MINISTRY OF TRANSPORT
Transport Development & Strategy Institute

Vital Strategies

Exploratory Research Study on Motorcyclists in Vietnam

Final Report

Hanoi, October 2024

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
BAC	Blood Alcohol Concentration
BRT	Bus Rapid Transit
FGDs	Focus group discussion
MOT	Ministry of Transport
NTSC	National Traffic Safety Committee
RTAs	Road Traffic Crashes
WHO	World Health Organization

I. INTRODUCTION

1.1. Background and context

Motorcycle riders are among the most vulnerable groups of road users (World Health Organization –WHO, 2023). They are more exposed to crashes and injuries than any other road users. Their safety can be compromised by risky behaviors such as driving under the influence of alcohol, speeding, and not wearing a helmet (WHO, 2023). The unsafe behavior of motorcyclists has a comparatively greater impact in low- and middle-income countries where riding a motorcycle is more prevalent than in high income ones (WHO, 2023).

Vietnam's motorcycle industry is growing too quickly. With 73.4 million motorbikes by the end of 2023 (93% of all road vehicles), this is still the motorcycle boom period. The proliferation of motorcycles is growing too quickly, which will have negative effects on the environment, traffic congestion in big cities, and motorcycle traffic crashes (60–70% of all road crashes). Vietnam ranks among the top nations in ASEAN for both the average number of motorcycles per 100 people (73.2) and the highest percentage of motorized vehicles on the road.

There is no denying the importance of motorcycles in Vietnam over the past few years. With its agility and practicality, a motorcycle can easily move to the desired location during rush hour. A motorcycle can go anywhere you want to go, just like a foot. When riding, a motorcycle typically takes up one-fourth of the space occupied by an automobile. A motorbike emits less pollution into the environment than a vehicle does.

Despite a decline, traffic crashes remain serious, particularly when motorbikes are involved. Motorcycle infrastructure, vehicles, drivers, regulations and policies are just a few of the numerous unsolved issues that still need to be addressed, specially related to the motorcyclists' knowledge, attitudes and behaviors. In Vietnam, habits such as passing red lights when the streets are empty or there is no traffic police presence, or not following the correct lane during peak hours, have contributed to an unhealthy traffic culture. This is also one of the direct factors affecting the motorcycle crash rate in Vietnam, as this traffic culture is predominantly exhibited by motorcyclists. Talking about traffic culture, it refers to the behavior of people with the provisions of the law on traffic safety and the relationship between people. It can be said that traffic culture is composed of the culture of traffic participants and that of traffic managers and planners. Among the above factors, people who directly participate in traffic play an important role in creating a traffic culture.

Recognizing the importance of this issue, the Transport Development and Strategy Institute, with funding and support from Vital Strategies, has initiated this research project. The goal is to explore the knowledge, attitudes, and perceptions of motorcyclists concerning road safety and uncover the underlying determinants that influence risky behaviors. This research aims to contribute to the development of targeted road safety interventions, communication strategies, and policy recommendations for improving motorcyclists' safety in Vietnam.

1.2. Objectives and scope

1.2.1. Objectives

The objective of this research is to analyze the determinants behind motorcyclists' behaviors, aiming to uncover reasons influencing their tendency for risky behavior and to help identify effective strategies and communication messages for fostering behavioral change towards safer driving behavior with two main goals as follows:

- To explore motorcyclists' experiences and knowledge, attitudes, risk perceptions, social norms, and stereotypes around driving road behaviors, such as speeding, helmet use, carrying extra passengers, and driving under the influence of alcohol.
- To derive valuable lessons for social and behavior change road safety programs, thereby providing actionable insights and guidance for the development of targeted communication materials, mass media campaigns, and messaging strategies aimed at enhancing the safety of motorcyclists.

Given the prevalence of motorcycles in Vietnam—accounting for 93% of all vehicles and with over 73 million motorcycles on the road as of 2023—the need for road safety interventions is urgent. Motorcyclists are among the most vulnerable road users, with the highest rates of crashes and injuries. The research aims to explore the underlying determinants that drive risky behaviors among motorcyclists and offer practical solutions for behavioral change.

Additionally, the research findings will inform broader road safety policies and intervention programs. These findings will be shared with the Ministry of Transport, the National Traffic Safety Committee, and other relevant stakeholders involved in road safety management and policy development in Vietnam.

1.2.2. Scope of research

The scope of the study will cover motorcyclists in three major urban centers in Vietnam—Hanoi, Da Nang, and Ho Chi Minh City. These cities have been chosen because they represent diverse geographic regions and are characterized by heavy motorcycle traffic. The research will primarily target motorcyclists between the ages of 18 and 49, as this age group represents the most active and vulnerable drivers.

1.3. Methods of data collection and analysis

The research will utilize a mixed-methods approach, combining both qualitative and quantitative data collection techniques. This approach allows for a more comprehensive understanding of motorcyclists' behavior and the factors influencing their road safety practices.

Quantitative survey through questionnaires on the knowledge, awareness, and skills of road users.

Qualitative assessment through in-depth discussions/ Focus Group Discussions. Focus Group Discussions were chosen as a primary method for data collection because they allow for an in-depth exploration of personal experiences, perceptions, and attitudes in a conversational setting. FGDs are particularly effective for examining complex, socially influenced behaviors such as road safety practices.

The FGD method facilitates a more interactive discussion, where participants can share their experiences and views openly, enabling researchers to gather qualitative insights that surveys alone might not capture. The flexibility of FGDs allows moderators to probe participants for more detailed explanations and clarify ambiguous responses. In the context of this research, FGDs help to uncover the influence of social norms, peer pressure, and personal experiences on risky road behaviors.

- Focus Group Discussions: A total of 14 FGDs (includes two pilot FGDs) will be conducted across the three target cities. Each FGD will include 10-12 participants and will follow the guidelines provided in the Moderator Guide. FGDs will be used to gather in-depth

insights into participants' personal experiences, risk perceptions, and attitudes towards road safety.

- Survey Questionnaires: Structured surveys will be administered to motorcyclists across the target cities. The survey will include questions related to participants' driving habits, their experiences with road traffic violations, and their awareness of traffic regulations…. This will help quantify the prevalence of specific behaviors such as speeding, alcohol consumption, and helmet use.
- Participant Recruitment: A purposive sampling method will be used to recruit participants based on specific demographic criteria, such as age, gender, and the purpose of motorcycle use (private vs. work). The recruitment process will follow the guidelines outlined in the "SAMPLE RECRUITMENT OF PARTICIPANTS" form (Annex 3). This form will be distributed to colleagues in our institution, who will then share it with their family members and friends. Additionally, we will collaborate with universities, asking students to complete the survey. Moreover, we will assign staff to approach areas with high concentrations of ride-hailing drivers (such as Grab, Bee, SM Green, etc.) to randomly invite them to fill out the form. Based on the survey responses, we will cross-check the results with the set criteria and select the most suitable participants. Finally, we will contact the selected participants via phone to invite them to join the Focus Group Discussions (FGDs).
- Data Analysis: Qualitative data from FGDs will be analyzed using thematic analysis, identifying key themes and patterns in participants' responses. Quantitative data from the survey will be analyzed using statistical methods to identify correlations between risk perceptions, behaviors, and demographics.

Approximately 168 motorcycle drivers aged 18 to 49, residing in Hanoi, Da Nang and Ho Chi Minh City, will participate in this study. Participants will be divided into 14 groups (includes two groups as a pilot): six in Hanoi (includes two pilot groups), four in Da Nang, and four in Ho Chi Minh City. Each city will include one group of motorcycle riders from the general population and one group of riders using motorcycles for work purposes.

The sampling strategy will ensure a diverse representation of motorcyclists from different socioeconomic backgrounds and locations. Recruitment will be conducted using purposive sampling techniques to target participants who regularly use motorcycles for commuting or work purposes.

Additionally, the study ensured a balance between gender and socioeconomic status. This approach allowed the research to capture a wide range of experiences and behaviors among motorcyclists, thus providing a comprehensive understanding of the key factors that contribute to road safety issues.

The FGDs were conducted to encourage participants to speak freely about their experiences with risky behaviors such as speeding, alcohol consumption, and helmet use. Moderators facilitated discussions based on a prepared guide but allowed for flexibility to explore emerging themes that participants brought up during the sessions.

This combination of qualitative methods through a diverse group of participants ensured that the study captured not only the statistical prevalence of risky behaviors but also the contextual factors and personal motivations driving these behaviors. The results will be used to inform targeted interventions that can address the specific needs of motorcyclists in urban Vietnam.

Age group 18-29: This group mainly comprises younger individuals, including students, young professionals, and casual motorbike riders. They represent a demographic known for higher risk-taking behavior, such as speeding and occasional helmet non-compliance. The FGDs aimed to understand how peer pressure, social expectations, and lifestyle habits influence their road safety behaviors.

Age group 30-49: Participants in this age group generally have more life experience and family responsibilities, which may influence more cautious driving behavior. However, they are still a key focus of the study due to their regular use of motorcycles for commuting and work-related purposes. FGDs with this group explored the factors that shape their decision-making regarding helmet use, alcohol consumption, and speed compliance.

In terms of gender representation, the FGDs included both male and female participants. Male motorcyclists, often perceived as more frequent riders and more prone to risk-taking behaviors, were compared with female participants, who may have different risk perceptions and motivations.

Geographic representation: The study included participants from three major cities: Hanoi, Da Nang, and Ho Chi Minh City. These locations were selected to ensure the study captured regional variations in road safety behaviors. Hanoi, with its heavy traffic congestion, presents unique challenges compared to Da Nang, which is known for its more orderly traffic conditions. Meanwhile, Ho Chi Minh City, as the largest metropolitan area in Vietnam, offers a diverse and complex traffic environment where behaviors such as speeding and driving under the influence of alcohol can be influenced by social norms and lifestyle choices.

II. CURRENT SITUATION OF ROAD TRAFFIC CRASHES

2.1. Traffic crashes from 2013 to 2023

Traffic crashes across the country during the 2013-2023 period generally showed a decreasing trend. From 2013 to 2021, there was a consistent decline across all three criteria: the number of crashes, fatalities, and injuries. However, in 2022, when the pandemic was under control and people's travel activities resumed as normal, the situation of traffic crashes saw a sharp increase[1]. The spike in the three criteria—number of crashes, fatalities, and injuries—starting from 2021 was due to the implementation of standardized statistics following the new requirements outlined in Directive No. 107/HT dated December 18, 2023, from the Minister of Public Security, which called for reviewing and reporting traffic crash statistics for 2022 and 2023 across the country.

During this period, a total of 215,371 traffic crashes occurred nationwide, resulting in 90,453 deaths and 181,653 injuries. On average, traffic crashes decreased by 2.8% per year in terms of the number of incidents, the number of deaths increased by 2.2% per year, and injuries decreased by 6.4% per year.

In 2023, a total of 22,067 traffic crashes occurred nationwide, resulting in 11,628 deaths and 15,292 injuries. Compared to the same period in 2022, the number of crashes decreased by 1,285 cases (-5.5%), fatalities decreased by 1,922 (-14.18%), while the number of injuries increased by 660 (+4.51%). Specifically:

[1] On December 18, 2023, the Minister of Public Security issued an urgent dispatch (Dispatch No. 107/HT dated December 18, 2023, from the Minister of Public Security) directing the review and reporting of traffic crash statistics for 2022 and 2023 nationwide. This dispatch was sent to local police directors, allowing localities to resubmit their data.

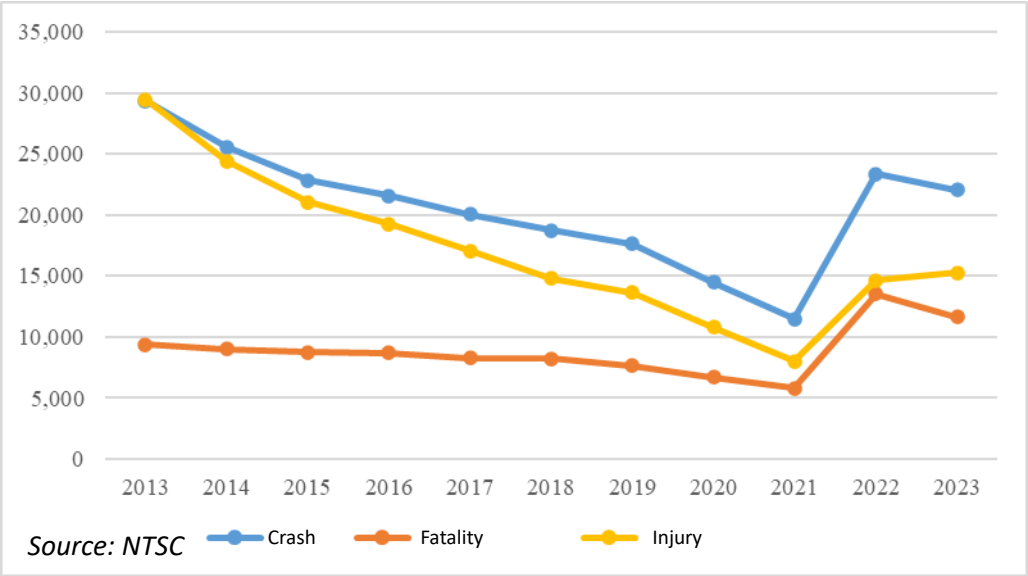

Figure 2.1-1. Traffic crashes nationwide from 2013 to 2023

- Road traffic: There were 21,880 crashes, causing 11,498 deaths and 15,255 injuries. Compared to the same period last year, this represents a decrease of 1,292 crashes (-5.58%), 1,891 fewer fatalities (-14.12%), and an increase of 657 injuries (+4.5%). Among these, 34 particularly serious crashes occurred on the roads, resulting in 118 deaths and 77 injuries.
- Railway: There were 124 crashes, causing 97 deaths and 27 injuries. Compared to the same period last year, the number of crashes remained unchanged (0%), fatalities increased by 3 (+3.19%), and injuries decreased by 1 (-3.57%).
- Waterways: There were 57 crashes, resulting in 31 deaths and 10 injuries. Compared to the same period last year, crashes increased by 8 cases (+16.33%), fatalities decreased by 24 (-43.64%), and injuries increased by 4 (+66.67%).
- Maritime: There were 6 crashes, causing 2 deaths and no injuries. Compared to the same period last year, the number of crashes decreased by 1 (-14.29%), fatalities and missing persons decreased by 10 (-83.33%), and the number of injuries remained unchanged.
- Civil aviation: Regarding incidents that posed potential threats to aviation safety (from December 16, 2022, to December 15, 2023), there were 349 mandatory occurrence reports (MORs), with 1 crash and 104 safety-threatening incidents (2 classified as B, 5 as C, and 97 as D). The most serious crash occurred on April 5, 2023, involving a BELL 505 helicopter in the sea area near Gia Luận commune, Cát Hải district, Hai Phong city, resulting in 5 fatalities (including 1 pilot and 4 passengers) and the loss of 1 helicopter.

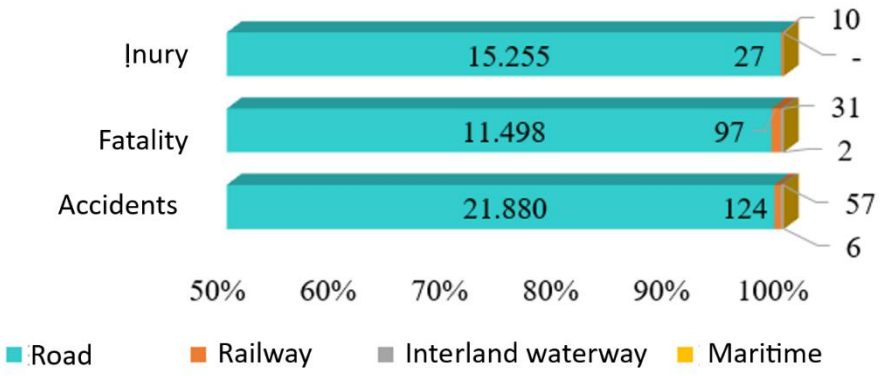

Figure 2.1-2. Traffic crashes by mode of transportation in 2023

The number of traffic crashes per 100,000 people is 22 cases, and the number of fatalities per 100,000 people is nearly 12.

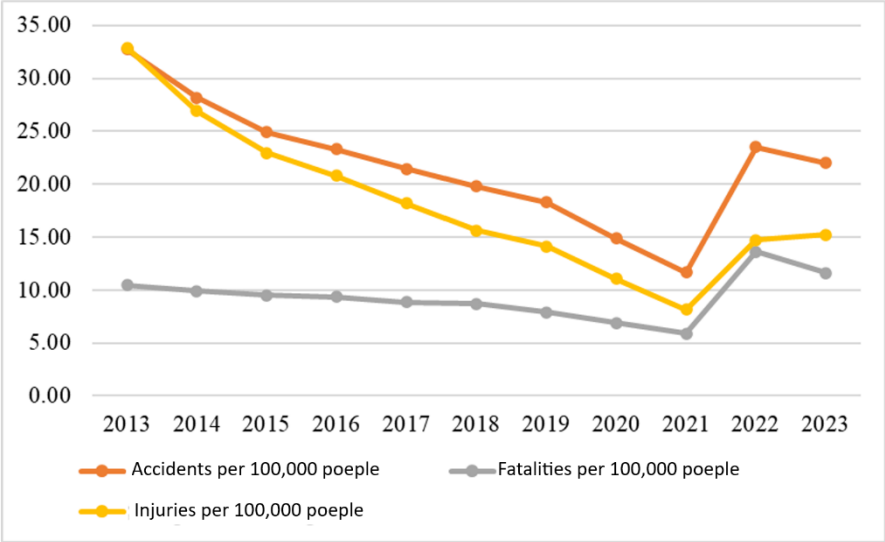

Figure 2.1-2. Traffic crashes by mode of transportation in 2023

2.2. Road traffic crashes from 2013 to 2023

In Vietnam, road traffic crashes (RTAs) account for the majority, comprising up to 99.15% of the total number of traffic crashes nationwide. During the period from 2013 to 2023, RTAs showed a decreasing trend, but from 2022, they started increasing rapidly. The total number of RTAs in the 2013-2023 period was 224,437 crashes, resulting in 95,590 deaths and 187,710 injuries. On average, 55 RTAs occurred per day during this period, causing 23 deaths and 47 injuries.

In 2023, there were 21,880 road traffic crashes, resulting in 11,498 deaths and 15,255 injuries. Compared to the same period last year, this represents a decrease of 1,292 crashes (-5.58%), a reduction of 1,891 deaths (-14.12%), and an increase of 657 injuries (+4.5%). Among these, there were 34 particularly serious crashes on the roads, causing 118 deaths and 77 injuries.

