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Travel-related behaviors, opinions, and concerns of U.S. adult drivers by race/ethnicity, 2010☆

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Abstract

Introduction: The U.S. population is shifting to become both older and more racially and ethnically diverse. Our current understanding of U.S. drivers' travel-related needs and concerns by race/ethnicity is limited.

Methods: Data from the 2010 HealthStyles survey, an annual, cross-sectional, national mail-panel survey of persons ages 18 years or older living in the United States, were used to calculate weighted percentages of travel-related behaviors, opinions, and concerns by race/ethnicity. Logistic regression was used to explore associations between race/ethnicity and specific travel-related concerns, while adjusting for other demographic characteristics.

Results: Adequate transportation alternatives to driving were reported by a greater percentage of persons in certain minority groups compared to whites (Hispanic: 34.7%; white: 23.4%). Concern for the availability of alternatives to driving in the future was greater among minority groups (black: 57.7%; Hispanic: 47.3%; other: 50.9%) compared to whites (37.5%). Additionally, among persons with a household income of $25,000+, minorities were generally more likely than whites to report concern about having alternative transportation options to driving, whereas concern was consistently high among all racial/ethnic groups for those earning less than $25,000 annually. In each racial/ethnic group, more than 10% of persons reported not knowing how they would get around if they could no longer drive.

Conclusions: Important variations by race/ethnicity in both travel behaviors and concerns for adequate alternatives to driving were found, revealing the need for further research to better understand reasons for these differences and to identify ways to meet the transportation needs of the changing U.S. population demographics.

☆Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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The Journal of Safety Research has partnered with the Office of the Associate Director for Science, Division of Unintentional Injury Prevention in the National Center for Injury Prevention & Control at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, USA, to briefly report on some of the latest findings in the research community. This report is the 31st in a series of CDC articles.

Impact on Industry: Further research on adequate alternatives to driving and transportation needs is needed.

Keywords

Travel behaviors; Transportation; Race; Ethnicity

1. Introduction

Over the next few decades, the U.S. population will become both older and more racially and ethnically diverse. The U.S. Census Bureau predicts thatminority racial/ethnic populations will increase from116 million in 2010 (37% of the population) to 186 million by 2040 (49% of the population; U.S. Census Bureau, 2013).

Research has shown that travel-related behaviors vary considerably by both age and race/ethnicity and are influenced by several factors, including socioeconomic (e.g., household composition, employment status, income, education, vehicle availability) and location characteristics (e.g., land use, population density; Giuliano, 2000; Polzin, Chu, & Rey, 2000). Moreover, at older ages, travel-related behaviors may change due to lifestyle adjustments or declines in health and can have dramatic effects on a person's quality of life (Bailey, 2004; Edwards, Lunsman, Perkins, Rebok, & Roth, 2009; Mezuk & Rebok, 2008; Molnar et al., 2013; Ragland, Satariano, & MacLeod, 2005).

As U.S. population profiles continue to shift, it is important to not only understand current differences in travel-related behaviors and opinions, but also to understand personal concerns and needs for the future. Few studies have examined concerns about future travel options by race/ethnicity. The purpose of the present study was to provide recent estimates of key travel behaviors, opinions, and concerns of U.S. adult drivers by race/ethnicity.

2. Methods

Data from the 2010 HealthStyles survey were used for analysis. HealthStyles is an annual, cross-sectional, national mail-panel survey of persons ages 18 years or older living in the United States. The HealthStyles survey is sent to a random sample of respondents from Porter Novelli's (Washington, DC) ConsumerStyles survey. In April and May 2010, the ConsumerStyles survey was mailed to a stratified, random sample of 20,000 persons. Responses were received from 10,328 people for a response rate of 51.6%. Of the respondents who returned the ConsumerStyles survey, a random sample of 6,253 respondents was sent the HealthStyles survey in September and October 2010. Responses were received from 4,198 people for a response rate of 67.1%. In return for their participation, respondents were provided with small incentives (a cash incentive totaling less than $10 and a lottery entry to win between $50 and $1,000). HealthStyles survey data were weighted on five demographic variables: gender, age, income, race/ethnicity, and household size to match the 2009 Current Population Survey of the U.S. Census.

