**Association of road traffic injuries with independent mobility of adolescents in a megacity of lower middle-income country**

**ABSTRACT**

**Background**

Road traffic injuries are number one cause of mortality for adolescents 10 to 19 years old. The objective of our study was to assess the association of independent mobility of adolescents with road traffic injury in low middle-income setting

**Methods**

This was a cross sectional survey of 75 schools that were selected through cluster random sampling to include both the private and the public schools. Data was collected between Septembers - December 2014 in Karachi, Pakistan. We approached students of grades 6-10 from these schools and obtained parental consent and adolescents’ assent. Each student in selected classroom was asked to fill a written questionnaire.

**Results**

There were 1264 adolescents surveyed, out of which 60% belonged to private schools. There were 771 (60%) girls. In the final multivariable logistic regression model; boys (aOR 1.50; 95% CI = 1.09, 2.08), adolescents who were allowed to cross main roads alone (aOR 1.3; 95% CI = 1.02,1.82), when their time to reach school was 31 to 45 minutes adolescents (aOR 2.43; 95% CI = 1.22, 4.77), adolescents who did any activity outside home on last weekend alone (aOR 2.51; 95% CI = 1.36, 4.96) were more likely to get injured.

**Conclusions**

Independent mobility of adolescents is associated with road traffic injuries.

**Keywords**

Adolescents, Independent mobility, road traffic injury, low income country

**Background**

Independent mobility – the freedom of children and adolescents to move around without being accompanied by an adult can contribute to physical activity and positively impacts psychological, social, cognitive and spatial development(1, 2). The independent mobility have health implications; benefits for obesity, hypertension, diabetes and many other non-communicable diseases but may also increase road traffic injuries (3, 4).

Adolescents are vulnerable to road traffic injuries (RTIs), which are the leading cause of deaths in adolescents aged 10-19 years. In 2013, the RTI death count in adolescents was 115,186 globally, out of which 90% occur in developing countries (5).There is higher road traffic fatalities and injuries among pedestrians, cyclists and motorcyclists in low and middle income countries where the built environment is least likely to be according to needs of vulnerable road users (6).

There are few studies on road traffic injuries in children/adolescents during school commute. These studies assessed association of speed, traffic volume and mode of travel with pedestrian injuries. Research on independent mobility of adolescents with respect to road traffic injury is scarce and if independent mobility of adolescents is associated with road traffic injuries is not established. A study from New Zealand showed that adult accompaniment with 5 to 12 years old was associated with reduced pedestrian injury risk (4). Study from India showed no association of road traffic injuries with independent travel of children 11-14 years old (7). The objective of this study is to determine the association of adolescents’ independent mobility with road traffic injury in an urban lower middle-income setting.

**Methods**

*Study design:* This was a cross-sectional study conducted during September till December in 2014.

*Setting:* The study was conducted in schools in Karachi, Pakistan. Altogether 75 schools participated in the study, out of which 26 (34%) were public schools and 49 (65%) were private schools.

For the public sector schools, a list of schools and permission was obtained from the Executive District Office – Education (EDO - Education) for Karachi District. For private schools, a list was obtained from director private school association Karachi. Both lists included the location addresses, and phone numbers of contact persons at the schools. Cluster random sampling was applied to select public and private schools. These schools were first approached through the given phone numbers and email addresses, but because the official lists of schools were not updated, many times contact with schools could not be made. To overcome the issue, two data collectors were dispatched to locate each school in person prior to data collection.

At each public and private sector school approached, permission to conduct the study was obtained from the school principal. During their first visit to each school, research assistants explained the study to the management and then to a class of students from the school. Each class and section (if there were multiple sections of a grade in a school) was randomly selected through paper chits to avoid selection bias. In each class, a parental permission letter giving details of the study (in either Urdu or English language, as advised by the school administration) was distributed to each student. A week’s time was given for students to get the letters signed by their parents or guardians. It was ascertained that a weekend fell in between before the research assistants’ second school visit, so as to allow for adequate time for parents to read the permission letters.

