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A Study on The Driving Behaviour of Undergraduate Students in Rivers State, Nigeria

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Abstract
The behaviour of drivers is a matter of great concern to society as it impacts everyone. This study focuses on the driving behaviour of undergraduate students, who are often underrepresented in research. The aim is to understand the factors influencing their actions behind the wheel comprehensively. It emphasizes the importance of driving behaviour during the formative years of higher education, where young adults typically experience a more heightened sense of autonomy and decision-making. As there is a lack of in-depth studies on this demographic, a comprehensive survey was conducted among 509 undergraduate drivers attending selected tertiary institutions in Rivers State between September and October 2023. The survey focused on their demographic factors, risky driving behaviours, frequency of distraction activities, and information on traffic crashes and accidents. The quantitative analysis of the data collected from the survey revealed that the most common behaviour among undergraduate drivers is speeding for thrills, which is more prevalent among younger males between the ages of 17-20 and 21-24 years old. However, female undergraduate drivers generally exhibit better and safer behaviours while driving. Based on the results, it is recommended that schools should conduct awareness programs to educate students on proper driving behaviours that are safer for both themselves and society, impose laws to regulate driving on campuses, and ensure strict sanctions for those caught offending these laws.

Keywords: *Driving Behaviour, Undergraduate Students, Demographic, Accident, Traffic*

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I. Introduction

Driving behaviour significantly impacts various societal aspects such as road safety, traffic flow, environmental sustainability, health, and technological interventions. It is crucial in determining road transport's safety, efficiency, and environmental effects. Aggressive driving behaviours like speeding, tailgating, or running red lights have been linked to a higher likelihood of accidents (Berg, 2006). Research on driving styles has been prevalent for many decades within traffic research, using both self-report methods and observation of actual behaviour (Sagberg *et al.,* 2015).

This driving behaviour has led to road traffic accidents becoming an essential public health issue globally (Gopalakrishnan, 2012). Road traffic accidents have caused severe injuries, which have been assessed to be the ninth leading cause of death globally across all age groups. According to WHO (2014), road traffic accidents will become the seventh leading cause of death by 2030. Low- and middle-income countries will account for 90% of the deaths despite having only 54% of the world's vehicles. According to the World Health Organization (WHO), in 2008, road crashes were a leading cause of injury and death for young adults in many countries. It has been found that males are more prone to getting involved in road traffic accidents than females from a young age (Elvik, 2010). Shockingly, about 73% of all road traffic fatalities occur among young males who are under the age of 25 years. These young males are almost three times more likely to be killed in a road traffic accident than young females (WHO, 2018). According to research conducted by Lewin in 1982, human errors often cause traffic accidents, or they may play a role in contributing to the accidents. When it comes to driving, human factors can be divided into two main components: driving skills and style. Elander *et al.* (1993) make this distinction clear. Driving skills refer to a driver's ability to process information and operate the vehicle while driving style pertains to an individual's driving habits and choices. Although driving style is developed over time, it does not necessarily improve with experience. Young drivers are particularly vulnerable to accidents due to inexperience and other youth-related traits (Williams, 2006).

Various individual and socio-cultural factors, such as age, gender, driving experience, personality, cognitive style, group and organization values, and national or regional culture, may influence driving styles. However, further research must fully comprehend how these factors contribute to driving style and their potential interactions. The high incidence of road traffic accidents, particularly among young drivers,

emphasizes the need for further research in these areas to develop more effective strategies to promote safe driving behaviour and reduce accidents.

This study aims to identify reckless driving behaviour among undergraduate students and explore ways to promote safer driving habits.

To achieve the aim of this study, the following objectives were carried out:

i. To determine the effect of demographic characteristics on the driving behaviour of undergraduate drivers in Rivers State.
ii. To understand the type and extent of risks connected to different driving behaviours of undergraduate students.
iii. To ascertain the frequency of distracted driving among undergraduate drivers and how it relates to the probability of crash occurrence.
iv. To determine the involvement of passengers as a contributing factor to accident occurrences

II. Materials and Methods

2.1 Materials

This study utilized the Driving Behavior Questionnaire (DBQ), pens, paper, computers and a calculator.

