Determination of the Commuting Characteristics of School Children in Valenzuela City and Zamboanga City, Philippines

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Abstract: Access to education is a child's right and the journey to school is part of the usual travel in a child's day. However, due to the alarming number of children being killed on the road, attention should be given to the travel of school children between home and school. A survey on the commuting characteristics of school children between home and school was done in Valenzuela City and Zamboanga City. The survey collected information on the main mode of transport, travel times to and from school, usual companion to and from school, and accident and near miss involvement of school children during commute to and from school, among others. Although with a limited sample, the survey results can be used as a starting point by policy makers and road safety advocates to make the journeys of school children safer.

Keywords: road safety, commuting, school children

1. INTRODUCTION

1.1 Background of the Study

According to the report published by the United Nations Children's Fund (UNICEF) and FIA Foundation in 2015, there have been more than 5.5 million children below 19 years old that have died due to road crashes worldwide since 1989. This figure currently translates to more than 500 children being killed everyday on the road globally and many of these children die while they are on their journey to or from school. As access to education is one of the rights of a child, going to school is a daily activity that takes up a part of their day making them one of the frequent users of the road. Attending school does not only pertain to the learning activity itself, but also the journeys taken by the students to and from school.

The World Health Organization (WHO) and UNICEF (2008) listed the factors that children possess that could increase their risks to road traffic fatalities and injuries. These risk factors are classified into four: child-related, vehicle- and safety equipment-related, physical environment, and socioeconomic environment. Age is an important risk factor as their physical and cognitive development is dependent on their age. As children are still in the process of growth, their body parts are not yet fully developed, thus, making them more vulnerable to the impact of injury. Moreover, children aged between five and seven years old are still not able to recognize properly the places that are dangerous to cross and will only rely on the visibility of the cars in the area. In other words, their decision making is still poor as they have limited traffic experience. Their decision skills will improve once they reach the age of 11 and up, where most of the time they will be able to identify the locations on the roads that are considered safe and they will be able to change their road behavior depending on their location. As for the gender, data has shown that boys are more prone to road crashes than the girls. This may be due to their

risk-taking behavior. According to the report, having this type of behavior allows children to have a sense of control of their lives. As they are also in the stage where they are curious, they will continue to seek out risks just for the thrill of it or for the experience. However, risk-taking behaviour is a common cause of injury for child pedestrians and young adults (aged 16-17 years old). Studies (Sullman et al., 2012 and Nabipour, A. et al., 2014) have shown that sensation-seeking is more prevalent among young boys than girls. The lack of supervision from the elderly, non-usage of child restraints, seat belts, helmets, and overloading also pose threats to the safety of children on the road. Aside from these risk factors, roads are not generally designed for the use of children.

Given these issues on the safety of children on the road, road safety efforts such as the Global Child Health Initiative was launched in 2016 to achieve the objective of a safe and healthy journey to school for all children by 2030. In the Philippines, there are already laws protecting children from the impacts of road crashes. One of them is Republic Act No. 10666 or known as "Children's Safety on Motorcycles Act of 2015." The act states that any person is prohibited to drive a motorcycle with a child on board on public roads with heavy traffic volume, presence of high density of fast moving vehicles, or where the speed limit is greater than 60/kph unless the child passenger's feet can comfortably reach the foot peg of the motorcycle, the child's arms can reach around and grasp the waist of the motorcycle rider, and that the child is wearing a protective helmet as specified under R.A. 10054 or the "Motorcycle Helmet Act of 2009". Another recently enacted law is the Republic Act No. 11229 or the "Child Safety in Motor Vehicles Act." The law mandates the use of a child restraint system or child car seat in motor vehicles when transporting a child unless the child is at least 150 cm or 59 inches tall and is properly secured in a regular seatbelt. It also prohibits children aged 12 years old and below to sit in the front seat of a motor vehicle, unless the child meets the previously mentioned height requirement and is secured in a seat belt. Moreover, UNICEF Philippines is currently implementing a project on child road traffic injury prevention in collaboration with relevant government agencies, selected local government units, academic institutions, and private sector groups. One of the objectives of this project is to create safe journeys to school in high-risk program areas to contribute to the reduction of road traffic fatalities and injuries.

1.2 Statement of the Problem

As attending school is one of the usual travel activities of children and with the alarming statistics of children being killed on the road, the determination of the commuting characteristics can be a helpful first step in creating safe journeys between home and school.

1.3 Objectives

This study aims to determine the commuting characteristics of school children to and from school and recommend measures to improve the safety of commute of school children.

1.4 Significance of the Study

This study aims to contribute information on the commuting characteristics of elementary and high school students between home and school in the Philippines. The results of this study can be a basis by policy makers in order to improve the safety of journeys made by the students between home and school.

1.5 Scope and Limitations

This study will only be limited to elementary and high school students in the Philippines. The terms "students" and "children" will be used interchangeably in this study as the ages of elementary and high school students in the Philippines usually range from six (6) to seventeen (17) years old. Also, a child is defined by the United Nations Convention on the Rights of the Child as a person below the age of 18, unless the laws of a particular country set the legal age for adulthood younger.

As this research is part of an ongoing project on child road traffic injury prevention of UNICEF Philippines, the areas that they have selected will also be the study areas of this research, which are Valenzuela City and Zamboanga City in the Philippines.

2. REVIEW OF RELATED LITERATURE

2.1 Studies on Travel Characteristics of School Children

Tetali, S. et al. (2016) conducted the first study in India regarding the commute to school of children. They used questionnaires which gathered commuting data such as usual mode of travel to school, mode of travel during wet or dry conditions, and permissions from parents for independent travel, among others. The sample consisted of 11 to 14-year-old students in Hyderabad, India. The questionnaires were answered by 54% girls and 46% boys, with a mean age of 13 years old. The study also collected the nearest self-reported landmark to home by the students and computed the distance from school to home using Google Earth. The authors found that 57% of students walked to school, 36% rode motorized transport, and 6% cycled. Results also showed that 90% of the children live within 5 kilometers from school and that the closer the distance of a child's home to the school, the higher is the likelihood to walk or cycle to school. The study expressed the importance of having a safe and pleasant environment to walk on and cycle due to the high percentage of students walking to school. Improvement in the pedestrian infrastructure is needed which could help lessen road traffic injuries.

Meanwhile in Benin City, Nigeria, Ipingbemi, O. and Aiworo, A.B. (2013) also examined the travel characteristics of secondary students aged 11 to 17 years old. Through survey questionnaires, data on the mode of transport, distance travelled to school, and the time taken to get to school were collected. Results showed that 65.0% of the children walk to school, followed by commercial vehicle (bus and taxi) with 14.0%, motorcycle with 12.3%, private vehicle 8.1%, and bicycle with 0.5%. As for the distance travelled to school, approximately 84.6% travel less than 5 kilometers from home to school. As for the time taken to get to school, 20% of the school children only took less than 5 minutes to get to school, 36.3% took 6 to 10 minutes, 27.6% spent 11 to 30 minutes, and 16% spent over 30 minutes to get to the schools. It was also observed from the results that school children living within 2 kilometers from their schools tend to walk to school while those living more than 5 kilometers away from their schools tend to use motorized transport. Moreover, 9.7% of the school children were involved in road crashes. The study mentioned that the quality of the walkways should be improved since the presence of street trading and on-street parking forces the school children to walk on the road and share the space with vehicles which poses great danger to these children.

Regino, F.'s (2019) undergraduate thesis also determined the commuting characteristics of the journey from home to school of elementary school students at Felipe Calderon Elementary School in Cavite. A student travel survey was administered asking the modes of transport used by the students in travelling from home to school, the protection used when

riding the modes of transport used during travel, and their ability to walk independently to school. The author was able to determine the modes of transportation taken by students from home to school which are tricycle (37%), walk (32%), and motorcycle (21%). In terms of protection to school, 59.3% of students walked with companion to school, 33.3% used a seatbelt when in the car, 15.4% used a bicycle helmet, and 14.1% used a motorcycle helmet.