In 2023: The number of deaths per 10,000 motor vehicles was 1.44; The number of deaths per 10,000 cars was 18.74; and the number of deaths per 10,000 motorcycles was 1.57.

An analysis of road traffic crashes in 2023 in Vietnam shows:

- Causes of crashes: not paying attention (23.94%); driving in the wrong direction, on the wrong side of the road, or in the wrong lane (16.26%); improperly changing direction (6.40%); not avoiding overtaking improperly (3.93%); not keeping a safe distance from the vehicle in front (3.44%); using alcohol (2.91%), using drugs (0.06%); speeding (2.53%); not complying with road signs (1.25%); not improperly giving way (2.60%); fatigue, falling asleep (0.33%); not having a driver's license or an invalid driver's license (0.44%); violating driving procedures (0.5%); stopping and parking in an improper manner (0.53%); pedestrians improperly crossing the road (1.71%); Vehicles that do not ensure technical safety (0.1%); other causes (3.16%). Under investigation (58.21%).
- Vehicles causing crashes involving motorbikes and mopeds account for 60.37% of the total number of cases; trucks, trailers, semi-trailers (19.36%); cars (11.51%); passenger cars (3.15%); specialized cars (0.55%); rudimentary vehicles and other road vehicles (0.91%).
- Crashes rates by type of roads: national highways (35.41%), district roads (23.21%), provincial roads (16.79%), inter-commune roads (9.64%), expressways (1.16%), other routes and routes not updated (13.79%).
- Crash rates by time of driving: from 6 pm to midnight (36.8%); from 12:00-18:00 (29.85%); from 06:00-12:00 (21.64%); from 00:00-6:00 (11.72%).
- Crash rates by gender: Male (82.35%), female (17.65%).

2.3. Road vehicles

During the 2013-2023 period, the number of motorcycles in Vietnam grew rapidly at an average rate of 7.06% per year, although at a slower pace compared to cars. This indicates a shift towards car usage as people's incomes increase (with an average growth rate of 11.38% for cars). According to the National Traffic Safety Committee, by 2023, there were 74,343,176 registered motorcycles nationwide, along with over 2 million electric motorcycles.

According to statistics from the Vietnam Register, in 2023, the number of cars in circulation was 5,522,004, accounting for approximately 87.5% of the total number of registered vehicles (over 6.3 million cars, including about 200,000 electric vehicles).

In recent years, the development of road motor vehicles in Vietnam has been rapid, reflecting the country’s economic growth and the improved living standards of its population. The significant increase in both cars and motorcycles during the 2013-2023 period has brought about notable changes in the traffic structure, with some key trends and challenges as follows:

Significant growth in car ownership: The growth rate of cars during this period reached 11.38% per year, indicating the fast-rising demand for personal cars. This trend not only reflects the improvement in income levels but also a shift in the mobility needs of the population. Car ownership has become more common, especially in major urban areas. However, this increase has also put tremendous pressure on the transportation infrastructure, leading to severe traffic congestion, particularly in big cities like Hanoi and Ho Chi Minh City.

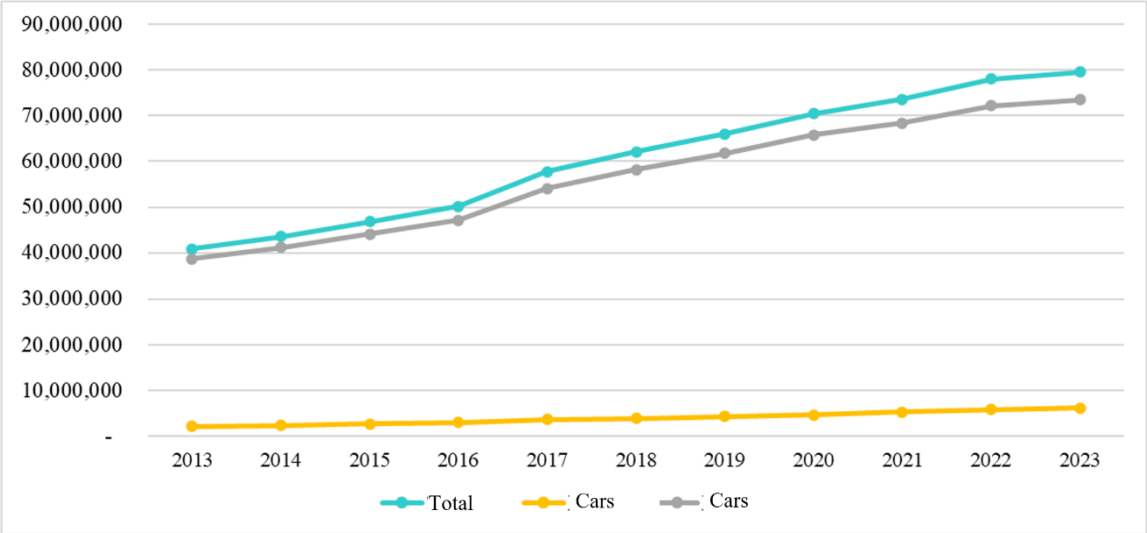

Figure 2.2-1. Growth rate of cars and motorcycles during the 2013-2023 period

- Motorcycles still dominate: Although the growth rate of motorcycles is slower than that of cars (7.06% per year), motorcycles remain the most popular means of transportation in Vietnam, especially in rural areas and urban outskirts. By 2023, there were more than 74 million registered motorcycles, illustrating the significant reliance on this form of transport due to its flexibility and affordability compared to cars.
- Growth of electric vehicles: Another notable trend is the rise of electric motorcycles and cars. By 2023, there were over 2 million registered electric motorcycles and about 200,000 electric cars in Vietnam. This trend reflects the growing awareness of environmental protection and the increasing demand for eco-friendly vehicles. However, the development of charging infrastructure and policies to encourage the use of electric vehicles still needs to be strengthened to support this transition.
- Challenges in infrastructure and traffic management: The rapid increase in motor vehicles has posed significant challenges for the transportation system, including the need for infrastructure upgrades and expansion, managing traffic congestion, and reducing traffic crashes. Highways, overpasses, and public transportation systems must be developed in a coordinated manner to relieve the pressure on existing road networks.
- Focus on public transportation development: Despite the growing prevalence of private vehicles, promoting the use of public transportation remains crucial to ensure the sustainability of the transportation system. Investment in projects like urban railways and Bus Rapid Transit (BRT) will help reduce reliance on private vehicles and improve the quality of urban transportation.

In general, the development of road motor vehicles in Vietnam over the past few years has made significant progress, but it has also presented numerous challenges in terms of traffic management and infrastructure development. Appropriate policies and solutions are needed to ensure the sustainable, safe, and efficient growth of the transportation system.

III. FOCUS GROUP DISCUSSION IMPLEMENTATION

3.1. Implementation time

The focus group discussions were planned with a carefully conducted selection process to ensure the set criteria were met.

- Two pilot focus group discussions were conducted in Hanoi on September 27, 2024.
- Four focus group discussions in Hanoi were conducted on October 3 and 4, 2024.
- Four focus group discussions were conducted in Ho Chi Minh City on October 9 and 10, 2024.
- Four focus group discussions were conducted in Da Nang on October 11 and 12, 2024.

Table 3.1-1. Implementation time for FGDs

Location	Age group	September			October			
		Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4
Send invitations, select participants, and prepare the attendee list for the FGD								
Hanoi (Pilot) 27/9/2024	18-29							
	30-49							
Ha Noi 3-4/9/2024	18-29							
	30-49							
	30-49							
	18-29							
Da Nang 11-12/10/2024	18-29							
	30-49							
	30-49							
	18-29							
Ho Chi Minh City 9-10/10/2024	18-29							
	18-29							
	30-49							
	30-49							
Revise and finalize the questionnaire								

3.2. Participant Recruitment

The selection of participants for the focus group discussions was carried out by sending invitations for interviews and group discussions. The number of participants who accepted the invitation ranged from 57% to 77% of the total number of invitees, as detailed in the table below.

Table 3.2-1. Number of participants who accepted the invitation for the FGDs

No.	ID	Date	Location	Age group	Number of participants who accepted the invitation/Total number of invitees (people)			Percentage of participants who accepted the invitation/Total number of invitees		
					Total	Male	Female	Total	Male	Female
1	TD1	Morning 27/9/2024	Hanoi (Pilot)	18-29	12/21	6/11	6/10	57	55	60
2	TD2	Afternoon 27/9/2024		30-49	12/20	6/9	6/11	60	67	55

No.	ID	Date	Location	Age group	Number of participants who accepted the invitation/Total number of invitees (people)			Percentage of participants who accepted the invitation/Total number of invitees		
					Total	Male	Female	Total	Male	Female
3	HN1	Morning 3/10/2024	Ha Noi	18-29	15/26	5/14	10/12	58	36	83
4	HN2	Afternoon 3/10/2024		30-49	15/25	7/13	8/12	60	54	67
5	HN4	Morning 4/10/2024		30-49	15/23	8/11	7/12	65	73	58
6	HN3	Afternoon 4/10/2024		18-29	14/22	7/12	7/10	64	58	70
7	DN1	Morning 11/10/2024	Da Nang	18-29	14/20	7/11	7/9	70	64	78
8	DN2	Afternoon 11/10/2024		30-49	15/21	7/11	8/10	71	64	80
9	DN4	Morning 12/10/2024		30-49	17/24	9/12	8/12	71	75	67
10	DN3	Afternoon 12/10/2024		18-29	17/22	9/11	8/11	77	82	73
11	HCM 1	Morning 09/10/2024	Ho Chi Minh City	18-29	18/24	9/13	9/11	75	69	82
12	HCM 3	Afternoon 09/10/2024		18-29	17/26	8/13	9/13	65	62	69
13	HCM 2	Morning 10/10/2024		30-49	15/22	8/12	7/10	68	67	70
14	HCM 4	Afternoon 10/10/2024		30-49	19/25	9/12	10/13	76	75	77

Based on the number of participants who accepted the invitation for the focus group discussions, the research team selected 12 members from each age group to ensure all criteria for participant composition were met, including urban and rural areas, vehicle types (motorbikes, scooters, electric motorcycles, mopeds), education level (high school and above), having children, traffic violations, and excluding those working in traffic safety, advertising, the automotive industry, and market research companies, etc.

3.3. Number of focus group discussion participants

A total of 14 focus group discussions were conducted (including 2 pilot discussions in Hanoi and 4 official group discussions in the three cities of Hanoi, Da Nang, and Ho Chi Minh City), according to the plan. During the implementation of the focus group discussions, 100% of the invited members attended in full, except for two sessions in Da Nang with the 18-29 age group,

where 11 members attended (with absences due to unexpected personal matters). This still met the criteria of having 10-12 participants in each session.

Each focus group met the criteria regarding the frequency of motorcycle use, gender, occupation, education level, residential area, type of motorcycle used in traffic, and having previously committed traffic violations (self-reported). Some of the indicators are shown in the following charts.

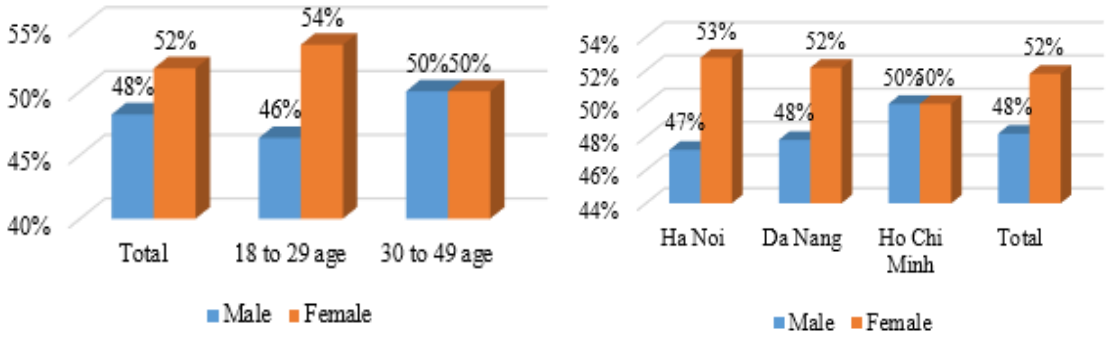

Figure 3.3-1. Gender participation percentage in the FGDs

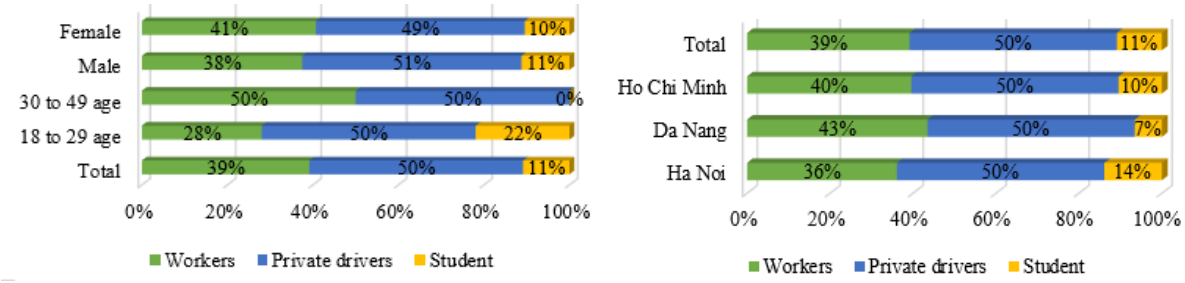

Figure 3.3-2. Occupation participation percentage in the FGDs

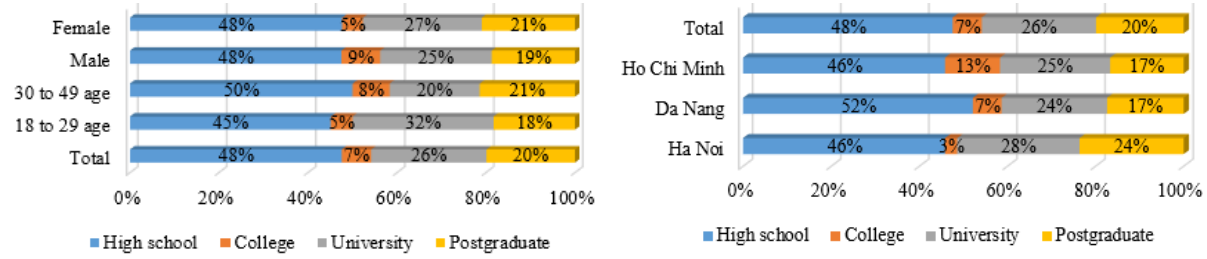

Figure 3.3-3. Education level participation percentage in the FGDs

The age groups met the requirement that 50% of the discussion participants were delivery drivers or ride-hailing drivers (most of whom had a high school education). The remaining participants included students, office workers, professionals, teachers, workers, and homemakers.

In the 18-29 age group, 27% of participants had children, while in the 30-49 age group, this percentage was 87% (of which 73% had 1-2 children, and 14% had more than 2 children).

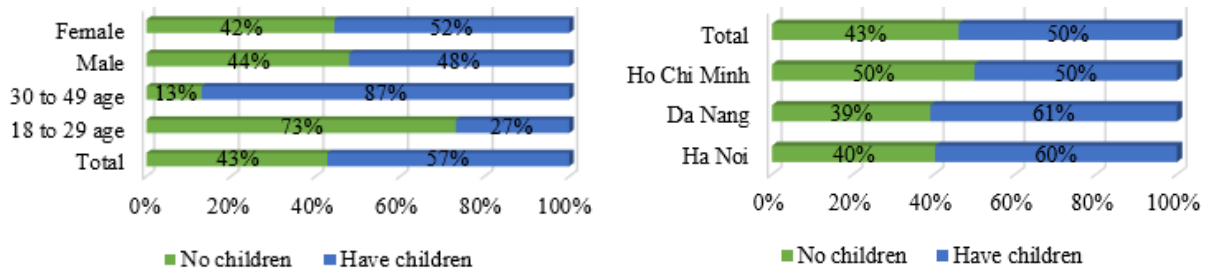

Figure 3.3-4. Percentage of participants with children in the focus group discussions

Specific data on the composition of participants in each focus group discussion is provided in the **Annex 1.**

3.4. Methodological approach to FGDs

The FGDs were designed to encourage open dialogue, allowing participants to freely express their opinions, share personal stories, and discuss their experiences with road safety practices. The use of FGDs was particularly important for understanding the social and cultural contexts that shape behaviors like speeding, drinking and driving, and helmet use. By allowing participants to engage in discussions with their peers, the method provided insights into group dynamics, social norms, and perceived risks associated with these behaviors.

Each session followed a structured discussion guide, which included key questions aimed at probing specific areas of interest, such as:

- Experiences with risky driving behaviors (e.g., speeding, driving under the influence of alcohol)
- Attitudes toward road safety regulations (e.g., helmet use, speed limits)
- Perceptions of the effectiveness of law enforcement and road safety campaigns
- Influences of social pressure, personal responsibility, and awareness on behavior change.

The moderators played a crucial role in guiding the discussions, ensuring that all participants had an opportunity to share their views, while also prompting for further details where necessary. This open-ended and flexible approach allowed the exploration of underlying motivations and contextual factors that might not have emerged through more structured survey methods.

The Importance of Understanding Behavioral Change:

Understanding the drivers of behavioral change in road safety is one of the key objectives of this study. By using FGDs, the research aimed to delve deeper into the personal experiences and social influences that impact how motorcyclists perceive and react to risks on the road. While quantitative data might show how prevalent certain behaviors are, FGDs provide richer, more nuanced insights into why these behaviors persist and how they can be influenced or changed over time.

For example, FGDs allowed participants to explain how peer pressure can lead to riskier driving, such as speeding or drinking before riding. Similarly, participants shared stories about fear of punishment as a motivator for compliance with helmet use and speed limits. This

deeper understanding is essential for developing effective road safety interventions that are not just based on enforcing laws, but also on shifting social norms and increasing personal accountability among motorcyclists.

The FGDs also aimed to explore the barriers to behavioral change, such as lack of alternative transportation, especially in rural or suburban areas, and the inconvenience of wearing helmets in hot weather conditions. By identifying these obstacles, the study can better inform policymakers and road safety advocates on the types of strategies and interventions that would be most effective in reducing risky behaviors and promoting safer road habits.