2.2 Methods

In order to gather information through surveys, a common method used is the questionnaire. A questionnaire is a written list of questions where respondents record their answers. As there is no one to explain the meaning of the questions to the respondents, it is essential for them to read and interpret the questions carefully before writing down their answers. For proper response to the questionnaire, it was designed to be straightforward to understand. Also, the layout of the questionnaire was such that it was easy to read and pleasant to the eye. The sequence of the questions was easy to follow.

A DBQ was formulated to collect all critical information needed to achieve the objectives of this study. Previous literature studies were investigated to design the DBQ, and factors affecting young drivers' behaviour were studied. The DBQ was divided into four sections;

i. The first section details demographic information such as age, gender, marital status, education level, license type, and age at license acquisition.
ii. The second section comprises eight questions measuring risky and aggressive driving behaviour, such as not wearing seat belts, exceeding speed limits, racing with neighbouring cars, etc.The third section contains seven questions about engaging in distracting activities while driving, such as using a cell phone, texting, and more.
iii. The fourth and final section concerns traffic crashes and consists of six questions about accident time, the presence of passengers, the type of injuries, and material losses.

2.2.1 Participants

The survey was conducted in four tertiary institutions in Port Harcourt, Rivers State, namely Rivers State University, University of Port Harcourt, Ignatius Ajuru University of Education and Captain Elechi Amadi Polytechnic Port Harcourt. The questionnaires were shared with undergraduate students driving from year one to year five. Study participants were full-time students of the various institutions. No monetary compensation or inducement was provided to the participants for responding.

2.2.2 Method of Data Collection

The participants were given the questionnaires by hand and also electronically. The data collection process took two months, with most of the participants completing the survey in the first month. The participants were informed that by submitting their completed questionnaires, they were giving their consent to participate in the study. Privacy and confidentiality of information was safeguarded. The questionnaire did not request any personal information and was anonymous. A digital data collection method was also used, employing Google Forms, which was a suitable option for the younger generation. This made it easier to share the questionnaire through the internet, where most young people are active, thus increasing participation rates.

III. Results and Discussion

3.1 Statistical Analysis of Respondents

The statistical analysis of the respondents from the study is presented in Table 1 and Figure 1. Additionally, further discussions of the results are provided.

Table 1 Statistical Data

	Age group					
gender	17-20	21-24	25-29	30-35	36 and above	total
male	89	208	100	36	19	452
female	9	28	18	2	0	57
total	98	236	118	38	19	509
%	**19.25344**	**46.36542**	**23.18271**	**7.4656189**	**3.7328094**	**100**

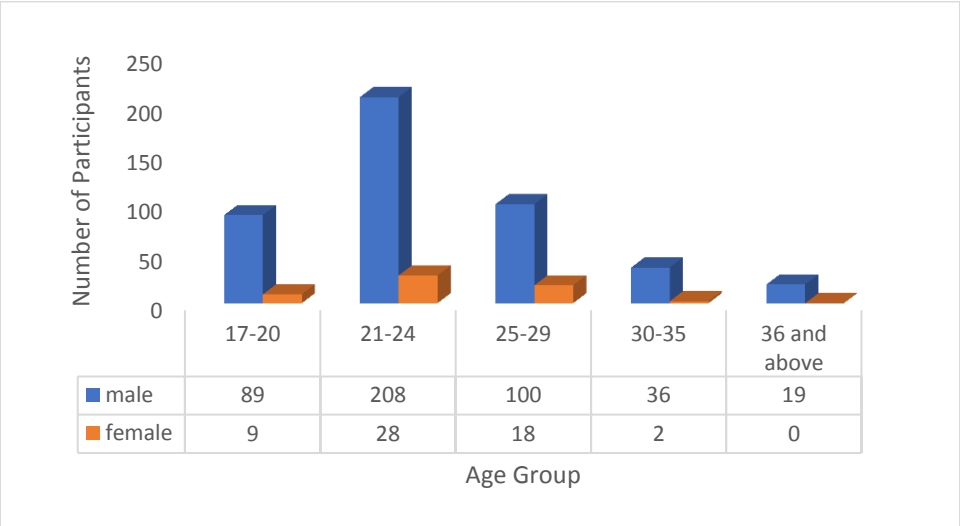

Figure 1: Number of Participants in Each Age Group

Six hundred (600) students were given study questionnaires. Of the 600 distributed questionnaires, 57 were not returned, and 34 were invalid, leaving 509 respondents. Among the respondents, 88.8% (452) were male, while 11.2% (57) were female (Table 1).