This analysis was restricted to survey respondents who responded "yes" when asked if they had driven in the last 30 days. Respondents were then asked several questions about their

travel-related behaviors, opinions, and concerns, including how often they get out of their home and go some-where, how often they used specific modes of travel (e.g., drive oneself, obtain a ride with family or friends, walk, bike, take a taxi, use public transportation), whether they thought there were adequate alternatives to driving for people in their community, how concerned they were about having safe and alternative transportation options if they were no longer able to drive, and how they thought they would most often get around if they could no longer drive. Additionally, data were collected on several demographic characteristics, including age, sex, race/ethnicity (categorized as white, black, Hispanic, or other), income, and population density (categorized as metropolitan area or non-metropolitan area).

Weighted percentages and corresponding 95% confidence intervals (CIs) for each of the travel-related behaviors, opinions, and concerns were calculated by race/ethnicity. Logistic regression was used to further examine the relationships between race/ethnicity and specific travel-related opinions and concerns, while adjusting for age group, sex, income, and population density. Interactions between race/ethnicity and other covariates in the models were assessed using backward stepwise regression. When examining the relationship between race/ethnicity and concern for having safe and alternative transportation options when no longer able to drive, two interaction terms were significant, race/ethnicity and population density and race/ethnicity and income. Since there was multicollinearity when both interaction terms were included in the model, two separate models, each with one interaction term, were specified. In all instances, p-values < 0.05 were considered statistically significant. All analyses were completed using SAS software, version 9.3 (SAS Institute, Inc., Cary, North Carolina).

3. Results

In 2010, 12.9% of drivers reported that they got out of their home once or less per week; however, percentages varied by race/ethnicity. A greater percentage of Hispanics (19.3%; 95% CI: 14.1%−24.6%) reported that they got out of their home once or less per week compared to whites (10.5%; 95% CI: 8.8%−12.1 %; Table 1). Travel behavior differences also existed by race/ethnicity with respect to modes of travel used each week. While most persons reported driving themselves at least once per week, differences existed in the percentages of persons that reported walking as a mode of travel by race/ethnicity. Specifically, more Hispanics (45.1%; 95% CI: 37.7%−52.5%) reported walking as a mode of travel at least once per week than whites (30.9%; 95% CI: 28.3%−33.6%).

When asked about adequate alternatives to driving in their community, more than a third of all Hispanics (34.7%; 95% CI: 27.4%−42.0%) agreed that there were adequate alternatives compared to 23.4% (95% CI: 20.6%−26.2%) of whites (Table 1). Additionally, about half of all white (51.5%; 95% CI: 48.4%−54.5%), black (48.3%; 95% CI: 38.3%−58.3%), and other (50.3%; 95% CI: 41.4%−59.1%) drivers disagreed that there were adequate alternatives, compared to 34.1% of Hispanics (95% CI: 27.8%−40.5%). However, when asked about their level of concern related to having safe and alternative transportation when no longer able to drive, about half of all black (58.7%; 95% CI: 49.7%−67.7%), Hispanic (47.3%; 95% CI:

40.4%−54.3%), and other (50.9%; 95% CI: 41.8%−59.9%) drivers reported being very or extremely concerned, compared to 37.5% (95% CI: 34.6%−40.4%) of white drivers.