3.5. FGD organization process

The focus group discussions (FGDs) were organized following a standard process to ensure participation and objectivity in data collection. The FGD process involved the following steps:

- Preparation: Before conducting the discussions, the research team developed a detailed discussion guide, including key topics and specific questions to be addressed. Each FGD session had a moderator and a note-taker to ensure that all responses were captured thoroughly and without omission. The discussions were also audio recorded (with participant consent) for further analysis.
- Venue Selection: The FGDs were conducted in appropriate venues to create a comfortable environment for the participants. These locations included conference rooms at research centers or local offices, ensuring privacy and noise control. The venues were chosen in Hanoi, Da Nang, and Ho Chi Minh City for the convenience of participants.
- Conducting the Discussions: Each session lasted between 90 to 120 minutes, depending on participant interaction. The moderator began by introducing the objectives of the discussion, ensuring that all participants understood the purpose and how they could engage. The moderator fostered a relaxed atmosphere, encouraging participants to freely express their views and opinions.
- Data Collection and Recording: During the discussions, the moderator ensured that all the key questions were covered and encouraged interaction between participants. The note-taker was responsible for documenting the main points, including body language and attitudes, to provide rich qualitative data for subsequent analysis.

Some images from the focus group discussions are in **Annex 2.**

IV. QUANTITATIVE AND QUALITATIVE ASSESSMENT

4.1. Quantitative assessment

4.1.1. General information of the discussion participants

Fourteen focus group discussions were conducted with 166 participants (80 males and 86 females), including various types of road users (students, office workers, teachers, factory workers, homemakers, etc.), ride-hailing drivers, and delivery drivers. All participants who answered the questionnaire were regular motorcycle users, with motorcycles being their primary means of daily transportation.

Driver's license and driving experience:

With the criteria for selecting participants who drive three or more days per week, motorcycles

were nearly the primary mode of transport. Therefore, among the 166 respondents to the survey, over 90% possessed a driver's license, with most holding an A1-class license. By age group, 7% of participants aged 18-29 did not have a driver's license, while by gender, 8% of females did not possess a license.

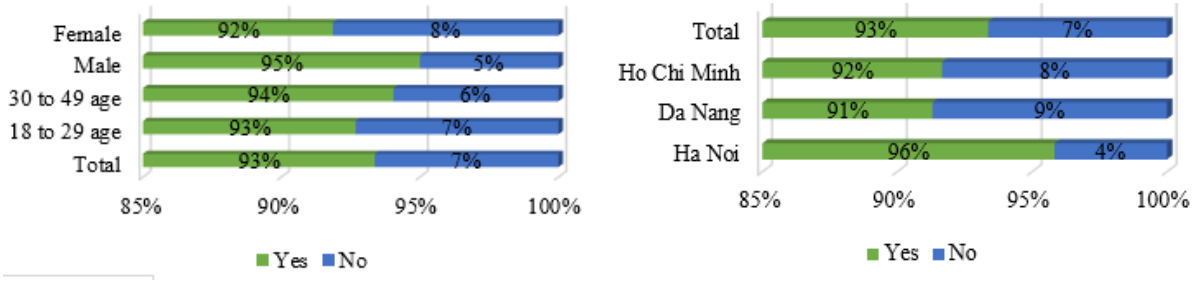

Figure 4.1-1. Percentage of participants with a driver's license in focus group discussions

Motorcycles and motorbikes are compact vehicles that are easy to maneuver and convenient for personal use, making them the preferred mode of transportation for commuting to work/school (accounting for 50%) and for family-related activities (47%). As a result, 110 out of 166 focus group participants have more than 5 years of driving experience. Among them, 40% of participants aged 18-29 have over 5 years of experience, while this figure rises to 92% for the 30-49 age group.

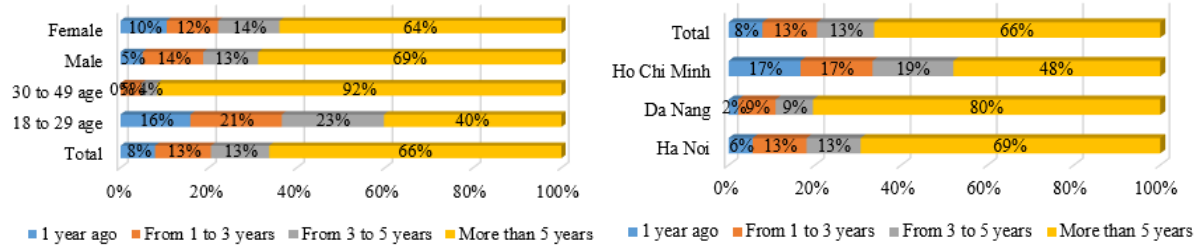

Figure 4.1-2. Percentage of participants with driving experience in focus group discussions

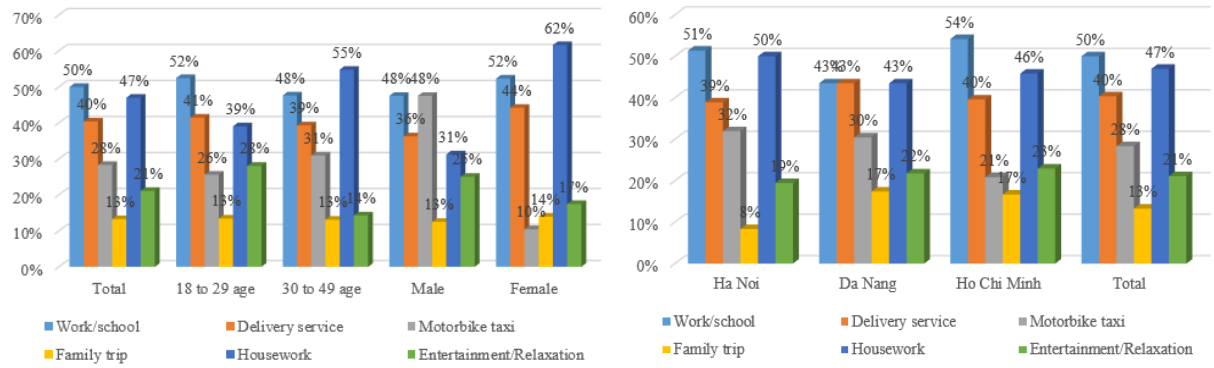

Figure 4.1-3. Percentage of trip purposes among focus group participants

Carrying adults and children: Currently, there are no specific regulations regarding the requirement for child seats when transporting young children (under 6 years old) on motorcycles and motorbikes. The survey results show that up to 30% of respondents regularly transport children, and 61% occasionally do so. Based on these findings, it is necessary to research and establish general regulations for child seats on motorcycles and motorbikes to ensure safety in traffic.

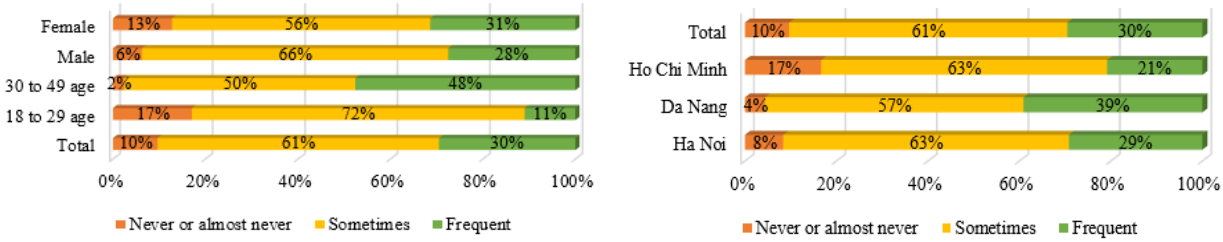

Figure 4.1-4. Percentage of participants carrying children in focus group discussions

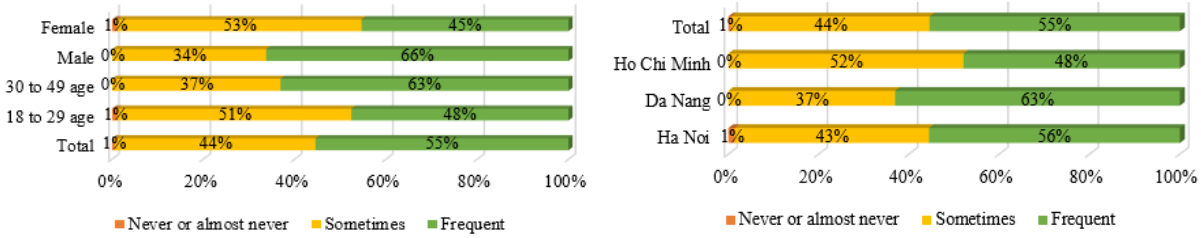

Figure 4.1-5. Percentage of participants carrying adults in focus group discussions

4.1.2. Traffic crash situation of focus group participants

Among the 166 focus group participants, 116 individuals (70%) had not been fined for traffic violations, 3 participants (2%, from the 18-29 age group) declined to answer, and 47 participants (28%) had been fined for administrative violations related to traffic offenses in the past two years. Specifically, 27 out of 82 participants in the 18-29 age group had been fined, while 20 out of 84 in the 30-49 age group had received administrative fines. By city, 22 out of 72 participants in Hanoi had been fined, 14 out of 48 in Ho Chi Minh City, and 11 out of 46 in Da Nang.

Among the 47 participants who had been fined for traffic violations, 16 out of 47 (34%) were fined for not wearing a helmet, 2 out of 47 (4%) were fined for driving under the influence of alcohol, and 3 out of 47 (6%) were fined for exceeding the speed limit. The remaining violations were for other reasons such as running red lights, wrong lane usage, driving in the opposite direction, driving on the sidewalk, missing mirrors, failing to use turn signals, not carrying vehicle documents, or driving without a license. The violation rates for different age groups are shown in the chart.

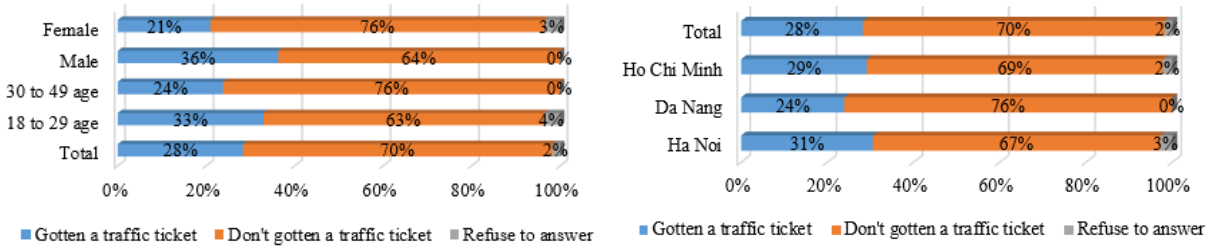

Figure 4.1-6. Percentage of participants fined for traffic violations

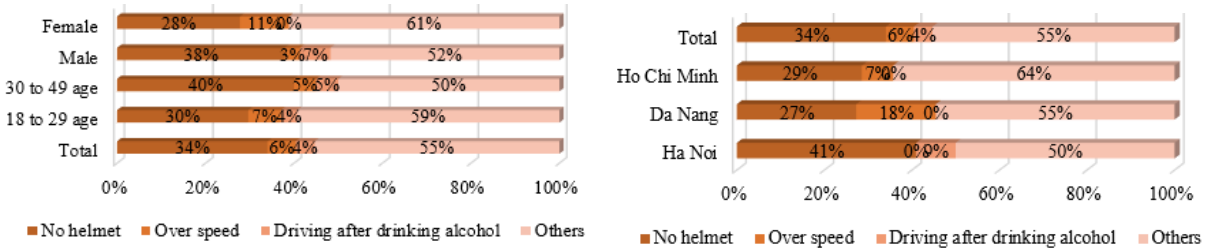

Figure 4.1-7. Percentage of reasons for being fined for traffic violations

For ride-hailing and delivery drivers, 25 out of 47 individuals fined (accounting for 53% of those fined) were in this category. Among them, 13 out of 25 (53%) were from the 18-29 age group, while 12 out of 25 (47%) were from the 30-49 age group. The reasons for being fined included 44% for not wearing a helmet, 12% for speeding, and 8% for driving under the influence of alcohol.

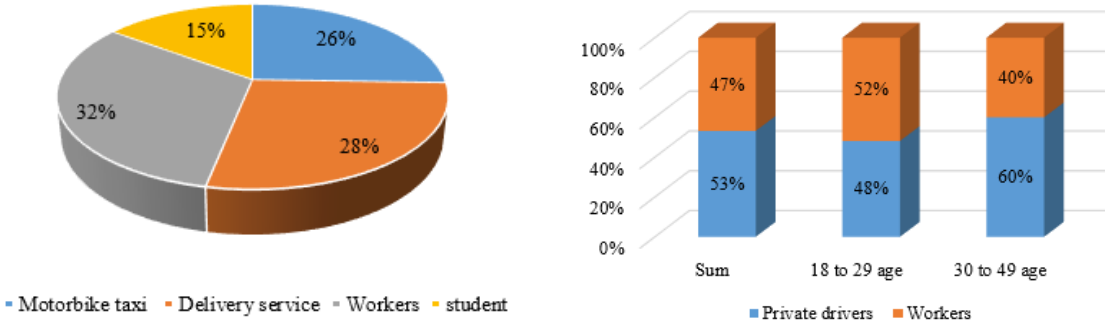

Figure 4.1-8. Percentage of traffic violations among ride-hailing and delivery drivers

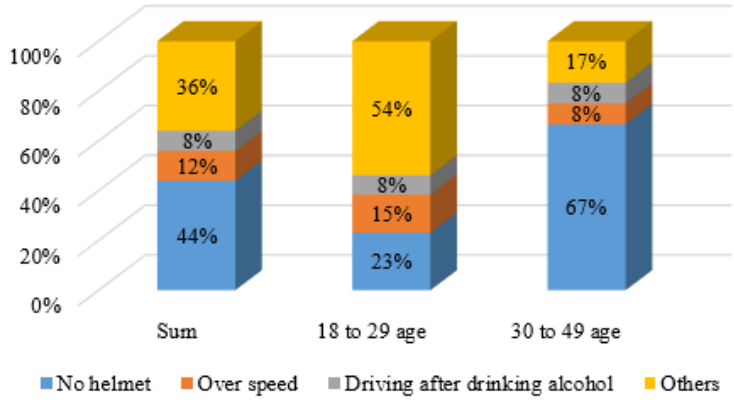

Figure 4.1-9. Percentage of reasons for being fined for traffic violations among ride-hailing and delivery drivers

Although 47 out of 166 participants (28%) had been fined for traffic violations, up to 67 out of 166 participants (40%) had been involved in traffic collisions or crashes. By gender, males were involved in traffic collisions/crashes more often than females, and by age group, participants aged 18-29 had more incidents than those aged 30-49. Geographically, Da Nang had the highest number of incidents, followed by Ho Chi Minh City. Among those who had experienced traffic collisions/crashes, 6% (10 out of 166 participants) suffered injuries and property damage. The specific data is shown in the chart.

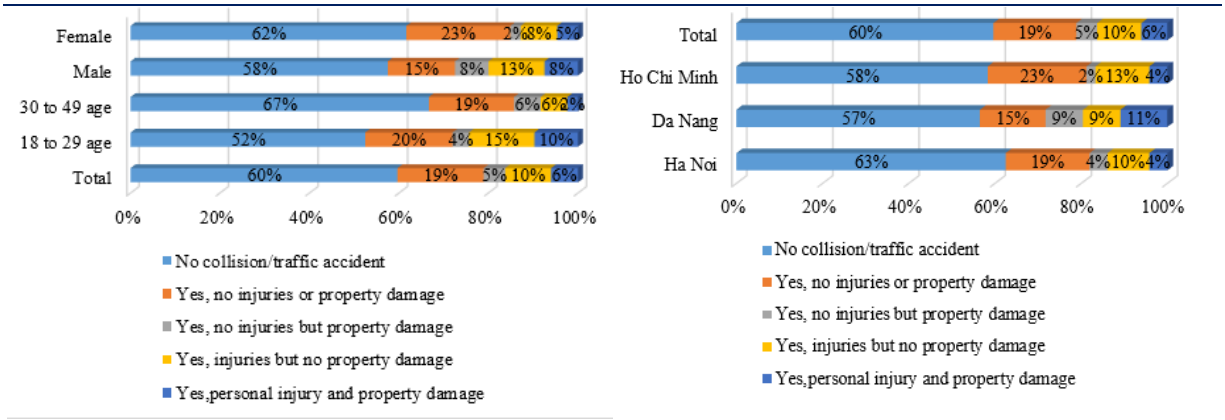

Figure 4.1-10. Percentage of participants involved in traffic crashes

4.1.3. Knowledge and awareness of focus group participants

a) Speed Limits

According to Circular 31/2019/TT-BGTVT, the current maximum speed for motorcycles and motorbikes in densely populated areas is 60 km/h on dual carriageways or one-way streets with two or more lanes for motor vehicles (70 km/h outside populated areas); and a maximum of 50 km/h on two-way streets or one-way streets with only one motor vehicle lane (60 km/h outside populated areas).

Regarding the question about speed regulations, many participants provided incorrect answers about the speed limits. Specifically:

- For the question about the speed limit in residential areas, on roads with central dividers or one-way streets with two or more motor vehicle lanes, the correct answer rate was low (only 16% answered correctly), with 7% unsure, and the remainder providing incorrect answers. For two-way streets or one-way streets with a single motor vehicle lane, the correct answer rate was higher (37%). The details are shown in the charts below.

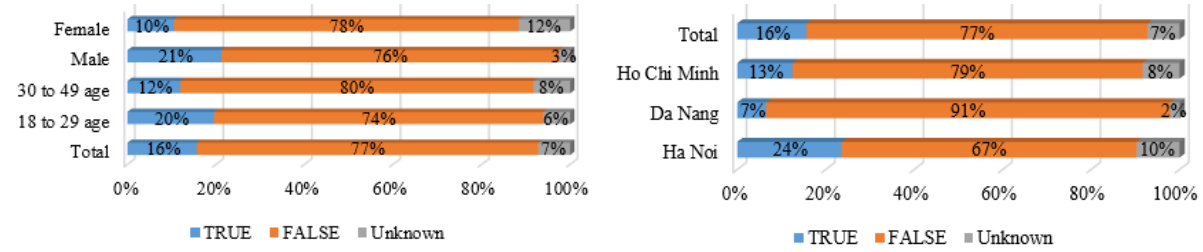

Figure 4.1-11. Percentage of participants answering the speed limit question in residential areas for dual carriageways or one-way streets with two or more motor vehicle lanes

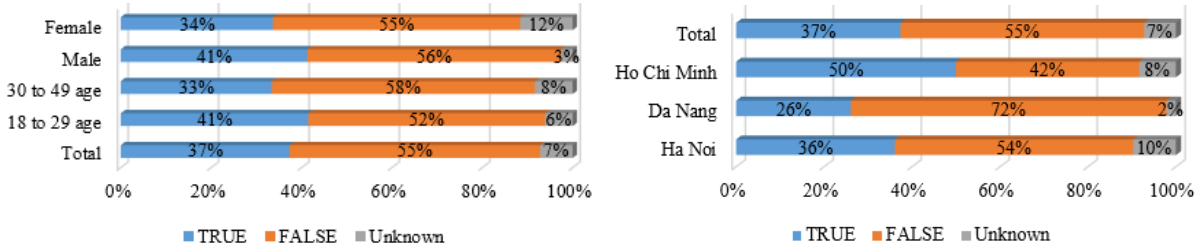

Figure 4.1-12. Percentage of participants answering the speed limit question in residential areas for dual carriageways or one-way streets with one motor vehicle lane

- For the question regarding speed limits outside residential areas, on roads with central dividers or one-way streets with two or more motor vehicle lanes, the correct answer rate was higher than for the similar question within residential areas but remained low (19% correct), with 15% unsure, and the rest answering incorrectly. For two-way streets or one-way streets with a single motor vehicle lane, the correct answer rate was 33%, while 17% were unsure. The detailed data is shown in the charts below.