In terms of age group, 19.25344% were aged 17-20, 46.36542% were aged 21-24, 23.18271% were aged 25-29, 7.4656189% were aged 30-35, and 3.73238094% were 36 years or older. The largest age group was 21-24 years old, which consisted mainly of students in their 400 and 500 levels who were more likely to have access to cars and drive more often. The smallest age group was 36 years and above, as most people in this group had already graduated or were pursuing other programmes.

Additionally, the data shows that more males reported driving than females (Figure 1).

3.2 Demographic Characteristics of Respondents

Table 2, Figures 2 and 3 below present the demographic characteristics of the study's respondents and the total number of respondents in each age group.

Table 2: Demographic Characteristics

			Marital Status		Having a License		Age of Obtaining a License		
Gender	Age Group	No. of Participants	Single	Married	Yes	No	18-20	21-25	26-30
Male	17-20	89	89	0	31	58	31	0	0
	21-24	208	129	79	114	94	46	68	0
	25-29	100	61	39	73	27	19	36	18
	30-35	36	15	11	33	3	10	9	14
	36 and above	19	5	14	18	1	4	7	8
Female	17-20	9	7	2	5	4	5	0	0

21-24	28	18	10	25	3	11	14	0
25-29	18	7	11	16	2	3	7	6
30-35	2	2	0	2	0	0	1	1
36 and above	0	0	0	0	0	0	0	0
Total	**509**							

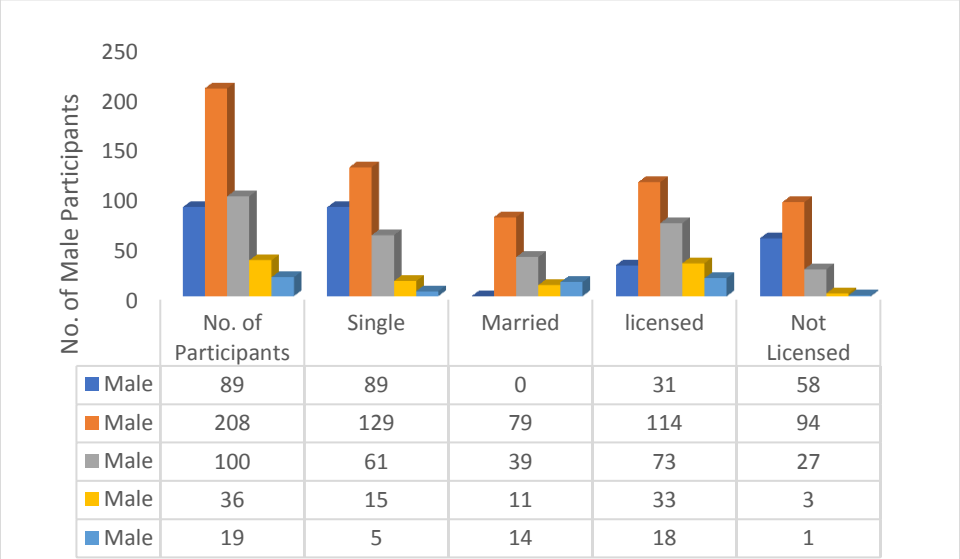

Figure 2: Male Demographic Characteristics

The analysis of the demographic characteristics, as shown in Table 2 and Figure 2, reveals that the highest number of respondents are single males in the age group 21-24 years, who make up 25.53% of the total number of respondents. Of the 452 male respondents, 143 (31.64%) are married, aged 21-24, with 55.24% as the highest age group who are married. This age group is found to be more in the university. Also, the number of licensed male drivers was 269 (59.51%) of the total male respondents, showing that 40.49% (183 respondents) are not licensed drivers. Figure 2 clearly shows that both licensed and non-licensed drivers are more in the age group of 21-24, with 42.38% and 51.37%, respectively.