2.2 Studies on Safety Vehicle Devices

Durbin, D. et al. (2005) evaluated the relationships between seating position and child restraint status and risk of injury to children below 16 years old in vehicle crashes. They found that as the age increased, the risks of serious injury and the choice of seating at the front row also increased since children 13 to 15 years old exhibited the highest risks of serious injury and front row seating. The study also showed that appropriate restraint use would provide more safety protection from injuries than car seating position, although implementing both appropriate restraint use and rear row seating would provide the best safety benefits for children of all ages during vehicle crashes.

Bastos, Y. et al. (2005) evaluated the seat belt and helmet use of motorcyclist and car occupants who were victims of road crashes from 1997 to 2000 in Londrina, Brazil. Data showed that there was a significant decrease in the non-use of helmets of motorcyclists which was 62.5% in 1997, 35.6% in 1998, 22.6% in 1999, then 13.9% in 2000. Meanwhile, there was also a significant difference in the non-use of seatbelts for car users from 1997 to 1998, as it was 54.3% in 1997 and 36.1% in 1998. However, the percentage remained constant in 1999 with 37.1% and 38.2% in 2000. The authors opined that the significant decrease in non-use of helmets may be due to the higher penalties applied to non-use of helmets of motorcyclists compared to non-use of seatbelts of car users.

Kim et al. (2018) analyzed the effects of helmet use on intracranial injury of motorcycle crash victims that obtained severe injuries. The study found that patients who wore motorcycle helmets were less likely to have intracranial injuries and be admitted to the Intensive Care Unit (ICU) compared to those who did not wear motorcycle helmets. Fahlstedt, M. et al. (2016) showed in their study that the use of bicycle helmets suggests a protective effect from sustaining brain injuries and skull fractures.

Aside from presenting commuting data of the students from both cities, the study also aims to show the differences in the commuting characteristics of school children from two different locations—Valenzuela City, which is in the National Capital Region (NCR), and Zamboanga City, a highly urbanized city but located in a more provincial setting, which is in Region IX.

3. METHODOLOGY

3.1 Study Areas

The areas considered in the study were chosen by UNICEF Philippines and these were Valenzuela City and Zamboanga City. According to the City Government of Valenzuela website, Valenzuela City is a highly urbanized city that has a land area of 44.59 km^2 (Tayo na, Valenzuela!, n.d.) and a 2015 population of 620,000 (Philippine Statistics Authority, 2016). Valenzuela City is one of the 16 cities in the National Capital Region and Tagalog is the main language spoken in the city. Meanwhile, Zamboanga City is also a highly urbanized city in Region IX with a land area of 1,414.70 km^2 (PhilAtlas, n.d.) and inhabited by 861,799 people

based on the 2015 census (Official Website of the City Government of Zamboanga, n.d.). Chavacano is the main language spoken in the city.

According to the Metro Manila Accident Reporting and Analysis System (MMARAS) reports, there were 1,627 road crash incidents in 2018 and 1,643 in 2019 in Valenzuela City. Meanwhile, based on the available data in the Data for Road Incident Visualization, Evaluation, and Reporting (DRIVER) website, there were a total of 24 road crashes that occurred in 2018 and 177 road crashes in 2019 in Zamboanga City.

3.2 Data Collection

In order to determine the commuting characteristics of school children, survey instruments were developed. The following data were collected using the survey questionnaires:
- Profile of the respondents (sex, age, and grade level)
- Modes of transport to and from school
- Presence of companion to and 'from' school
- Usage of safety vehicle devices (i.e., helmet, seatbelt, and child seat) during commute to and from school
- Number of riders in a bicycle/motorcycle during commute to and from school
- Travel times to and from school
- Usual companion to and from school
- Accident and near miss involvement of school children during commute to and from school

A total of 50 schools in Valenzuela City (25 schools) and in Zamboanga City (25 schools) were requested to participate in the "To School" and "From School" survey. Thirty (30) randomly selected students from each school answered both questionnaires. All 25 schools in Valenzuela were able to participate in the pilot survey, however, only 24 schools were able to do so in Zamboanga City.

The surveys were implemented from November 8 to 18, 2019 in Valenzuela City and from November 11, 2019 to January 7, 2020 in Zamboanga City. This involved the cooperation of the focal persons as well as the administrators and teachers of the schools.

Tables 1 and 2 detail the schools and number of participants who answered the survey questionnaires in Valenzuela City and Zamboanga City, respectively.

Table 1. Number of responses for survey questionnaires from 25 schools in Valenzuela City

Name of School	No. of "To School" Survey Respondents	No. of "From School" Survey Respondents
1. Andres Fernando Elementary School	30	1
2. Andres Mariano Elementary School	30	30
3. Apolonia F. Rafael Elementary School	20	28
4. Bitik Elementary School	30	30
5. Canumay East Elementary School	30	30
6. Gen. Tiburcio De Leon Elementary School	30	30
7. Lawang Bato Elementary School	30	30
8. Lingunan Elementary School	30	24
9. Luis Francisco Elementary School	30	30
10. Malinta Elementary School	30	30
11. Maysan Elementary School	30	30

Name of School	No. of "To School" Survey Respondents	No. of "From School" Survey Respondents
12. Parada Elementary School	24	24
13. Paso de Blas Elementary School	30	30
14. Pasolo Elementary School	30	30
15. Rincon Elementary School	30	30
16. Roberta de Jesus Elementary School	25	25
17. Dona Ata Elementary School	30	0
18. Pio Valenzuela Elementary School	29	30
19. Canumay West Elementary School	30	30
20. Marulas Central School	8	22
21. San Miguel Heights Elementary School	30	30
22. Santiago A. De Guzman Elementary School	30	30
23. Serrano Elementary School	30	30
24. Silvestre Lazaro Elementary School	28	28
25. Caruhatan East Elementary School	27	27
Total	**701**	**659**

Due to logistical concerns, students from Andres Fernando Elementary School and Dona Ata Elementary school were not able to answer the "From School" survey questionnaire.

Table 2. Number of responses for survey questionnaires from 24 schools in Zamboanga City

Name of School	No. of "To School" Survey Respondents	No. of "From School" Survey Respondents
1. Ayala Central School SPED Center	30	30
2. Baliwasan Central School	30	30
3. Catalina Vinda de Talon Memorial School	30	29
4. Culianan Learning Center	30	30
5. Divisoria Elementary School	30	30
6. Don GEMS Elementary School	30	30
7. Immaculate Conception Elementary School	30	30
8. Maasin Learning Center	30	30
9. Mampang Elementary School	29	29
10. Maria Clara Lorenzo Lobregat National High School	30	30
11. Putik Central School	30	30
12. Recodo Elementary School	30	30
13. San Jose Gusu	30	30
14. Sangali Elementary School	30	30
15. Sinunuc Elementary School	30	30
16. Southcom Elementary School SPED	27	27
17. Southcom National High School	30	30
18. Southern City Colleges West	30	30
19. Sta. Barbara Central School	30	30
20. Sta. Maria Central School SPED Center	30	30
21. Talon-Talon Central School	30	30
22. Tetuan Central School	30	30
23. Zamboanga City High School Main	30	30
24. Zamboanga City High School West	20	20
Total	**706**	**705**

