FUNDACION GONZALO RODRIGUEZ

Child transport to school, and safety in school zones

"Children Safe in Traffic in Latin America" programme – Research phase

Chapter Argentina

CHILD HEALTH INITIATIVE

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Editor: Fundación Gonzalo Rodríguez
This document was developed by:

Authors: Florencia Lambrosquini, Eduardo Bottinelli, Carlos Medeiros, Natali Gares, Julio Urzúa
Revision and Editing: Andrea Ferreira, Federico Zugarramurdi, María José Pessano

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Contents

Executive Summary

This report is part of the *Safe Latin American Children in Traffic Program* that aims to contribute to the reduction of risks associated to child road accidents, focusing on children on their way to and from school.

This first research stage aims to carry out an exploratory assessment of safety and protective devices available to children in traffic; this is associated to their access to education and their right to learn.

It consisted of two studies: an observational study of risk behaviors of child pedestrians in the school zone and lastly, an infrastructure survey using iRAP´s Star Rating for Schools tool. These two studies were conducted in 29 educational centers in five cities. The studies were conducted by the Research Department through FACTUM consultancy agency.

1. Introduction

This report is the first stage of the project *Latin American Children Safe in Traffic* funded by the FIA Foundation. The project aims to reduce risk factors associated to car crashes involving children, paying special attention to school zones. This is carried out by increasing knowledge on current status and widening networks at regional level to cooperate in the creation of "safe systems" for children.

This first research stage aims to carry out an exploratory assessment of safety and protective devices available to children in traffic; this is associated to their access to education and their right to learn. In Uruguay, the study was developed in Montevideo and Canelones. These provinces were selected because they have the highest population in the country.

A mixed approach is suggested to include all dimensions of the children´s trip and safe access using the following tools:

1- Survey of road infrastructure in relation to pedestrians in the school zones and school access areas. This survey was developed using the new iRAP´s assessment tools for school zones.

2- Observational: survey of risk events and vulnerability according to behaviors in the zone.

All these studies were conducted by the Research Department through FACTUM consultancy agency.

2. Methodological Notes

2.1 School Selection

The following procedure was used for the elaboration of the public schools' sample frame.

- A list is made with all the schools in each of the cities and towns considered.
- Special attention is paid to geographical distribution, distance between centers, and their proximity to avenues or highways, looking for a variety of safety and risk situations.
- These variables will be taken into account by the location of these educational centers to achieve the greatest representativeness of cities in the sample.
- Once the final list is completed, conditions for field work will be ready. Observers´ training should take place before field work.

The selected sample is shown below:

2.2 Star Rating for Schools (SR4S)

2.2.1 Data Points

Pilot assessments in schools listed in Annex I were conducted considering the collection of 5 data points.

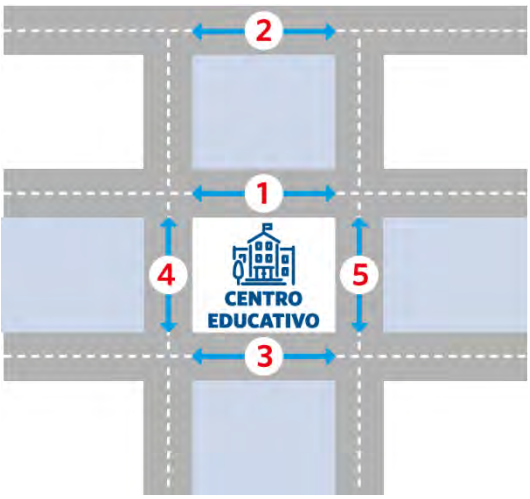
For each school, data point number 1, would be the school´s entrance gate. The following data points were collected on roads surrounding data point number 1.

Figure 1 shows the model to be followed by the assessment team to carry out field work. Figure shows that data point number 2 corresponds to the road parallel to school to the north. Data point 3 is the parallel road to the school´s entrance gate to the south, and data points 4 and 5 are the perpendicular roads closer to the school entrance gate to the west and to the east respectively.

Data collection involved that each assessor evaluated attributes using a smart phone with the SR4S application. The smart phone was in this case a Samsung Galaxy S8, Android 7.

Figure 1

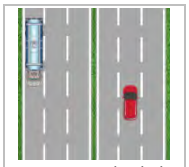
Diagram with data collection points in schools in Montevideo and Canelones.



2.2.2 SR4S Attribute Codification Manual

As previously mentioned in this report, the Ap. SR4S can be downloaded free of charge in a tablet or smart phone. It allows users to assess different infrastructure attributes within the school surroundings. As an example, the use of roads next to the assessed point is evaluated as well as the type of area, sight distance and the presence of vehicles parked on the road. Another attribute assessed is the presence or absence of warning signs in the school zone as well as the type of pavement for pedestrians, the presence or absence of a shoulder, and the presence or absence of pedestrian barriers. Besides, flow, speed, lightning, pedestrian crossings, vehicle crossings and other elements of the infrastructure are assessed.

Below there are some if the elements to be assessed during attribute codification in the field.

Land Use Left	 Undeveloped	 Residential	 Commercial	 Industrial	 Farming	 School
Land Use Right	 Undeveloped	 Residential	 Commercial	 Industrial	 Farming	 School
Area Type	 Undeveloped	 Residential				
Vehicle parking	 None	 One Side	 Two Sides			
Sight Distance	 Adequate	 Poor				
	 1 Lane Undivided	 2 Lanes Undivided	 2 Lanes Divided	 4 Lanes Undivided		
Number of Lanes	1	2	3	4	1 and 2	2 and 3
Lane Width	Wide	Medium	Narrow			
Shoulder Rumble Strip	Present	Not Present				
Road Condition	Good	Medium	Poor			
Skid Resistance	Good	Medium	Poor			
Grade	0% to 7.5%	 7.5% to 10%	 > 10%			

Median Type	 Centre Line	 Wide Lane < 1m	 Hatching >1m	 Turn Lane	 Flexible Posts
	 Divided 0 - 1m	 Divided 1 - 5m	 Divided 5 - 10m	 Divided 10 - 20m	 Divided +20m
	 Metal Barrier	 Concrete Barrier	 Wire Barrier	 Motorcycle Barrier	 One Way
Delineation	Adequate	Poor			
Street Lighting	Present	Not Present			

See complete list of attributes assessed using the App. SR4S in Annex 2.

2.2.3 Speed and Data Flow

As part of the plan of activities described in this report, the application requires data different from the infrastructure conditions in school zones. This data refers to vehicle speed and vehicle and pedestrian flows.

In general terms, calculations were made based on the experts´ judgment. There are two reasons for the use of this method instead of a more formal estimation model:

(i) The assessing team has a wide and deep knowledge of the assessed school zones conditions.

(ii) A formal method of estimating speeds and flows would have implied an extra cost which would have made it impossible to carry out the project described.

However, for traffic volume calculation, the K factor was calculated at the rush hour and rush hour volume was later estimated.

The K factor corresponds to the percentage of flow corresponding to the rush hour. For example, if traffic volume at rush hour is of 75 vehicles per hour, and the K factor is 8%, this means that the total daily flow would be 937 vehicles per day.

In the case of the assessments referred to in the current report, a K factor of 13% was used since expert judgment assumed that that would be the concentration of vehicles at school start time.

The application provides a rating for each of the Data Points, based on the different combinations of attributes assessed. This is a star rating ranging from 1 to 5 where 1 is unsafe and 5 is very safe for pedestrians.

2.3 Event and risk observational study

This stage of the study is based on non-participant observation, focusing on risk behaviors of different traffic actors that pose a risk to the safe access of children to primary schools.
Observation Indicators:

(i) Risk behaviors involving rule violations or lack of attention by pedestrians, drivers, accompanying adults, and access to school.
(ii) Risk behaviors involving rule violations or lack of attention by children.
(iii) Risk behaviors involving rule violations or lack of attention by public and school transport drivers.
(iv) Risk behaviors involving rule violations or lack of attention by other traffic actors that pose a risk to children´s safety.

Instrument: Semi-standardized questionnaire for the study of indicators for open fields for the collection of qualitative information.

In this stage information regarding human behaviors that pose a risk to child population in their access to formal educational centers will be collected. Observations are to be made at the same centers included in the sample of road infrastructure survey; this will allow the identification of relationships between the dimensions of each study.

The sample selection is a result of the above mentioned since the same selected schools were assessed to do a SR4S assessment.

2.4.1 Observation Procedure

Data collection will take place at two different moments of the selected working day, covering different school start times, the first one in the morning and a second shift at midday or in the afternoon depending on shifts available at each educational center.
Time slots to be considered will be: a) from 7:30 to 9.30, b) from 12 to 2 pm, and c) from 5 to 7pm.
In order to get a valid and objective observation, observers will try not to call the attention of those being assessed, so as not to artificially bias behaviors, thus artificially reducing violation rates.
The following risk behaviors will be collected from each educational center:

A) ABOUT BEHAVIORS
Pedestrians, if they:

- Circulate or cross the street without obeying traffic signs including traffic lights
- Cross the street without using safety elements available (pedestrian crossings, pedestrian bridges, barriers)
- Do not cross at corners, or do so diagonally, or in zig-zag
- Do not look both ways before crossing the street
- Cross the street carrying objects that obstruct visibility
- Adults do not hold children´s hands during the whole length of the crossing
- Cross pedestrian crossing unexpectedly without checking speed of incoming vehicles
- Circulate or cross the street using elements that distract them: headphones, cellphone.
- Show other risky behaviors

Drivers and passengers, if they:

- Do not obey traffic signs (crossing, stop, exclusive parking areas) including traffic lights
- Drive using elements that distract them: headphones, cellphone.
- Circulate at speeds not allowed in the area.
- Circulate without using safety elements for them or the other occupants: helmet, seat belt, CRS, and children not tall enough in the case of motorcycles
- Get off the vehicle on the street side of the vehicle.
- Show other risk behaviors.

b) ABOUT OFFENDERS

- Approximate age and sex
- If applicable, number of children traveling with them.

c) ABOUT CONDITIONS DURING OBSERVATION

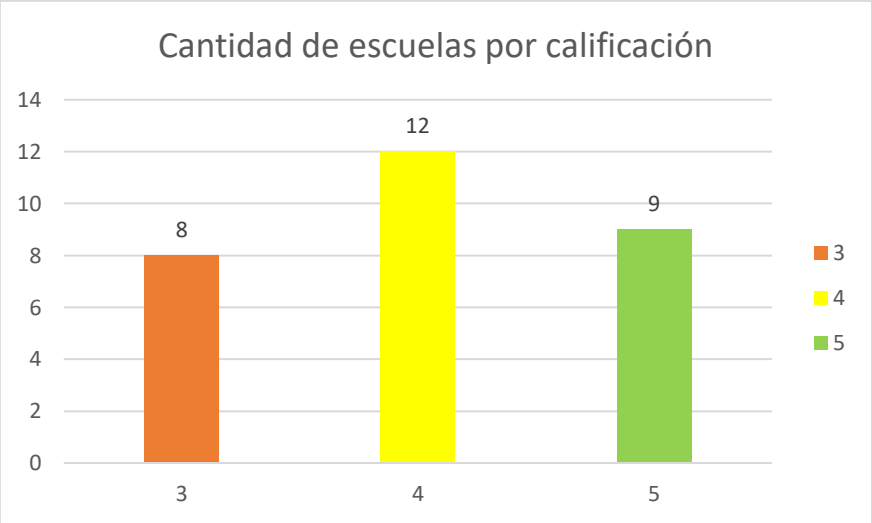
- Lighting
- Weather conditions and real feel (hot, warm, cold)
- Maximum speed limit in the area.
- Specific situation that may impact traffic, such as crashes, police cars, detours, blocks, increase in traffic.