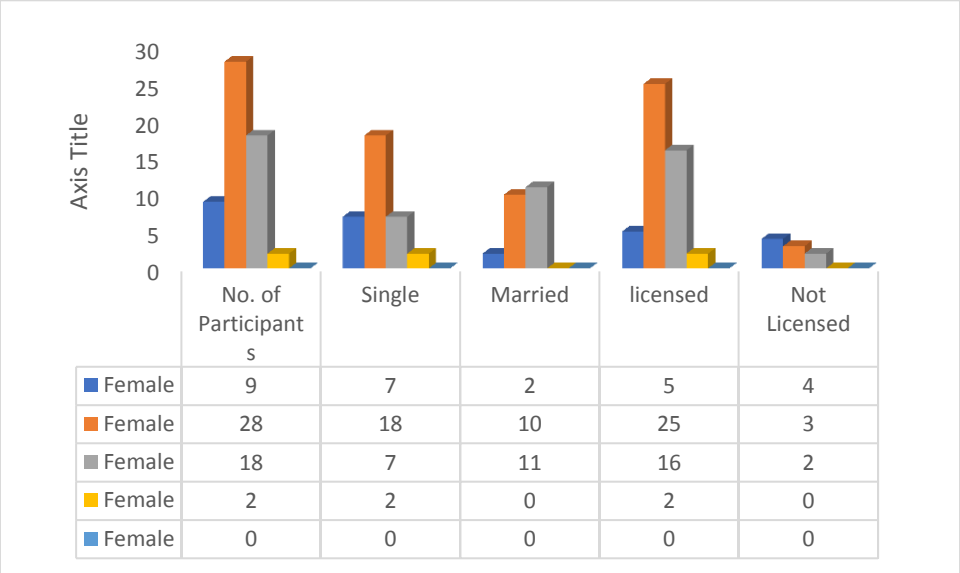

Figure 3: Female Demographic Characteristics

The analysis of the female demographic characteristics, as shown in Table 2 and Figure 3, reveals that the highest number of respondents for females is in the age group 21-24 years, who make up 3.54% of the total number of respondents. Of the 57 female respondents, 23 (40.35%) are married and aged 25-29, with 47.83% being the highest married age group. The age group 21-24 is found to have more female and male respondents. Also, the number of licensed female drivers was 48 (84.21%) of the total female respondents, showing that 15.79% (9 respondents) are not licensed drivers. Comparatively, the percentage of female drivers licensed is more than that of males.

3.3 Analysis of Risky Driving Behaviours

The percentage of the respondent's participation in risky driving behaviours among the total number of respondents is presented in Table 3 below.

Table 3: Frequency of Risky Driving Behaviours Among Undergraduate Students in Rivers State, Nigeria.