*Participants:* Adolescents (aged 10 to 19 years) in grades 6 to 10 were enrolled from schools. Only those students who had assented to participate and whose parents had given them permission to enroll in the study were included for data collection. For students’ assent, oral script was used.

*Variables*

*Outcome:* Any road traffic injury that resulted in any first aid or consultation in healthcare setting

*Exposures:* Parental licensing to independent mobility of adolescents was asked by whether they were allowed to cross main road, travel to and from school alone, travelling in bus, cycling, travelling in night versus day time and activities alone on the weekend. The responses were either yes or no.

*Data sources/measurements:* All the information was asked from adolescents in a written questionnaire. The study questionnaire for school adolescents was available in Urdu and English. The questionnaires had multiple choice questions. The study questionnaires were first pilot tested to see their effectiveness, acceptability, and clarity for study participants, and modifications were made accordingly before launching the main data collection process. For data collection, research assistants were trained about administering the questionnaires. Each question in the data collection tool was explained to students by research assistants to ensure clarity in comprehension. The questionnaires took approximately 25 minutes to be filled by a class of students.

*Study size:* The sample size for the study population was 1,270 school students. Since there was no past information on adolescents’ school mobility patterns in Pakistan, it was estimated that at least 50% students may be active commuters in the study population with 95% confidence level and a bound on error of ± 5%. The sample size required after multiplying with design effect of 3 and inflating the sample size by 10% to account for non-responders was approximately n=1267. The size of each class in schools is 15-30 students so list of around 100 schools was randomly generated with 40% public and 60% private schools to get sample of 1264 school adolescents. This percentage share of public versus private schools depicts the enrollment of children in urban areas in Pakistan (8).

There were numbers of classrooms/sections in school for our desired Grades 6-8. We attempted to have equal representation of grades overall in total sample of schools, so the research team used to inform which grade they want to survey.

*Quantitative variables*: Age was the only quantitative variable in the data and we grouped it into 10-14 years and 15-19 years. These age categories are used in road injury research as both are different in terms of injuries burden.

*Statistical analysis****:*** We performed the analysis using R (9). Categorical variables are describes using frequencies and percentages. We used logistic regression to estimate unadjusted and adjusted associations as well as 95% confidence intervals (CI) between exposures and the outcome. All exposures were included in the adjusted models.

**Results**

Data of 1264 adolescents were included in the study with girls in majority (60%). Around 71% of the adolescents reported no adult accompaniment on their school travel and the same percentage reported walking to schools. Half of the adolescents reached school within 5 to 15 minutes. Overall 21% of the adolescents reported road traffic injuries (Table 1).

In the unadjusted analyses, boys (OR 2.21, 95%CIs 1.68, 2.91), time 31 to 45 minutes to reach school (OR 2.95;95% CIs 1.56,5.48) or greater than 46 minutes (OR 2.89;95% CIs 1.17, 6.8), parents licensing to cross main roads alone (OR 1.62; 95% CI 1.24, 2.13), allowed to use public buses (OR 1.91; 95% CIs 1.38, 2.6) and adolescents who were on their own or with someone of the same age for weekend activity (OR 3.57; 95% CIs 1.98, 6.74). have higher odds of RTI (Table 2)

In the adjusted logistic regression model;), boys (aOR = 1.50 ; 95% CI = 1.09, 2.08), adolescents who were allowed to cross main roads alone (aOr =1.3; 95% CI = 1.02,1.82), when their time to reach school was within 31 to 45 minutes (aOr 2.43; 95% CI = 1.22, 4.77), adolescents who did any activity outside home alone on last weekend (aOR=2.51; 95% CI = 1.36, 4.96) and when they had mix pattern of weekend activities with adults as well as some activities alone (aOR=2.10; 95% CI = 1.15, 4.11) have higher odds of RTI. (Table 3).

**Discussion**

This study shows that some measures of independent mobility in adolescents are associated with RTI such as crossing main roads and weekend activities alone were significantly associated with RTIs, while others such as use of public bus and alone on school trip were insignificant in unadjusted analyses.

