistently expressed the highest level of concern about the technology. The findings indicate that an increase in knowledge about SDVs does not necessarily correspond to a positive public attitude. Respondents with intermediate knowledge about SDVs displayed the most optimistic outlook, whereas those with extensive knowledge were less likely to adopt the technology. This suggests that individuals who possess a comprehensive understanding of SDVs may be more exposed to negative news about the technology, resulting in a more pessimistic perspective. Therefore, the relationship between public attitude and knowledge level is not linear reaching its peak with respondents who possess intermediate knowledge about SDVs. This relationship is illustrated in Figure 5, which illustrates the corelation between the knowledge level and the three public attitude parameters.

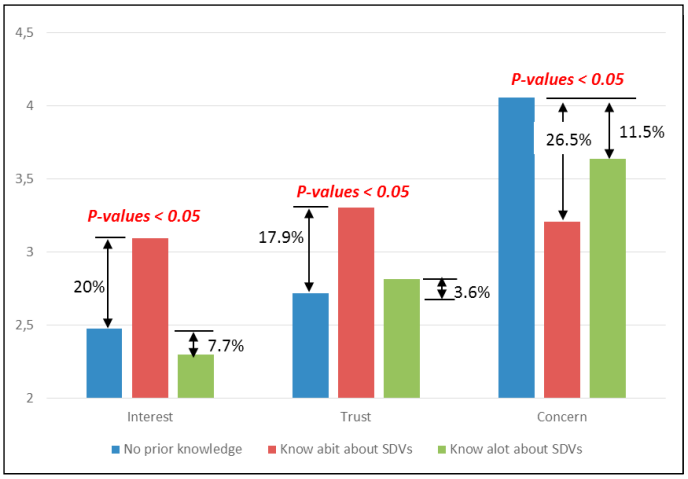

Figure 4. Public attitude towards SDVs (in terms of the average levels of interest, trust, and concern) for participants with different levels of prior knowledge about SDVs.

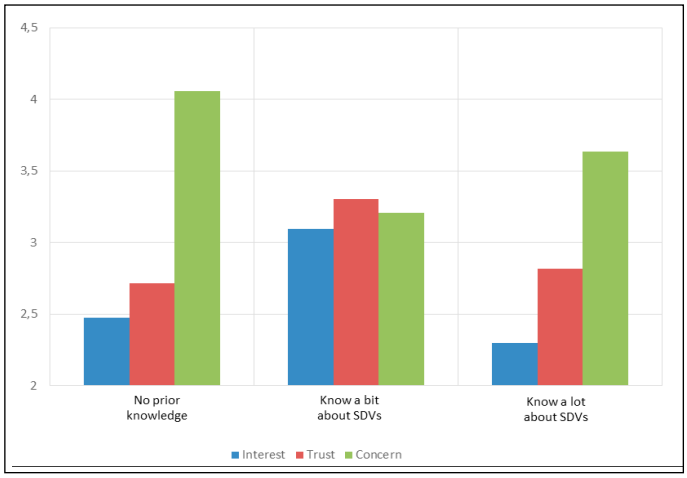

Figure 5. Relationship between the level of knowledge and the average public attitude parameters.