RESULTS CHAPTER ARGENTINA

6. Star Rating for Schools

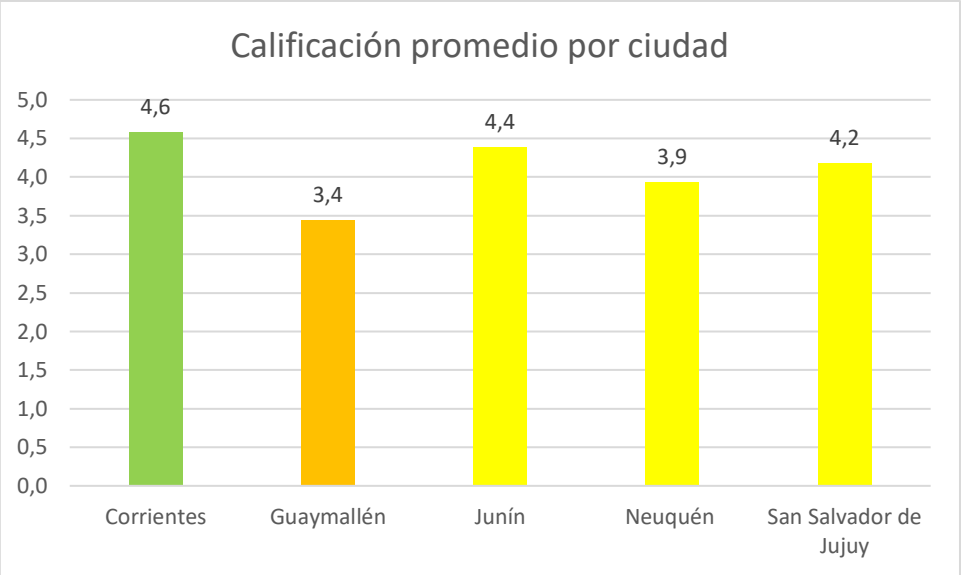
Below are shown the results of school zones infrastructure assessments. They are weighted averages of the 5 points measured by school.

As mentioned before, the infrastructure assessment shows a qualification among 1 and 5 where 3 is acceptable.



It is possible to say that the assessment provides a good result in the assessed schools in the 5 cities of Argentina. The previous graph shows that there were no schools with less than 3 stars. As well, most of the school have a 4 stars rating.

It is worth developing an analysis per city despite the results homogeneity. Thus, average results are shown per city.



The city of Corrientes has the highest rating with most of its schools with a 5 stars rating. Guaymallén is the city with the lowest average exceeding the minimum of 3.

The other 3 cities show a similar result which is around 4 stars.

7. Pedestrian observational study

SAMPLE STRUCTURE

Graph 1.3.1

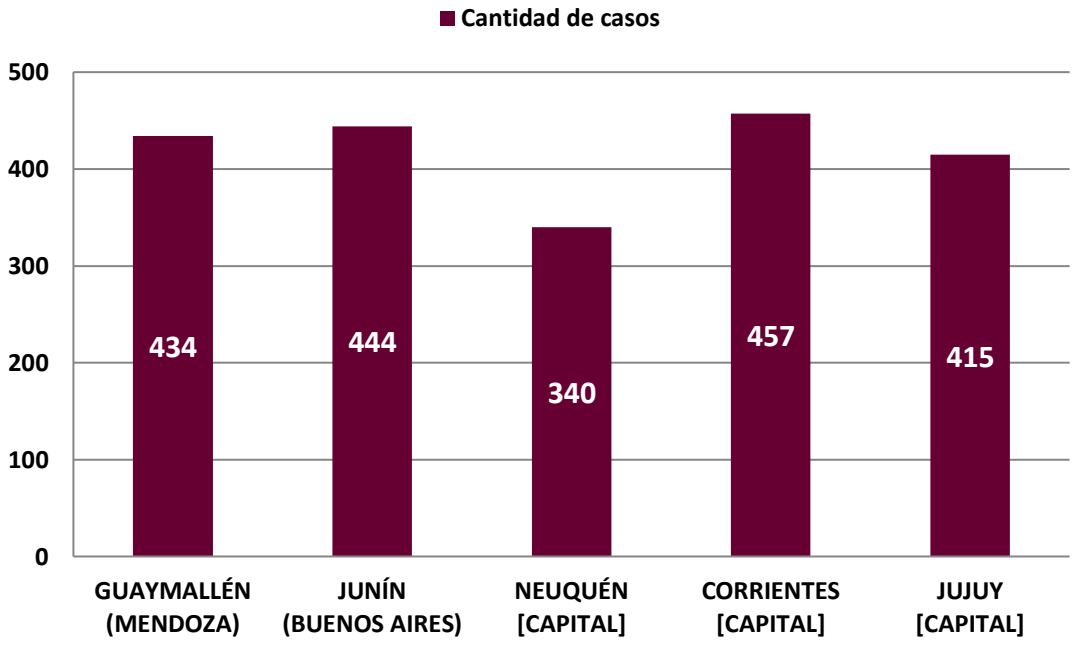


Chart 1.3.1

CHILD GENDER		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
GIRL	Count	241	234	165	218	207
	% in the CITY	55.5%	52.7%	48.5%	47.7%	49.9%
BOY	Count	193	210	175	239	208
	% in the CITY	44.5%	47.3%	51.5%	52.3%	50.1%
Total	Count	434	444	340	457	415
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

Chart 1.3.2

CHILD AGE		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
Up to 8 y.o.	Count	237	309	214	192	214
	% in the CITY	54.6%	69.6%	62.9%	42.0%	51.6%
9 YEARS OLD OR OLDER	Count	197	135	126	265	201
	% in the CITY	45.4%	30.4%	37.1%	58.0%	48.4%
Total	Count	434	444	340	457	415
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

Chart 1.3.3

OBSERVED CHILD		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
PEDESTRIAN	Count	225	149	181	329	251
	% in the CITY	51.8%	33.6%	53.2%	72.0%	60.5%
PEDESTRIAN	Count	209	295	159	128	164
	% in the CITY	48.2%	66.4%	46.8%	28.0%	39.5%
Total	Count	434	444	340	457	415
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

Chart 1.3.4

OBSERVED PEDESTRIAN		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
ALONE	Count	43	32	78	69	41
	% in the CITY	19.1%	21.5%	43.1%	21.0%	16.3%
ACCOMPANIED	Count	182	117	103	260	210
	% in the CITY	80.9%	78.5%	56.9%	79.0%	83.7%
Total	Count	225	149	181	329	251
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

Chart 1.3.5

ACCOMPANIED BY		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
PER ADULT	Count	181	114	94	260	150
	% in the CITY	99.5%	97.4%	91.3%	100.0%	71.4%
PER CHILD	Count	1	3	9		60
	% in the CITY	0.5%	2.6%	8.7%		28.6%
Total	Count	182	117	103	260	210
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

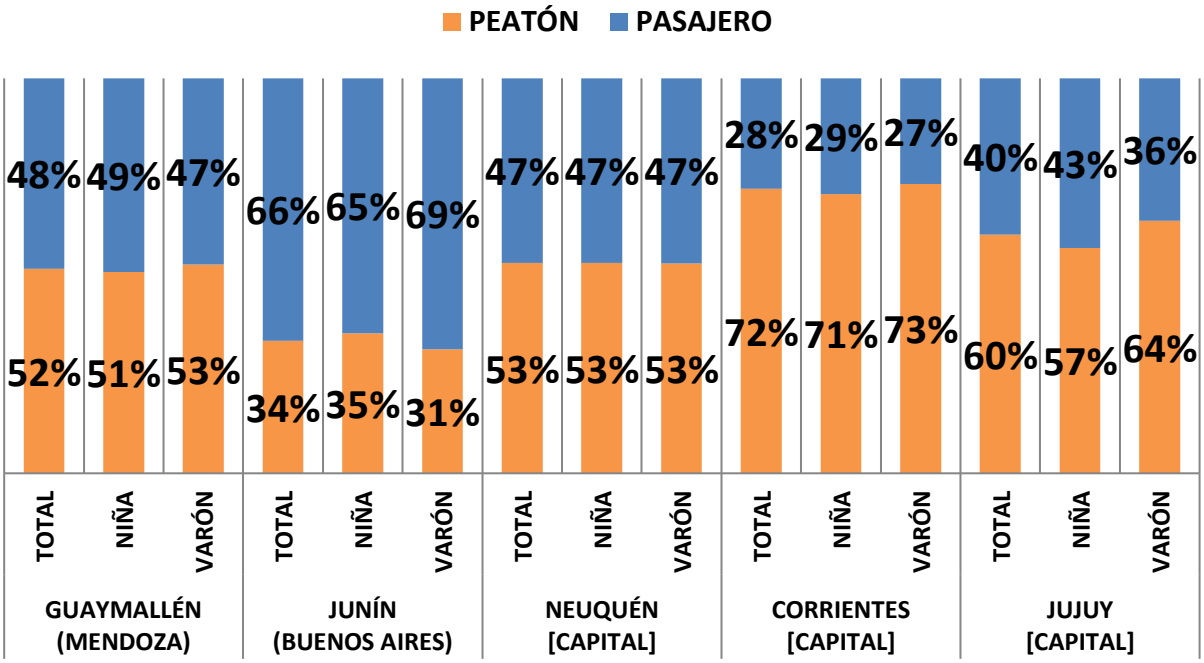
Chart 1.3.6

SHIFT		CITY				
		GUAYMALLÉN, MENDOZA	JUNIN, BUENOS AIRES	NEUQUÉN [CAPITAL]	CORRIENTES [CAPITAL]	JUJUY [CAPITAL]
MORNING	Count	253	211	242	307	324
	% in the CITY	58.3%	47.5%	71.2%	67.2%	78.1%
AFTERNOON	Count	181	233	98	150	91
	% in the CITY	41.7%	52.5%	28.8%	32.8%	21.9%
Total	Count	434	444	340	457	415
	% in the CITY	100.0%	100.0%	100.0%	100.0%	100.0%

OBSERVED CHILDREN

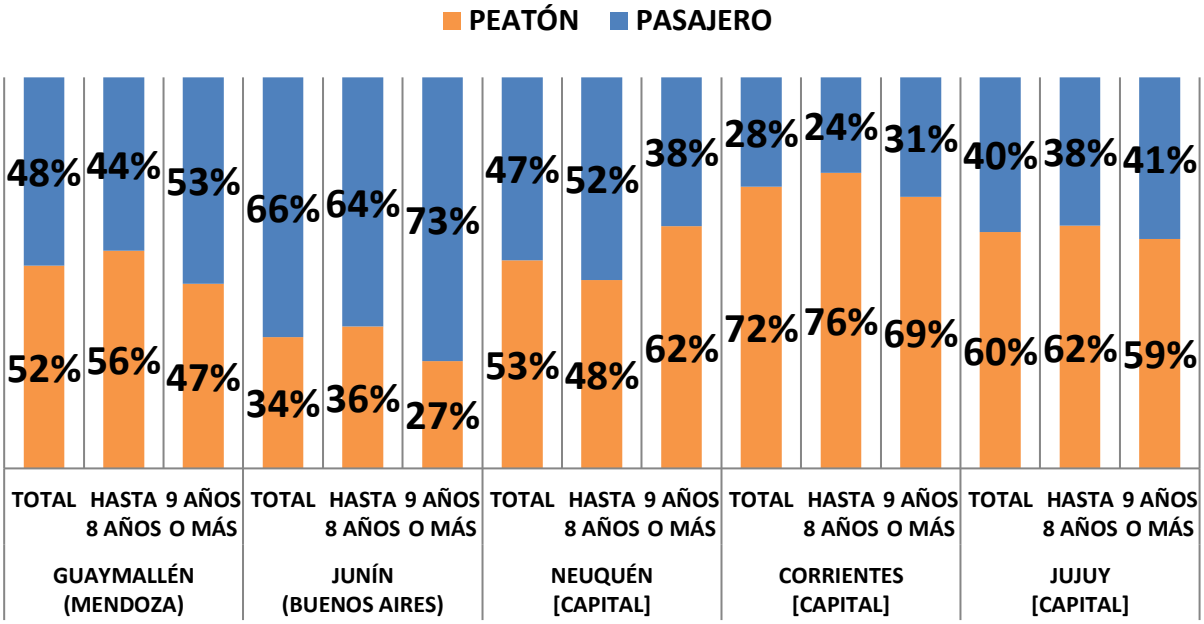
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	434
JUNIN, BUENOS AIRES	444
NEUQUÉN [CAPITAL]	340
CORRIENTES [CAPITAL]	457
JUJUY [CAPITAL]	415

Graph 1.3.2



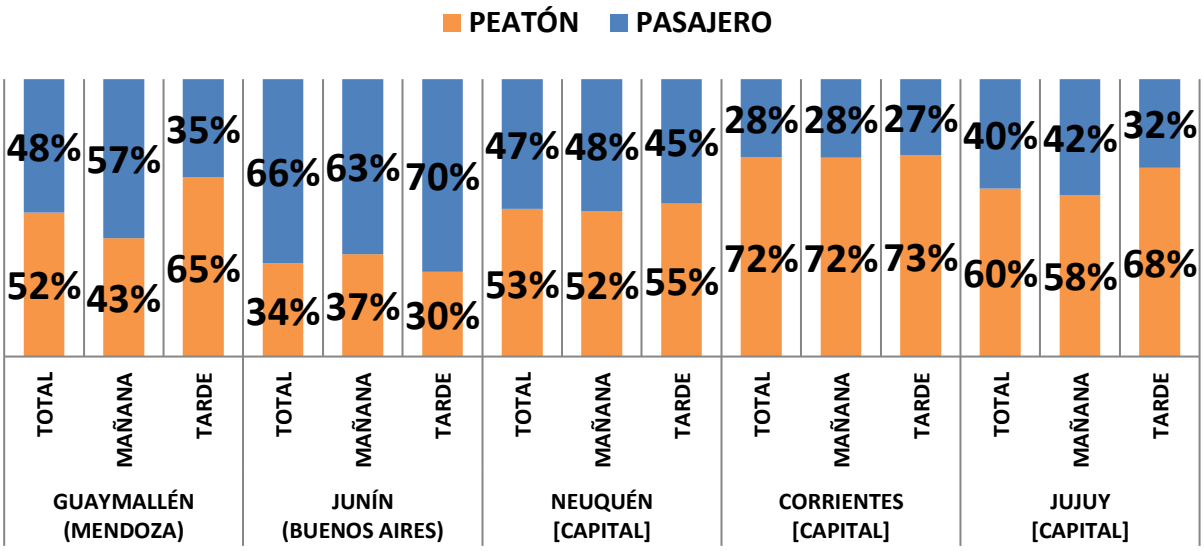
In Guaymallén, half of the observed children were pedestrians, being the number of boys slightly greater. In Junín 1 every 3 were pedestrians being the number of girls greater. In Neuquén, half of the children were pedestrians and there were no differences due to their sex. In Corrientes, 7 every 10 children observed traveled on foot and there was a higher proportion of boys. In Jujuy, 6 every 10 children observed traveled as pedestrians, being boys the largest group.