6

4. RESULTS AND DISCUSSION

4.1 Survey Results

Figures 1 to 4 show the profiles of the survey questionnaire respondents in Valenzuela City and Zamboanga City. Majority of those who answered the questionnaires were the students themselves, with 50% in Valenzuela City while 84% in Zamboanga City. More than 60% of the respondents were female. Ages of the respondents who answered the survey ranged from 4 to 70 years old in Valenzuela City with students mostly enrolled in grade school (grades 1 to 6). Meanwhile, the ages of the participants in Zamboanga City ranged from 6 to 48 years old with students enrolled in grade school (grades 1 to 6) and high school (grades 7 to 12). 'Others' meant no answer or both the student and parent/guardian answered the questionnaire at the same time (there should be only one choice ticked for the item).

a. Valenzuela City   b. Zamboanga City
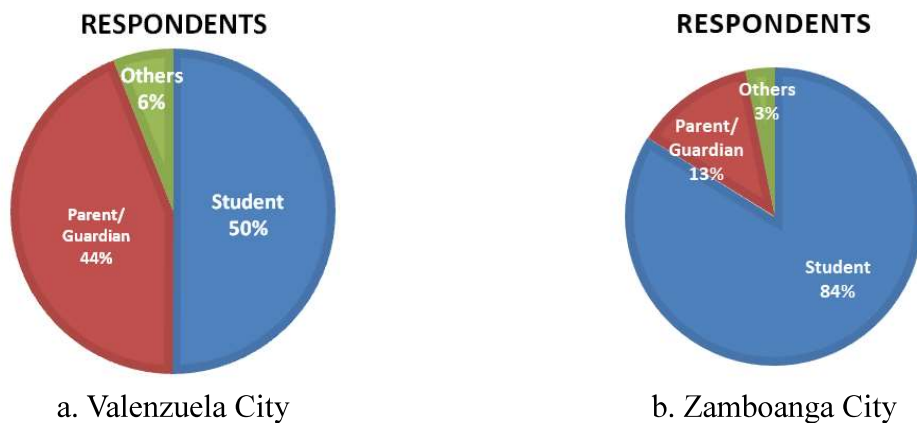
Figure 1. Respondents of the survey questionnaire

a. Valenzuela City   b. Zamboanga City
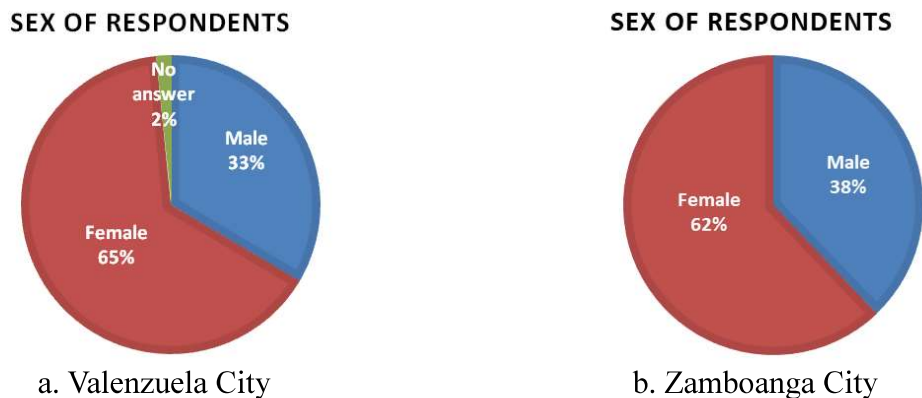
Figure 2. Sex of the respondents
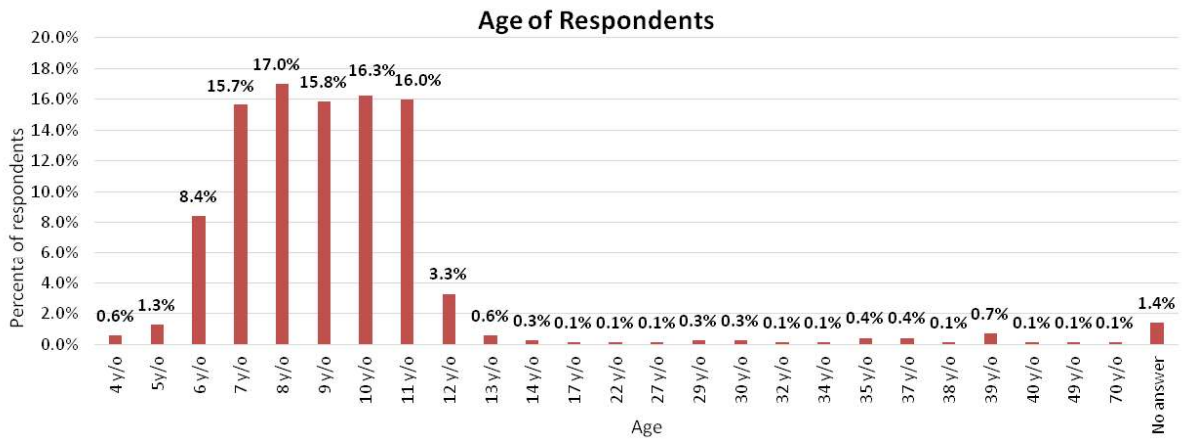
a. Valenzuela City
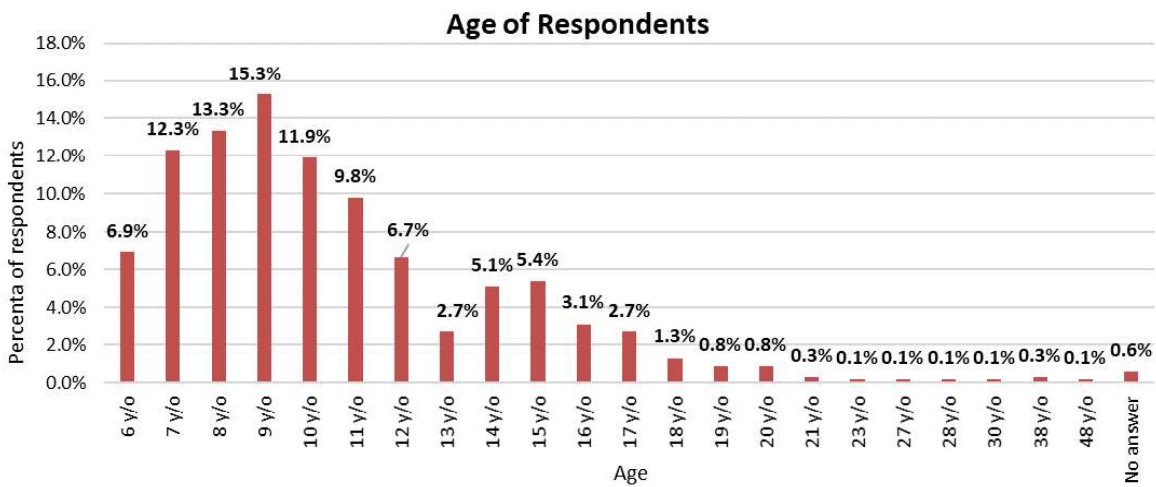
b. Zamboanga City

Figure 3. Age of respondents
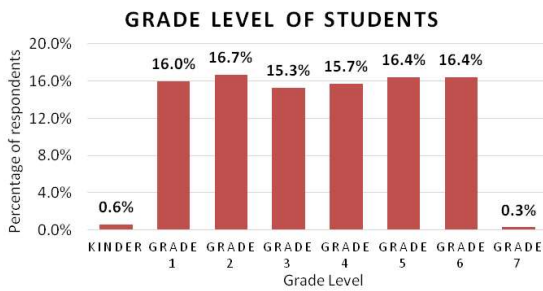
a. Valenzuela City
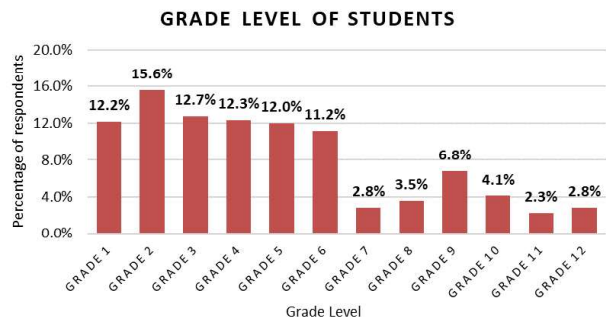
b. Zamboanga City

Figure 4. Grade level of students

Figure 5 illustrates that the top modes of transport used by school children to school in Valenzuela City were walking (34.5%), tricycle (33.1%), and motorcycle (16.7%). In Zamboanga City, their top modes of transport to school are motorcycles (39.2%), walking (19.3%), then jeepney (14.2%).