After adjusting for age group, sex, population density, and income category, blacks (adjusted odds ratio (AOR): 1.58; 95% CI: 1.25–1.99) and His-panics (AOR: 1.73; 95% CI: 1.40–2.14) were significantly more likely to agree that there were adequate alternatives to driving for people in their community compared to whites (Table 2). When examining the relationship between race/ethnicity and being very or extremely concerned about having safe and alternative transportation options when no longer able to drive, there were significant interactions between race/ethnicity and population density and race/ethnicity and income group (Table 3). In metro areas, blacks, Hispanics, and others were 1.46 to 2.02 times more likely to be very or extremely concerned about having safe and alternative transportation options when no longer able to drive compared to whites; while in non-metro areas, blacks and others were more than 3.5 times as likely to report being very or extremely concerned compared to whites. Blacks, Hispanics, and others in the $60,000 + income category and blacks and Hispanics in the $25,000–$59,000 income category were 1.53 to 3.15 times more likely to be very or extremely concerned compared to whites; however, among those in the lowest income category (<$25,000), there were no significant differences by race/ethnicity.

Finally, when drivers were asked how they would get around if they reached a point in the future when they could no longer drive, current drivers often reported that a spouse or partner would drive them (weighted percentages ranged from 36.5% for blacks to 48.9% for whites) (Fig. 1). Additionally, about a quarter of Hispanics (23.1%; 95% CI: 16.7%−29.5%) and others (25.3%; 95% CI: 15.4%−35.1%) reported that they would use some other form of travel, such as walking, a bus, or taxi, compared to 12.8% (95% CI: 10.8-%−14.9%) of whites. However, in each racial/ethnic group, more than 1 in 10 persons reported not knowing how they would get around if they could no longer drive (weighted percentages ranged from 13.8% among others to 18.6% among blacks).

4. Discussion

This study revealed several important differences in the travel behaviors, opinions, and concerns of U.S. drivers by race/ethnicity. In terms of travel behavior, a smaller percentage of whites reported getting out of the house once or less per week, compared to Hispanics. Moreover, we found differences in travel modes when people did get out of the house. Generally, smaller percentages of whites reported using alternate modes of travel (e.g., walk, bicycle, use public transportation) and a statistically smaller percentage of whites reported walking compared to Hispanics. This finding is consistent with research that has found that minority populations are generally more likely than whites to use public transit and walk as modes of travel (Besser & Dannenberg, 2005; Polzin et al., 2000; Pucher & Renne, 2003).

Few studies have examined opinions and concerns about driving alternatives by race/ethnicity. We observed that Hispanics and blacks were both more likely than whites to think there were adequate alternatives to driving for people in their community. It might be that these differences in opinion are due both to differences in access to alternatives, as well as to differences in travel mode preferences and views regarding what is “adequate.” While

minority populations have the greatest access to transit by proximity, research also shows that location factors do not fully explain racial/ethnic differences in travel preferences and choices (Giuliano, 2000; Polzin, Chu, & Maggio, 2007). After controlling for location factors, income, and household characteristics, Giuliano (2000) found that differences in travel preferences by race/ethnicity persisted and concluded that there are likely fundamental differences in what motivates travel choices by race/ethnicity.

After adjusting for potentially confounding factors, we found that, in general, minority populations were more likely than whites to be very or extremely concerned about having safe and alternative transportation options when they were no longer able to drive; however, the extent of these differences varied with respect to population density and income level. It is unclear why certain minority groups were more likely than whites to report having adequate alternatives to driving, yet also more likely than whites to report being very or extremely concerned about having alternatives if they could no longer drive. However, it could be that while some groups view their current alternative transportation options favorably, they do not see these options as sustainable options for use at older ages, when they might be unable to drive. Older adults who are no longer able to drive can have difficulties walking, climbing stairs onto a bus or van, or even getting to public transit stops, which may preclude them from continuing to use these modes (Dickerson, 2007).