Graph 1.3.3



In Guaymallén, Junín, Corrientes and Jujuy (slightly higher in the latter) the proportion of child pedestrian increases among those who are up to 8 years old. In Neuquén, a slightly greater proportion of pedestrians aged 9 or older was observed.

Graph 1.3.4

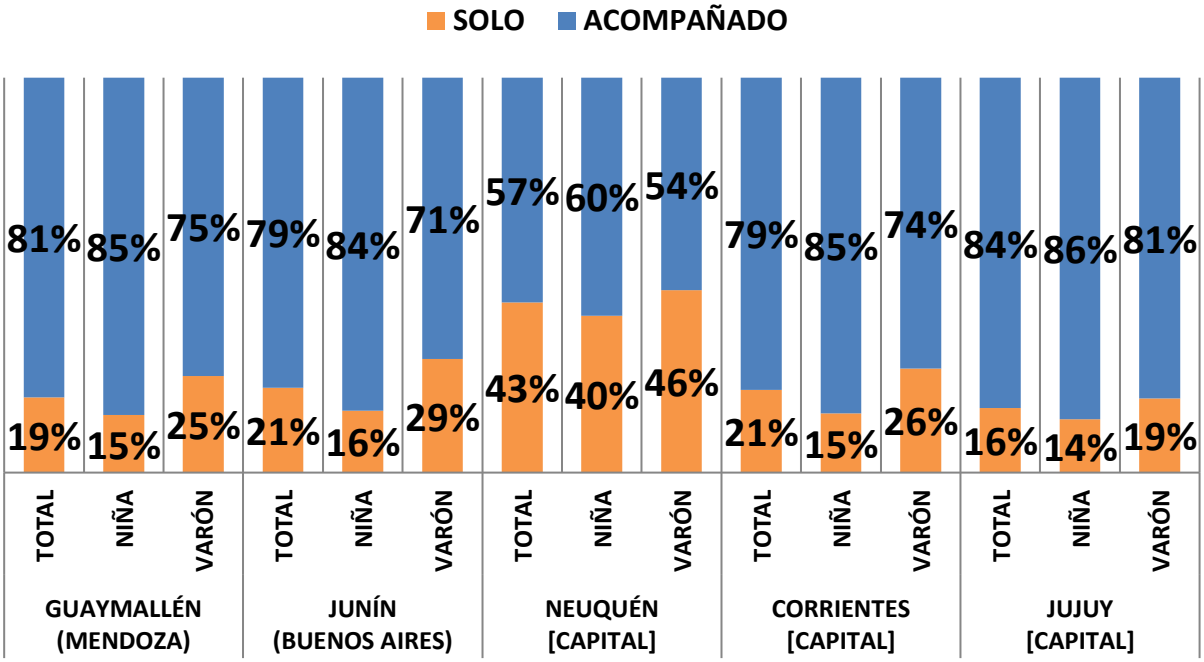


In Guaymallén, Neuquén (minimally) and Jujuy the proportion of child pedestrian increases in the afternoon shift, in Junín it increases in the morning while in Corrientes there are no significant variations.

CHILD PEDESTRIANS OBSERVED

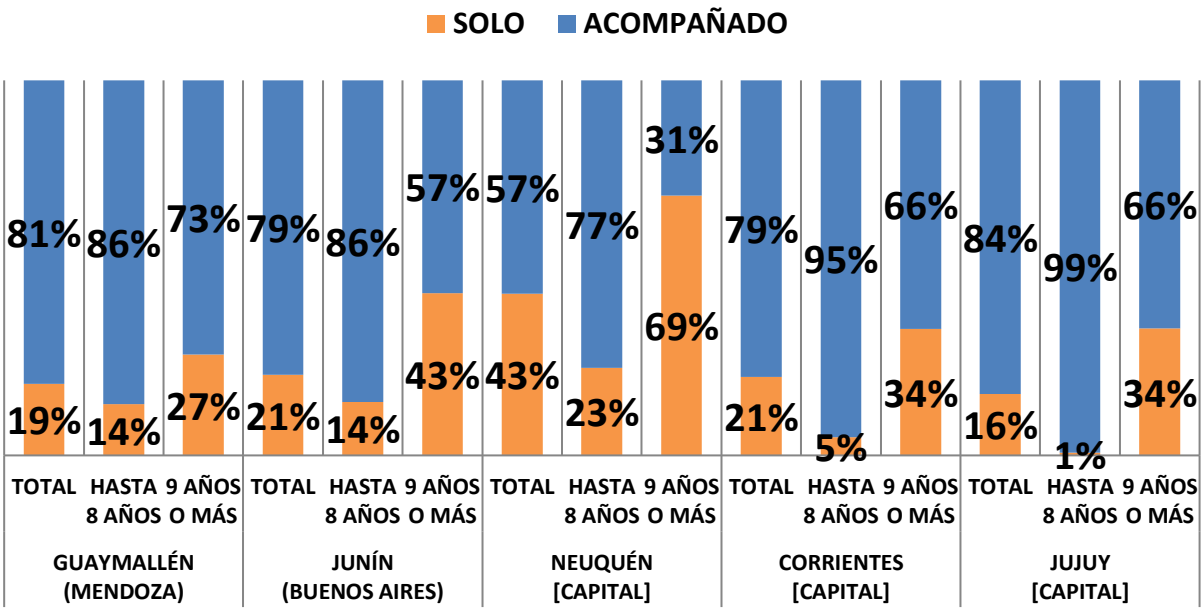
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	225
JUNIN, BUENOS AIRES	149
NEUQUÉN [CAPITAL]	181
CORRIENTES [CAPITAL]	329
JUJUY [CAPITAL]	251

Graph 1.3.5



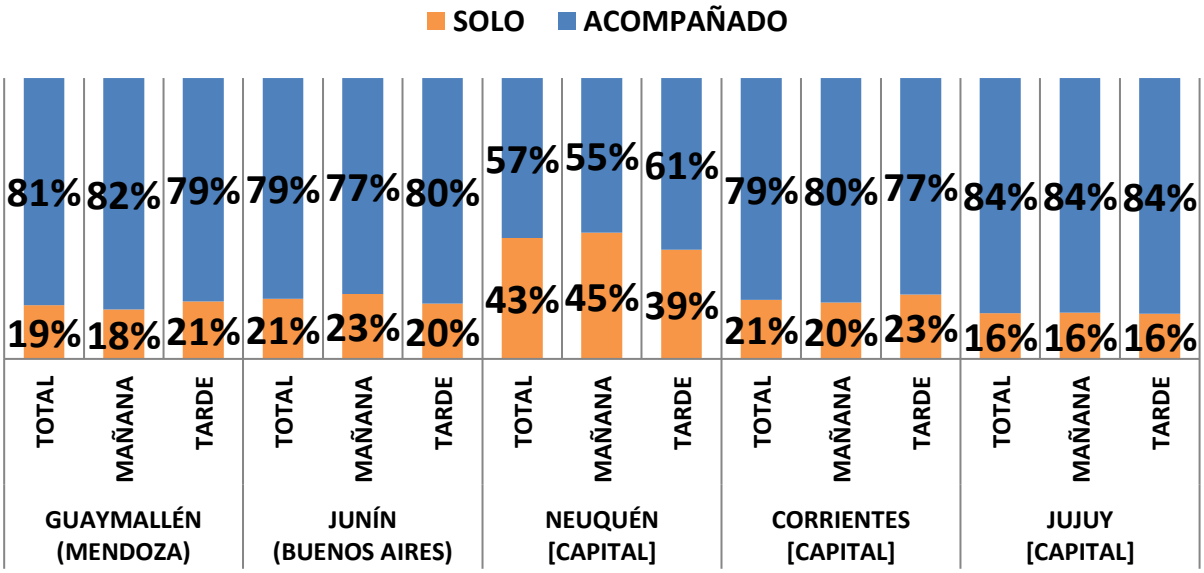
In Guaymallén, Junín and Corrientes, 1 pedestrian child every 5 children were alone, in Neuquén 4 every 10 while in Jujuy 1 every 6 and in all the studied cities the highest proportion of pedestrian children walking alone was seen among boys.

Graph 1.3.6



In all the observed cities, a higher proportion of pedestrians aged 9 or older walking to school alone was observed.

Graph 1.3.7

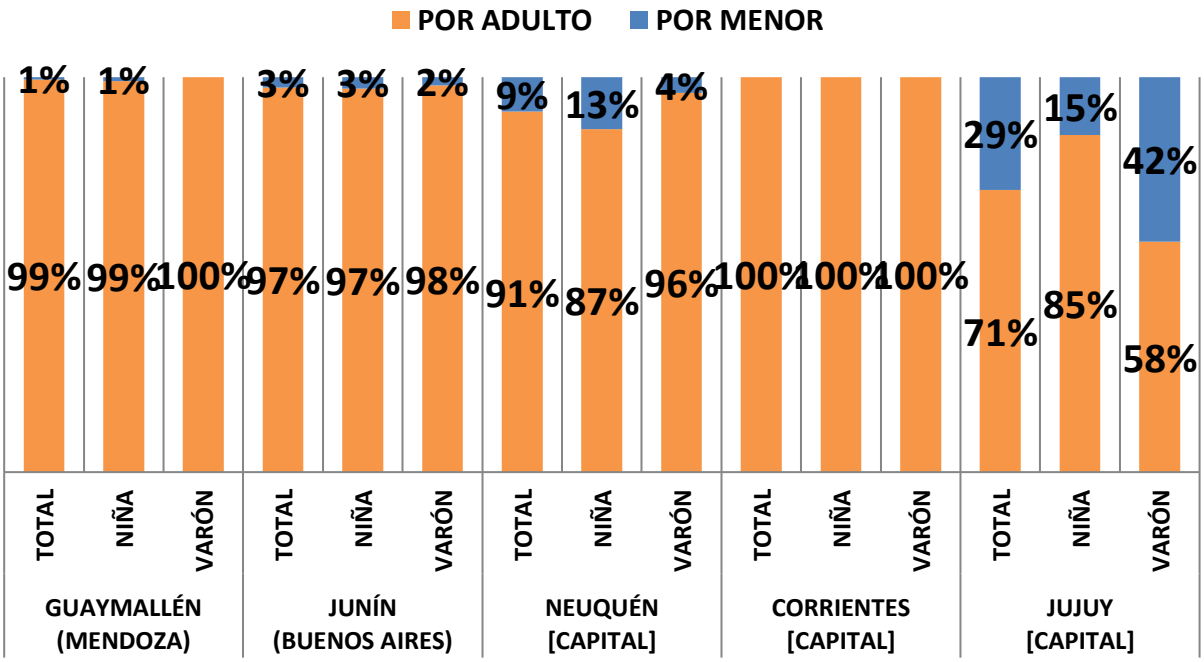


In Guaymallén and Corrientes (slightly in both cases) the proportion of child pedestrian increases in the afternoon shift, in Junín it slightly increases in the morning shift while in Jujuy there are no significant variations observed.