Study finding showed adolescents who allowed to cross main roads are associated with road traffic injuries. This is consistent with previous studies finding that the number of streets crossed by children and adolescents is associated with injuries (10). Karachi is devoid of safe road environment for pedestrians - there are no pedestrians’ signals to assist in crossing roads. The vehicles do not give way to pedestrians at crosswalks and pedestrians cross roads on their judgment of safety.

The vulnerability of adolescents is two-fold; due to such risky environment for pedestrians and due to their own risk-taking approach. Until the age of 18 the adolescent brain is still developing (11). A qualitative study from India – a neighboring country of Pakistan with similar road environment – reported that adolescents display various distracted behavior as pedestrians such as using ear phones and mobile phones as well as talking and playing with friends (12).

The activities during the last weekend are associated with RTIs in adolescents. The risk was the greatest when adolescents were alone or with their peers for weekend activity. The effect size was less pronounced when adolescents reported mixed patterns of activities i.e. sometimes, they were accompanied by adults and sometimes not. It is understandable that leisure time activities with peers provoke more risky behaviors. Previous studies have shown that children and adolescents with unsafe road safety behaviors have peers with similar behaviors (13).

Our study also showed risk of RTIs when adolescents were accompanied by adults in their weekend trips compared to when they were alone, but the effect size shows insignificant result (aOR1.41; 95% CI 0.71-2.93). The previous study in Auckland showed protective effect of adult accompaniment but not significantly (aOR 0.31; 95% CI 0.07-1.49 (4). The setting of these two studies are different particularly the built environment for pedestrians. Adolescents’ accompaniment with adults on the school-home journey had protective association but it was not significant (aOR 0.95; 95% CI 0.57-1.54).

The other two variables that were significantly associated with RTIs were the time to reach school and gender. The time to reach school was seen to be associated with RTIs if it was between 31 to 45 min compared to less than five minutes. This seems logical as longer time means more road exposure in the risky road environment. All the other categories of time also shown risk but not significantly.

More boys had RTI, but this is not a surprising finding in the setting of Karachi. In this context, boys generally take care of chores outside home (1). In the previous study, boys had more road trips than girls in India (14) . Adolescent boys get parents licensing for many activities compared to girls. Boys also show less risk perception than girls in general as well as in roads (15).

**Limitations**

There are limitations in this study. First, temporal association between the exposure and the outcome was not established because the questions on exposure were about current behavior whereas the question on the outcome (RTI) was about lifetime experience.

Second, the sample size calculation was based on original study question of prevalence of various commuting modes to schools, but it does not address the question of whether the sample size is enough for our planned analysis. The most data heavy analysis of this study is the multivariable logistic regression. According to some simulation studies, one needs at least 10, but maybe as many as 25 or more, events (participants with the outcome, in this case RTI) per parameter in the model, and at least as many non-events (16). In our case, we have 14 parameters (minus reference categories) meaning that one would need 140 events if we use the 10 events per parameter (EPV) rule of thumb and at least as many non-events to have some confidence in your estimated effect sizes. We have 256 events, and 999 non-events, so that covers it. However if we want 25 EPV then we would need 350 events, and we don’t have that many but close to that.

Third, details on mode of RTI was not collected. The details whether injury occurred to adolescents as pedestrians or occupants of various types of vehicles could further help to assess the situation.

**Conclusion**

Independent mobility of adolescents in road environment of Karachi is associated with road injuries. The implications of such association could be further drastic on the already sedentary lives of adolescents. The independent mobility empowers adolescents for increase physical activity with perceive benefits of it. It is important for urban planners, environmentalists and public health practitioners to push for safe road environment so that young pedestrians and cyclists could exhibit safe behaviors.