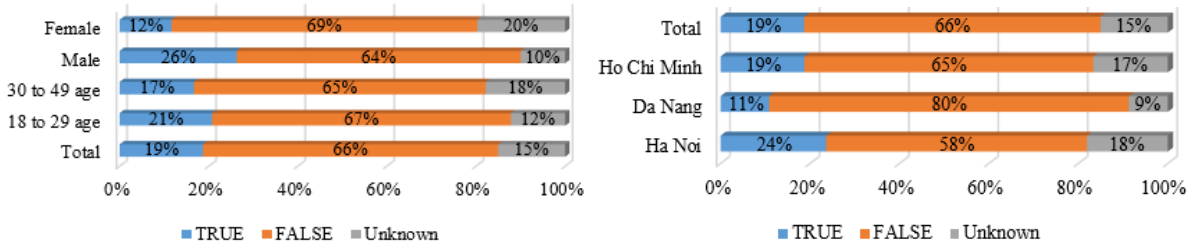

Figure 4.1-13. Percentage of participants answering the speed limit question for roads outside residential areas with dual carriageways or one-way streets with two or more motor vehicle lanes

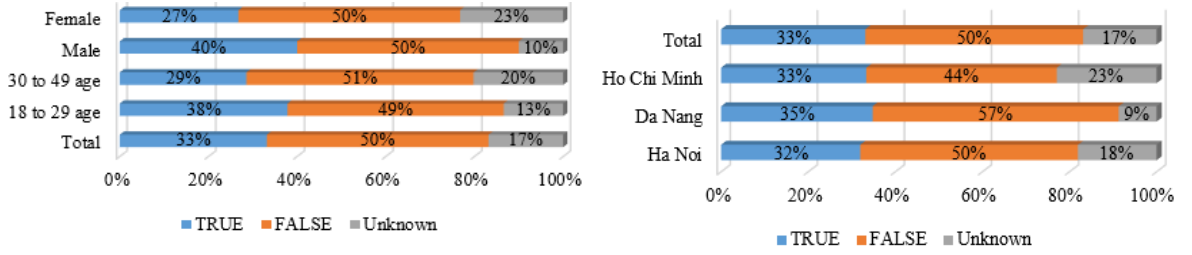

Figure 4.1-14. Percentage of participants answering the speed limit question for roads outside residential areas with dual carriageways or one-way streets with one motor vehicle lane

b) Speed at school zones

Currently, there are no specific regulations on speed limits at schools, but there are traffic signs indicating school zones to prompt drivers to slow down. In some areas, specific speed limits for vehicles passing by schools have been implemented. When asked, "Do you know the usual speed limit in school zones?" 42% of respondents answered 30 km/h, 23% answered 40 km/h, and up to 25% were unsure about the speed limit. The distribution of responses by group is shown in the charts below.

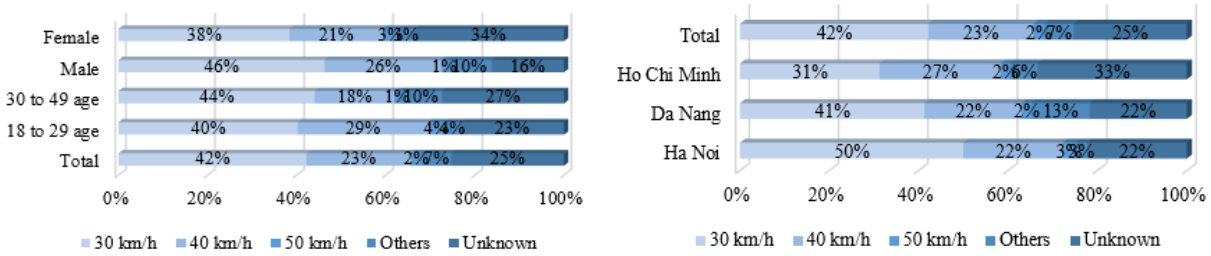

Figure 4.1-15. Percentage of participants answering about the speed limit in school zones

Regarding the question asking respondents to suggest an appropriate speed limit in school zones and whether speed should be adjusted, up to 98% of respondents recommended

reducing the speed limit in these areas, with 54% proposing a speed of 30 km/h. The detailed data is shown in the following charts.

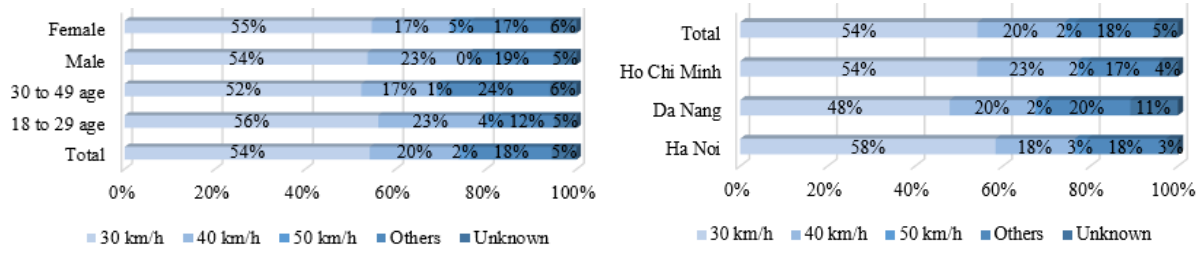

Figure 4.1-16. Percentage of participants suggesting speed limit proposals for school zones

c) Alcohol concentration

There has been extensive communication about the regulations on blood alcohol concentration (BAC) for vehicle operators, especially after the Law on Prevention and Control of Alcohol Harm came into effect in 2020. As a result, regulations on alcohol concentration for motorcycle and motorbike operators have gained more attention. Thus, when asked about the BAC regulations for motorcycle and motorbike drivers, the number of correct answers was higher than for the speed limit questions. By gender, males had a higher correct answer rate than females; by age group, those aged 30-49 answered correctly more often than those aged 18-29. By city, Hanoi had the highest correct answer rate, while Ho Chi Minh City had the lowest. The detailed data is shown in the charts.

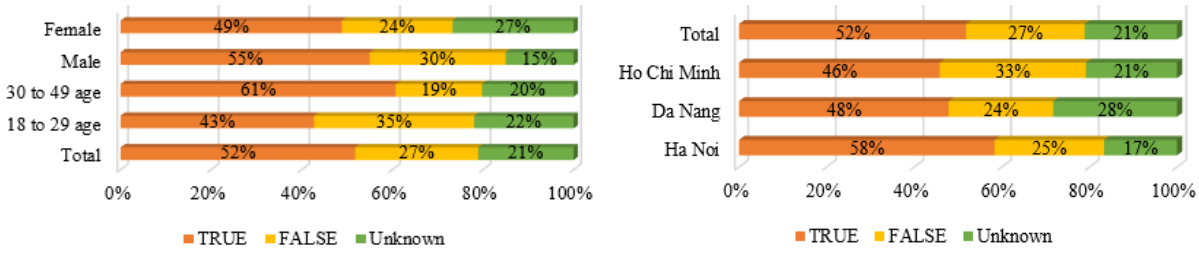

Figure 4.1-17. Percentage of participants correctly answering the regulations on alcohol concentration for motorcycle drivers

d) Awareness of the causes of traffic crashes

To assess participants' awareness of the causes of traffic crashes, the research team asked respondents to self-evaluate and identify the top three causes. The results showed that driving after drinking alcohol (87%), speeding (77%), running red lights (49%), and reckless driving/swerving (45%) were the most identified causes. Other less frequently mentioned causes included: poor driving skills (13%), aggressive driving (11%), bad road conditions (7%), underage driving (7%), bad weather (4%), and not having a driver's license (1%). These causes indicate that traffic crashes are mainly due to the awareness of road users.

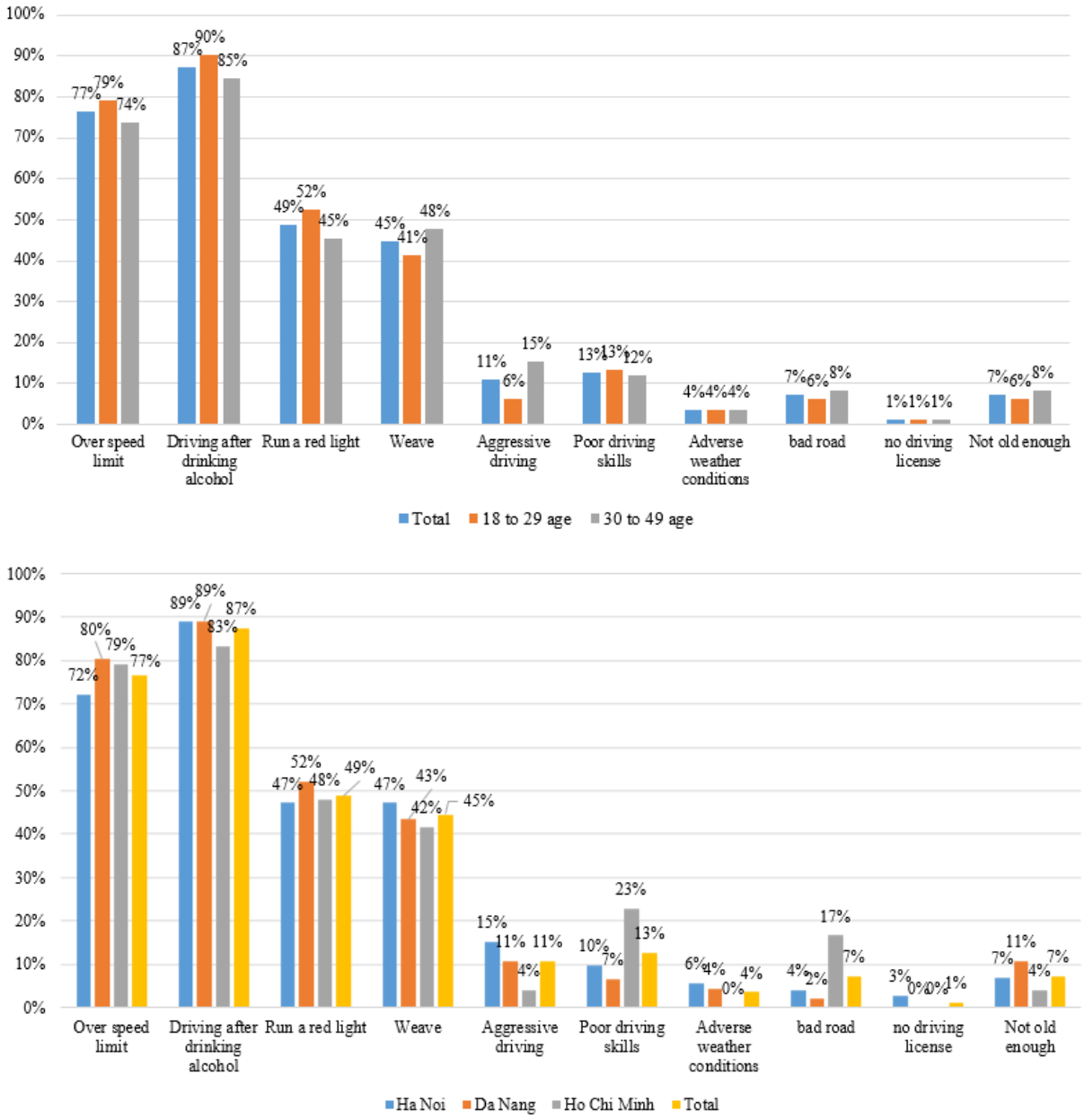

Figure 4.1-18. Percentage of participants' evaluation of traffic crash causes

e) Traffic behavior

To assess traffic behavior, the research team posed questions regarding behaviors such as carrying more passengers than allowed, speeding violations, driving after drinking alcohol, and not wearing helmets, among others, for respondents to answer.

Carrying more passengers than allowed

According to current regulations, motorcycles and motorbikes are only allowed to carry one adult passenger, with exceptions permitting two adults in cases such as: transporting someone to the hospital for emergency care, escorting individuals who have committed legal violations, or carrying children under 14 years old. Despite this, 11% of respondents admitted to violating the rule by carrying more than one adult, and 45% occasionally carried more than one adult.

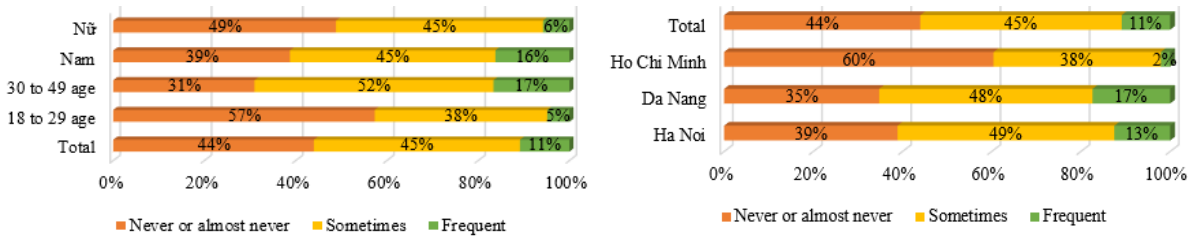

Figure 4.1-19. Percentage of participants carrying adult passengers

Exceeding speed limits

When asked, "In the past two months, have you ridden a motorbike over the speed limit?" the majority of respondents answered, "never exceed the speed limit" at 36%, while 33% responded "sometimes." By age group, 39% of participants aged 18-29 reported "sometimes exceeding the speed limit," and 4% said they frequently exceeded the limit. In the 30-49 age group, 27% reported "sometimes exceeding the speed limit." By city, Ho Chi Minh City had the highest rate of "sometimes exceeding the speed limit" at 38%, followed by Da Nang at 33%, and Hanoi at 31%. The detailed data is shown in the charts.

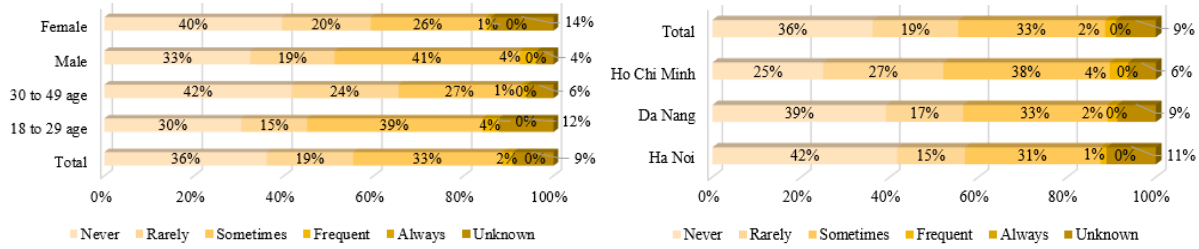

Figure 4.1-20. Percentage of participants exceeding the speed limit

Driving after drinking alcohol

In the past two months, survey respondents self-reported the following behaviors regarding driving after drinking alcohol: 6% admitted to "sometimes driving after drinking," 13% said they "rarely drive after drinking," and 80% said they "never drive after drinking." By age group, 7% of participants aged 30-49 reported "sometimes driving after drinking," compared to 5% in the 18-29 age group. By city, 9% of respondents in Da Nang reported "sometimes driving after drinking," followed by 6% in Ho Chi Minh City and 4% in Hanoi. The detailed data is shown in the charts.

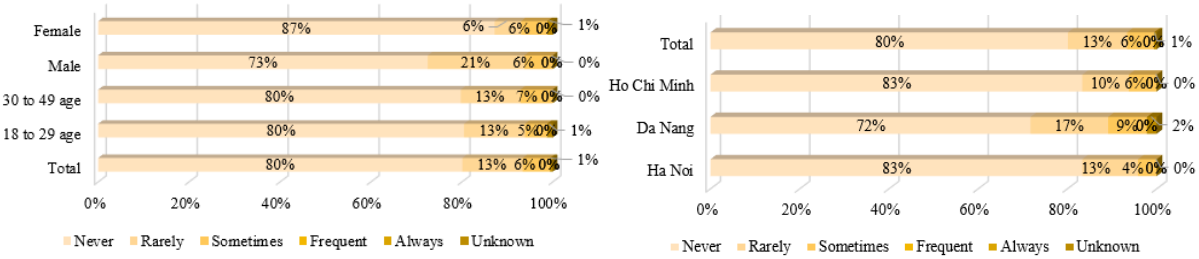

Figure 4.1-21. Percentage of participants driving after drinking alcohol

Not wearing a helmet

Regarding helmet use, 38% of survey respondents admitted to "sometimes not wearing a helmet," 10% said they "rarely don't wear a helmet," and 49% stated they "never ride without

a helmet." By age group, 43% of participants aged 30-49 reported "sometimes not wearing a helmet," compared to 33% in the 18-29 age group. By city, 44% of respondents in Hanoi reported "sometimes not wearing a helmet," followed by 35% in Da Nang and 31% in Ho Chi Minh City. The detailed data is shown in the charts.