ACCOMPANIED CHILD PEDESTRIANS

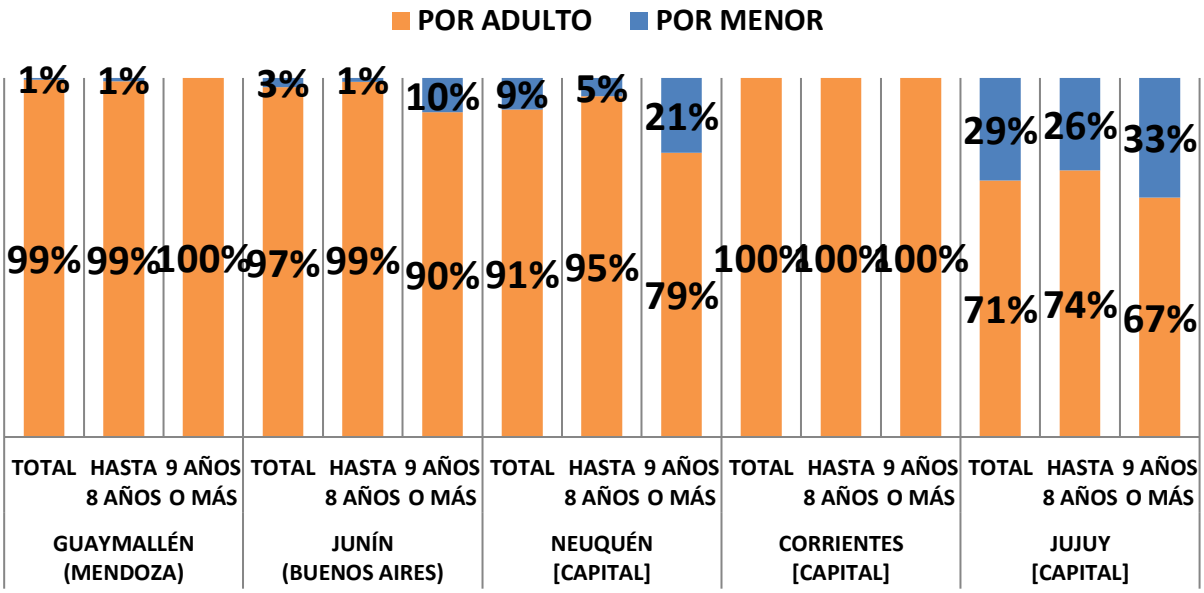
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	182
JUNIN, BUENOS AIRES	117
NEUQUÉN [CAPITAL]	103
CORRIENTES [CAPITAL]	260
JUJUY [CAPITAL]	210

Graph 1.3.8



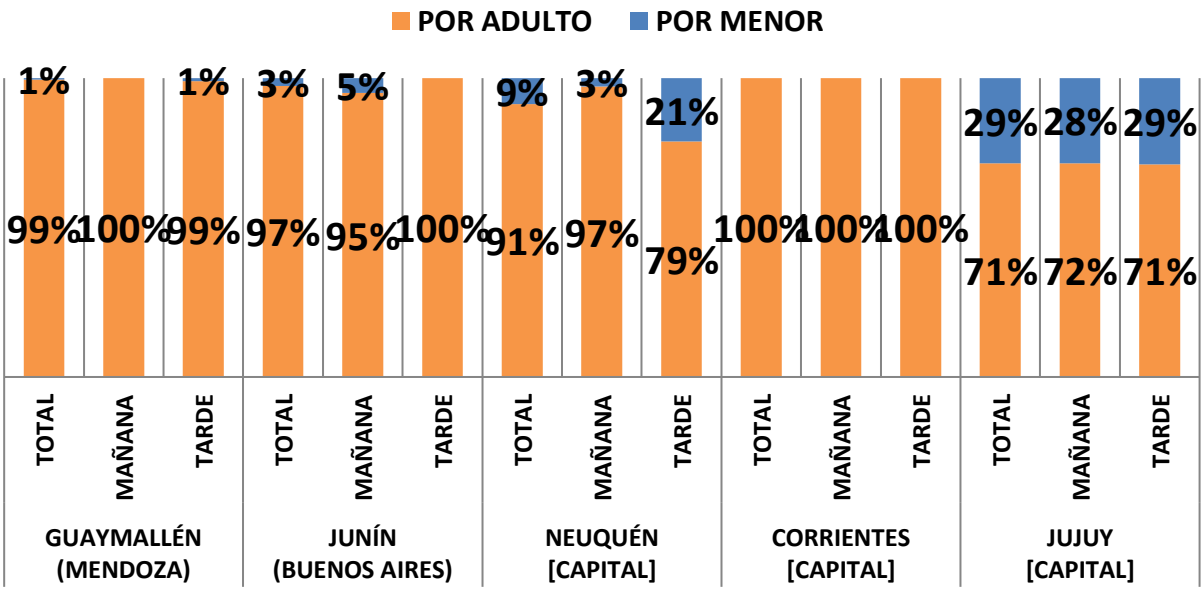
In Corrientes, the total number of child pedestrians walked to school with an adult. In Guaymallén and Junín this is practically universal. In Neuquén, the proportion is of 9 every 10 increasing the proportion of girls walking with another child while in Jujuy 7 every 10 walk to school with an adult but 4 every 10 boys go to school with another child.

Graph 1.3.9



In Junín and Neuquén (strongly) the proportion of child pedestrians walking to school with another child increases among those who are 9 years old or older.

Graph 1.3.10

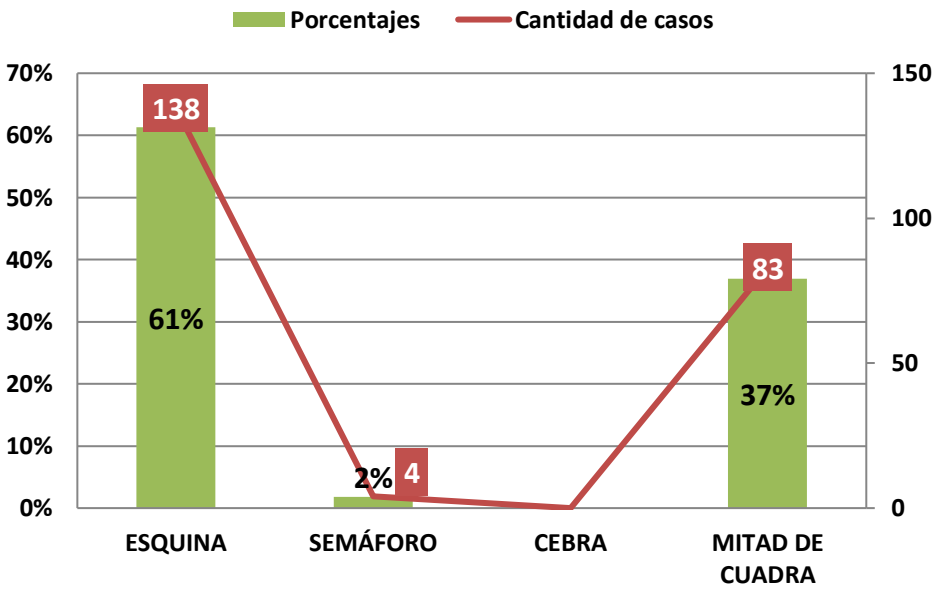


In Junín, the cases of child pedestrians walking with another child is observed in the morning shift. In Neuquén, it is observed in the afternoon while in Jujuy there are not significant differences.

OBSERVED CHILD PEDESTRIANS- WHERE THEY CROSS

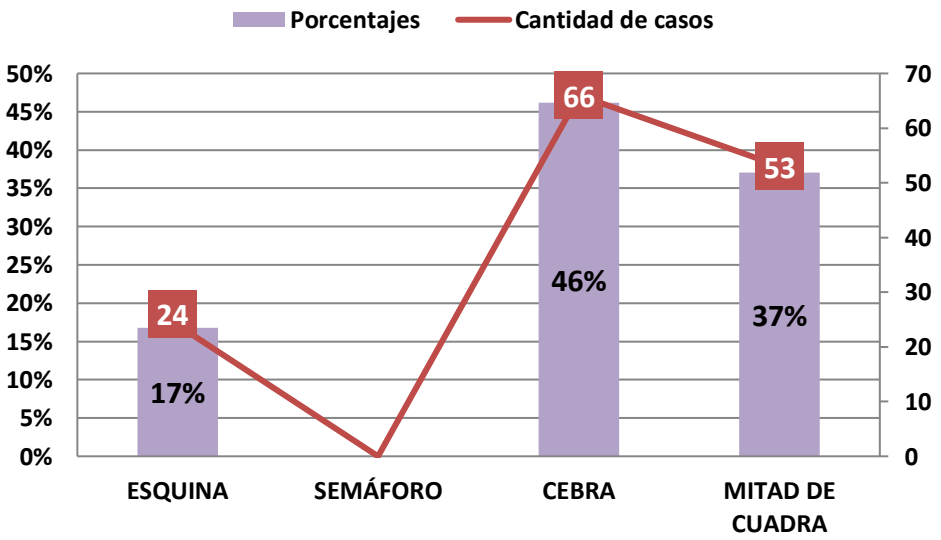
Graph 1.3.11

GUAYMALLÉN (MENDOZA)



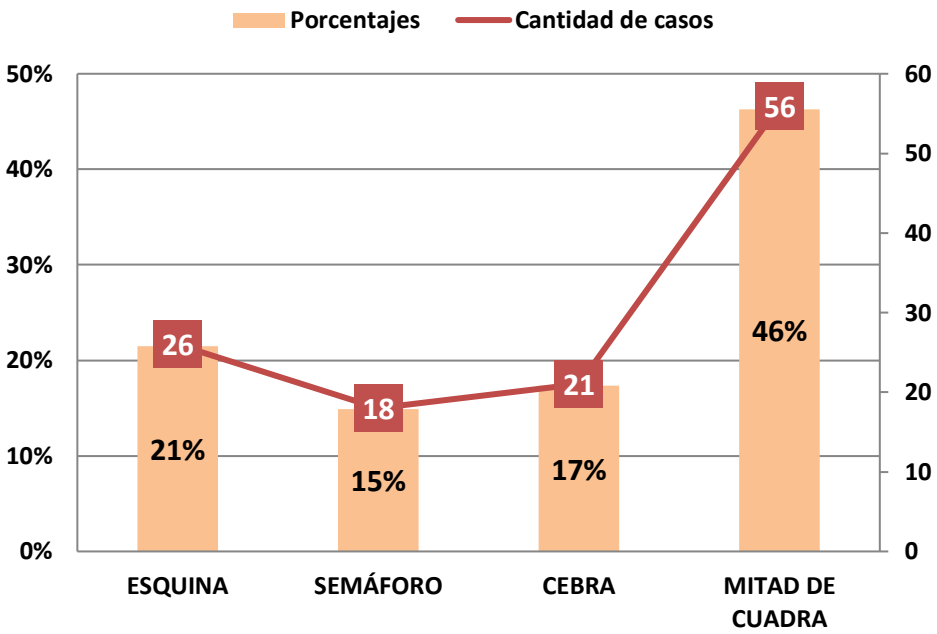
Graph 1.3.12

JUNIN, BUENOS AIRES



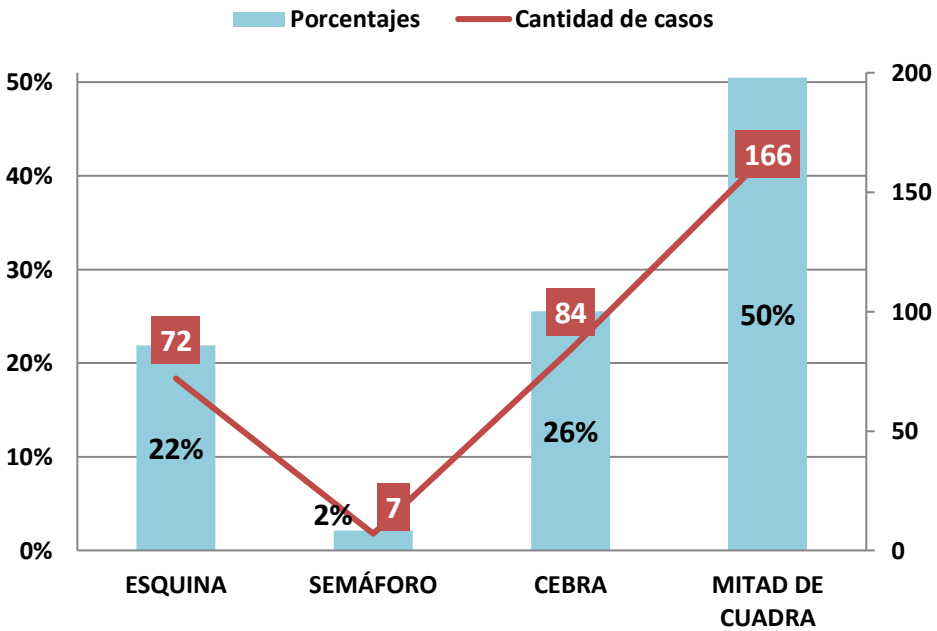
Graph 1.3.13

NEUQUÉN [CAPITAL]