		Male					Female				
		17-20	21-24	25-29	30-35	36 and above	17-20	21-24	25-29	30-35	36 and above
Use of seatbelt	Never	38	75	20	2	0	1	2	0	0	0
	Sometimes	29	28	33	8	3	1	5	3	0	0
	Often	13	58	8	9	5	2	7	11	0	0
	Always	9	47	39	17	11	5	14	4	2	0
Obeying traffic light	Never	1	3	0	0	0	0	0	0	0	0
	Sometimes	4	8	3	0	0	1	1	0	0	0
	Often	7	23	12	1	0	0	3	0	0	0
	Always	77	174	85	35	19	8	24	18	2	0
Night driving	Never	7	3	1	0	1	6	2	0	0	0
	Sometimes	20	26	29	5	5	2	10	4	1	0
	Often	21	36	17	3	2	0	6	1	1	0
	Always	41	143	53	28	11	1	10	13	0	0
Driving when sleepy	Never	81	198	97	31	17	9	27	15	2	0
	Sometimes	5	8	2	5	2	0	1	2	0	0
	Often	3	2	1	0	0	0	0	1	0	0
	Always	0	0	0	0	0	0	0	0	0	0
Racing other cars	Never	2	10	12	27	17	8	24	17	2	0
	Sometimes	12	26	7	8	2	1	4	1	0	0
	Often	35	11	13	1	0	0	0	0	0	0
	Always	49	161	68	0	0	0	0	0	0	0
Checking mirrors	Never	0	1	0	0	0	0	0	0	0	0
	Sometimes	3	5	11	1	0	0	0	1	0	0
	Often	10	37	24	6	3	3	7	3	0	0
	Always	76	165	65	29	16	6	21	14	2	0
Speeding for thrills	Never	8	2	6	21	12	7	19	15	1	0
	Sometimes	11	14	19	3	5	1	5	3	1	0
	Often	19	28	40	12	1	1	3	1	0	0
	Always	51	164	35	0	0	0	1	0	0	0

The results presented in Table 3 show that male drivers are more prone to risky driving behaviour. 42.70% and 36.06% of the male undergraduate drivers aged 17-20 and 21-24 do not wear seat belts. This reduced to 20% among drivers aged 25-29. Also, the male drivers aged 17-20 and 21-24 tend to drive at night,

speed for thrills and racing at the rate of 46,07%, 57.30%, 55.06% and 68.75%, 78.85%, 77.40%, respectively. This behaviour among undergraduate drivers reduces as age increases. This is because the younger undergraduates do not have the life experiences of the older drivers. For example, drivers aged 30-35 and 36 are not involved in car racing or speeding for thrills.

3.4 Analysis of Engagement of Distraction Activities

The frequency of engagement in distraction activities carried out by the respondents to the total number of respondents is shown in Table 4 below.

Table 4: Frequency of Engaging in Distraction Activities

		Male					Female				
		17-20	21-24	25-29	30-35	36 and above	17-20	21-24	25-29	30-35	36 and above
Making or Answering Cell Phone Calls	Never	0	4	18	28	16	6	12	6	0	0
	Sometimes	19	85	39	8	3	3	15	12	2	0
	Often	4	18	12	0	0	0	0	0	0	0
	Always	66	101	31	0	0	0	1	0	0	0
Reading or Sending Text Messages	Never	73	127	41	28	17	8	18	9	1	0
	Sometimes	16	78	52	8	2	1	9	9	1	0
	Often	0	1	2	0	0	0	1	0	0	0
	Always	0	2	5	0	0	0	0	0	0	0
Watching a Display Screen	Never	12	8	13	10	7	1	2	2	0	0
	Sometimes	26	96	75	29	10	3	21	16	2	0
	Often	16	41	4	5	2	4	3	0	0	0
	Always	35	63	21	2	0	1	2	0	0	0
Listening or Adjusting a Radio, CD Player, orMP3 Player	Never	0	0	0	1	0	0	0	0	0	0
	Sometimes	2	13	4	4	0	4	0	3	0	0
	Often	5	5	7	3	2	1	0	7	0	0
	Always	82	190	89	28	17	4	28	8	2	0
Smoking while driving	Never	87	155	51	19	11	9	21	10	1	0
	Sometimes	2	31	39	11	7	0	7	7	1	0
	Often	0	19	9	6	1	0	0	0	0	0
	Always	0	3	1	0	0	0	0	1	0	0
Talking with Passenger	Never	0	0	0	0	0	0	0	0	0	0
	Sometimes	18	34	17	4	2	1	12	0	0	0
	Often	27	46	20	3	7	2	3	1	0	0
	Always	44	128	63	29	10	6	13	17	2	0
Eating or drinking	Never	5	3	14	12	11	1	3	2	0	0
	Sometimes	34	57	53	15	7	8	18	15	2	0
	Often	12	83	24	6	1	0	7	1	0	0
	Always	38	68	9	3	0	0	0	0	0	0