Walking (35.7%), tricycle (32.2%), and motorcycle (16.7) were the same modes of transport used by children from school in Valenzuela City. Furthermore, in Zamboanga City, when children come home from school, the top modes of transport are still the motorcycle

(35.5%), walking (22.1%), and jeepney at (15.7%). No one rode the mini bus in Valenzuela City but one student did in Zamboanga City on the way to and from school.
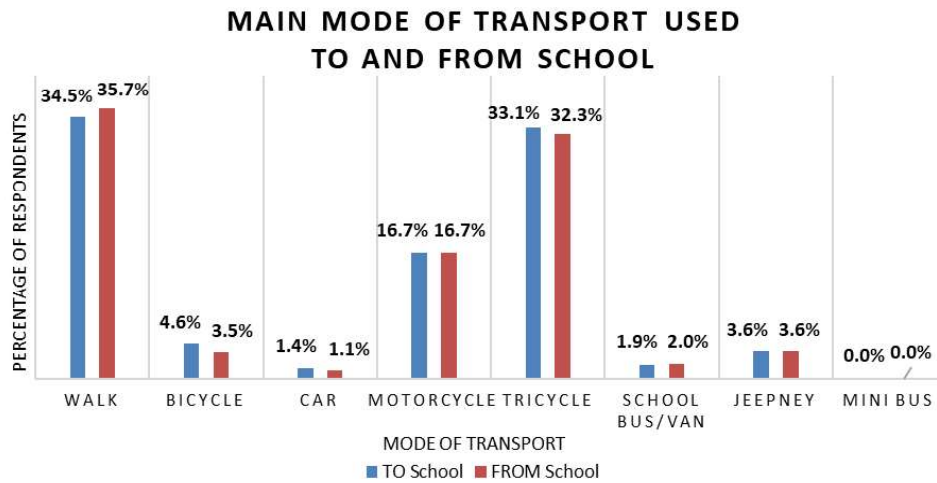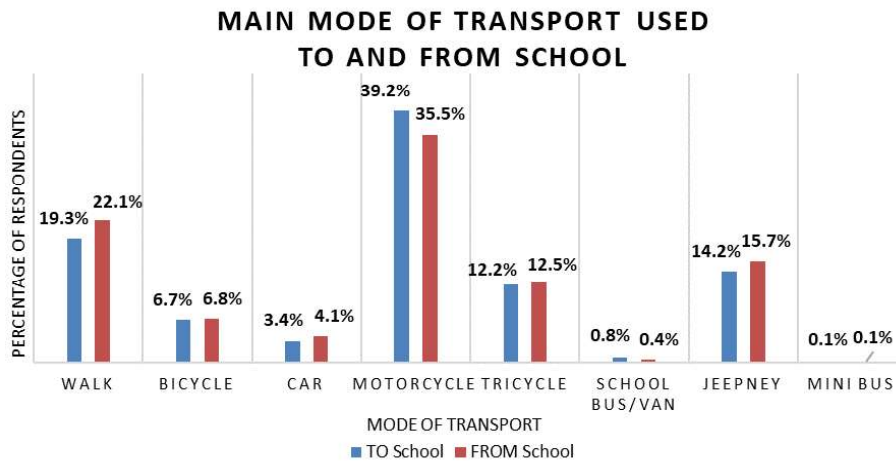
a. Valenzuela City

b. Zamboanga City

Figure 5. Main mode of transport used to and from school

Figure 6 shows that school children have companions when going to school. In Valenzuela City, 91.3% of the children who ride the jeep going to school have companions followed by those who ride the motorcycle with 91.2% which makes sense since children are prohibited to drive motorcycles. In Zamboanga City, all of the students who ride the car (100.0%) have companions who can be concluded to be the drivers of the vehicles. 84.3% of students riding the motorcycle to school also have companions with them.

PRESENCE OF COMPANION WHEN GOING TO SCHOOL

a. Valenzuela City

PRESENCE OF COMPANION WHEN GOING TO SCHOOL
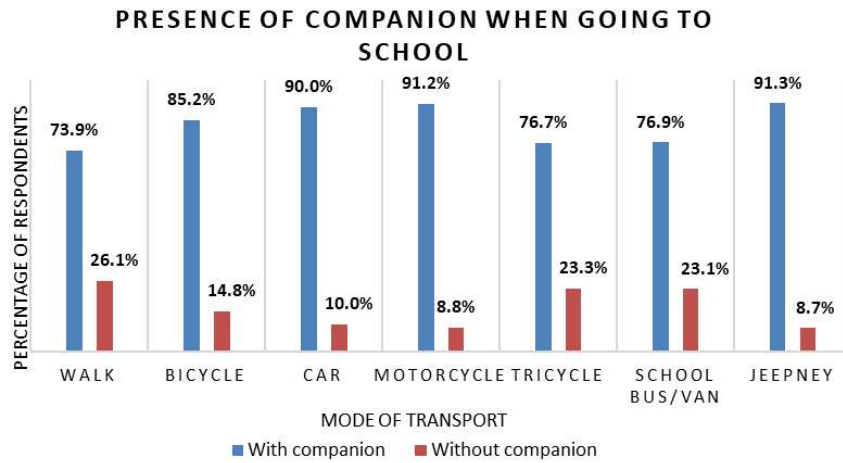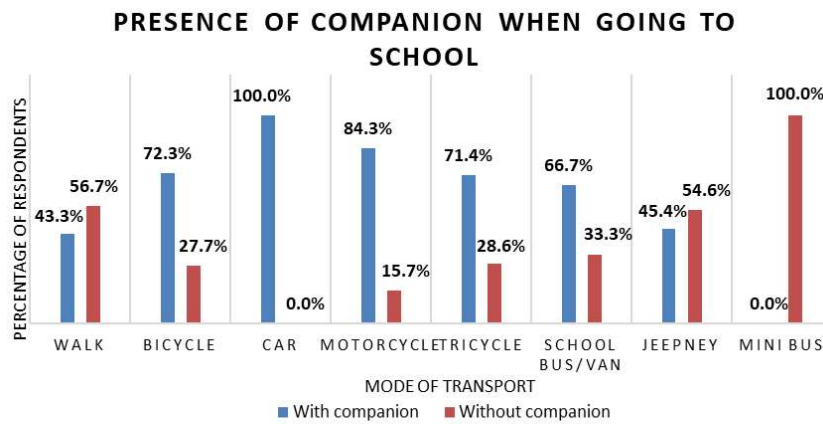
b. Zamboanga City

Figure 6. Presence of companion when going to school

Presented in Figure 7 are the results for the presence of companion when coming from school. Students who were car users in Valenzuela City and Zamboanga City answered that all of them have companions when riding the car. Moreover, if 91.3% of the students in Valenzuela City answered that they have companions when riding the motorcycle, only 78.8% did so in Zamboanga City.