**Table 1: Descriptive of adolescents 10-19 years surveyed from schools in Karachi, Pakistan. 2014. (n=1264)**

|  |  |
| --- | --- |
| Variables | n (%) |
| Age groups  10-14  15-19 | 746 (59.0)  518 (41.0) |
| Gender  Girl  Boy | 757 (59.9)  507 (40.1) |
| Grade  6  7  8  9  10 | 262 (20.7)  255 (20.2)  200 (15.8)  342 (27.1)  205 (16.2) |
| Type of School  Private  Public | 753 (59.6)  511 (40.4) |
| Mode of transport to school  Walking  2 or 3 wheelers  Four wheelers | 909 (71.9)  169 (13.4)  186 (14.7) |
| Accompaniment in home-school journey  On own or with another child  Adult  Mix travel pattern; alone or with parents | 899 (71.1)  271 (21.4)  94 (7.4) |
| Time to reach school in minutes  < 5  5 to 15  16 to 30  31 to 45  > 46 | 462 (36.6)  642 (50.8)  89 (7.0)  48 (3.8)  23 (1.8) |
| Mode of transport on way back to home from school  Walking  Two or Three Wheelers  Four Wheelers | 954 (75.5)  107 (8.5)  203 (16.1) |
| Accompaniment in school-home journey  On own or with another child  Adult  Mix travel pattern; alone or with parents | 1039 (82.2)  139 (11.0)  86 (6.8) |
| Parents trust on child when in traffic alone  Always  Never  Sometime | 575 (45.5)  223 (17.6)  466 (36.9) |
| Adolescent allowed to cross main roads  No  Yes | 716 (56.6)  548 (43.4) |
| Adolescent allowed to go on public bus  No  Yes | 1028 (81.3)  236 (18.7) |
| Adolescent activity over the weekend  No  Yes, alone or with someone of same age group  Yes, mix (adult or alone/ same age group)  Yes, with adults | 139 (11.0)  455 (36.0)  441 (34.9)  229 (18.1) |
| Road traffic injuries  No road traffic injuries  Road traffic injuries | 999 (79.0)  265 (21.0) |

**Table 2: Univariate association of road traffic injury with independent variables in adolescents (n= 1264)**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | No road traffic injury | Road traffic injury | OR (95% CIs) |
| Age groups  10-14  15-19 | 601 (60.2)  398 (39.8) | 145 (54.7)  120 (45.3) | 1  1.25(0.95,1.64) |
| Gender  Girl  Boy | 639 (64.0)  360 (36.0) | 118 (44.5)  147 (55.5) | 1  2.21(1.68,2.91) |
| Type of School  Private  Public | 588 (58.9)  411 (41.1) | 165 (62.3)  100 (37.7) | 1  0.87(0.65,1.14) |
| Mode of transport to school  Walking  2 or 3 wheelers  Four wheelers | 729 (73.0)  132 (13.2)  138 (13.8) | 180 (67.9)  37 (14.0)  48 (18.1) | 1  1.14(0.75,1.68)  1.41((0.97,2.02) |
| Accompaniment in home-school journey  On own or with another child  Adult  Mix travel pattern; alone or with parents | 699 (70.0)  221 (22.1)  79 (7.9) | 200 (75.5)  50 (18.9)  15 (5.7) | 1  0.79(0.56,1.11)  0.66(0.36,1.15) |
| Time to reach school  < 5 mins  5 to 15 mins  16 to 30 mins  31 to 45 mins  > 46 mins | 378 (37.8)  511 (51.2)  67 (6.7)  29 (2.9)  14 (1.4) | 84 (31.7)  131 (49.4)  22 (8.3)  19 (7.2)  9 (3.4) | 1  1.15(0.85,1.57)  1.48(0.85,2.5)  2.95(1.56,5.48)  2.89(1.17,6.82) |
| Mode of transport on way back to home from school  Walking  Two or Three Wheelers  Four Wheelers | 766 (76.7)  83 (8.3)  150 (15.0) | 188 (70.9)  24 (9.1)  53 (20.0) | 1  1.18(0.71,1,88)  1.44(1.01,2.04) |
| Accompaniment in school-home journey  On own or with another child  Adult  Mix travel pattern; alone or with parents | 817 (81.8)  111 (11.1)  71 (7.1) | 222 (83.8)  28 (10.6)  15 (5.7) | 1  0.93(0.59, 1.42)  0.78(0.42,1.35) |
| Parents trust on child when in traffic alone  Always  Never  Sometime | 446 (44.6)  183 (18.3)  370 (37.0) | 129 (48.7)  40 (15.1)  96 (36.2) | 1  0.76(0.5,1.11)  0,9(0.66,1.21) |
| Adolescent allowed to cross main roads  No  Yes | 591 (59.2)  408 (40.8) | 125 (47.2)  140 (52.8) | 1  1.62(1.24,2.13) |
| Adolescent allowed to go on public bus  No  Yes | 835 (83.6)  164 (16.4) | 193 (72.8)  72 (27.2) | 1  1.91(1.38,2.6) |
| Adolescent activity over the weekend  No  Yes, alone or with someone of same age group  Yes, mix (adult or alone/ same age group)  Yes, with adults | 126 (12.6)  334 (33.4)  339 (33.9)  200 (20.0) | 13 (4.9)  121 (45.7)  102 (38.5)  29 (10.9) | 1  3.57(1.98,6.74)  2.92(1.63,5.62)  1.41(0.72,2.89) |