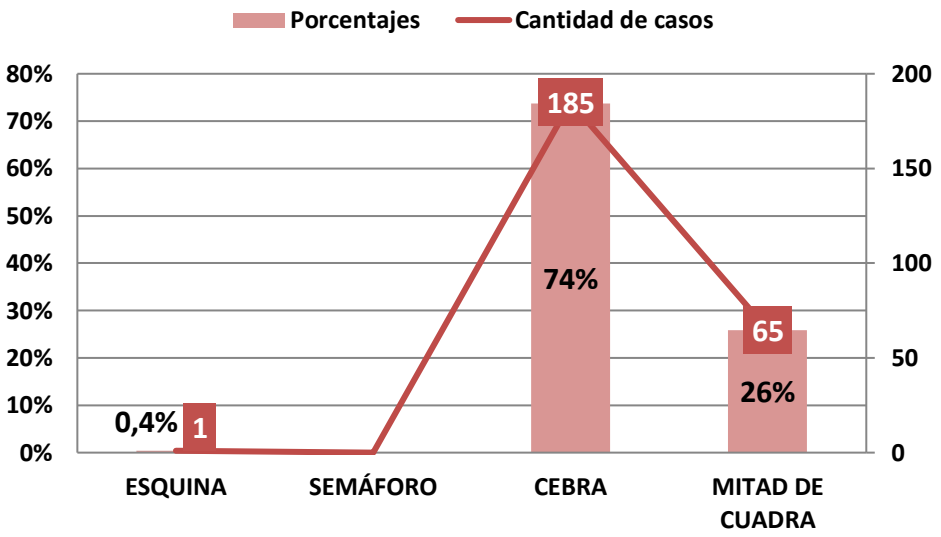
Graph 1.3.14

CORRIENTES [CAPITAL]



Graph 1.3.15

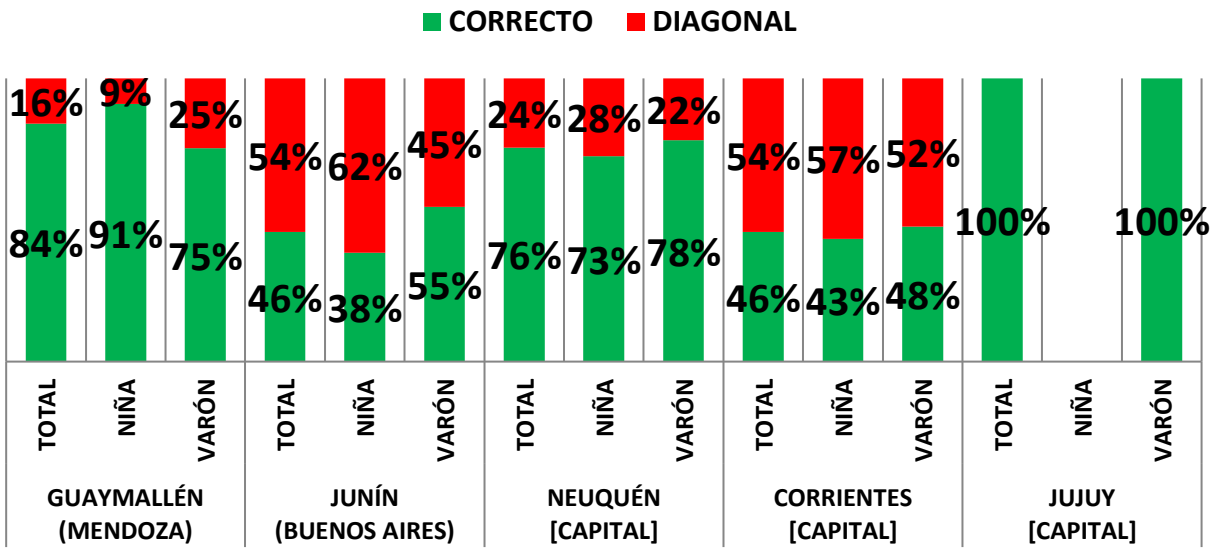
JUJUY [CAPITAL]



OBSERVED CHILD PEDESTRIANS - CROSSING CORNER

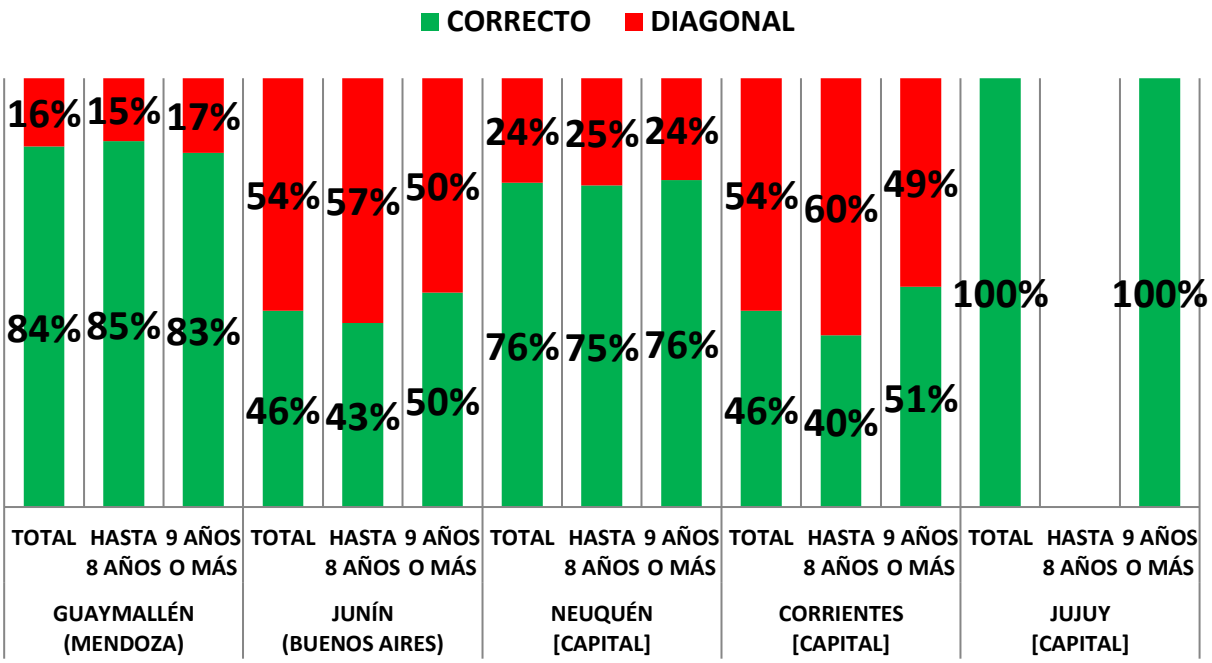
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	138
JUNIN, BUENOS AIRES	24
NEUQUÉN [CAPITAL]	26
CORRIENTES [CAPITAL]	72
JUJUY [CAPITAL]	1

Graph 1.3.16



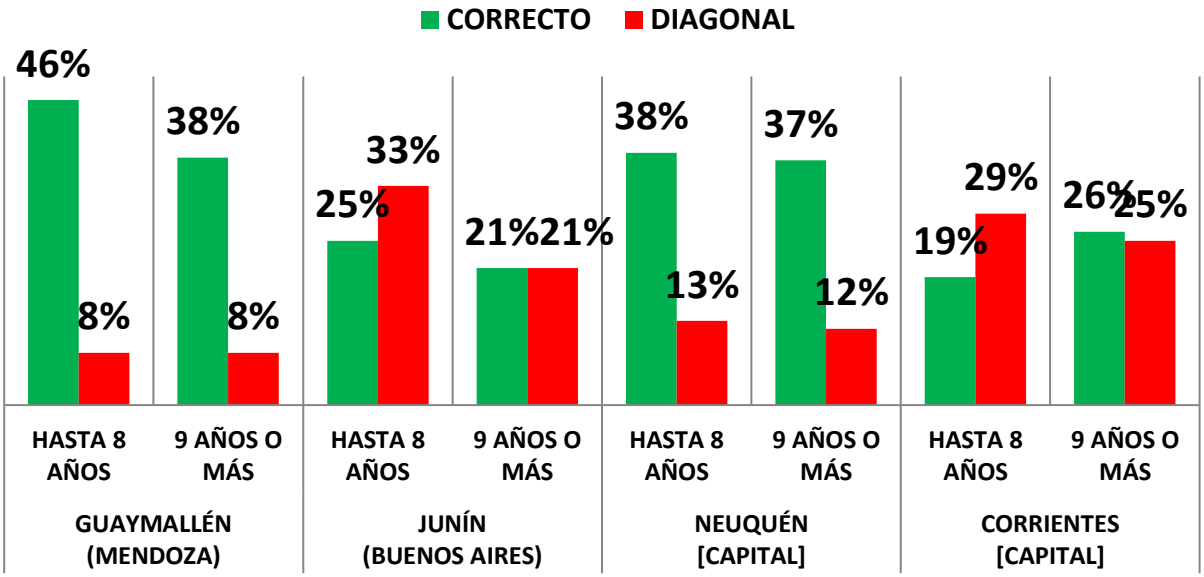
Leaving Jujuy aside because it is only one case, from the child pedestrians who cross at the corner, Guaymallén is highlighted where 8 every 10 children do it correctly. In Neuquén 3 children every 4 while in Junín and Corrientes less than half of them do it correctly. In Guaymallén, the number of boys crossing the street diagonally is higher while in Neuquén, Junín and Corrientes the number of girls crossing the street diagonally is higher.

Graph 1.3.17



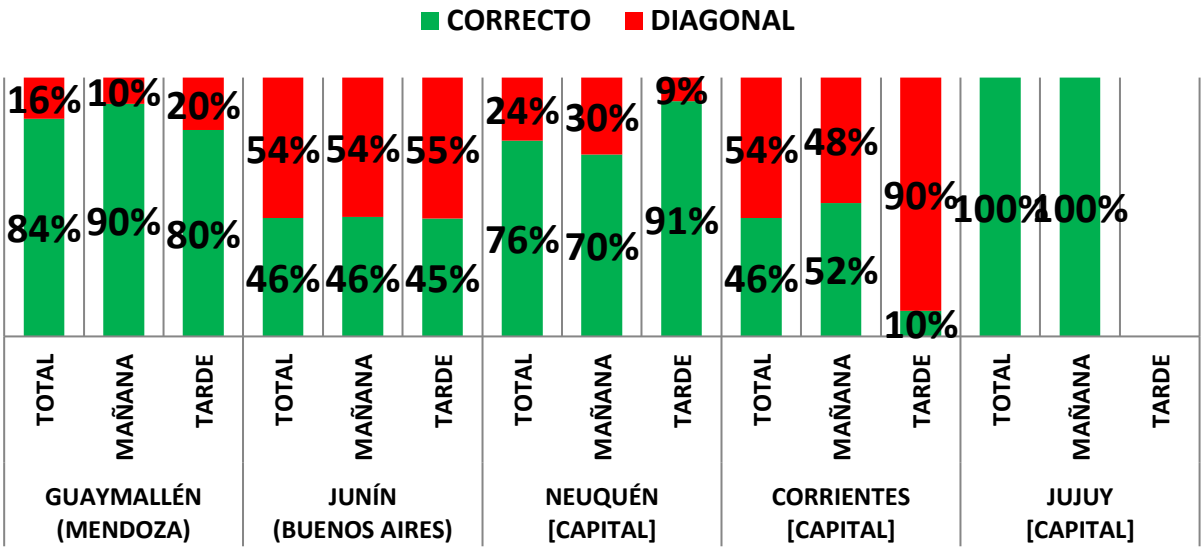
In Guaymallén, the proportion of child pedestrians is slightly greater among those aged 9 or older who cross the street diagonally. In Neuquén, there are no significant variations according to their age, while in Junín as in Corrientes this is more frequent among those aged up to 8 years old.

Graph 1.3.18



When calculating the percentages according to the total pedestrian children, a population at a higher risk is observed-they cross diagonally- in children aged up to 8 years old in Junín (1 every 3) followed by children aged 8 years old in Corrientes (3 every 10).