Table 4 presents the result of the frequency of distraction activities for male and female undergraduate students in Rivers State. The results show that listening to or Adjusting a Radio, CD Player, or MP3 is the most common distraction among undergraduate drivers. Male drivers aged 17-20, 21-24, and 25-29 always listen to or adjust a radio, CD Player, or MP3 player at 92.13%, 91.35% and 89%, respectively. The next is making or answering cell phone calls at 74.16%, 48.56% and 31%, then talking to passengers and watching screens while driving. For taking to passengers, it is 49.44%, 61.53% and 63%, while watching screens is 39.33%, 30.29%

and 21%, respectively. However, talking with passengers is a common distraction for those aged 30-35 (80.56%) and 35 and above (52.63%). Regarding female drivers, the most common distraction activity is listening to or adjusting a radio, CD Player, or MP3 (aged 21-24 at the rate of 100%).

3.5 Accident Involvement Analysis

The involvement in accidents, time, casualties, damages and passenger relation to accidents are shown in Table 5 below.

Table 5: Accident Involvement Data

		Male					Female				
		17-20	21-24	25-29	30-35	36 and above	17-20	21-24	25-29	30-35	36 and above
Accident involvement	Yes	62	114	51	16	8	6	11	7	0	0
	No	27	94	49	20	11	3	17	11	2	0
Time of accident	Day	32	45	32	10	5	6	6	4	0	0
	Night	30	69	19	6	3	0	5	3	0	0
Casualties	Driver	23	35	10	5	6	3	7	4	0	0
	passenger	15	33	21	5	2	0	3	3	0	0
	pedestrian	24	46	20	6	0	3	1	0	0	0
Recorded damages	Car	23	72	31	10	5	4	4	4	0	0
	Public	35	32	15	4	3	1	6	3	0	0
	Other	4	10	5	2	0	1	1	0	0	0
No passengers were present	None	9	31	18	10	5	0	4	3	0	0
	1	12	28	15	3	1	1	2	1	0	0
	2	16	25	11	2	1	3	3	2	0	0
	3 or more	25	30	7	1	1	2	2	1	0	0
Age of passengers	16-19	30	21	10	0	0	3	0	0	0	0
	20-24	14	44	19	2	0	2	2	2	0	0
	25-35	9	8	8	3	0	1	5	2	0	0
	36 and above	0	0	0	1	3	0	0	0	0	0

The accident data for undergraduate students is summarized in Table 5. According to the table, male undergraduate drivers in Rivers State are more likely to be involved in road traffic accidents than their female counterparts. The data also shows that male drivers between the ages of 17-20 and 21-24 have a higher rate of accidents than other age groups. On average, around 69.45% of male drivers in these age groups were involved in accidents. However, this percentage decreased to 51% and 44.44% as the drivers' age increased. Similarly, younger female undergraduate drivers have a higher rate of accidents than older female drivers. For instance, around 66.67% of female drivers in the age group of 17-20 were involved in accidents compared to 37.93%, 36.84%, and 0% for the older age groups.

The data also shows that around 51.61% of accidents involving male drivers aged 17-20 occurred during the day, while 62.5% of accidents among male drivers aged 36 and above occurred during the day. However, 60.52% of accidents involving male drivers aged 20-24 occurred at night. On average, around 75.29% of casualties for male drivers occurred to drivers and passengers, while 31.17% of casualties occurred to pedestrians. Both male and female undergraduate drivers are at a higher risk of having an accident when there are passengers in the car. Female drivers aged 17-20 are especially at high risk in this regard. For male drivers, the occurrence rate of having passengers in the car was 85.48%, 72.80%, and 64.71% for the age groups of 17-20, 21-24, and 25-29, respectively. For female drivers of the same age groups, the occurrence rate was 100%, 63.64%, and 57.14%, respectively.

IV. Conclusions

This research was carried out to understand the driving behaviour of undergraduate students in Rivers State. The data collected were carefully and meticulously worked on and calculated to thoroughly understand and categorize the various behaviours and their effect to both society and other drivers.