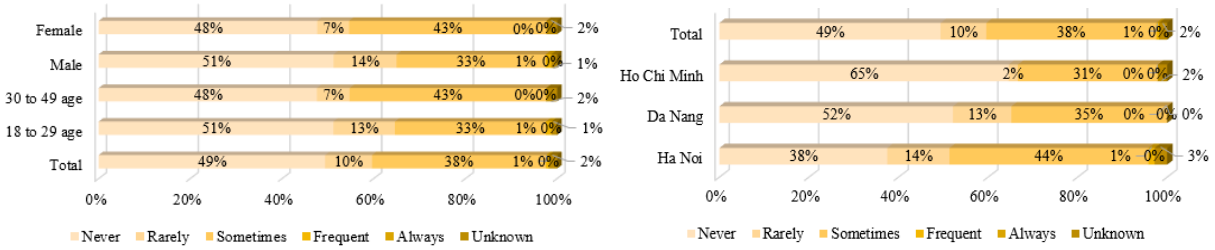

Figure 4.1-22. Percentage of participants not wearing a helmet

4.1.4. Key Findings and Evaluation Based on Survey Results

a) Demographics of Participants

- A total of 166 participants were involved in the 14 focus group discussions. The gender distribution was nearly balanced with 80 males (48%) and 86 females (52%), reflecting a diverse population of motorbike users.
- The participants were divided into two age groups: 18-29 (younger riders) and 30-49 (older riders), allowing for comparative analysis between these two cohorts regarding their driving behavior, traffic knowledge, and experiences.
- Occupational diversity was evident among the participants, including delivery drivers, students, office workers, and other professions. This variety contributed to a broad spectrum of experiences related to motorcycle use.
- In terms of education, most participants had a secondary or higher education, with a small percentage having lower education levels. Education was found to have a notable impact on the participants' understanding of traffic rules and regulations.
- Motorbike ownership and regular use were common among participants, with 90% holding a valid driving license, predominantly the A1 type, required for most motorcycles in Vietnam.

b) Motorbike Usage and Driving Experience

- Motorbikes are the primary means of transportation for the majority of participants. 50% reported using their motorbike primarily for commuting to work or school, while 47% indicated they used their vehicle for family errands. This underscores the central role motorbikes play in daily life and mobility in Vietnam.
- Driving experience varied significantly between the age groups, with 110 out of 166 participants having over 5 years of driving experience. Notably, 92% of the older age group (30-49) had more than 5 years of experience, indicating they were more seasoned riders.
- Younger participants (18-29), while having less experience, were more likely to exhibit risky driving behaviors, which is explored in more detail in subsequent sections.

c) Traffic Violations and Crashes

- Traffic Violations: Approximately 28% of participants admitted to having been fined for traffic violations in the past two years. Among the most common violations were:
    - Not wearing a helmet (34%): A significant portion of participants admitted to occasionally not wearing a helmet, especially during short trips or when riding within their local neighborhoods.
    - Driving under the influence of alcohol (4%): While relatively low compared to other violations, driving under the influence remains a serious concern, particularly in rural or less-policed areas.
    - Speeding (6%): Exceeding speed limits, particularly in urban areas, was cited by a smaller but still notable portion of participants, with young riders (18-29) being more likely to engage in this behavior.
- Traffic Crashes: A worrying 40% of participants had experienced at least one traffic crash or collision, with males and younger participants (18-29) being more prone to crashes. The key causes of crashes, according to participants, were reckless behaviors such as:
    - Speeding: Identified as a leading cause of crashes.
    - Failure to wear helmets: Particularly in the event of crashes, not wearing a helmet contributed to more severe injuries.
- Additionally, crashes were often linked to poor road conditions, a lack of clear signage, and issues with larger vehicles (e.g., trucks and buses) sharing the road with motorcycles.

d) Knowledge of Traffic Regulations

- There was a significant gap in participants' knowledge of certain traffic rules, particularly regarding speed limits:
    - Only 16% of participants correctly answered questions about speed limits in densely populated areas, revealing a lack of awareness that could contribute to the high rate of speeding violations.
    - Knowledge improved slightly for speed limits in non-urban areas, where 19% of participants answered correctly, though this still points to a widespread need for better education on traffic rules.
- Alcohol consumption and driving regulations: Participants showed better understanding of the regulations surrounding alcohol limits while driving. This knowledge was particularly pronounced in the 30-49 age group and in Hanoi, where campaigns around drink-driving have been more prominent.
- The lack of clear understanding regarding other important regulations, such as helmet use and speed limits, suggests the need for targeted public awareness campaigns, especially among younger riders and those in cities with high traffic density, like Hanoi and Ho Chi Minh City.

e) Key Behaviors Observed

- Speeding: Approximately 33% of participants admitted to occasionally exceeding the speed limit, with younger participants (18-29) being more likely to engage in speeding. This behavior was often justified to "keep up" in traffic or avoid being caught in congestion, especially in larger cities where traffic conditions are more complex.
- Driving under the influence of alcohol: Though only 6% admitted to occasionally driving under the influence, this still represents a significant safety concern, particularly given Vietnam's high rate of motorbike crashes involving alcohol. The majority of participants (80%) claimed they never drove after drinking.
- Helmet use: While helmet use is legally mandated, 38% of participants admitted to occasionally not wearing a helmet, with this behavior more common among the 30-49 age group and in Hanoi. This group indicated that they sometimes forego helmets on short trips or within local areas where they perceive less risk.

g) Common Causes of Traffic Crashes

- According to participants, the main causes of traffic crashes include:
    - Driving under the influence of alcohol (87%): Most participants identified alcohol consumption as the leading cause of crashes, reflecting growing awareness of the dangers of drink-driving, particularly in urban areas.
    - Speeding (77%): Speeding was also cited as a major factor, especially among younger riders who tend to take more risks on the road.
    - Running red lights (49%): Reckless behaviors, such as running red lights, were also frequently mentioned as contributors to traffic crashes.
- Other causes included poor road conditions, reckless driving, lack of driving skills, and the behavior of other vehicles (especially larger ones such as trucks and buses).

h) Behavioral Differences by Age Group and Location

- Age Group (18-29): Younger riders tend to engage in more risky behaviors such as speeding and not wearing helmets. They also showed lower levels of awareness regarding traffic regulations, particularly speed limits. This group was more likely to admit to violating traffic laws, often citing the need to avoid traffic congestion or peer pressure as reasons for speeding.
- Age Group (30-49): Older participants were generally more cautious in their driving behavior. They exhibited higher levels of compliance with traffic regulations and were more likely to prioritize safety, especially when riding with passengers, such as children. However, they were still prone to occasional lapses in helmet use and admitted to encountering unsafe road conditions regularly.
- Regional Differences:
    - Hanoi: Participants in Hanoi reported more frequent violations and risky behaviors, particularly due to the high density of traffic and the need to navigate through congested streets. Speeding and helmet violations were more common here.

- Ho Chi Minh City: Like Hanoi, traffic complexity in Ho Chi Minh City led to more instances of risky behaviors, though there was slightly higher awareness of traffic laws compared to other cities.
- Da Nang: In contrast, participants from Da Nang reported lower levels of violations and a higher degree of compliance with traffic regulations. They were also more likely to attribute crashes to environmental factors, such as poor road infrastructure and weather conditions, rather than personal behavior.

General Evaluation:

The survey results highlight a combination of risky driving behaviors and insufficient knowledge of traffic regulations among motorbike users, particularly in urban areas. Younger riders (18-29) are more prone to engaging in dangerous behaviors, while older riders (30-49) tend to be more cautious but still face challenges related to road conditions and traffic management.

To address these issues, targeted interventions are needed, including:

1. Public Awareness Campaigns: Focus on educating younger riders about traffic rules, particularly speed limits, helmet use, and the dangers of drink-driving. These campaigns should be region-specific, addressing the unique challenges faced by riders in high-density areas like Hanoi and Ho Chi Minh City.
2. Stricter Enforcement of Traffic Laws: Improving enforcement, especially regarding speeding and helmet use, could help reduce the rate of crashes. Increased police presence and traffic cameras in key areas may serve as effective deterrents.
3. Infrastructure Improvements: Upgrading road infrastructure, especially in cities with poor road conditions like Da Nang, can mitigate crashes caused by environmental factors. Better signage, improved road surfaces, and enhanced lighting will help create safer conditions for all road users.

In general, the survey reveals critical areas for improvement in Vietnam's traffic safety landscape, with a strong focus needed on education, law enforcement, and infrastructure development to reduce the frequency of crashes and promote safer road behaviors.

4.2. Qualitative assessment

4.2.1. Topic 1. Riding experience

a) Reasons for choosing motorcycles as the main mode of transportation

General analysis: According to the discussions, motorcycles were seen as the primary mode of transport due to their convenience, flexibility, low cost, and ability to control time and routes. These reasons were common across all three cities and both age groups. This reflects how well motorcycles align with the urban traffic conditions in Vietnam, where roads are often narrow, and traffic density is high.

Detailed analysis by age group:

- 18-29 age group: Younger participants favored motorcycles for their flexibility, speed, and ease of use. They emphasized that motorcycles allow them to control their time, take shortcuts, and save time when navigating narrow or congested roads. Some

participants also expressed that riding motorcycles gives them a sense of freedom and challenge, allowing them to experience personal independence when driving.

- 30-49 age group: This group tended to be more practical, choosing motorcycles primarily for economic reasons and because they meet daily travel needs at a lower cost compared to cars. They stressed that saving on fuel and maintenance costs was a key factor, especially for those with moderate or lower incomes. Additionally, this group mentioned that motorcycles enable them to carry family members, particularly for tasks like taking children to school or commuting to work.

Comparisons by location:

- In Hanoi: The primary reason for choosing motorcycles was the frequent traffic congestion, especially during peak hours. The underdeveloped public transportation system also made motorcycles the most convenient option, allowing people to move faster and more independently than with other modes of transport.
- In Da Nang: Although traffic congestion was not as severe as in Hanoi and Ho Chi Minh City, Da Nang residents still favored motorcycles because they fit well with the city's geography and relatively lower traffic density. The shorter and narrower roads, combined with limited public transport, were the main reasons for this preference.
- In Ho Chi Minh City: In the largest city in Vietnam, participants particularly valued the combination of speed and flexibility of motorcycles, especially when facing flooding due to tidal surges and traffic jams during peak hours. Motorcycles allowed them to avoid flooded areas more quickly than cars or other vehicles.

b) Advantages and disadvantages of riding motorcycles

General analysis: The discussions highlighted that motorcycles were considered convenient and suitable for urban environments in Vietnam, especially in crowded cities. However, the most significant challenges were related to traffic safety and unfavorable weather conditions, such as rain and extreme heat.

Advantages:

- Flexibility and ease of movement: Most participants emphasized that motorcycles allowed them to navigate congested traffic more easily and quickly, especially on narrow streets. This was noted in all locations, but particularly in Ho Chi Minh City, where flooding and congestion were major concerns. Finding parking spaces was also seen as an advantage that all age groups and locations mentioned.
- Cost savings: The 30-49 age group highlighted that motorcycles were the most cost-effective option for fuel and maintenance. In Ho Chi Minh City, choosing motorcycles was also viewed to save time and reduce daily commuting costs.

Disadvantages:

- Harsh weather conditions: All three locations faced difficulties with riding motorcycles in either rainy or hot weather. In Hanoi and Da Nang, heavy rain made the roads slippery, complicating motorcycle control. Meanwhile, in Ho Chi Minh City, flooding due to tidal surges posed a significant issue, often causing motorcycles to break down.

- Traffic safety: A common concern was the low level of safety when riding motorcycles, especially when sharing the road with larger vehicles like cars or trucks. Both age groups acknowledged the high risk of crashes when riding motorcycles, but the 30-49 age group tended to be more cautious in choosing routes and travel times.

Comparisons between age groups:

- 18-29 age group: This group tended to focus on flexibility and speed when riding motorcycles. They appreciated the ability to freely choose routes and save time. However, they were more likely to overlook safety concerns, as indicated by their willingness to take risks such as speeding or riding when fatigued. These risks were often seen as "necessary" to meet personal needs or urgent situations.
- 30-49 age group: In contrast, the middle-aged group showed greater caution when riding. They prioritized protecting themselves and their passengers, especially when transporting children or the elderly. This group often chose safety over speed and avoided dangerous routes at inconvenient times, such as at night or in bad weather.

Comparisons between locations:

- Hanoi: Traffic congestion and narrow roads posed significant challenges for motorcycle riders. However, participants valued the flexibility of motorcycles, as they could easily maneuver through small streets and find faster routes.
- Da Nang: While Da Nang had a lower traffic density, participants still faced challenges with slippery roads and potholes, particularly during the rainy season.
- Ho Chi Minh City: Flooding and air pollution made riding motorcycles more challenging in Ho Chi Minh City. Residents also had to contend with environmental factors caused by the high number of vehicles. However, the ability to move quickly and flexibly helped them accept these challenges.

c) Evaluation and conclusion

Based on the 14 focus group discussions across three cities, motorcycles are an indispensable mode of transport for Vietnamese people, especially in densely populated cities with underdeveloped traffic infrastructure. However, the differences in risk perception and driving behavior between age groups and locations suggest that flexible, targeted solutions are needed to improve traffic safety.

- The younger age group (18-29) tended to take higher risks, particularly with speeding or not strictly adhering to safety regulations. Therefore, safety awareness campaigns should focus on educating this group about the long-term consequences of risky behaviors.
- The middle-aged group (30-49) focused more on safety and economy when choosing their mode of transportation. Solutions should focus on improving road conditions and enhancing motorcycle safety, especially when carrying children.

Given the clear differences between locations, policies should focus on improving local infrastructure, such as addressing flooding in Ho Chi Minh City, improving road quality in Da Nang, and mitigating traffic congestion in Hanoi.

4.2.2. Topic 2. Knowledge, Attitudes, and Risky Behaviors Related to Road Safety

4.2.2.1. Risks

a) Introduction

Risk is a critical factor in evaluating driving behavior and shaping traffic safety policies, especially for motorcyclists. Through 14 focus group discussions conducted in Hanoi, Da Nang, and Ho Chi Minh City, this study examines the risks motorcyclists face daily, including risks from speeding, poor road conditions, weather, and dangerous behaviors such as drinking and driving. The insights gathered from these discussions provide an in-depth understanding of participants' perceptions of risk and their coping mechanisms, leading to suggestions for targeted interventions in different regions and age groups.

b) Awareness of risk factors related to motorcycle riding

General analysis: Participants across all discussions exhibited a clear understanding of the risks associated with riding motorcycles. The main risks identified include speeding, poor road conditions, weather risks (heavy rain, slippery roads), and dangerous behaviors such as riding after consuming alcohol and not wearing helmets.

Risk from speeding:

- Speeding was regarded as one of the most significant risks across all focus groups. Participants acknowledged that riding over the speed limit not only increases the likelihood of crashes but also makes it difficult to react promptly to unexpected situations, such as potholes or vehicles suddenly emerging from side streets. The 18-29 age group, particularly in Ho Chi Minh City, tended to accept speeding more easily in urgent situations or on empty roads. Meanwhile, the 30-49 age group displayed more caution, noting that they only speed in truly necessary situations.

Risk from road conditions:

- Poor road conditions such as potholes, uneven surfaces, and lane encroachments were common risk factors mentioned by participants in all three locations. In Hanoi, participants often faced risks from crowded intersections and narrow lanes, where collisions with larger vehicles like buses or trucks were frequent. In Da Nang, the issue of slippery roads and potholes, particularly during rainy conditions, posed a significant danger, increasing the chances of losing control and causing crashes. In Ho Chi Minh City, participants emphasized the risk from flooded streets and degraded road surfaces, making motorcycle travel more hazardous, especially during the rainy season.

Risk from weather:

- Adverse weather was an unavoidable risk factor when riding motorcycles. Participants in all three cities emphasized that heavy rain, flooding, and poor visibility were leading causes of crashes. In Hanoi and Ho Chi Minh City, many participants reported avoiding motorcycle travel during storms because controlling the vehicle becomes difficult, and skidding is more likely. In Da Nang, where heavy rain is common, slippery roads were cited as a major risk factor, forcing motorcyclists to be extra cautious and reduce speed .

Risk from dangerous behaviors:

- Riding after drinking alcohol was frequently mentioned as a dangerous behavior in all the discussions. Participants recognized that alcohol impairs reflexes and increases the likelihood of crashes, especially in congested areas. However, many participants, particularly younger individuals and those in rural areas, admitted to accepting the risk in certain situations, such as when their home is nearby or when participating in important social gatherings. This behavior was reported to be more common in Ho Chi Minh City and surrounding areas, where drinking and driving culture persists.
- Not wearing helmets or wearing helmets improperly was another common risky behavior, especially among the 18-29 age group. Some participants admitted that they often did not wear helmets when traveling short distances or when going to nearby areas. This practice was noted in all three cities, although residents in Da Nang tended to comply with helmet regulations better than those in other regions.

c) Comparison between age groups

- 18-29 age group: Younger participants were more likely to accept higher risks, particularly regarding speeding and not wearing helmets in situations where they felt safe or needed to travel quickly. The belief in their ability to control the motorcycle and a preference for speed led them to overlook safety warnings, especially on empty roads. However, they also recognized that these behaviors could lead to serious crashes, particularly when facing unexpected situations.
- 30-49 age group: In contrast to younger participants, the 30-49 age group displayed greater caution and conservatism in managing risks. They tended to comply with speed limits and wear helmets properly to ensure the safety of themselves and their families. This group was also more aware of the risks associated with alcohol consumption, noting that they typically avoided riding after drinking or sought alternative solutions such as calling a taxi or asking a family member to drive them home.

d) Comparison between locations

- Hanoi: Participants in Hanoi faced more risks from traffic congestion and crowded road conditions. These factors made them more prone to collisions with larger vehicles and difficulties maneuvering through heavy traffic. However, they were also highly aware of these risks and tended to reduce their speed in congested areas or when carrying passengers.
- Da Nang: Participants in Da Nang encountered risks primarily from poor road conditions and frequent heavy rains. They tended to reduce speed and drive more cautiously in bad weather conditions but still faced challenges in handling unexpected situations due to slippery roads. This reflects a higher awareness of environmental risks compared to other locations.
- Ho Chi Minh City: Residents in Ho Chi Minh City faced significant risks from flooding and air pollution, increasing the likelihood of crashes when riding motorcycles, particularly during the rainy season. However, participants in this city also showed a tendency to accept higher risks, especially in situations where they needed to travel quickly, such as commuting to work or returning home late in the evening. This

highlights a difference in risk acceptance between locations, where Ho Chi Minh City has a more complex traffic environment that requires motorcyclists to face greater challenges.

e) Evaluation and Conclusion

From the 14 focus group discussions, awareness of risks when riding motorcycles in Vietnam is relatively high. However, risk management and coping mechanisms differ significantly between age groups and locations.

- Younger participants (18-29) tended to accept higher risks, particularly in situations involving speeding or not wearing helmets. Therefore, campaigns focusing on raising awareness of traffic safety, especially targeting this age group, are crucial to reducing dangerous behaviors and encouraging compliance with regulations.
- Middle-aged participants (30-49) demonstrated more caution in dealing with risks, particularly when riding with family members. Measures to improve road infrastructure and traffic conditions, along with enhanced traffic safety education, would help this group comply better with regulations and minimize risks.