Region		Interest			Trust			Concern		
		No prior knowledge	Know a bit	Know a lot	No prior knowledge	Know a bit	Know a lot	No prior knowledge	Know a bit	Know a lot
Average	NE	3.1	3.166667	2.333333	3.44	4	3.844	3	2.01	2.333333
	MA	3.666667	4	2	3.245	3.48	2.333333	3.78	3.21	3.34
	ENC	2	2.681818	2.615	3	3	2.625	4	3.318182	3.875
	WNC	1.99	2.428571	1.78	2.89	3.22	2.44	3.54	2.78	3.345
	SA	2.714286	3.192308	2.487	2.857143	3.115385	3.04	3.428571	3.384615	3.48
	ESC	3	3.52	3	2.5	2.666667	2.47	4.89	3.666667	5
	WSC	2	2.761905	2.24	2	3.44	2.74	4.64	3.571429	3.666667
	M	2	3.294118	2.89	2.5	3.352941	3.38	4.42	3.411765	3.67
	P	1.8	2.807692	1.34	2	3.478	2.47	4.8	3.5	4.01
Change (%) to no prior knowledge	NE	-	2.150538	-24.7312	-	16.27907	11.74419	-	-33	-22.2222
	MA	-	9.090909	-45.4545	-	7.241911	-28.0945	-	-15.0794	-11.6402
	ENC	-	34.09091	30.75	-	0	-12.5	-	-17.0455	-3.125
	WNC	-	22.03877	-10.5528	-	11.41869	-15.5709	-	-21.4689	-5.50847
	SA	-	17.61134	-8.37368	-	9.038462	6.4	-	-1.28205	1.5
	ESC	-	17.33333	0	-	6.666667	-1.2	-	-25.017	2.249489
	WSC	-	38.09524	12	-	72	37	-	-23.0296	-20.977
	M	-	64.70588	44.5	-	34.11765	35.2	-	-22.8108	-16.9683
	P	-	55.98291	-25.5556	-	73.9	23.5	-	-27.0833	-16.4583
P-values (to no prior knowledge)	NE	-	0.001863	0.019079	-	0.005145	0.029991	-	0.027011	0.033996
	MA	-	0.034839	0.000105	-	0.020989	0.020468	-	0.035949	0.022739
	ENC	-	0.0131	0.035391	-	0.014509	0.005741	-	0.03817	0.044149
	WNC	-	0.005968	0.046375	-	0.009003	0.040107	-	0.028794	0.046665
	SA	-	0.000697	0.013041	-	0.014822	0.007381	-	0.0042	0.039537
	ESC	-	0.004906	0.029336	-	0.04296	0.007209	-	0.023697	0.020002
	WSC	-	0.003408	0.014106	-	0.007317	0.02349	-	0.014523	0.011839
	M	-	0.039884	0.011556	-	0.033916	0.013679	-	0.017558	0.000415
	P	-	0.001267	0.022533	-	0.03647	0.01967	-	0.042873	0.018663

Table 3. Summary of the average levels of, inters, trust, and concern for participants with different prior knowledge about SDVs with the percentage of change and the p-values.

4. CONCLUSIONS

A questionnaire survey was conducted to investigate the corelation between public awareness and acceptance of SDVs. A total of 2447 responses were collected from US residents, and participants were asked two knowledge-based questions. The first question was a binary (yes/no) query to determine if respondents were aware of SDV technology, while the second question allowed respondents to indicate their level of familiarity with SDVs if they had answered positively to the first

question. The analysis comprised two phases. The first phase replicated previous studies by examining the relationship between public attitude and the first knowledge-based question. The second phase incorporated both knowledge-based questions to explore the relationship between knowledge level and SDV acceptance. The analysis was conducted in two steps for each phase: step one examined overall responses to identify general trends, while step two scrutinized regional responses to better understand the relationship between public attitude and knowledge level. Hypothesis testing was employed to determine if knowledge level significantly influenced public attitude concerning interest, trust, and concern. The results indicated that participants who were aware of SDVs had a higher level of interest and trust in traveling in SDVs and a lower level of concern compared to those who were unfamiliar with SDVs, and these differences were statistically significant. This finding is consistent with prior studies. However, the analysis of phase two showed that the relationship between knowledge and public attitude was not linear, with the highest level of acceptance found in those who knew a bit about SDVs, followed by those who knew a lot and those who were unfamiliar with SDVs. Respondents who knew a lot about SDVs showed a lower willingness to travel in SDVs, but their attitude towards the technology in terms of trust and concern was better than those who were unfamiliar with SDVs. The results suggest that highly knowledgeable individuals are more exposed to negative news about SDVs, which can affect their attitude towards the technology. It should be mentioned that one of the limitations of this study is that participants were given the ability to select their level of knowledge using a yes or no question. It is recommended to replicate the study using a 7-point Likert scale to provide the participants with higher flexibility.

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