**Table 3: Multivariable logistic regression of factors associated with road traffic injury among adolescents (n=1264)**

|  |  |  |
| --- | --- | --- |
| Variables | Odds ratio | 95% CIs |
| Gender  Girls  Boys | 1  1.50 | -  1.09,2.08 |
| Mode of transport on way back to home from school (%)  Walking  Two or three wheelers  Four wheelers | 1  1.20  1.31 | -  0.70, 2.02  0.85, 1.98 |
| Accompaniment in school-home journey  Alone  Adult  Mix | 1  0.95  0.73 | -  0.57,1.54  0.38,1.32 |
| Allowed to cross main road alone  No  Yes | 1  1.36 | -  1.02,1.82 |
| Allow to travel on public buses  No  Yes | 1  1.27 | -  0.89, 1.80 |
| Any activity outside home on last weekend  No  Yes, alone or with someone of same age group  Yes, mix (adult or alone/ same age group)  Yes, with adults | 1  2.51  2.10  1.36 | -  1.36, 4.96  1.15, 4.11  0.69, 2.82 |
| Time to reach school  < 5 minutes  5 to 15 minutes  16 to 30 minutes  31 to 45 minutes  >46 minutes | 1  1.10  1.20  2.43  2.33 | -  0.80, 1.51  0.66, 2.11  1.22, 4.77  0.89, 5.83 |

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**Appendix**

**Urban School Children Travel patterns in Karachi, Pakistan**

**A questionnaire for students**

* Please answer the questions as best you can – there are no right or wrong answers.
* We will not know who filled in this questionnaire, only the class it was completed in.
* No one at school will see your completed questionnaires.
* Please ask if you have any questions.

**TRAVELLING TO AND FROM SCHOOL**

1. **How did you get to school this morning and also which safety precaution you used while coming to school?**

|  |  |
| --- | --- |
| *Travel mode*  *(Only tick one box, to show the main method you used)* | *Safety practice*  *(Tick either yes or no to safety practice [that you used today]in front of the mode of travel that you ticked)* |
| □ Walked most or all the way | Zebra crossing to cross the road  □ Yes □No |
| □ 🚲 Cycled | 🚲 Helmet  Yes No I don’t have |
| □ 🚍 School bus | 🚍 Seat belt  Yes No Not available |
| □ 🚇 Public bus | 🚇 Seat belt  Yes No Not available |
| □🚘Car | 🚘 Seat belt  Yes No Not available |
| □ 🏍 Motorcycle | 🏍 Helmet  Yes No I don’t have |
| □ Other mode *please write in*: ………………………………………………………………. | |