PRESENCE OF COMPANION WHEN COMING FROM SCHOOL

a. Valenzuela City

PRESENCE OF COMPANION WHEN COMING FROM SCHOOL
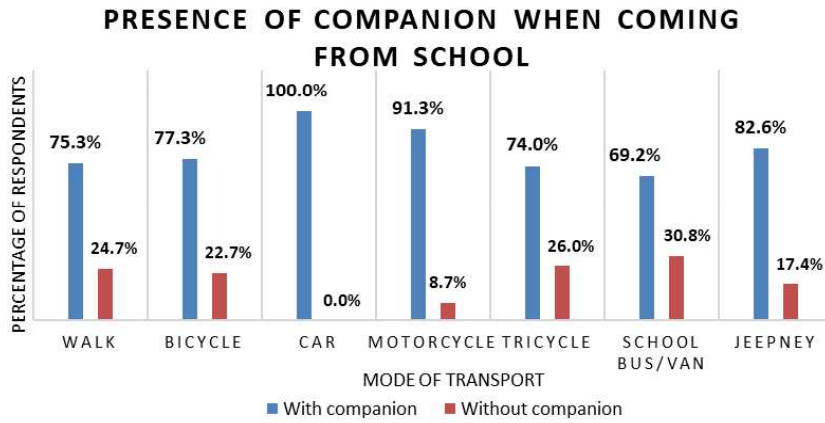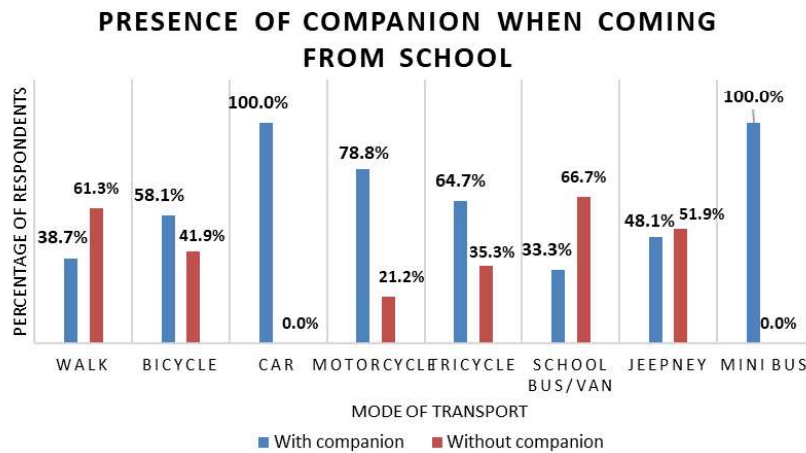
b. Zamboanga City

Figure 7. Presence of companion when coming from school

Among those who answered bicycle and motorcycle as their main modes of transport to school, only 25.0% of the bicycle users wore their helmets compared to 75.0% who did not use helmets in both cities. Fortunately, 85.2% of motorcyclists in Valenzuela City and 71.4% of motorcyclists in Zamboanga City used their helmets as illustrated in Figure 8.

USAGE OF HELMET WHEN GOING TO SCHOOL

USAGE OF HELMET WHEN GOING TO SCHOOL
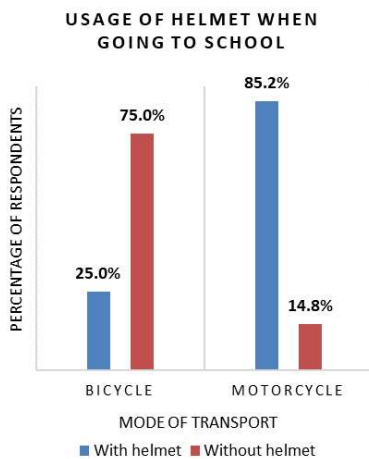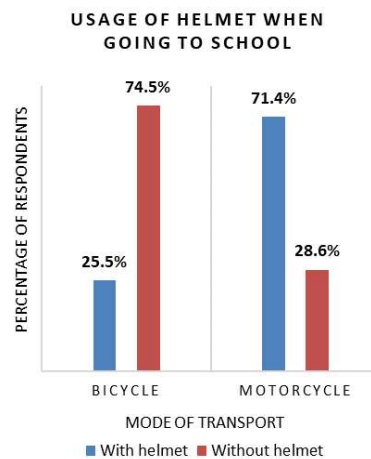
a. Valenzuela City   b. Zamboanga City

Figure 8 - Usage of helmet when riding the bicycle and motorcycle to school

11

As for when coming from school, there is also low compliance from bicycle users when it comes to wearing of helmets since only 19.0% of bicycle users in Valenzuela City and 12.8% of bicycle users in Zamboanga City wore their helmets when they came home from school compared to more than 80% of bicycle users in both cities who did not. Also, more than 70% of motorcyclists used their helmets on the way from school in both cities. These details are shown in Figure 9.
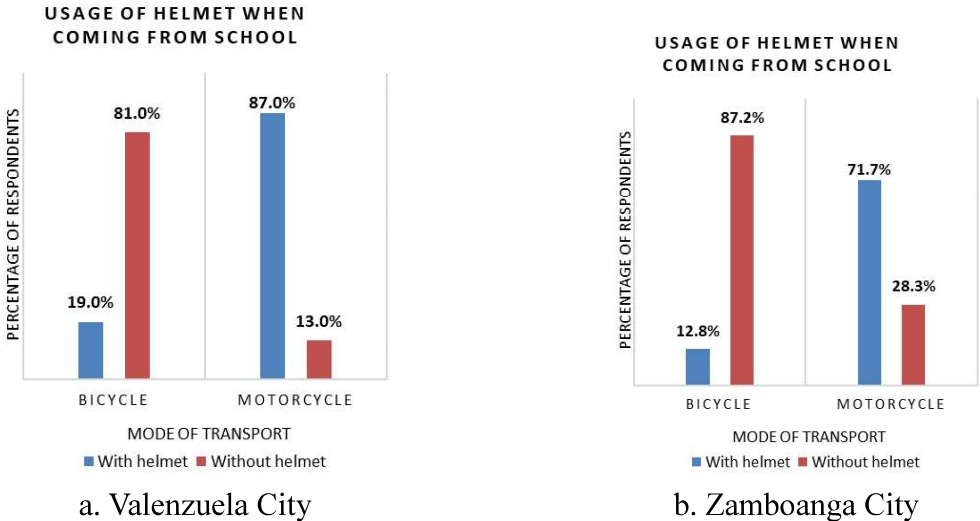

a. Valenzuela City   b. Zamboanga City
Figure 9. Usage of helmet when riding the bicycle and motorcycle from school

Figure 10 shows that in Valenzuela City and Zamboanga City, the common number of riders in a bicycle is two when going to school which usually consists of the student and the companion. As for motorcycles, the common number of riders in Valenzuela City is two while three riders are more common in Zamboanga City when going to school.