In examining the interaction between race/ethnicity and population density, we found that minority populations were generally more likely to be very or extremely concerned about having safe and alternative transportation options compared to whites with the likelihood of concern generally greater in non-metro areas. While the reasons for these differences are unknown and should be further studied, it should be noted that our findings are dependent on the respondents' interpretation of the wording "safe and alternative" in the survey question. Respondents could feel that they have alternative modes of transportation when no longer able to drive, but they may not consider them safe. Further research should consider teasing out the contributions of these factors on transportation concerns.

When examining the relationship between race/ethnicity and income level further, we found that for those in the lowest income category, concern was consistently high among all racial/ethnic groups with more than half of drivers in each racial/ethnic group reporting being very or extremely concerned. These findings agree with previous research showing that low income is associated with transportation difficulties and that costs associated with transportation are especially burdensome for low-income households, as they devote a higher percentage of their income to transportation-related expenses compared to higher-income households (Sanchez, Stolz, & Ma, 2003). For drivers in the highest and middle income categories, it is unclear why differences existed by race/ethnicity. One possible explanation is that social networks and support systems available to provide transportation might differ by race/ethnicity within different income categories and population densities.

Overall, we found that more than 70% of white drivers reported that they would rely on a spouse, partner, friend, or family member to provide transportation if they could no longer drive, while less than 60% of minority drivers reported this. Research on how the availability of these and other sources of transportation differ by income, race/ethnicity, and population

density could provide more thorough insight into drivers' concerns about future transportation alternatives. Across all races/ethnicities, more than 1 in 10 drivers in our study reported that they did not know how they would get around if they could no longer drive, which agrees with previous research showing that most drivers do not plan for a time when they might have to stop driving (Kostyniuk & Shope, 2003). Further research on culturally tailored strategies that could be used to help persons plan for changes in their travel abilities and needs is warranted.

The findings in this report are subject to limitations. First, HealthStyles respondents might not be representative of the U.S. population because the sampling approaches used were not random. However, comparisons of HealthStyles survey responses to those of the Behavioral Risk Factor Surveillance System, a survey that randomly selects persons through probability-based sampling, have shown similar results for various health behavior and disease-related questions in the United States (Pollard, 2002). Previous research has also shown mail panel studies to be as acceptable as random digit-dial surveys (Fisher & Kane, 2004). Second, the findings might be subject to nonresponse bias. If nonresponders were significantly different than responders in their behaviors, opinions, and concerns or in their likelihood of reporting such behaviors, opinions, and concerns, results may not be representative of the population. Lastly, the racial and ethnic categories used in this paper are based on self-identification of persons into one of a few predetermined groups. Respondents did not have the option to indicate a multi-racial or multi-ethnic background, which limited our ability to examine more thorough racial and ethnic differences and may have masked some differences.

Findings from this study reveal that certain minority groups are more likely to report having adequate transportation alternatives to driving compared to whites but that concern for alternatives to driving in the future is also greatest among these groups. Additionally, our study showed that population density and income level are important factors to consider and deserve further research when trying to understand the future travel needs and concerns of different racial/ethnic groups. Finally, we found that there was high concern for having adequate alternatives to driving once one is no longer able to drive and that large numbers of drivers do not know how they would get around if driving was no longer possible. Further research on U.S. drivers' travel concerns and needs and how these differ by race/ethnicity is warranted so that informed decisions about the creation of viable transportation options can be made.

Biography

Geeta Bhat, MPH, serves as an ORISE Fellow on the Transportation Safety Team in the Division of Unintentional Injury Prevention at CDC. Her recent research has focused on teen seatbelt use and pedestrian safety.