1. **Is this your usual way to go to school?**

|  |  |
| --- | --- |
|  | Yes |
|  | No then how do you come to school usually? \_\_\_\_\_\_\_\_\_\_\_ ­­­­­­­­­­­ |

1. **Who did you travel to school with this morning?**

*(Tick as many boxes as you need)*

|  |  |
| --- | --- |
|  | Travelled on my own |
|  | Parent |
|  | Another adult |
|  | Older child / teenager |
|  | Child of same age or younger |

1. **How long did it take you to travel to school this morning?**

*(Only tick one box)*

|  |  |
| --- | --- |
|  | Less than 5 minutes |
|  | 5 to 15 minutes |
|  | 16 to 30 minutes |
|  | 31 to 45 minutes |
|  | 46 minutes or more |

1. **How will you go back to home from school today?**

*(Only tick one box)*

****

Walked most or all the way

🚲Cycle

🚍School bus

🚇 Public bus

🚘 Car

🏍 Motorcycle

Other. *Please* w*rite in: …………………………………………………*

1. **Is this your usual way to get to home from school?**

|  |  |
| --- | --- |
|  | Yes |
|  | No then how do you go to school usually? \_\_\_\_\_\_\_\_\_\_\_ ­­­­­­­­­­­ |

1. **Who will you travel home with today?**

*(Tick as many boxes as you need)*

|  |  |
| --- | --- |
|  | Travelling home alone |
|  | Parent |
|  | Another adult |
|  | Older child / teenager |
|  | Child of same age or younger |

1. **How would you like to be able to travel to and from school?**

*(Only tick one box)*



Walked most or all the way

🚲Cycle

🚍School bus

🚇 Public bus

🚘 Car

🏍 Motorcycle

Other. *Please* w*rite in: …………………………………………………*

**PARENT’S LICENSING**

1. **Do you think your parents trust you when you are by yourself in traffic**

|  |  |
| --- | --- |
|  | Never |
|  | Sometime |
|  | Always |

1. **What do your parents think is appropriate for a child of your age to do on your own?**

|  |  |
| --- | --- |
|  | Travel by bus in day time |
|  | Travel by bus in the evening |
|  | Cycle in day time |
|  | Cycle in the evening |
|  | Walk around in day time |
|  | Walk around in the evening |
|  | None |

1. **What do you think is appropriate for a child of your age to do on his/her own?**

|  |  |
| --- | --- |
|  | Travel by bus in day time |
|  | Travel by bus in the evening |
|  | Cycle in day time |
|  | Cycle in the evening |
|  | Walk around in day time |
|  | Walk around in the evening |
|  | None |

**WALKING**

**12a) Are you allowed to cross main roads on your own?**

|  |  |
| --- | --- |
|  | Yes *(Please go to*  *Question* **12c***)* |
|  | No­­­­­­­­­­­ |

**12b) If you don’t cross main roads on your own, would you *like* to be allowed to do so?**

|  |  |
| --- | --- |
|  | Yes |
|  | No­­­­­­­­­­­ |

**12c) How old were you when you first crossed main roads on your own?**

*(Please estimate if you are not sure)*

|  |  |
| --- | --- |
|  | Age |

Not allowed to cross roads on my own

**CYCLING**

**13a) Do you have a bicycle?**

|  |  |
| --- | --- |
|  | Yes |
|  | No­­­­­­­­­­­ *(Please go to Question* **14***)* |

**13b) Are you *allowed* to cycle on main roads by your parents?**

|  |  |
| --- | --- |
|  | Yes At what age were you first allowed? |
|  | Age |
|  | No­­­­­­­­­­­ |

**13c) If you have a bicycle, are you *allowed* to ride it to go to places (like the park or friend’s houses) *without any grown ups?***

|  |  |
| --- | --- |
|  | Yes |
|  | No |
|  | Don’t have a bicycle |

**13d) How many times do you cycle in a typical week *(*both *with and without parents)* including the weekend?**

|  |  |
| --- | --- |
|  | Once a week or less |
|  | One or two days a week |
|  | Three or more days a week |
|  | Don’t have a bicycle |