Figure 11 presents that the common number of riders in a bicycle/motorcycle when coming from school in Valenzuela City is two, while in Zamboanga City, more respondents answered two riders for both bicycles and motorcycles.
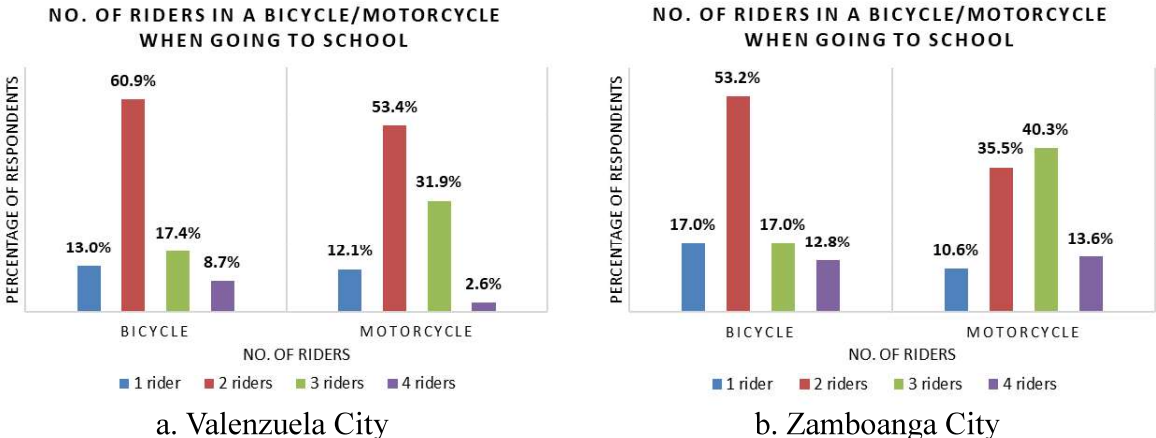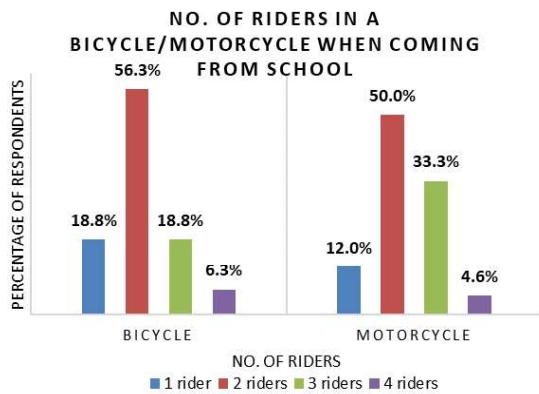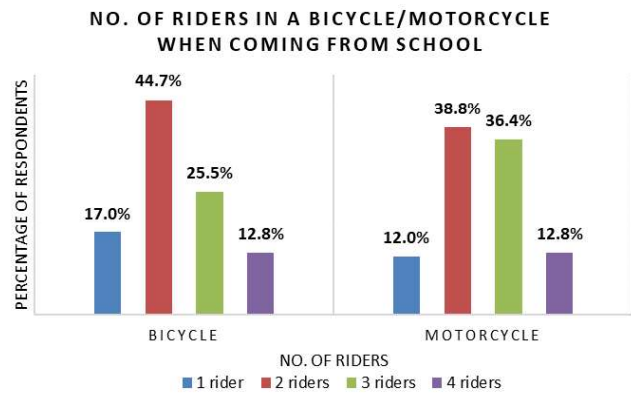

a. Valenzuela City   b. Zamboanga City
Figure 10. No. of riders in a bicycle or motorcycle when going to school

NO. OF RIDERS IN A BICYCLE/MOTORCYCLE WHEN COMING FROM SCHOOL

a. Valenzuela City

## NO. OF RIDERS IN A BICYCLE/MOTORCYCLE WHEN COMING FROM SCHOOL
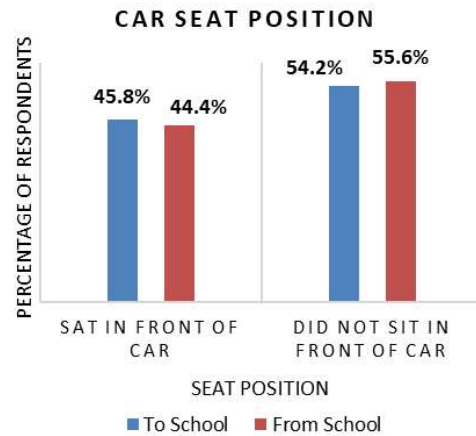

b. Zamboanga City

Figure 11. No. of riders in a bicycle or motorcycle when coming from school

It can be observed in Figure 12 that only 33.3% of the students who rode their cars in Valenzuela City sat in front of the car compared to 45.8% of students in Zamboanga City when going to school. Only 14.3% of car users from Valenzuela City sat in front when coming from school versus 44.4% from Zamboanga City. This means that there were more students in Valenzuela City who did not sit in front of the car compared to students in Zamboanga City either when going to or coming from school.

Based on the survey results shown in Figure 13, seatbelts are still the widely used vehicle safety device in both cities. There were more respondents who used a child seat in Valenzuela City than Zamboanga City.
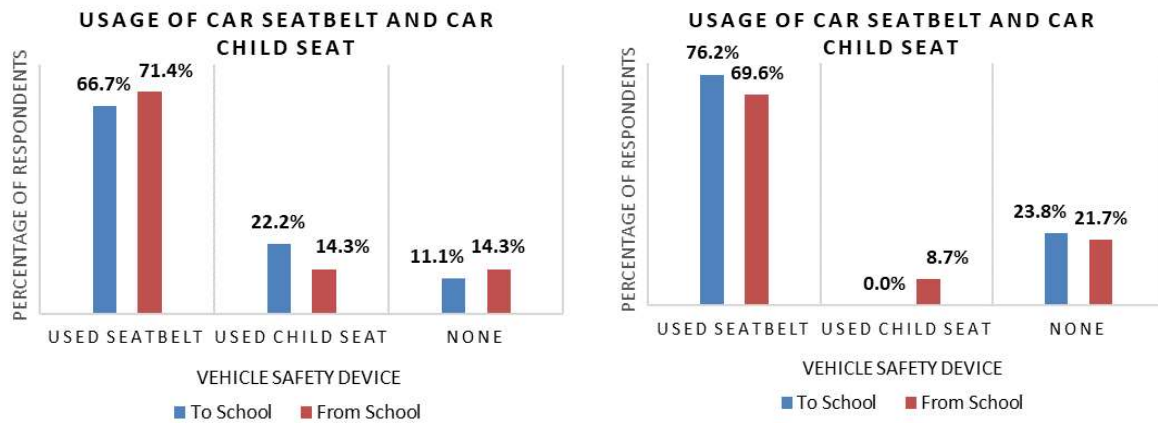
CAR SEAT POSITION
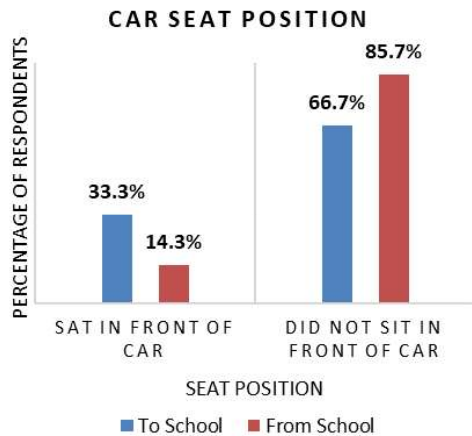
a. Valenzuela City

CAR SEAT POSITION

b. Zamboanga City

Figure 12. Car seat position when going to and from school
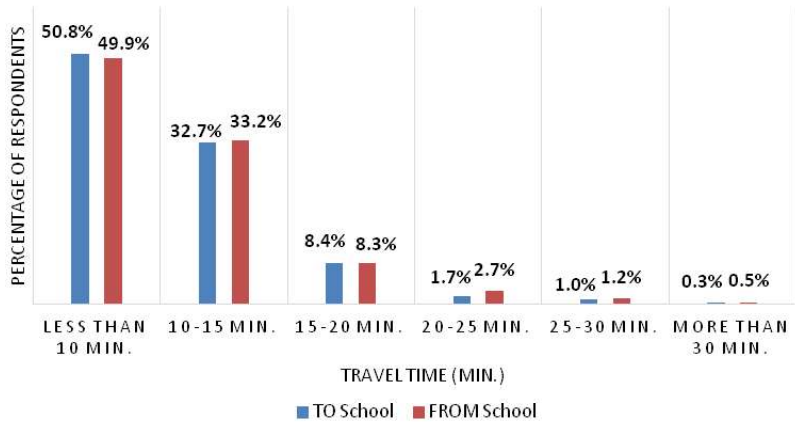
a. Valenzuela City   b. Zamboanga City

Figure 13. Usage of vehicle safety devices when going to and from school

It was determined from the survey that in Valenzuela City, 50.8% of students usually take less than 10 minutes going to school, 32.7% spend 10 to 15 minutes, 8.4% take 20 to 25 minutes, 1.0% take 25 to 30 minutes, while 0.3% of children take more than 30 minutes when travelling to school. As when coming home from school, 49.9% of students take only less than 10 minutes, 33.2% takes 10 to 15 minutes, 8.3% take 35 to 20 minutes, 2.7% spend 20 to 25 minutes, 1.2% spend 25 to 30 minutes, while 0.5% of the children spend more than 30% coming from school. The same trend can be observed from the survey results in Zamboanga as shown in Figure 14. 42.6% and 41.8% of students spend less than 10 minutes coming to and from school, respectively. Followed by 10 to 15 minutes travel time as answered by 29.9% and 28.4% of students when going to and from school, respectively. Then 13.9% of students take 15-20 minutes to go to school while 14.2% take the same time to come from school.