Graph 1.3.19

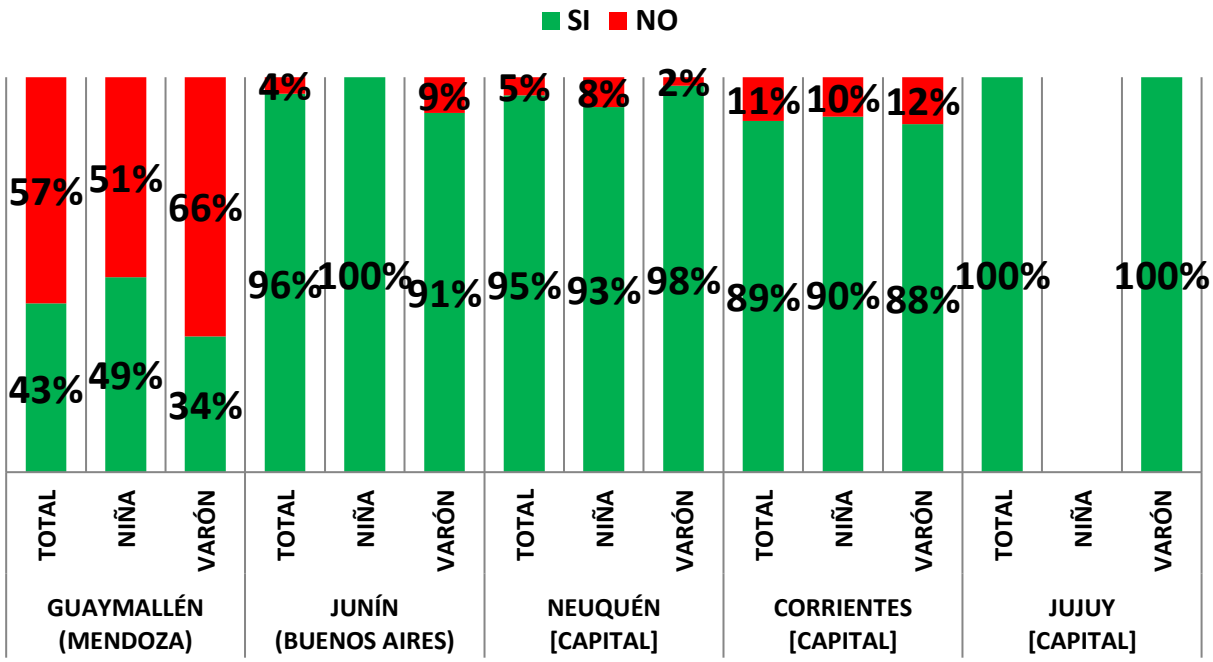


In Guaymallén and mainly in Corrientes the proportion of child pedestrians crossing diagonally increases in the afternoon shift, in Neuquén this happens in the morning while in Junín there are no significant variations.

OBSERVED CHILD PEDESTRIANS - CROSSING CORNER - LOOKS BEFORE CROSSING.

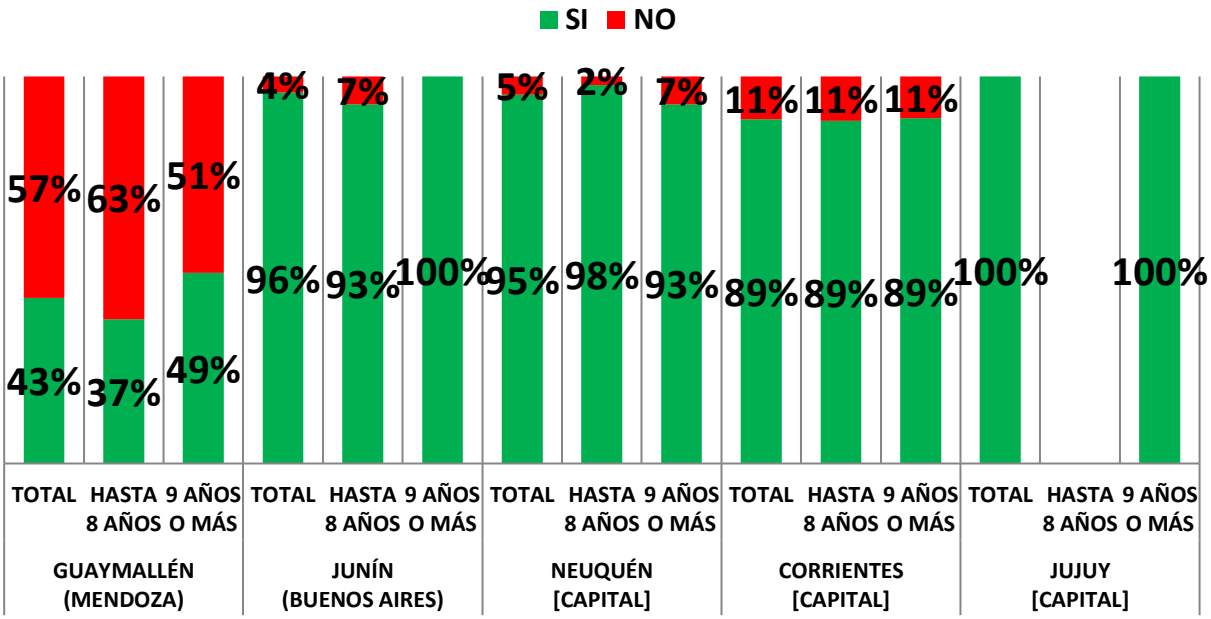
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	138
JUNIN, BUENOS AIRES	24
NEUQUÉN [CAPITAL]	26
CORRIENTES [CAPITAL]	72
JUJUY [CAPITAL]	1

Graph 1.3.20



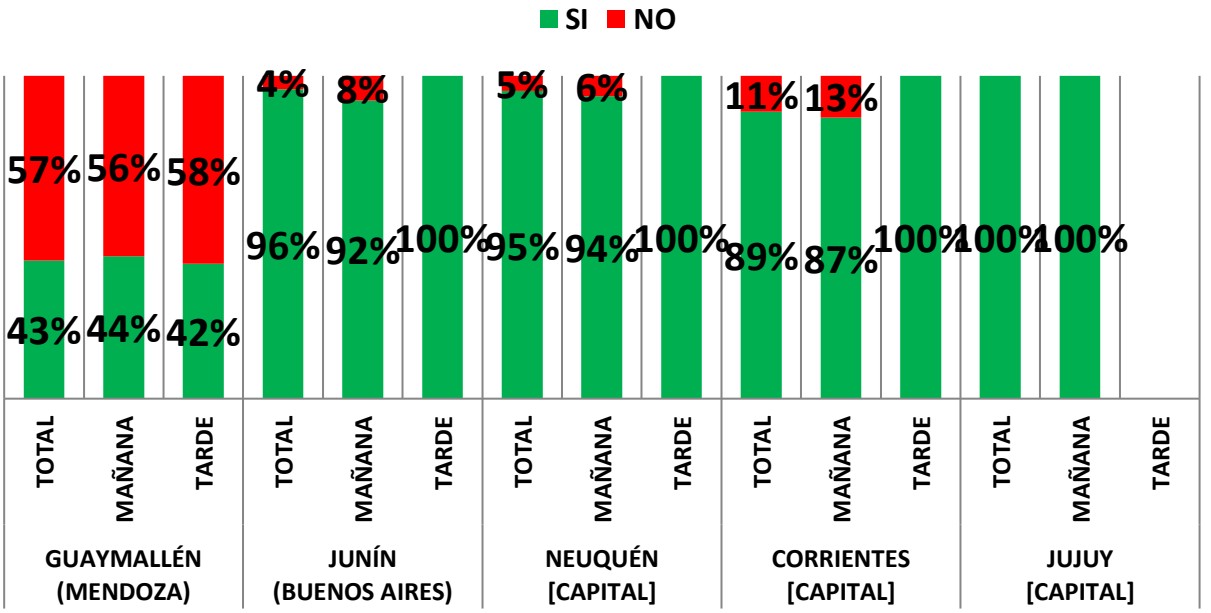
Of all child pedestrians crossing the street on the corner - leaving Jujuy aside for the aforementioned reason - Junín and Neuquén stand out for the number of those who do look before crossing, and also Corrientes slightly behind them. Guaymallén, on the other hand, stands out because 6 every 10 children do not look before crossing on the corner, getting worse among boys where 2 every 3 do not look before crossing.

Graph 1.3.21



The concern detected in Guaymallén grows worse among child pedestrians up to 8 years of age.

Graph 1.3.22



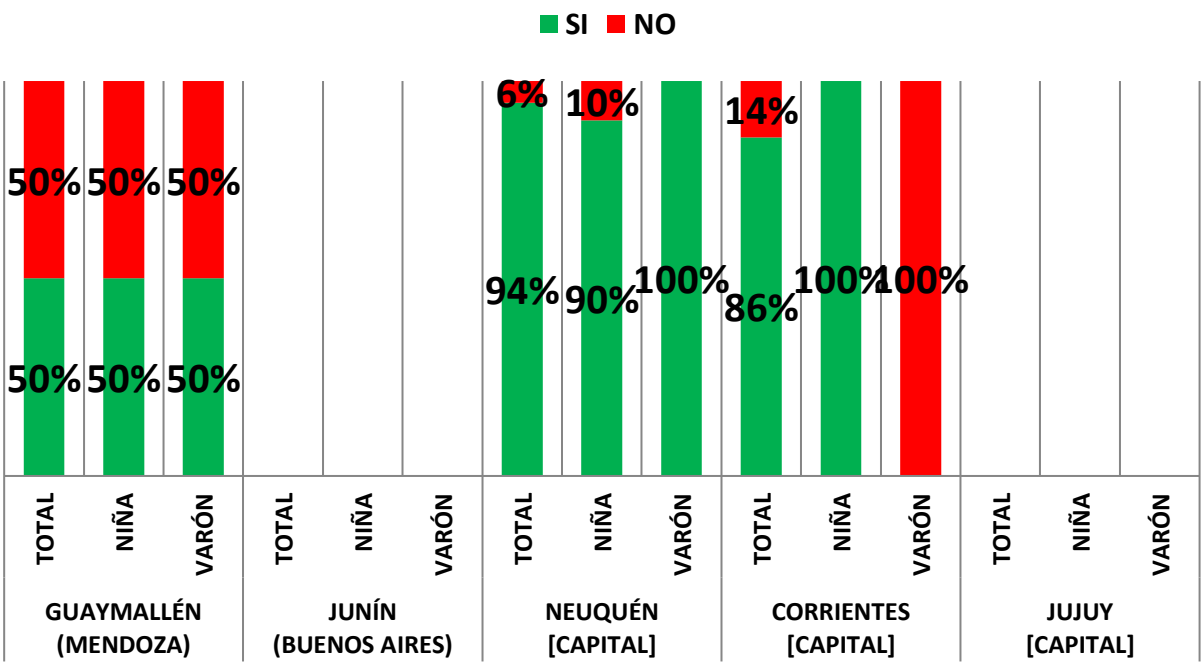
That same concern detected in Guaymallén minimally increases in the afternoon shift.

OBSERVED CHILD PEDESTRIANS - TRAFFIC LIGHTS - WAITS FOR LIGHTS

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	4
JUNIN, BUENOS AIRES	0
NEUQUÉN [CAPITAL]	18
CORRIENTES [CAPITAL]	7
JUJUY [CAPITAL]	0

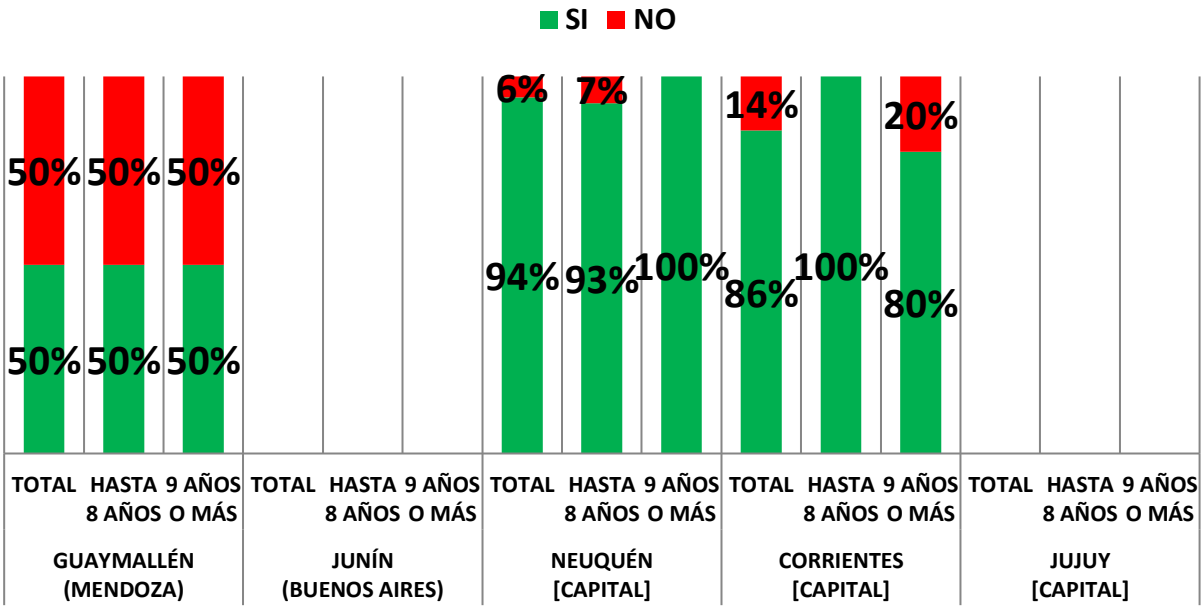
Due to the low number of cases of crossings at traffic lights recorded in most of cities assessed, analysis of results will be performed for Neuquén (18 cases). Results will be presented for all those where cases were recorded.