**BUSES**

**14) Are you allowed to go on local buses *on your own* (other than a school bus)?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**AT THE WEEKEND**

**15) Which of these activities did you do the weekend just passed (on Saturday or Sunday):**

*(tick the first column if you did these things on your own or with another young person)*

*(tick in the second column if you did them with a parent or other adult)*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | *On your own or with another young person* | | | *With a parent or other adult* | | |
| 🏘 | Visited a friend’s home |  |  |  | |  |
| 👪 | Visited relatives or grown-ups |  |  |  | |  |
| 🏭🏠 | Visited a place of worship |  |  |  | |  |
| 🛍 | Went to the shops |  |  |  | |  |
| 🍽 | Went to dine out |  |  |  | |  |
| 🎬 | Went to a cinema |  |  |  | |  |
| 🌜 | Spent time with friends outside after dark |  |  |  | |  |
| 🏞 | Went to a playground, park or playing fields |  |  |  | |  |
| 🏊 | Played sport or went swimming (individual or team sports or lessons) |  |  |  | |  |
| 🚲 | Went for a walk or cycled around |  |  |  | |  |
| 🎜 | Went to a concert |  |  |  | |  |
| 🛡 | Went to a youth club (including Scouts, Guides, Cadets, Sunday school etc.) |  |  |  | |  |
| 🕮 | Went to a library |  |  |
| 💻 | Went to cyber/net café |  |  |
| 🖆 | Went for tuition class |  |  |
|  | Went for my part time work |  |  |
|  | Other *(please write in):* |  |  |
|  | No activity |  | | | |
|  |  |  |  | | | |

**ROAD TRAFFIC CRASH**

**16) Have you ever involved in a traffic injury?**

(As a pedestrian, cyclist, in a car or another vehicle)

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**17) If yes, did you get any type of treatment for injury?**

*(You can mark multiple choices)*

|  |  |
| --- | --- |
|  | First aid in school/home |
|  | Doctor’s consultation |
|  | Admitted in hospital |
|  | None, it was not that serious |

**18) Have you ever witnessed any road traffic crash?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**WHERE YOU LIVE**

**19a)** **How safe do you feel *on your own* in your local neighbourhood?**

*(Only tick one box)*

|  |  |
| --- | --- |
|  | Not allowed out on my own |
|  | Very safe |
|  | Fairly safe |
|  | Not very safe |
|  | Not at all safe |

**19b) How safe do you think is the traffic environment in your local neighbourhood?**

*(Only tick one box)*

|  |  |
| --- | --- |
|  | Not allowed out on my own |
|  | Very safe |
|  | Fairly safe |
|  | Not very safe |
|  | Not at all safe |

**19c) When you are outside *on your own or with friends* are you worried by any of the following?**

*(Tick as many boxes as you need)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Yes | No | Don’t know |
| Traffic | 🞏 | 🞏 | 🞏 |
| Getting lost | 🞏 | 🞏 | 🞏 |
| Bullying | 🞏 | 🞏 | 🞏 |
| Strangers | 🞏 | 🞏 | 🞏 |
| Do not feel that I am old enough to go about on my own | 🞏 | 🞏 | 🞏 |
| Not knowing what to do if someone speaks to me | 🞏 | 🞏 | 🞏 |
| Not allowed to be outside by my own | 🞏 | 🞏 | 🞏 |

**19d) Is there anything else you are worried about when you are outside *on your own or with friends*?**

Please write in:…………………………………………………………………………………………..

…………………………………………………………………………………………………………….

…………………………………………………………………………………………………………….

**ABOUT YOU**

**20) How old are you?**

|  |  |
| --- | --- |
|  | Age |

**21) Are you...?**

a Girl or a Boy

*Thank you very much for your help* ☺

**Now the research assistants would take weight and height of child:**

Weight of child \_\_\_\_\_\_\_\_\_\_\_\_\_ kg

Height of the child \_\_\_\_\_\_\_\_\_\_ cm