For students who are accompanied to and from school, Figure 15 illustrates that in Valenzuela City, mothers are their usual companions to and from school, followed by 'others'. 'Others' consist of people not included in the choices such as their grandparents, aunts, uncles, friends, and classmates, among others. Meanwhile, fathers are the usual companions of students who are accompanied to and from school in Zamboanga City, followed by mothers.

14
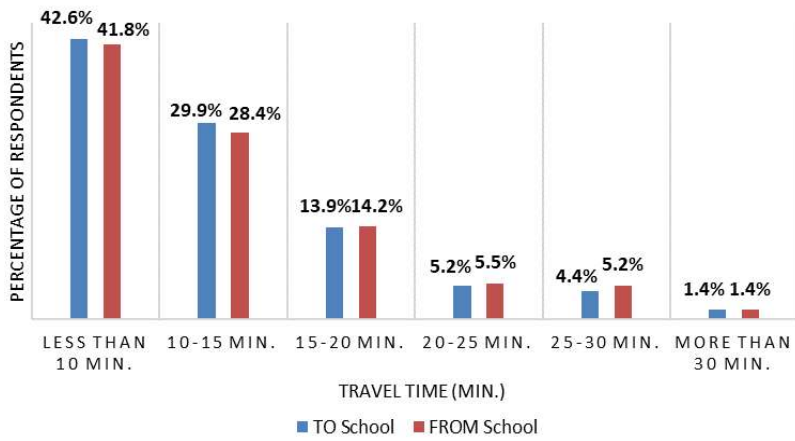
a. Valenzuela City

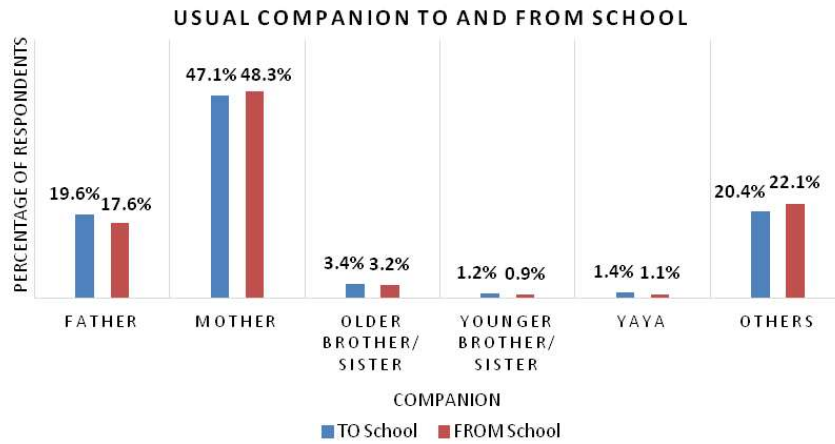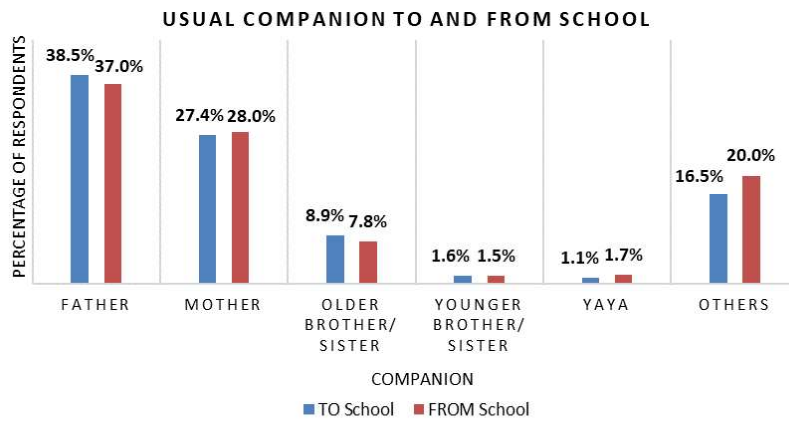b. Zamboanga City
Figure 14. Travel time of school children to and from school

a. Valenzuela City

b. Zamboanga City

Figure 15. Usual companion of children to and from school

Over 90% of students surveyed in both cities have not been involved in an accident while going to and coming from school. As for the 3% to 5% that have already encountered an accident, the usual location where the accidents happened occurred 'near school' in Valenzuela City and 'near home' in Zamboanga City while going to school and the accident usually occurred 'near home' in Valenzuela City and 'near school' and 'near home' in Zamboanga City. while coming from school. More details are shown in Figures 16 and 17.
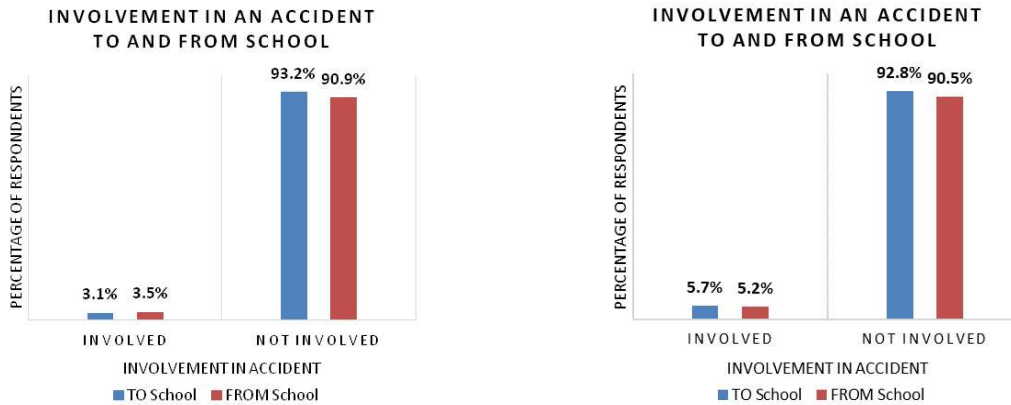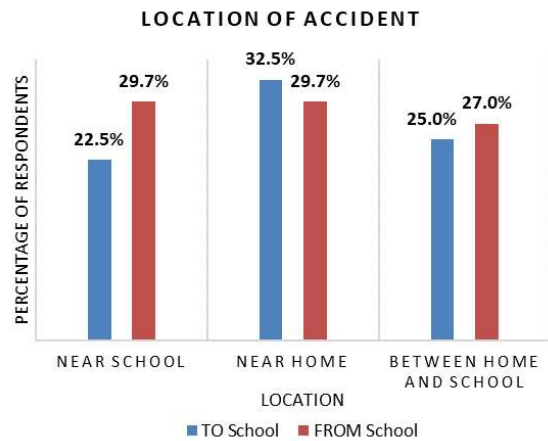