At the local level, traffic safety policies need to be flexible and tailored to the specific conditions of each region. For example, in Hanoi, addressing traffic congestion is critical; in Da Nang, improving road infrastructure is necessary; and in Ho Chi Minh City, addressing flooding and pollution will help reduce the risks faced by motorcyclists.

4.2.2.2. Speeding: Risks and Benefits

a) Introduction

Speeding is one of the most common and dangerous driving behaviors, highlighted across all 14 focus group discussions conducted in Hanoi, Da Nang, and Ho Chi Minh City. Exceeding the speed limit is often regarded as a leading factor in severe traffic crashes. However, in many situations, people still choose to speed to meet personal needs or enjoy temporary benefits. This section provides a detailed analysis of the risks and benefits of speeding based on participant feedback, while comparing the two age groups (18-29 and 30-49) and the three surveyed locations (Hanoi, Da Nang, and Ho Chi Minh City).

According to the focus group results, 64.46% of participants admitted that they had exceeded the speed limit in areas with speed restrictions. This indicates that speeding remains common, although a majority (71.69%) recognize this behavior as either serious or extremely serious. Only 28.31% of participants were confident that they would never exceed the speed limit, highlighting low compliance with speed regulations.

Based on this data, while awareness of the dangers of speeding has increased, actual behavioral change remains limited, particularly among the 18-29 age group. This aligns with the findings from the focus groups, where younger participants still take the risk of speeding, believing they can handle the situation. However, the 30-49 age group shows greater awareness of the risks, leading to more positive behavioral changes.

b) Awareness of risks of speeding

General analysis: The results from all 14 discussions showed that participants were highly aware of the risks of speeding. Most participants agreed that speeding increases the risk of

losing control of the vehicle, reduces reaction time to unexpected situations, and leads to more severe crashes. Speeding in densely populated areas, narrow streets, or in poor weather conditions was considered particularly dangerous.

- ***Reduced vehicle control:*** Participants across all three locations emphasized that speeding significantly reduces their ability to control the vehicle. This is especially critical when facing unexpected situations such as other vehicles encroaching into their lane, pedestrians crossing the street, or encountering poor road conditions like potholes or slippery roads.
- ***Increased severity of crashes:*** Many participants recognized that at higher speeds, the impact of collisions becomes much more severe, especially for motorcyclists, who are less protected than car drivers. Some participants shared personal experiences or crashes involving friends, which made them aware of the dangers of speeding.
- ***Impact of weather and road conditions:*** In Hanoi and Ho Chi Minh City, participants were particularly concerned about slippery roads and flooded streets when speeding during the rainy season. In Da Nang, participants mentioned that narrow roads and potholes increased the risk of losing control when traveling at high speeds. These factors make driving more dangerous, especially when there is insufficient time to react or handle unexpected situations.

c) Benefits of speeding

General analysis: Despite acknowledging the risks, many participants pointed out certain short-term benefits they believed could be gained from speeding. These benefits were mainly associated with saving time in urgent situations and meeting personal needs.

- ***Saving time:*** Participants, particularly the younger age group (18-29), noted that speeding helps them travel faster in situations such as running late for work, rushing home, or handling sudden tasks. This group often prioritized speed when traveling on empty roads or at night to save time, even though they admitted it involved risks.
- ***Fulfilling personal preferences:*** Some participants, especially younger individuals, expressed that they enjoy the sensation of speed, and speeding allows them to challenge themselves or satisfy personal preferences. The feeling of excitement while riding at high speeds was often a reason for ignoring safety warnings.

d) Comparison between age groups

- 18-29 age group: This group tended to accept higher risks when it came to speeding. They frequently exceeded the speed limit when they needed to travel quickly in personal situations. Younger participants were also more influenced by their peers and social environment, leading to a more accepting attitude toward speeding on empty roads or in less populated areas. However, they admitted that they might not fully understand the dangers of speeding until they experienced an crash or witnessed severe consequences.
- 30-49 age group: In contrast, the older age group showed more caution regarding speeding. They acknowledged that the risk of crashes outweighed the short-term benefits of saving time. This group also emphasized the responsibility of driving safely,

especially when carrying children or the elderly, and therefore, they generally adhered to speed limits to ensure safety. However, some participants admitted that they would exceed the speed limit in urgent situations, but typically only on highways or empty roads.

e) Comparison between locations

- Hanoi: In Hanoi, factors such as traffic congestion and narrow streets made speeding more dangerous. Participants in Hanoi were generally aware of the risks of speeding, particularly in densely populated areas or near schools. However, some still felt that speeding was necessary when traveling on empty roads at night or during prolonged traffic jams.
- Da Nang: Participants in Da Nang mentioned that they usually reduced speed in bad weather or when driving through areas with narrow roads and potholes. However, they also admitted that in urgent situations, they would exceed the speed limit when the roads were clear or when they needed to handle urgent tasks.
- Ho Chi Minh City: In Ho Chi Minh City, flooding and traffic congestion made speeding particularly dangerous. Residents emphasized that they needed to speed up when dealing with prolonged traffic jams or when passing through flooded areas to avoid vehicle damage. However, many participants acknowledged that speeding in Ho Chi Minh City carried higher risks due to the complex traffic conditions and the large number of vehicles on the road.

g) Evaluation and Conclusion

From the focus group discussions, while people were aware of the risks of speeding, risk acceptance remained prevalent, particularly among younger individuals and in urgent situations. The differences between age groups and locations indicate that traffic safety policies need to be flexible and tailored to local conditions.

- Younger participants (18-29) need targeted campaigns to raise awareness of the risks of speeding and the severe consequences this behavior can cause. Traffic education programs should focus on changing attitudes and risk behaviors, especially by providing real-life examples of crashes caused by speeding.
- Middle-aged participants (30-49) showed more caution but still need to be encouraged to follow speed regulations even in emergencies. Legal measures such as stronger penalties for speeding and increased traffic monitoring should be implemented more effectively, particularly in major urban areas like Hanoi and Ho Chi Minh City, where the risks associated with speeding can lead to severe consequences.

In general, speeding is a dangerous behavior with high risks, though it may offer some short-term benefits. However, to reduce crash risks and ensure traffic safety, community awareness must be raised, and legal regulations must be enforced more strictly and uniformly.

4.2.2.3. Drink driving: Risks and Benefits

a) Introduction

Driving after consuming alcohol is a common yet highly dangerous behavior, significantly contributing to traffic crashes in Vietnam. In 14 focus group discussions conducted in Hanoi,

Da Nang, and Ho Chi Minh City, participants provided insights into their knowledge, attitudes, and behaviors regarding driving under the influence of alcohol. This section offers a detailed analysis of the risks and perceived benefits of driving after drinking, with comparisons between the two age groups (18-29 and 30-49) and across the three locations (Hanoi, Da Nang, and Ho Chi Minh City).

When asked about their confidence in avoiding driving after drinking, 54.82% of participants reported feeling confident, while 45.18% did not. This shows that while more than half of the participants believe they can avoid drinking and driving, nearly half still struggle to change this behavior.

This data reflects the challenges in changing behavior related to driving after alcohol consumption. Despite strict laws and extensive safety campaigns, social pressure and the lack of transportation alternatives continue to lead many to engage in this risky behavior. In areas like Da Nang and rural Ho Chi Minh City, the percentage of people lacking confidence is higher due to cultural factors and limited transportation options.

b) Awareness of the risks of drinking and driving

General analysis: Across all discussions, participants demonstrated a clear understanding of the significant risks associated with driving after consuming alcohol. They recognized that alcohol impairs reaction times, reduces judgment, and increases the likelihood of crashes, particularly in urban areas with high traffic density. Despite this awareness, participants reported that the practice of drinking and driving remains common, especially in social contexts.

- ***Impaired control and reaction time:*** Participants from all three cities consistently mentioned that drinking alcohol diminishes their ability to control the vehicle and react quickly to sudden changes in traffic. Many described feeling slower and less alert after drinking, making it difficult to handle unexpected situations like vehicles stopping suddenly or pedestrians crossing the road.
- ***Increased crash severity:*** Participants acknowledged that driving under the influence increases the risk of severe crashes, particularly because alcohol often leads to overconfidence, which can cause drivers to take unnecessary risks, such as speeding or failing to obey traffic signals. Many participants shared stories of crashes involving alcohol, either from their personal experience or within their community, highlighting the serious consequences of this behavior.
- ***Social acceptance and peer pressure:*** Despite the risks, several participants indicated that drinking and driving is socially accepted, particularly in rural areas or during social gatherings. They noted that declining to drink in these settings is often difficult due to peer pressure or cultural expectations. This was especially prevalent in discussions among younger participants, who described a stronger tendency to succumb to social pressure to drink even when they knew they would need to drive later.

c) Perceived benefits of drinking and driving

General analysis: While most participants understood the risks, some still perceived practical benefits of driving after drinking, particularly when faced with limited transportation options. These benefits were largely framed around convenience and social obligations.

- ***Convenience and lack of alternatives:*** Many participants, especially in Da Nang and rural areas of Ho Chi Minh City, cited the lack of public transportation or affordable alternatives as a reason for drinking and driving. They explained that after social gatherings, especially in remote areas, the only viable option for getting home was to drive, despite the risks.
- ***Social obligations:*** Some participants, particularly men in the 30-49 age group, mentioned that they felt socially obligated to drink during family or business gatherings. In these situations, refusing to drink could be seen as disrespectful or a violation of social norms. Consequently, they felt that they had no choice but to drink and drive afterward, even though they were aware of the risks.
- ***Perceived tolerance:*** A small number of participants, particularly younger men in the 18-29 age group, expressed the belief that they could tolerate a small amount of alcohol and still drive safely. They perceived that drinking "just a little" would not impair their driving abilities significantly, despite the well-documented risks of even low levels of alcohol on cognitive and motor function.

d)Comparison between age groups

- 18-29 age group: Younger participants tended to have a more lenient attitude toward drinking and driving. This group was more likely to report that they occasionally drove after drinking, especially when returning from social events late at night or from outings with friends. Many in this group viewed drinking in social settings to bond with peers, and thus they felt pressured to drink and drive afterward. Despite their awareness of the risks, younger participants were more likely to underestimate the dangers, believing that their youth and driving skills could compensate for the effects of alcohol.
- 30-49 age group: In contrast, the older age group (30-49) exhibited a more cautious approach toward drinking and driving. Many participants in this age group mentioned that they were more likely to avoid driving after drinking, especially when they had family responsibilities or were driving with passengers. This group tended to emphasize safety over convenience and was more willing to find alternative transportation methods, such as calling a taxi or asking a sober friend to drive. However, social obligations remained a significant factor for this group, and some still admitted to drinking and driving in situations where cultural norms strongly encouraged alcohol consumption.

e) Comparison between locations

- Hanoi: In Hanoi, participants generally acknowledged the high risks of drinking and driving, particularly in the city's congested streets. Many participants in Hanoi mentioned that due to the availability of taxis and ride-hailing services, they were more likely to avoid driving after drinking, opting instead for safer alternatives. However, younger participants still reported occasional instances of drinking and driving, especially after late-night social gatherings.
- Da Nang: In Da Nang, participants highlighted the limited availability of public transportation as a key reason why drinking and driving remains common. Particularly

in rural areas, where taxis or ride-hailing services are scarce, participants felt that they had no choice but to drive home after drinking. Some participants mentioned that they often try to moderate their drinking in social situations but still end up driving after consuming alcohol due to lack of alternatives.

- Ho Chi Minh City: In Ho Chi Minh City, participants expressed mixed attitudes toward drinking and driving. While many recognized the severe risks, they also pointed out that traffic congestion and peer pressure made it challenging to avoid this behavior. In some suburban and rural areas, participants reported that drinking and driving was still relatively common, and social events often included heavy drinking with little regard for transportation options. However, in central urban areas, participants reported more frequent use of taxis and ride-hailing services as a safer alternative to driving after drinking.

g) Evaluation and Conclusion

The focus group discussions revealed that while participants are generally aware of the dangers of drinking and driving, many still engage in the behavior due to social pressure, lack of transportation alternatives, and a misunderstanding of their alcohol tolerance. Differences in behavior and attitudes were observed between age groups and across locations, indicating the need for targeted interventions.

- Younger participants (18-29) were more likely to underestimate the risks and succumb to peer pressure. Therefore, public awareness campaigns aimed at this group should focus on changing social norms around drinking and driving, highlighting the immediate dangers and long-term consequences. Educational programs emphasizing the effects of alcohol on even young, healthy drivers could help reduce risky behaviors.
- Older participants (30-49) exhibited more responsibility in avoiding drinking and driving, particularly when they had family obligations. However, social expectations remain a significant challenge for this group. Interventions targeting this demographic should focus on alternative transportation solutions and encouraging social responsibility, including promoting the use of designated drivers or alcohol-free events.

In terms of location, areas like Da Nang and rural parts of Ho Chi Minh City require improved public transportation options or more accessible ride-hailing services to provide safe alternatives to drinking and driving. Meanwhile, in Hanoi and urban centers of Ho Chi Minh City, efforts should be made to strengthen enforcement of existing laws and increase the availability of sobriety checkpoints to deter risky behavior.

In general, driving after drinking remains a widespread and dangerous practice, with clear risks and limited benefits. To effectively combat this behavior, social attitudes must shift, and safer transportation alternatives must be made more accessible, especially in areas where public transport is lacking. Implementing stricter enforcement and raising public awareness through targeted campaigns will be key to reducing the prevalence of drinking and driving.

4.2.2.4. Helmet wearing: Risks and Benefits

a) Introduction

Wearing helmets while riding motorcycles is a legal requirement and is considered one of the most important measures for reducing crashes and injuries. However, the level of compliance with helmet regulations and people's attitudes toward wearing helmets vary significantly between age groups and regions. Based on the results of 14 focus group discussions in Hanoi, Da Nang, and Ho Chi Minh City, this section analyzes the risks and benefits associated with helmet use, comparing these factors between age groups (18-29 and 30-49) and the surveyed locations.

Only 38.55% of participants were confident that they always wear helmets while riding motorcycles. While most participants acknowledge the importance of wearing helmets, this figure suggests that compliance remains inconsistent, especially among younger individuals.

This result highlights the inconsistent practice of helmet use, particularly in situations such as short trips or during hot weather. In Ho Chi Minh City, helmet use tends to decline in extreme weather conditions, while in Hanoi, participants are more likely to comply due to the complex traffic environment and strict monitoring campaigns.

b) Awareness of the benefits of wearing Helmets

General analysis: Most participants across all focus groups recognized the benefits of wearing helmets, particularly in protecting the head and reducing the risk of serious injury in crashes. Wearing helmets was commonly seen as a crucial action for ensuring personal safety, especially in a context where motorcycles are the primary means of transportation in Vietnam.

- Protection from head injuries: All participant groups acknowledged that helmets play a crucial role in protecting the head and reducing the risk of death in collisions. Many participants shared experiences or stories about severe crashes where helmets saved lives. The 30-49 age group emphasized the importance of wearing helmets when carrying children or elderly passengers.
- Awareness of legal compliance: Wearing helmets was also seen as a means of complying with the law and avoiding fines. Many participants, especially those in the older age group, stated that they always wear helmets to follow traffic regulations and avoid penalties from traffic police.
- Psychological comfort when driving: Besides physical protection, some participants noted that wearing helmets gave them a sense of peace of mind when driving. They felt safer and more confident, particularly on busy roads or when driving at higher speeds.

c) Risks associated with wearing helmets

General analysis: While wearing helmets provides many benefits, some participants believed that there are minor risks or inconveniences associated with helmet use, particularly in certain weather conditions or when traveling short distances. These risks were not considered serious but still affected some people’s decision to wear helmets.

- Inconvenience during short trips: Many participants, especially younger individuals (18-29), felt that wearing helmets during short trips or when traveling near home was unnecessary. They argued that wearing helmets in these situations was time-consuming and inconvenient, especially when making quick trips to nearby stores or

moving within residential areas. This behavior was particularly common in Hanoi and Ho Chi Minh City, where many people chose not to wear helmets during short nighttime rides or in less crowded areas.

- Discomfort in hot weather: Some participants, especially in Ho Chi Minh City, mentioned feeling uncomfortable wearing helmets in hot weather, particularly during the summer months. They stated that helmets could cause heat, sweating, and reduce comfort while riding, leading some to forgo wearing helmets during hot weather.
- Concerns about helmet quality: Several participants raised concerns about the quality of helmets. They felt that many helmets available on the market did not meet safety standards, and wearing these helmets might not provide effective protection in the event of an crash. This concern led to doubts about the actual benefits of wearing helmets if they could not be sure of the product's quality.

d) Comparison between age groups

- 18-29 age group: Younger participants had a more relaxed attitude toward wearing helmets and tended to take higher risks by not wearing helmets when traveling short distances or when they felt safe. They often skipped wearing helmets in situations like short-distance trips or night rides, especially when traffic police were not present. However, when asked about long-distance travel or high-speed riding, they admitted to always wearing helmets to ensure their safety.
- 30-49 age group: The older age group showed a more cautious attitude toward wearing helmets and generally adhered more strictly to helmet regulations, even when traveling short distances. They emphasized that wearing helmets is a responsibility to themselves and their families, especially when transporting children or the elderly. This group was less likely to skip wearing helmets in any circumstances, even in hot weather.

e) Comparison between locations

- Hanoi: Participants in Hanoi generally exhibited higher compliance with wearing helmets compared to other regions. They were highly aware of the risks of not wearing helmets, particularly in the context of complex traffic and crowded streets. However, some participants, especially younger individuals, admitted that they occasionally did not wear helmets when traveling short distances near home or on short trips.
- Da Nang: In Da Nang, helmet use was well adhered to, particularly for long-distance travel or when moving through crowded areas. However, Da Nang residents often felt that wearing helmets was unnecessary when traveling in areas with fewer vehicles or when the weather was cooler. This mentality was more prevalent in rural areas, where traffic was light, and there was little presence of traffic police.
- Ho Chi Minh City: In Ho Chi Minh City, attitudes toward wearing helmets were more relaxed, particularly in hot weather. Many participants admitted that they often did not wear helmets when traveling in hot conditions or when making short trips at night. However, Ho Chi Minh City residents also emphasized that they always wore helmets when traveling on major roads or in areas where traffic police were present.

g) Evaluation and Conclusion

The focus group discussions revealed that awareness of the benefits of wearing helmets is very high across all three locations and age groups. However, helmet-wearing behavior varied significantly depending on the situation and perceived risks by the participants.