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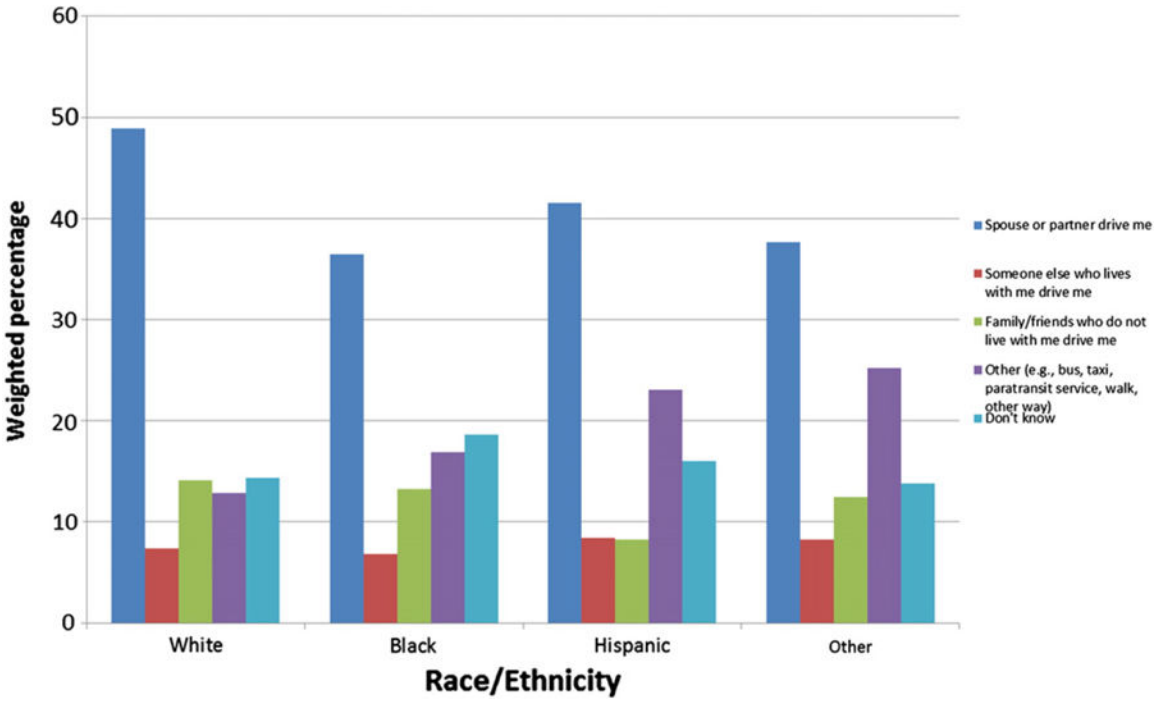

Fig. 1.

Mode that current drivers would most often use to get around if they reached a point in the future when they could no longer drive by race/ethnicity, HealthStyles 2010.

Table 1

Travel behaviors, opinions, and concerns of U.S. adult drivers aged ≥18 years by race/ethnicity, HealthStyles, 2010.