Based on the results of this study, the following conclusions were drawn:

i. It has been observed that gender is a significant factor in determining the driving behaviour of individuals. According to a recent survey, 84.21% of the total female respondents and 59.51% of the total male respondents have a valid driver's license. This suggests that a higher percentage of female undergraduate drivers possess a driving license compared to males. Moreover, females are known to be more cautious about road safety than males. The study also found that respondents who are married tend to have a more positive attitude towards driving. This finding is consistent with the article titled "Young Drivers Behavior and Its Influence on Traffic Accidents" by Eman et al (2014).

ii. Several hazardous driving behaviours were observed, such as failing to wear seatbelts, disregarding traffic signals, driving at night, driving while feeling drowsy, competing with other vehicles, neglecting to check mirrors, and speeding for excitement. Out of these behaviours, speeding for excitement was found to be the most prevalent, with a participation rate of 62.97%. This behaviour was more frequent among the age group of 21-24 years, where 78.84% of respondents participated in it. On the other hand, driving while feeling sleepy was the least common risky behaviour, with only 1.38% of respondents participating in it. It is worth noting that these dangerous driving behaviours tend to decrease over time. as respondents get older.

iii. Many undergraduate students engage in distracting activities while driving, such as using their cell phones to make calls or respond to text messages, watching a display screen, changing a radio or CD player, smoking, interacting with passengers, and eating or drinking. The most common distraction among older undergraduate drivers is talking with passengers, which accounts for about 52.63% of distractions. This distraction is more common among females, with 77.19% engaging in it. For younger undergraduate drivers, the most common distraction is listening to or adjusting a radio, CD player or MP3, accounting for 90.83% of distractions. This distraction is common among both males and females. Smoking while driving was found to be the least common distracting behaviour among student drivers. These distracting activities were observed to decrease as drivers' ages increased.

iv. While it's true that women generally have more conversations with their passengers, a recent study revealed that males have a higher likelihood of being involved in accidents. Specifically, 55.75% of males surveyed reported a history of accident participation, compared to 42.11% of females. Interestingly, passengers - particularly young ones - can play a significant role in a driver's behaviour. In fact, passengers between the ages of 16-19 and 20-24 were involved in 54.35% of accidents where they were present, indicating that young passengers may have an adverse effect on drivers.

V. Recommendations

The following recommendations have been made regarding this study on promoting safe driving among undergraduate students:

i. Awareness campaigns: Universities should work with traffic departments to develop awareness campaigns specifically aimed at undergraduates. Using real-life examples, statistics, and interactive sessions can help to reinforce the message.

ii. Stiffer sanctions: Universities, in partnership with local law enforcement agencies, may adopt harsher penalties for unsafe actions on campus, such as unlicensed driving, reckless driving, or failure to use safety equipment (e.g., seatbelts).

iii. Peer-to-peer mentorship: Student-led driving clubs or groups can provide peer-to-peer mentoring, events, conversations, and training sessions to promote safe driving.

iv. Enforcing regulations: Regulations preventing cell phone use while driving and using visual displays should be enforced, especially for young drivers.

v. Promote public transportation: Educational institutions should encourage public transportation by providing cheap passes, establishing shuttle services or improving connectivity between campuses and transit hubs.

vi. Improve campus infrastructure: Extra crosswalks and clear, visible road signage can improve driving conditions for students, particularly at night.

vii. Limit campus parking at night: To reduce late-night driving after parties or study sessions, universities could restrict parking during certain hours, encouraging students to plan their trips better or use alternatives like walking or ride-sharing.

viii. Research and continuous assessment: Conduct research regularly to assess the effectiveness of interventions and stay current on students' evolving driving behaviour patterns.

Implementing these ideas can help to promote a safer driving environment for undergraduate students, lower the chance of accidents, and foster a culture of responsibility and awareness both on and off campus. While

undergraduates demonstrate a diverse range of driving behaviours, it is clear that we can usher in a culture of safer driving habits with the correct interventions, instructional programs, and peer pressure. It is critical that all parties - universities, traffic departments, and students themselves - realize and actively work toward this goal.

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