Graph 1.3.23



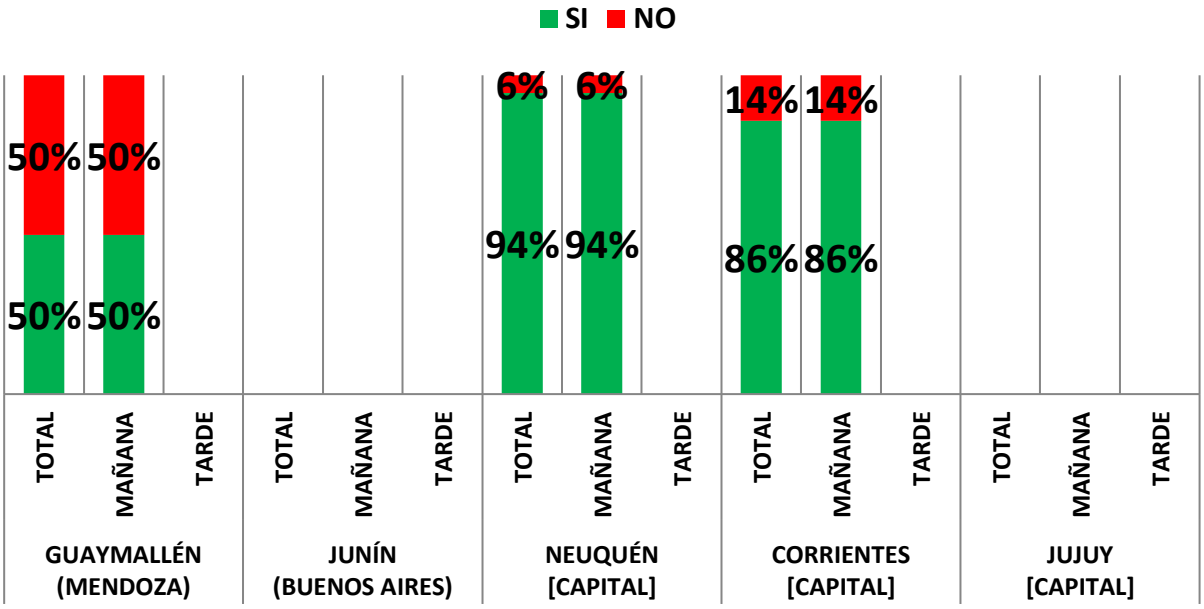
The great majority of child pedestrians that cross at the street lights in Neuquén, do so, waiting for the lights; the few cases not waiting are girls.

Graph 1.3.24



Also in Neuquén, those not waiting for the lights are exclusively children up to 8 years of age.

Graph 1.3.25

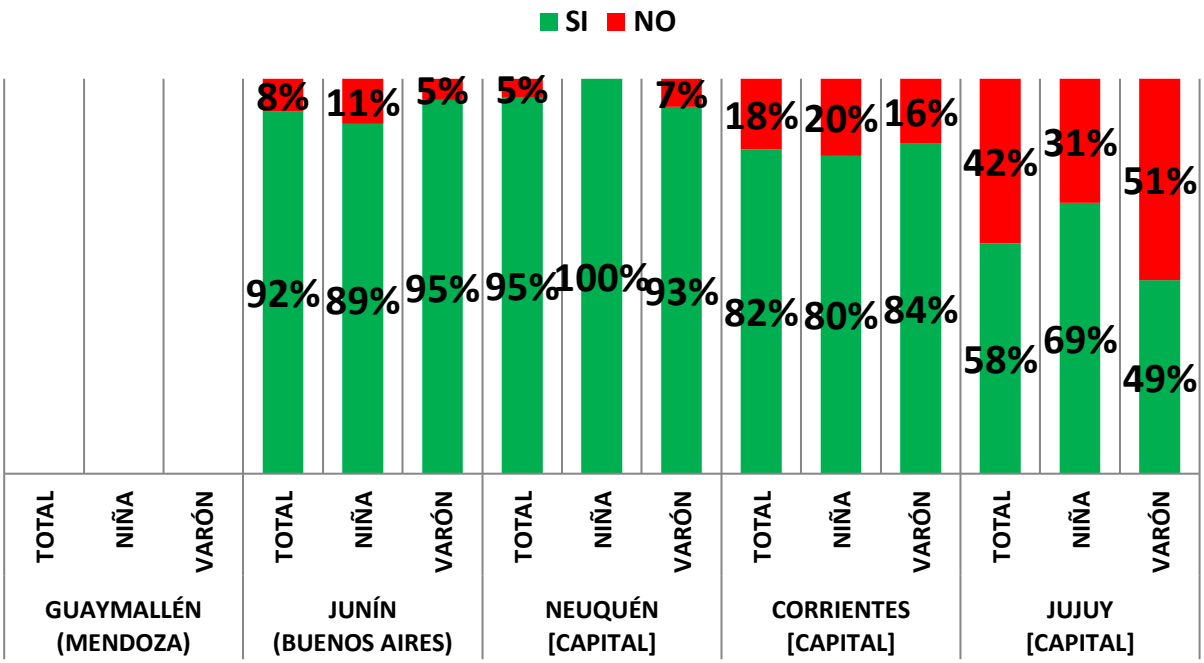


Also in Neuquén, all those not waiting for the lights at the traffic lights attend school in the morning.

OBSERVED CHILD PEDESTRIANS - ZEBRA CROSSING - LOOK BEFORE CROSSING

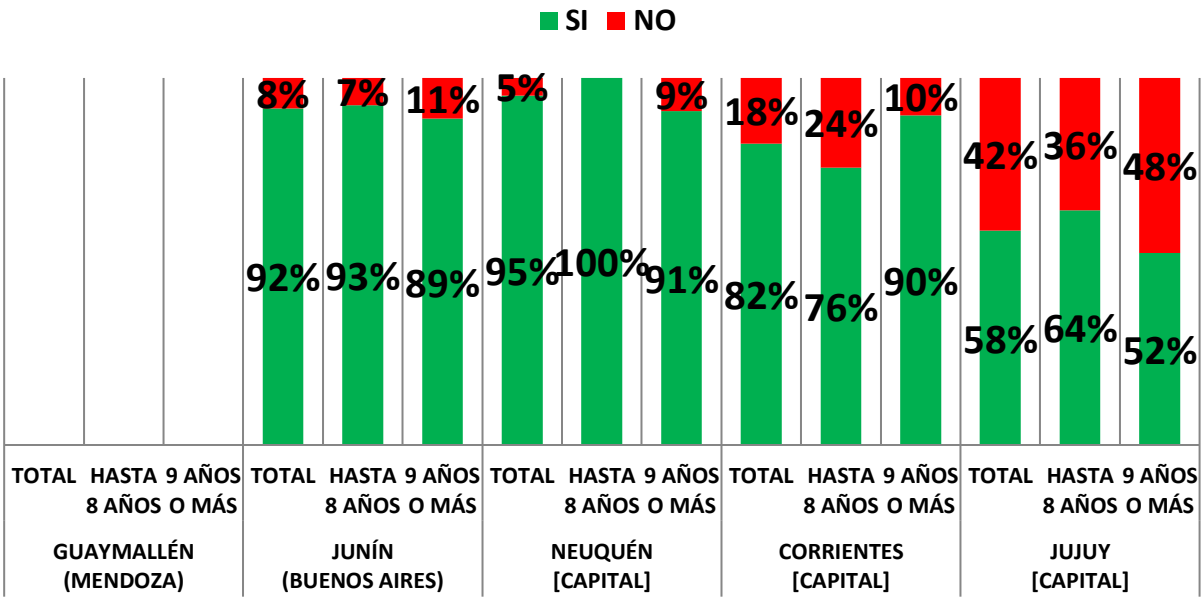
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	0
JUNIN, BUENOS AIRES	66
NEUQUÉN [CAPITAL]	21
CORRIENTES [CAPITAL]	84
JUJUY [CAPITAL]	185

Graph 1.3.26



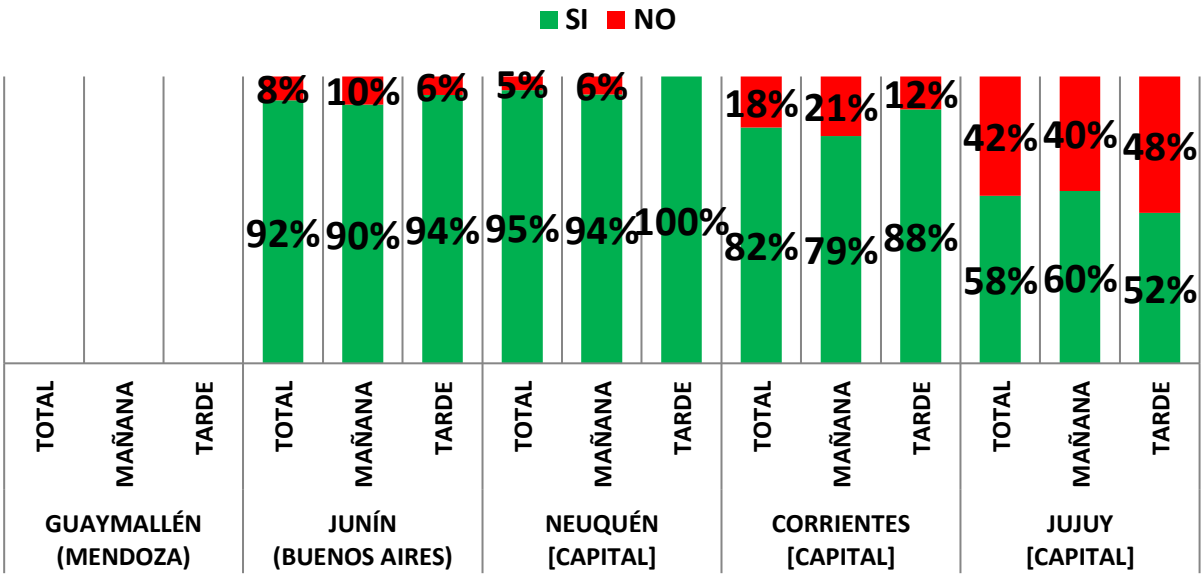
Best results were obtained in: Neuquén for its high number (almost all of them) of child pedestrians looking before crossing at a zebra crossing; Junín comes in the second place with 9 out of 10; after them, Corrientes with 8 out of 10, and where 1 out of 5 girls cross the zebra crossing without looking. Jujuy shows the lowest number, 6 out of 10, this is concerning since it means that 4 out of 10 cross the street without looking, increasing to 5 out of 10 among boys.

Graph 1.3.27



The concerning result detected in Jujuy increases among children aged 9 years or older, and it is also important to note that 1 out of 4 children up to 8 years of age also cross the zebra crossing without looking.