	White		Black		Hispanic		Other	
	Count	**Weighted % (95% CI)**	**Count**	**Weighted % (95% CI)**	**Count**	**Weighted % (95% CI)**	**Count**	**Weighted % (95% CI)**
Total	2694		365		390		334	
How often you get out of the home								
At least once a day	988	35.3 (32.5–38.0)	93	22.1 (15.8–28.3)	109	33.8 (26.4–41.3)	96	36.7 (27.1–46.2)
2–6 times per week	1373	54.3 (51.3–57.2)	190	56.5 (46.4–66.6)	184	46.8 (39.8–53.8)	179	49.8 (40.7–58.8)
Less than or equal to once a week	257	10.5 (8.8–12.1)	59	21.4(10.8–32.0)	81	19.3 (14.1–24.6)	46	13.6 (8.2–18.9)
Use the following mode of travel at least once per week[a]								
Drive yourself	2494	97.7 (97.1–98.3)	327	93.1 (88.9–97.4)	356	96.4 (94.3–98.5)	297	94.3 (89.9–98.7)
Get a ride with family or friends	616	29.2 (25.9–32.6)	82	21.9 (15.3–28.6)	77	20.8 (15.1–26.4)	101	27.5 (20.9–34.2)
Walk	833	30.9 (28.3–33.6)	137	40.7 (30.6–50.9)	149	45.1 (37.7–52.5)	124	37.8 (29.1–46.5)
Other (e.g., bicycle, taxi, public transportation, special service, private driver)	261	10.2 (8.3–12.2)	46	10.5 (6.6–14.3)	53	18.1 (11.1–25.1)	48	15.1 (9.3–20.9)
Level of agreement with the statement: there are adequate alternatives to drivingfor people in my community								
Strongly or moderately agree	580	23.4 (20.6–26.2)	119	33.1 (24.8–41.3)	123	34.7 (27.4–42.0)	95	24.7 (18.7–30.8)
Neither agree nor disagree	642	25.1 (22.3–28.0)	82	18.7 (13.5–23.8)	121	31.2 (24.9–37.5)	92	25.0 (18.6–31.5)
Strongly or moderately disagree	1422	51.5 (48.4–54.5)	155	48.3 (38.3–58.3)	133	34.1 (27.8–40.5)	142	50.3 (41.4–59.1)
Level ofconcern for having safe and alternative transportation options when no longer able to drive								
Very or extremely concerned	965	37.5 (34.6–40.4)	193	58.7 (49.7–67.7)	178	47.3 (40.4–54.3)	158	50.9 (41.8–59.9)
Somewhat concerned	870	31.4(28.7–34.1)	78	23.9 (17.1–30.7)	101	29.6 (22.6–36.5)	85	27.1 (19.7–34.4)
Not at all or not very concerned	745	31.1 (28.1–34.1)	72	17.4(12.2–22.6)	90	23.1 (17.8–28.4)	75	22.1 (14.8–29.4)

CI = Confidence Interval.

[a]Will not sum to 100%, as respondents could choose more than one.

Table 2

Crude and adjusted odds ratios for strongly or moderately agreeing that there are adequate alternatives to driving for people in their community, HealthStyles, 2010.

	Crude odds ratio (95% CI)	Adjusted[a] odds ratio (95% CI)
Race/Ethnicity		
White	1.00	1.00
Black	1.62 (1.29–2.04)	1.58 (1.25–1.99)
Hispanic	1.74 (1.41–2.15)	1.73 (1.40–2.14)
Other	1.08 (0.77–1.51)	1.03 (0.73–1.45)

CI = Confidence Interval.

[a]Model adjusted for age group, sex, population density, and income category.

Table 3

Crude and adjusted odds ratios for being “very” or “extremely” concerned about having safe and alternative transportation options when no longer able to drive, HealthStyles, 2010.

	Crude odds ratio (95% CI)
Race/Ethnicity	
White	1.00
Black	2.37 (1.90–2.95)
Hispanic	1.50 (1.23–1.83)
Other	1.73 (1.28–2.32)
Race/Ethnicity & population density[a]	Adjusted odds ratio (95% CI)
Metro	
White	1.00
Black	2.02 (1.58–2.59)
Hispanic	1.67 (1.34–2.09)
Other	1.46 (1.05–2.05)
Nonmetro	
White	1.00
Black	3.59 (1.98–6.51)
Hispanic	1.14 (0.66,1.99)
Other	3.79 (1.67,8.57)
Race/Ethnicity & income[b] $60,000 +	
$60,000+	
White	1.00
Black	2.71 (1.79–4.09)
Hispanic	2.21 (1.61–3.05)
Other	1.72 (1.09–2.71)
$25,000–59,999	
White	1.00
Black	3.15 (2.21–4.48)
Hispanic	1.53 (1.11–2.12)
Other	1.60 (0.86–2.96)
<$25,000	
White	1.00
Black	0.97 (0.64–1.48)
Hispanic	0.84 (0.52–1.35)
Other	1.57 (0.90–2.75)

CI = Confidence Interval.

[a]Model adjusted for age group, sex, and income.

[b]Model adjusted for age group, sex, and population density.