- Younger participants (18-29) tended to take higher risks, especially when traveling short distances or when they felt safe. As a result, awareness campaigns targeting this group should focus on promoting consistent helmet use, even for short trips or in less risky situations.
- Older participants (30-49) exhibited more caution and generally adhered strictly to helmet regulations, even in situations where younger individuals might skip wearing helmets. This group should be encouraged to continue practicing safe habits and to pass these messages on to younger generations about the importance of wearing helmets.

At the local level, areas like Ho Chi Minh City should focus on improving helmet comfort for riders, such as encouraging the use of breathable, lightweight helmets to enhance comfort in hot weather. Meanwhile, in Hanoi and Da Nang, authorities should enhance enforcement and monitoring to ensure compliance with helmet regulations for short trips and during nighttime.

In general, wearing helmets is a critical road safety measure with clear benefits, and it should continue to be encouraged through community awareness campaigns and strict enforcement to ensure full compliance.

4.2.3. Topic 3. Personal experience with risky behaviors

a) Introduction

Personal experiences with risky behaviors such as speeding, driving under the influence of alcohol, not wearing helmets, and other dangerous actions significantly influence attitudes and behavior on the road. Based on 14 focus group discussions conducted in Hanoi, Da Nang, and Ho Chi Minh City, participants shared real-life experiences about how they encountered or dealt with risky behaviors while driving. This section provides a detailed analysis of these personal experiences, comparing the insights between age groups (18-29 and 30-49) and across the three regions.

When asked about the most dangerous behavior, 77.11% of participants considered driving after drinking to be the most dangerous, followed by speeding (21.69%) and not wearing helmets (1.20%). This indicates that awareness of the risks associated with alcohol consumption has increased significantly.

Awareness of the risks of driving after drinking has notably improved, with most participants identifying this as the most dangerous behavior. This aligns with the feedback from the focus groups, where many in the 30-49 age group reported behavior changes due to stricter penalties and social pressure. However, younger participants have not fully adjusted their behavior, as many still believe they can control their driving after drinking.

b) Experiences with speeding

General analysis: Speeding was one of the most frequently mentioned behaviors in all focus groups, with participants from all three locations admitting that they had exceeded speed

limits in various situations. Most acknowledged that speeding typically occurred when they needed to reach their destination quickly, such as when they were running late for work or trying to avoid traffic.

- Personal experiences with speeding: Many in the 18-29 age group shared that they often speed on empty roads or during nighttime rides. They felt that driving faster saved time and provided a sense of freedom, although they were aware that this could lead to higher crash risks. Some in the 30-49 age group admitted to speeding occasionally, but only in urgent situations, such as rushing home or taking a family member to the hospital.
- Comparison between locations: In Hanoi, participants reported frequently speeding to avoid traffic congestion, especially during rush hour on major roads. In Da Nang, residents mentioned speeding on empty roads outside the city, where traffic police presence is minimal. In Ho Chi Minh City, speeding was common when drivers tried to escape severe traffic jams during peak hours, and participants often opted to speed up on less crowded streets or during cooler weather at night.

c) Experiences with driving under the influence of alcohol

General analysis: Driving after consuming alcohol was a commonly discussed risky behavior, particularly during social events or family gatherings. However, the level of acceptance of this behavior varied across age groups and locations.

- Personal experiences with driving after drinking: The 18-29 age group frequently admitted that they had driven after drinking, especially after social outings or late-night gatherings with friends. They shared that they believed they could handle alcohol well and often lacked transportation alternatives, so they had to drive themselves home. In contrast, the 30-49 age group exhibited more caution, often trying to avoid driving after drinking, but they admitted that in some social situations, they could not refuse alcohol and had to drive home.
- Comparison between locations: In Hanoi, participants often shared that they found ways to avoid driving after drinking by using taxis or asking friends for a ride. In Da Nang, driving after drinking remained more common, particularly in suburban areas where there were fewer transportation alternatives. In Ho Chi Minh City, participants tended to use ride-hailing services as a safe alternative after drinking at social events.

d) Experiences with not wearing helmets

General analysis: Most participants acknowledged the importance of wearing helmets while riding motorcycles, but some admitted that they did not always wear helmets in certain situations, particularly when traveling short distances or within familiar areas.

- Personal experiences with not wearing helmets: Younger participants (18-29) often shared that they occasionally skipped wearing helmets when making short trips or when there was no traffic police presence. They felt that not wearing helmets in these situations did not pose a significant risk, especially when traveling in residential areas. On the other hand, the 30-49 age group expressed a more serious attitude toward helmet use, with most stating that they always wore helmets, regardless of the distance or situation.

- Comparison between locations: In Hanoi, not wearing helmets was more common in suburban areas or when participants made quick trips near home. In Da Nang, residents tended to wear helmets for long-distance travel but often skipped them in low-traffic areas or when traffic police were not present. In Ho Chi Minh City, not wearing helmets was more common during hot weather, when participants felt that helmets caused discomfort.

e) Experiences with other risky behaviors

In addition to speeding, driving under the influence, and not wearing helmets, participants also discussed other risky behaviors such as using phones while driving, running red lights, and changing lanes without signaling. These behaviors were generally seen as common but dangerous, especially when performed in heavy traffic.

- Using phones while driving: Many participants admitted to using their phones while driving, particularly to answer urgent calls or messages. The 18-29 age group viewed phone use as an essential part of daily life, believing they could manage both driving and phone use without causing danger. However, many had experienced near crashes when losing control due to distractions. The 30-49 age group admitted to occasionally using phones while driving, but they tried to limit this behavior to urgent situations only.
- Running red lights: Some participants, particularly younger individuals, admitted to running red lights in urgent situations or when there was no traffic police presence. They felt that it saved time, despite knowing the increased risk of crashes.
- Changing lanes without signaling: Changing lanes without using signals was commonly observed, especially in high-traffic areas like Hanoi and Ho Chi Minh City. Participants stated that they sometimes forgot or felt that signaling was unnecessary in situations with fewer vehicles.

g) Evaluation and Conclusion

The focus group discussions revealed that personal experiences with risky behaviors varied significantly between age groups and geographical regions. Younger participants (18-29) tended to take higher risks, particularly when speeding, not wearing helmets, or driving after drinking in situations where they felt safe. Older participants (30-49) demonstrated more caution, typically following traffic rules more strictly and trying to avoid risky behaviors, though they occasionally faced social pressure or urgent situations.

At a regional level, people in Hanoi showed a tendency to be more cautious in dealing with risky behaviors, especially when navigating the city's congested and complex traffic. In Da Nang, residents were more likely to accept risks in suburban areas or when traffic police were not present. In Ho Chi Minh City, risky behaviors are often related to traffic congestion and hot weather, leading participants to make riskier decisions to reduce discomfort or save time.

In general, risky behaviors on the road are common, but how participants handle and accept these risks depends heavily on the context, location, and age group. Traffic safety policies should be adapted to the characteristics of each region and demographic group to reduce risks and raise public awareness of traffic safety.

4.2.4. Topic 4. Behavioral change

a) Introduction

Behavioral change in traffic safety is a complex process that depends on individual awareness, the traffic environment, and social factors. From the 14 focus group discussions held in Hanoi, Da Nang, and Ho Chi Minh City, participants shared how their traffic behaviors evolved, including adherence to speed limits, wearing helmets, and reducing driving after alcohol consumption. This section will provide a detailed analysis of these behavioral changes, focusing on the driving forces and barriers, with comparisons between age groups (18-29 and 30-49) and across the three locations.

b) Behavioral change regarding speed compliance

General analysis: Behavioral change related to speed compliance was one of the most frequently discussed topics. Many participants, especially in the 30-49 age group, reported changing their behavior after becoming more aware of the risk of crashes and the consequences of speeding.

- Motivation for behavior change: Participants in both age groups highlighted the role of increased traffic monitoring and penalties in changing their speeding habits. Many in the 30-49 age group said they started reducing their speed after receiving fines or witnessing crashes caused by speeding. In contrast, the 18-29 age group tended to adjust their behavior only in situations where there was visible police presence or automatic speed monitoring systems.
- Barriers to change: Some participants found it challenging to maintain speed compliance due to traffic congestion or time pressure. This was especially true in Hanoi and Ho Chi Minh City, where complex and congested traffic during rush hours often led to speeding in an attempt to save time.
- Comparison between locations: In Hanoi, participants were often pressured by heavy traffic and time constraints, especially on major roads, leading them to comply with speed limits only when monitored by traffic police. In Da Nang, the behavioral change was more positive, with residents typically reducing speed when driving in crowded areas or bad weather conditions. In Ho Chi Minh City, participants stated that they tried to adhere to speed limits on major roads but might speed up in areas with fewer vehicles or at night.

c) Behavioral change regarding driving after drinking alcohol

General analysis: Changes in behavior related to driving after alcohol consumption were widely discussed, especially among the older age group. Participants in the 30-49 age group exhibited more positive changes, particularly after safety campaigns and stricter enforcement of laws.

- Motivation for behavior change: Social pressure and heavier penalties were the main factors driving behavior change among the 30-49 age group. Many in this group said they had stopped driving after drinking alcohol due to fears of severe penalties and the negative impact on their social and family image. The 18-29 age group, on the other

hand, tended to only temporarily adjust their behavior when police were present or when attending important social events.

- Barriers to change: Some participants, particularly younger ones, admitted that lack of transportation alternatives and peer pressure made it difficult to avoid drinking and driving or change their behavior. This was more common in rural areas or places without widespread ride-hailing services.
- Comparison between locations: In Hanoi, participants were more likely to avoid driving after drinking, thanks to the availability of ride-hailing services and taxis. In Da Nang, behavior change was less common in suburban areas, where fewer transportation alternatives were available, and many participants still accepted the risk of driving after drinking. In Ho Chi Minh City, behavior change was driven by safety campaigns and the development of ride-hailing services, offering safer options after drinking.

d) Behavioral change regarding helmet use

General analysis: Awareness of the importance of wearing helmets has led to positive behavioral changes in both age groups, with most participants stating they now wear helmets more frequently than in previous years.

- Motivation for behavior change: Safety campaigns about traffic safety and strict monitoring by traffic police encouraged participants to wear helmets more consistently. The 30-49 age group reported stricter adherence due to concerns for both personal safety and their families. The 18-29 age group also showed positive changes, although some admitted to only wearing helmets on major roads or when traffic police were present.
- Barriers to change: Despite the positive changes, some younger participants found it difficult to maintain helmet use on short trips or in hot weather. This was especially common in Ho Chi Minh City, where participants mentioned discomfort when wearing helmets in hot conditions.
- Comparison between locations: In Hanoi, residents generally wore helmets even on short trips, as they were highly aware of the crash risks in the city's congested traffic. In Da Nang, people typically wore helmets on major roads but sometimes skipped them in less busy areas. In Ho Chi Minh City, helmet use varied depending on the weather, with many people not wearing helmets on hot days.

e) Evaluation and Conclusion

The focus group discussions revealed that traffic behavior change depends heavily on social factors, legal enforcement, and awareness campaigns. The older age group (30-49) demonstrated more positive behavior changes, especially regarding helmet use and avoiding driving after drinking. In contrast, the younger age group (18-29) tended to change their behavior temporarily or situationally, depending on the presence of traffic police or social pressure.

At the regional level, residents in Hanoi showed a tendency to comply more with traffic regulations due to strict monitoring and high awareness of risks. In Da Nang, behavior change was more positive in safer traffic environments, though challenges remained in suburban

areas. In Ho Chi Minh City, traffic behavior was strongly influenced by weather conditions and traffic congestion, leading to more temporary behavior changes.

In general, traffic behavior change is a long-term process that requires a combination of awareness campaigns, monitoring, and alternative transportation options to ensure that participants consistently follow traffic regulations.

V. GENERAL ASSESSMENT

Based on data from the focus group discussions, this section presents the key themes and analyzes the perspectives and trends observed from the participants. The topics analyzed include perceptions of traffic risks, risky driving behaviors, behavioral change, and the influence of social factors on safety decisions. The analysis compares insights across different age groups and locations, providing a comprehensive understanding of traffic behaviors and attitudes in Vietnam.

5.1. Perceptions of Traffic Risks

A critical theme discussed in the FGDs was participants' perceptions of traffic risks related to behaviors such as speeding, driving under the influence of alcohol, and not wearing helmets.

- General perspectives: Most participants were aware of traffic risks, especially related to driving under the influence and speeding. Data from the statistics file shows that 77.11% of participants considered driving after drinking alcohol to be the most dangerous behavior, followed by 21.69% who identified speeding, and only 1.20% who viewed not wearing a helmet as highly dangerous. This indicates that awareness of the risks associated with drink driving has significantly improved, although other behaviors, such as not wearing helmets, are still not perceived with the same level of seriousness.
- Age group comparison: The 30-49 age group tended to have a higher awareness of traffic risks than the 18-29 age group. Older participants were generally more concerned about the risks of traffic crashes, while younger participants were often more complacent and less mindful of the potential consequences of risky behaviors. This trend aligns with the data showing that 64.46% of participants admitted to speeding, particularly among the younger age group.
- Location comparison: In Hanoi and Ho Chi Minh City, where traffic is complex and dense, awareness of the risks from speeding and drink driving was higher compared to Da Nang. Participants from Da Nang reported feeling less pressured by traffic and were only concerned about risks when driving in suburban areas or under poor weather conditions.

5.2. Risky Driving Behaviors

Risky driving behaviors, particularly speeding and driving under the influence of alcohol, were heavily emphasized in the FGDs.

- Speeding: 64.46% of participants in the FGDs admitted to speeding at some point. Many younger participants (18-29) shared that they often speed on empty roads or at night, when traffic police are less present. Although they were aware of the risks, they

chose to speed because it saved time and provided a sense of freedom. On the other hand, the 30-49 age group was more likely to adhere to regulations, especially when traveling with children or family members.

- Driving under the influence of alcohol: Despite awareness of the dangers, many participants admitted to driving after drinking alcohol, particularly during social events or family gatherings. According to statistical data, 45.18% of participants did not feel confident that they could consistently avoid driving after drinking (Thống kê tỷ lệ). This reflects the ongoing influence of social pressure and the lack of transportation alternatives, particularly in rural and suburban areas of Ho Chi Minh City and Da Nang.

5.3. Behavioral Change

Some participants reported positive behavioral changes, particularly in complying with speed limits and wearing helmets.

- Speed compliance: The 30-49 age group showed significant behavioral changes in complying with speed limits, particularly after becoming more aware of the risks and consequences of traffic crashes. Many mentioned that receiving fines and witnessing crashes had motivated them to change their behavior. However, the 18-29 age group tended to change their behavior only when police were present or when traffic monitoring systems were in place.
- Wearing helmets: Although awareness of the importance of wearing helmets was high, only 38.55% of participants felt confident that they always wore helmets when riding. Helmet-wearing behavior remained inconsistent, particularly during short trips or in hot weather. In Ho Chi Minh City, many admitted to skipping helmets when the weather was too hot or when there was no police presence.

5.4. Social Influence on Traffic Behavior

Social pressure and environmental factors were mentioned as significant influences on participants' safety decisions.

- Peer and family pressure: For the 18-29 age group, peer pressure was a major factor influencing their willingness to engage in risky behaviors, such as driving after drinking alcohol or speeding. Many younger participants shared that they found it difficult to refuse drinking in social settings and often drove home despite knowing the risks. Meanwhile, the 30-49 age group was more influenced by family responsibilities, leading to more cautious driving behavior.
- Impact of road safety campaigns: Many participants reported that road safety campaigns had helped raise awareness and change their behavior. Campaigns that highlighted the severe consequences of non-compliance, such as fatal crashes, had a strong impact on the 30-49 age group, encouraging them to adopt safer driving habits.

5.5. Sustainability of Safe Driving Behaviors

Another important theme discussed in the FGDs was the sustainability of safe driving behaviors such as adhering to speed limits, wearing helmets, and avoiding driving after drinking alcohol. The results revealed that while many participants recognized the importance

of following regulations, maintaining these behaviors remained a significant challenge, especially when faced with external factors such as work pressure, social habits, and family obligations.

- Challenges in maintaining speed compliance: While some participants admitted to changing their behavior by reducing their speed, they mentioned that maintaining this habit was not always easy. In large cities like Hanoi and Ho Chi Minh City, the pressure of traffic congestion, combined with the desire to save time, often led drivers to disregard speed limits, particularly when they believed they were not being monitored.
- Helmet-wearing consistency: Although most participants understood the benefits of wearing helmets, only a relatively small proportion (38.55%) were confident that they consistently wore helmets in all circumstances. Younger participants, especially, found it challenging to maintain the habit of wearing helmets on short trips or in hot weather conditions, particularly in Ho Chi Minh City. In contrast, the 30-49 age group tended to maintain helmet-wearing habits better due to a sense of responsibility for themselves and their families.
- Driving after drinking: Data from the FGDs showed that while there have been improvements in avoiding driving after drinking alcohol, sustaining this habit remains difficult. Social pressure and mandatory participation in family or social gatherings made it hard for many, particularly the younger group, to consistently refrain from driving after drinking. Some participants also mentioned the lack of suitable transportation alternatives in suburban areas as a reason for continuing to drive after drinking.

5.6. Perceptions of Law and Enforcement Effectiveness

Another factor influencing traffic safety behavior was perceptions of the law and the effectiveness of enforcement. During the discussions, many participants shared their views on the effectiveness of penalties and traffic monitoring.

- Effectiveness of traffic law enforcement: Many participants, especially in the 30-49 age group, believed that the presence of traffic police and speed monitoring systems had played a major role in changing their behavior, particularly regarding speed compliance and helmet use. However, younger participants tended to follow regulations only when they knew that police or monitoring systems were present. This suggests that enforcement needs to be more comprehensive, not only relying on penalties but also encouraging more lasting behavioral changes.
- Inconsistent enforcement: Some participants from Da Nang and suburban areas of Ho Chi Minh City mentioned that the presence of traffic police and monitoring systems was inconsistent, particularly on less crowded roads or at night. This led many to disregard speed limits or helmet use when they felt they were not being monitored and only comply when passing through more populated areas or during peak hours when traffic police were more visible.

5.7. Impact of Weather and Traffic Conditions

Another significant theme discussed was the impact of weather and traffic conditions on driving behavior.

- Weather and helmet use: Many participants, especially in Ho Chi Minh City, stated that hot weather was a major factor leading them to avoid wearing helmets. They found helmets uncomfortable, causing sweating, and diminishing comfort while riding. This suggests that solutions such as encouraging the use of lightweight, breathable helmets could increase comfort for riders in hot weather.
- Congested traffic conditions: In Hanoi and Ho Chi Minh City, participants shared that congested traffic and traffic jams also influenced their driving behavior. Some admitted that they tended to speed when driving through less crowded areas or when trying to avoid congestion. This indicates that the traffic environment significantly impacts safety behavior decisions.