a. Valenzuela City   b. Zamboanga City

Figure 16. Involvement of students in accidents and location of accident when going to and from school
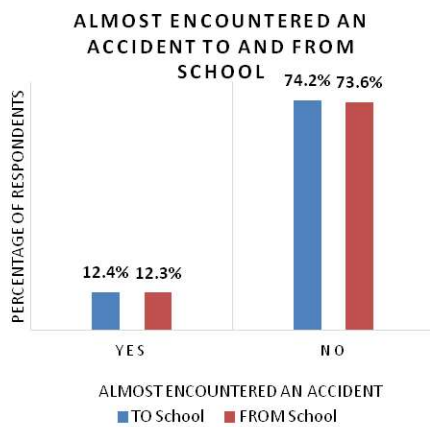
16
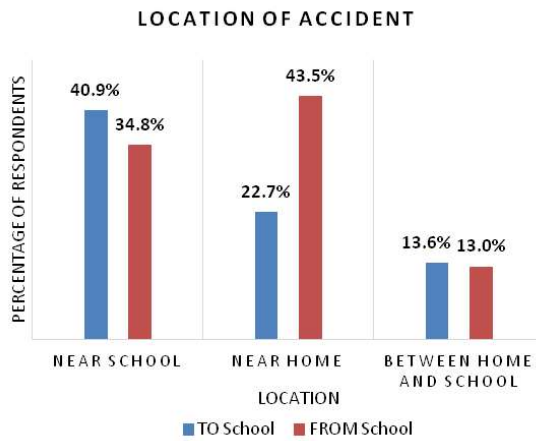
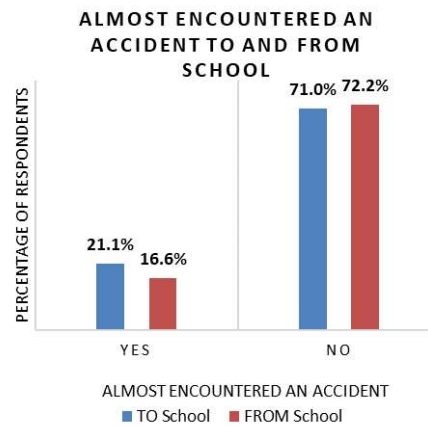a. Valenzuela City   b. Zamboanga City

Figure 17. Involvement of students in accidents and location of accident going to and from school

Meanwhile, only about 12% of students in Valenzuela City have almost encountered an accident or have been involved in a 'near miss' incident compared to the 16% to 21% of students in Zamboanga City. The location where these 'near miss' incidents usually happened were at 'between home and school' in both cities. Percentages of the responses are shown in Figure 18 and 19.

a. Valenzuela City   b. Zamboanga City

Figure 18. Near miss involvement of students in accidents and location of accident going to and from school

17

LOCATION WHERE ACCIDENT WAS ALMOST ENCOUNTERED
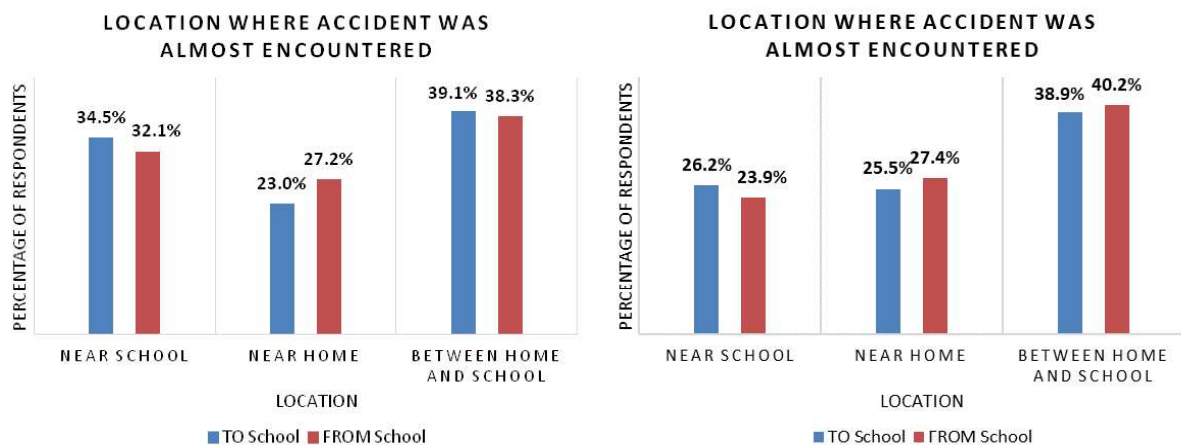
a. Valenzuela City   b. Zamboanga City

Figure 19. Near miss involvement of students in accidents and location of accident going to and from school

4.2 Assessment

The pilot survey conducted by the study team showed differences in the travel characteristics of school children in Valenzuela City, which is in Metro Manila, and Zamboanga City, a highly urbanized city but located in a more provincial setting. The top three main modes of transport in Valenzuela City are walking, tricycle, and motorcycle while in Zamboanga City the top three are motorcycle, walking, and jeepney. Majority of school children in all transport modes in Valenzuela City have companions when going to and from school while in Zamboanga City there are more school children who walk and ride the jeep without companions. These may be due to the age of the participants, since those who answered in Valenzuela City are mostly up to Grade 6 only who are commonly 12 years old only while in Zamboanga City the participants are until Grade 12 who are usually 17 or 18 years old who are more or less independent already.

Meanwhile the results were consistent for the usage of bicycle and motorcycle helmets. Majority of the bicycle users do not wear helmets while motorcyclists wear helmets. This may be due to the lack of policy forcing bicycle users to wear helmets while on the road. As for the usual number of riders in a bicycle and motorcycle, the results were the same for bicycles. Two riders were answered by respondents in Valenzuela City and Zamboanga City. However, for motorcycles, respondents answered two riders in Valenzuela City while in Zamboanga City it was two and three riders. As for the car seat position, majority of school children who take private vehicles sit at the back of the car in Valenzuela City while in Zamboanga City, almost half of the students sit at the front. The results for the usage of safety vehicle devices are also the same, as seatbelts are the main safety vehicle device used to restrain the child in the car in Valenzuela City and Zamboanga City. Also, over 40% of students only spend less than 10 minutes to travel between home and school in both cities. In the usual companion to and from school, school children in Valenzuela City were usually accompanied by their mother while school children in Zamboanga City are usually accompanied by their father. Fortunately, more than 90% of students have not been totally involved in accidents. However, there were more school children that have encountered 'near miss' accidents in Zamboanga City than in Valenzuela City.

5. CONCLUSION AND RECOMMENDATIONS

Although with a limited sample, the survey results described in detail the commuting characteristics of school children between home and school in Valenzuela City and Zamboanga City. These data can be a starting point in improving the physical environment to keep school children safe during their commute between home and school. Since walking is the most dominant mode of transport of school children in Valenzuela City, it is recommended to check on the walkability of the school surroundings. Meanwhile in Zamboanga City, the main mode of transport of school children is the motorcycle. Enforcers should make sure that adults and children in Zamboanga City wear their helmets and that they strictly abide by Republic Act No. 10666 or "Children's Safety on Motorcycles Act of 2015." Adults driving the motorcycles should also be conscious of their speed especially when carrying children as passengers.

A full-blown commuting characteristics survey is recommended to be done in Valenzuela City and Zamboanga City as a further study for a more detailed analysis of the travel characteristics of school children. Also, the reasons why there were differences in the commuting characteristics of school children between the two cities can also be investigated further. Moreover, a site inspection or visit of the school surroundings is also recommended to be done to be able to understand the commuting characteristics of school children and also to be able to provide evidence-based policies and measures to help keep children safe from road traffic injuries.

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DISCLOSURE

Any opinions stated in this manuscript are those of the authors and not of UNICEF.

COMPETING INTERESTS

The authors declare no competing interests regarding the presentation or publication of this paper.

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