5.8. Social Impact on Traffic Behavior

Another important factor emphasized by participants was the social impact on driving behavior. In many cases, social influences such as peer pressure and family expectations played significant roles in shaping participants' decisions.

- Influence of peers and colleagues: Many younger participants in the 18-29 age group admitted that they were often influenced by peer pressure in situations involving drinking and driving or speeding. They found it difficult to refuse alcohol during social events and did not want to be seen as “different” by choosing a safer option such as using a taxi or ride-hailing service. This shows that behavioral change efforts need to focus not only on individuals but also consider the broader social context that influences their decisions.
- Family expectations: For the 30-49 age group, family responsibilities were the main motivator for changing behavior and adhering to traffic regulations. They felt that, with the responsibility to protect their family members, they could not accept the risks associated with unsafe driving, especially after drinking alcohol. Family expectations also created positive pressure, helping this group maintain safer driving habits.

5.9. General Evaluation of Behavioral Change Measures

Based on the FGDs and the collected data, several key evaluations can be made about the effectiveness of behavioral change measures that have been implemented. Many road safety campaigns and enforcement measures have had a positive impact in raising awareness and improving safety behavior, particularly among the 30-49 age group. However, for younger individuals, the current measures are not strong enough to create lasting behavioral change. The over-reliance on punitive measures without sufficient education and awareness-raising efforts has been a major reason why risky behaviors persist, particularly in environments where traffic is not closely monitored.

VI. CONCLUSION AND RECOMMENDATIONS

6.1. Key Conclusions

Based on the analysis of the focus group discussions and data collected from various sources, the study has drawn several key conclusions about the awareness, attitudes, and traffic safety behaviors of motorcyclists in Vietnam. These conclusions highlight the factors influencing traffic behavior, from personal awareness to social pressure and environmental impacts.

- Risk awareness: Most participants demonstrated clear awareness of the risks associated with driving under the influence and speeding. However, awareness of behaviors like not wearing helmets was lower, particularly among younger participants. Despite knowing the risks, many individuals continue to engage in dangerous behaviors due to peer pressure, personal habits, and a lack of police presence.
- Traffic behavior: Speeding and driving after drinking alcohol remain common, especially among younger participants (18-29). In Hanoi and Ho Chi Minh City, speeding is often driven by complex traffic situations where individuals seek to save time. Meanwhile, driving under the influence continues to be a major challenge, particularly in suburban areas where transportation alternatives are lacking.
- Behavioral change: Data suggests that while many participants, especially in the 30-49 age group, have adopted safer behaviors, sustaining these habits remains difficult. Factors such as weather, congested traffic, and inconsistent enforcement affect compliance with speed limits, helmet use, and avoiding driving after alcohol consumption.
- Social influence: Peer pressure and family responsibility are significant factors influencing participants' driving decisions. Younger participants are more likely to engage in risky behaviors like driving after drinking due to social pressures, whereas the 30-49 age group is motivated by family responsibilities to adopt safer behaviors.

6.2. Policy Recommendations

Based on the results and analysis, several policy recommendations and next steps have been proposed to improve traffic safety and reduce risky behaviors among motorcyclists in Vietnam.

- **Increase awareness and education campaigns:** There is a need to continue running public awareness campaigns focused on the dangers of speeding, driving under the influence, and not wearing helmets. These campaigns should be conducted frequently, using real-life stories and visuals to highlight the serious consequences of risky behaviors. Special attention should be given to targeting younger age groups, who are more prone to risky behaviors.
- **Strengthen law enforcement and traffic monitoring:** One of the most effective solutions for promoting behavior change is to increase police presence and expand automated monitoring systems (such as speed cameras). This would create pressure for compliance, particularly in suburban areas and on less busy roads, where violations

often occur. Stricter penalties for driving under the influence should also be considered.

- **Improve infrastructure and alternative transportation options:** In suburban and rural areas, the lack of public transportation and ride-hailing services is a major reason why individuals continue to drive after drinking alcohol. Therefore, developing better public transport options or encouraging the use of ride-hailing services in these areas would reduce risky driving behaviors.
- **Encourage the use of weather-appropriate helmets:** In Ho Chi Minh City, hot weather is a primary reason why many motorcyclists do not wear helmets. Promoting the use of lightweight, breathable helmets that offer comfort in hot conditions is essential. Additionally, raising awareness about the importance of helmet use for all trips, including short distances, should be emphasized in public campaigns.
- **Use technology to monitor behavior:** Mobile applications or smart technology can be used to monitor driving behaviors, particularly speed compliance and helmet use. For instance, apps could provide alerts when riders exceed speed limits or remind them to wear helmets at the start of a journey. This not only encourages behavior change but also helps maintain long-term safety.
- **Leverage social influence:** The role of community and family should be considered when encouraging safe driving behaviors. Public campaigns can partner with community organizations and families to reinforce positive social influences on driving decisions, particularly to reduce dangerous behaviors like driving under the influence.

6.3. Next Steps

This study has provided valuable insights into the traffic behavior of motorcyclists in Vietnam and highlighted the key factors influencing traffic safety. The next steps should focus on implementing the proposed policy recommendations and monitoring behavior change in practice. Specifically:

- **Monitor and evaluate effectiveness:** Safety campaigns and interventions should be monitored and evaluated regularly to ensure effectiveness. This includes gathering additional data on behavior changes and identifying areas where further adjustments or improvements are needed.
- **Collaborate with stakeholders:** Successful implementation of these solutions will require close collaboration between government agencies, non-governmental organizations, and community organizations. These joint efforts will create a comprehensive approach to improving road safety nationwide.
- **Expand research:** Lastly, more research should be conducted to understand the traffic behaviors of different groups within society, such as rural residents, service drivers, and others. This will ensure that policies and interventions are tailored to the specific needs of each group.

6.4. Challenges and Limitations

Although the study has provided a comprehensive understanding of traffic behavior and safety perceptions among motorcyclists in Vietnam, several challenges and limitations must be acknowledged for future research and policy development.

- **Limited geographical scope:** This study focused on three major cities: Hanoi, Da Nang, and Ho Chi Minh City. While these cities represent diverse traffic environments, the findings may not fully capture the behaviors and challenges faced by motorcyclists in rural areas or smaller towns. Traffic conditions, road infrastructure, and social norms in rural areas might lead to different patterns of risky behavior and compliance with traffic regulations. Future research should expand its scope to include more rural and provincial regions to provide a broader, more representative view of traffic safety across Vietnam.
- **Social desirability bias:** As with most focus group discussions, participants may have been influenced by social desirability bias, leading them to provide responses that align with what they perceive as socially acceptable or favored by the moderators. This could result in underreporting of certain risky behaviors, such as driving after drinking alcohol or not wearing helmets. Incorporating anonymous surveys or alternative data collection methods could mitigate this issue and provide a more accurate reflection of actual behaviors.
- **Time constraints:** The duration of the FGDs (90-120 minutes) may have limited the depth of discussion on some topics. In some cases, participants might not have had enough time to fully articulate their experiences or explore certain topics in detail. Future studies could benefit from longer or follow-up sessions to allow for more in-depth exploration of specific themes, particularly those related to behavioral change and long-term adherence to traffic safety practices.
- **Representation of younger participants:** While the study included participants aged 18-29, it could benefit from a deeper exploration of the behaviors of younger motorcyclists, particularly those under 25 years old. This age group represents a significant portion of new motorcyclists and may be more susceptible to risky driving due to inexperience and peer influence. Future research should focus more on the attitudes and behaviors of younger drivers to better understand the unique challenges they face.

6.5. Further Research Areas

Building on the insights gained from this study, there are several areas for further research that could provide additional value in understanding and improving traffic safety in Vietnam.

- **Longitudinal studies on behavioral change:** To assess the long-term effectiveness of road safety campaigns and enforcement measures, future research should focus on longitudinal studies that track changes in motorcyclists' behavior over time. This would help identify whether behavior changes, such as compliance with speed limits or helmet use, are sustained over the long term or whether drivers revert to risky practices under certain conditions.

- **Impact of digital transformation on traffic safety:** With the increasing use of smart technology in traffic management, future studies could explore the impact of digital platforms and applications on driving behavior. For instance, apps that monitor speed, provide real-time traffic updates, or remind drivers to wear helmets could be evaluated for their effectiveness in promoting safer driving habits.
- **Cultural and psychological factors influencing behavior:** Further research is needed to better understand the cultural and psychological factors that drive risky behaviors among motorcyclists. This includes examining peer influence, individual risk tolerance, and social norms that may lead drivers to take risks on the road. Such studies could inform more culturally sensitive and psychologically targeted interventions.
- **Comparative studies across regions:** To gain a more comprehensive view of traffic behaviors across Vietnam, comparative studies could be conducted in rural areas, small towns, and border regions, where traffic conditions, enforcement, and social attitudes may differ significantly from those in major cities. This would help policymakers tailor interventions to the specific needs and challenges of each region.

This study provides a comprehensive overview of the traffic behaviors and safety knowledge of motorcyclists in three major cities: Hanoi, Da Nang, and Ho Chi Minh City. With 166 participants from two age groups (18-29 and 30-49), the findings reveal a range of driving behaviors and varying levels of adherence to traffic safety regulations.

Key results highlight that speeding and not wearing helmets are particularly common among younger participants (18-29). Respondents from Hanoi and Ho Chi Minh City admitted to speeding to cope with traffic congestion, while in Da Nang, motorcyclists showed better compliance with speed limits. Not wearing helmets was often reported during short trips or within local neighborhoods, indicating an underestimation of the risks involved in such behavior.

Participants with higher incomes and males tended to report more traffic violations than other groups, suggesting that socio-economic and cultural factors influence driving habits.

The study underscores the need for stronger education and stricter enforcement of traffic safety laws, particularly regarding speeding and helmet use. Furthermore, improving road infrastructure and conditions, especially in Da Nang, is essential to reducing crashes. Targeted policies and campaigns aimed at younger riders should be prioritized to change behavior and raise awareness about road safety.

By addressing these critical areas, Vietnam can enhance traffic safety, reduce the incidence of crashes, and foster a safer environment for all road users.

Annex 1. Specific data on the composition of participants in each focus group discussion

Table 1. Composition of participants in the 18-29 age group

NO.	ID	Gender	Unit	Area		Vehicle type			Parental status	Postgraduate level	Have previously violated traffic laws	Occupation		Income	
				Urban	Peri-Urban	Motorbike	Scooter	E -bike				Ride-hailing and delivery services	Road users	High	Low
TOR		***Male***	***%***	***60***	***40***	***50***	***50***	***0***	***20***	***10***	***50***	***50***	***50***	-	-
		Female	***%***	***60***	***40***	***40***	***40***	***20***	***20***	***10***	***50***	***50***	***50***	-	-
1	TD1	*Male*	Pers.	3	3	3	3	0	2	1	5	3	3	3	3
		Female	Pers.	4	2	2	3	1	3	1	6	3	3	4	2
		Male	*%*	*50*	*50*	*50*	*50*	*0*	*33*	*17*	*83*	*50*	*50*	*50*	*50*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*50*	*17*	*100*	*50*	*50*	*67*	*33*
2	HN1	*Male*	Pers.	3	2	3	2	0	1	1	4	2	3	2	3
		Female	Pers.	4	3	3	3	1	2	2	4	4	3	3	4
		Male	*%*	*60*	*40*	*60*	*40*	*0*	*20*	*20*	*80*	*40*	*60*	*40*	*60*
		Female	*%*	*57*	*43*	*43*	*43*	*14*	*29*	*29*	*57*	*57*	*43*	*43*	*57*
3	HN3	*Male*	Pers.	4	2	3	3	0	1	1	6	3	3	2	4
		Female	Pers.	3	3	3	2	1	1	1	6	3	3	3	3
		Male	*%*	*67*	*33*	*50*	*50*	*0*	*17*	*17*	*100*	*50*	*50*	*33*	*67*
		Female	*%*	*50*	*50*	*50*	*33*	*17*	*17*	*17*	*100*	*50*	*50*	*50*	*50*
4	DN1	*Male*	Pers.	3	2	2	3	0	2	1	4	2	3	2	3
		Female	Pers.	4	2	2	3	1	3	1	4	3	3	3	3
		Male	*%*	*60*	*40*	*40*	*60*	*0*	*40*	*20*	*80*	*40*	*60*	*40*	*60*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*50*	*17*	*67*	*50*	*50*	*50*	*50*
5	DN3	*Male*	Pers.	3	2	3	2	0	1	1	4	3	2	3	2
		Female	Pers.	3	3	2	3	1	2	1	5	3	3	4	2
		Male	*%*	*60*	*40*	*60*	*40*	*0*	*20*	*20*	*80*	*60*	*40*	*60*	*40*
		Female	*%*	*50*	*50*	*33*	*50*	*17*	*33*	*17*	*83*	*50*	*50*	*67*	*33*
6	HCM 1	*Male*	Pers.	4	2	3	3	0	1	1	6	3	3	4	2
		Female	Pers.	3	3	3	2	1	1	1	6	3	3	4	2
		Male	*%*	*67*	*33*	*50*	*50*	*0*	*17*	*17*	*100*	*50*	*50*	*67*	*33*
		Female	*%*	*50*	*50*	*50*	*33*	*17*	*17*	*17*	*100*	*50*	*50*	*67*	*33*
7		*Male*	Pers.	4	2	3	3	0	1	1	6	3	3	2	4

NO.	ID	Gender	Unit	Area		Vehicle type			Parental status	Postgraduate level	Have previously violated traffic laws	Occupation		Income	
				Urban	Peri-Urban	Motorbike	Scooter	E -bike				Ride-hailing and delivery services	Road users	High	Low
	HCM 3	*Female*	Pers.	4	2	2	3	1	1	1	5	3	3	4	2
		Male	*%*	*67*	*33*	*50*	*50*	*0*	*17*	*17*	*100*	*50*	*50*	*33*	*67*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*17*	*17*	*83*	*50*	*50*	*67*	*33*

Table 2. Composition of participants in the 30-49 age group

NO.	ID	Gender	Unit	Area		Vehicle type			Parental status	Postgraduate level	Have previously violated	Occupation		Income	
				Urban	Peri-Urban	Motorbike	Scooter	E -bike				Ride-hailing and	Road users	Cao	Urban
TOR		*Male*	*%*	*60*	*40*	*50*	*50*	*0*	*80*	*10*	*50*	*50*	*50*	-	-
		Female	*%*	*60*	*40*	*40*	*40*	*20*	*80*	*10*	*50*	*50*	*50*	-	-
1	TD2	*Male*	Pers.	4	2	2	3	1	5	1	5	3	3	4	2
		Female	Pers.	3	3	2	3	1	6	2	5	3	3	5	1
		Male	*%*	*67*	*33*	*33*	*50*	*17*	*83*	*17*	*83*	*50*	*50*	*67*	*33*
		Female	*%*	*50*	*50*	*33*	*50*	*17*	*100*	*33*	*83*	*50*	*50*	*83*	*17*
2	HN2	*Male*	Pers.	3	3	3	3	0	5	1	5	3	3	4	2
		Female	Pers.	3	3	2	3	1	5	3	5	3	3	5	1
		Male	*%*	*50*	*50*	*50*	*50*	*0*	*83*	*17*	*83*	*50*	*50*	*67*	*33*
		Female	*%*	*50*	*50*	*33*	*50*	*17*	*83*	*50*	*83*	*50*	*50*	*83*	*17*
3	HN4	*Male*	Pers.	3	3	3	3	0	6	2	4	3	3	5	1
		Female	Pers.	4	2	2	3	1	6	1	4	3	3	4	2
		Male	*%*	*50*	*50*	*50*	*50*	*0*	*100*	*33*	*67*	*50*	*50*	*83*	*17*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*100*	*17*	*67*	*50*	*50*	*67*	*33*
4	DN2	*Male*	Pers.	4	2	3	2	1	5	1	4	3	3	4	2
		Female	Pers.	4	2	2	3	1	5	1	3	3	3	3	3
		Male	*%*	*67*	*33*	*50*	*33*	*17*	*83*	*17*	*67*	*50*	*50*	*67*	*33*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*83*	*17*	*50*	*50*	*50*	*50*	*50*
5	DN4	*Male*	Pers.	4	2	3	3	0	5	1	5	3	3	4	2
		Female	Pers.	3	3	2	2	1	5	1	6	3	3	4	2
		Male	*%*	*67*	*33*	*50*	*50*	*0*	*83*	*17*	*83*	*50*	*50*	*67*	*33*

NO.	ID	Gender	Unit	Area		Vehicle type			Parental status	Postgraduate level	Have previously violated	Occupation		Income	
				Urban	Peri-Urban	Motorbike	Scooter	E-bike				Ride-hailing and	Road users	Cao	Urban
		Female	*%*	*50*	*50*	*33*	*33*	*17*	*83*	*17*	*100*	*50*	*50*	*67*	*33*
6	HCM2	*Male*	Pers.	4	2	3	3	0	5	1	6	3	3	5	1
		Female	Pers.	4	2	2	3	1	5	1	5	3	3	4	2
		Male	*%*	*67*	*33*	*50*	*50*	*0*	*83*	*17*	*100*	*50*	*50*	*83*	*17*
		Female	*%*	*67*	*33*	*33*	*50*	*17*	*83*	*17*	*83*	*50*	*50*	*67*	*33*
7	HCM4	*Male*	Pers.	3	3	4	2	0	5	1	4	3	3	4	2
		Female	Pers.	4	2	3	2	1	5	1	5	3	3	5	1
		Male	*%*	*50*	*50*	*67*	*33*	*0*	*83*	*17*	*67*	*50*	*50*	*67*	*33*
		Female	*%*	*67*	*33*	*50*	*33*	*17*	*83*	*17*	*83*	*50*	*50*	*83*	*17*

Annex 2. Images from the focus group discussions

Pilot Hanoi 1 (27/9/2024)

Pilot Hanoi 2 (27/9/2024)

Hanoi 1 (3/10/2024)

Hanoi 2 (3/10/2024)

Hanoi 3 (4/10/2024)

Hanoi 4 (4/10/2024)

HCM city 1 (9/10/2024)

HCM city 2 (9/10/2024)






HCM city 3 (10/10/2024)






HCM city 4 (10/10/2024)

Da Nang 1 (11/10/2024)

Da Nang 2 (11/10/2024)






Da Nang 3 (12/10/2024)

Da Nang 4 (12/10/2024)