Graph 1.3.28

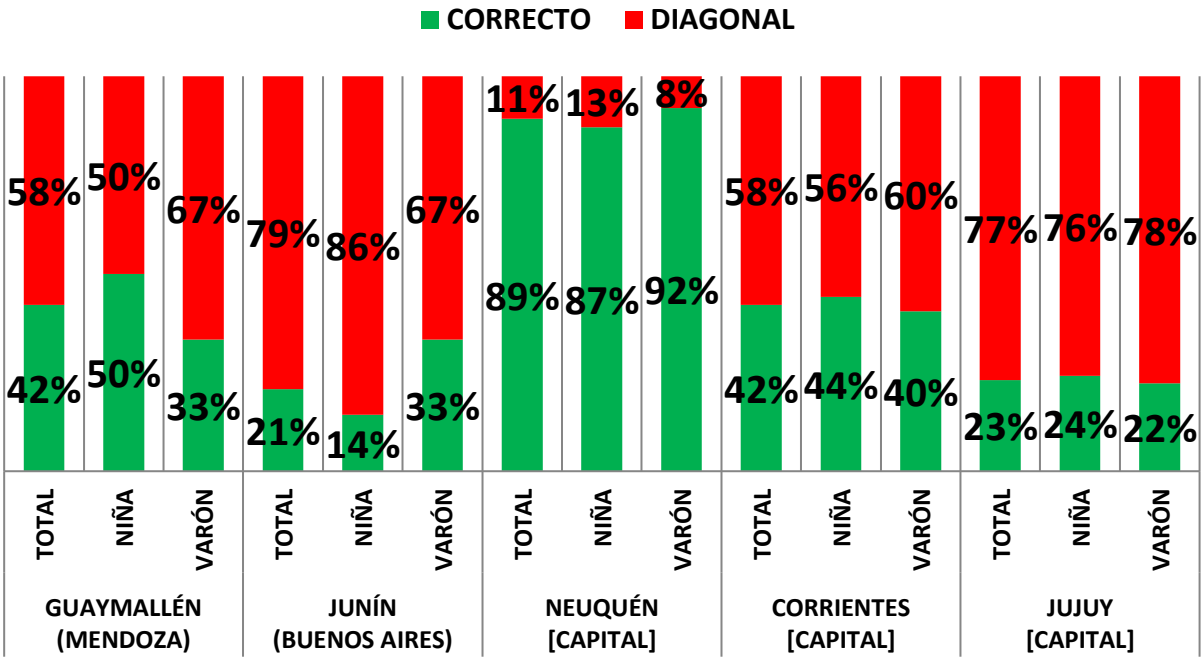


The concerning situation detected in Jujuy increases in the afternoon shift.....

OBSERVED CHILD PEDESTRIANS - MIDDLE OF THE BLOCK-CROSSING

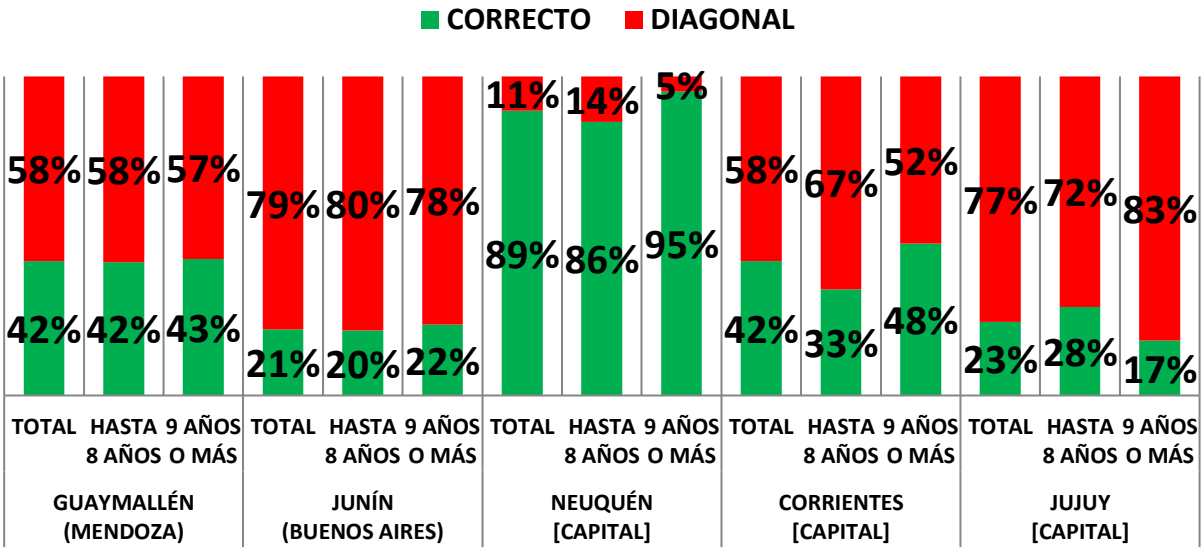
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	83
JUNIN, BUENOS AIRES	53
NEUQUÉN [CAPITAL]	56
CORRIENTES [CAPITAL]	166
JUJUY [CAPITAL]	65

Graph 1.3.29



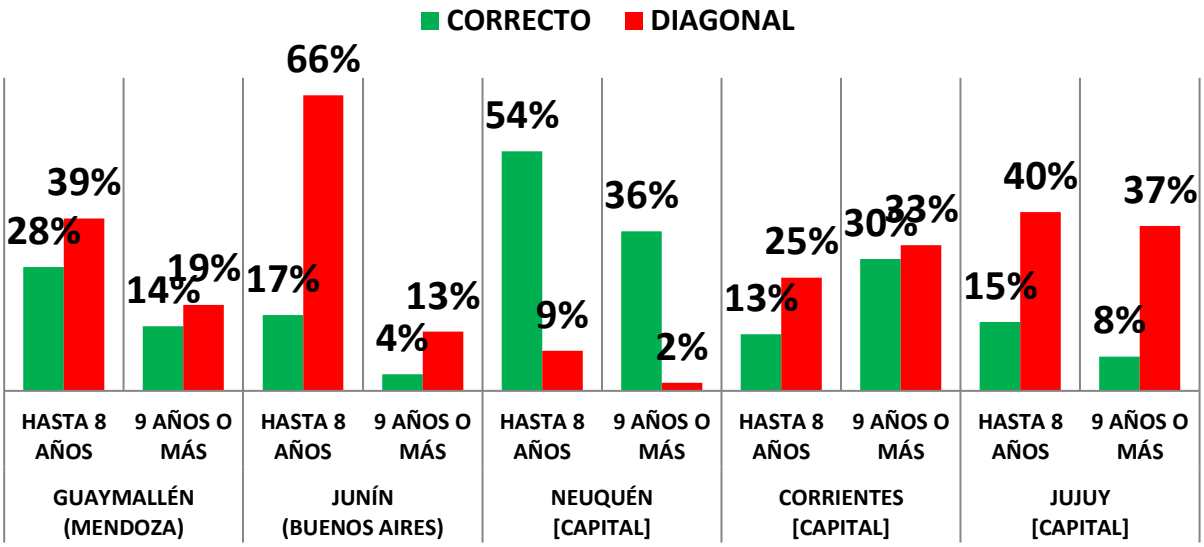
Neuquén stands out for the high number of child pedestrians, mainly boys, that cross the street correctly in the middle of the block. In the rest of the cities there are warning signals since those crossing diagonally represent the highest proportion. This is especially true in Jujuy and Junín where 8 out of 10 cross the street diagonally. Girls in Junín cross the street diagonally more frequently; the same happens in Jujuy, but in difference with boys is very little. Both in Corrientes and Guaymallén diagonal crossing if more frequently seen in boys.

Graph 1.3.30



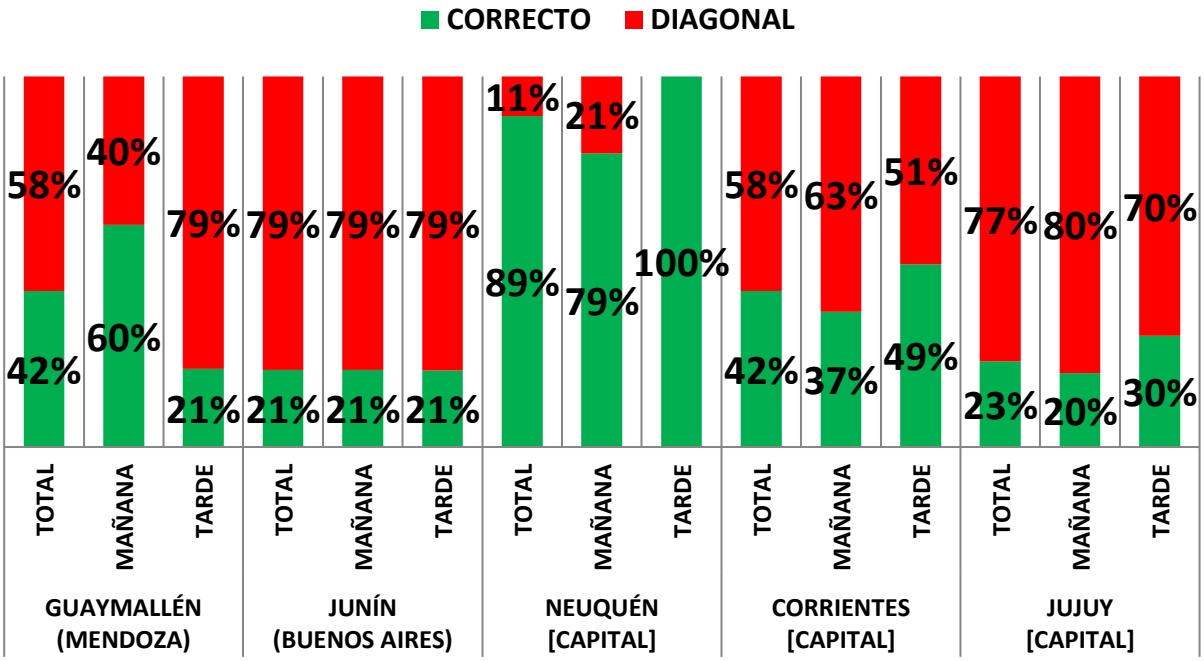
This situation does not present any significant variation regarding child pedestrians´ ages.

Graph 1.3.31



When calculating percentages according to child pedestrians total in each city, also considering their age, it was pretty clear that children up to 8 years of age represent the group at a higher risk in four of the five cities assessed, being Jujuy a very clear example.

Graph 1.3.32

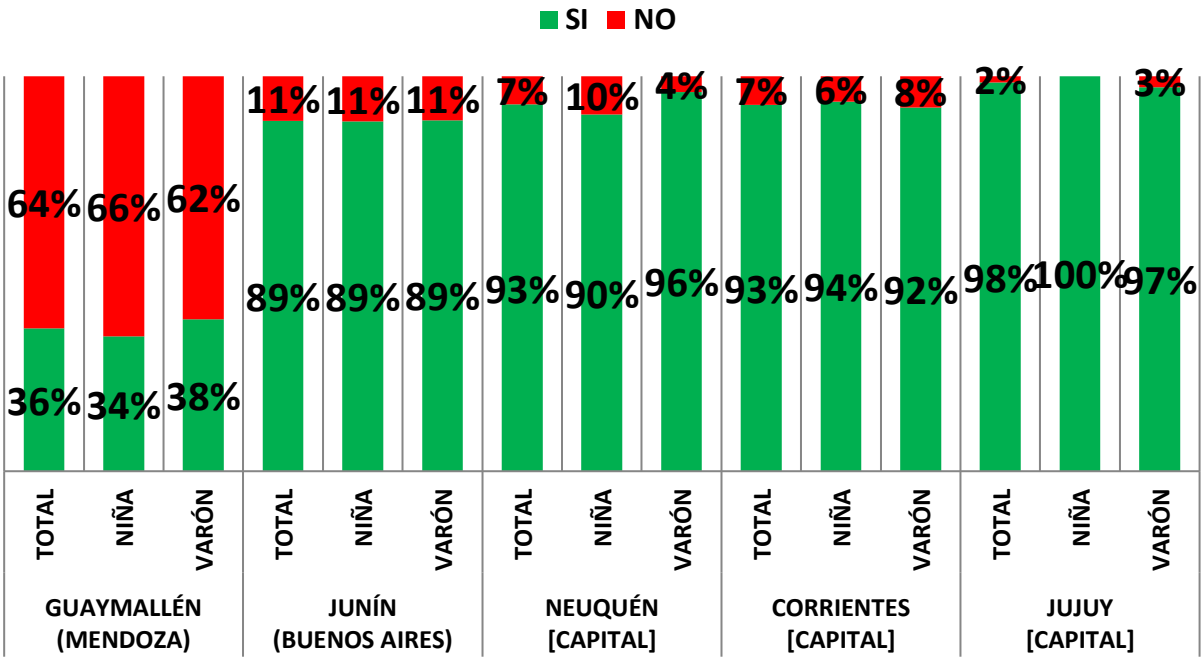


This represents a warning light in four of the five cities with higher values in the morning shift in Jujuy and Corrientes. In that same shift, there is an increase in the number of those crossing the street diagonally in the middle of the block in Neuquén. In Guaymallén, however, the increase is observed in the afternoon; no variations were observed in Junín.

OBSERVED PEDESTRIAN CHILDREN-MIDDLE OF THE BLOCK- LOOKS BEFORE CROSSING

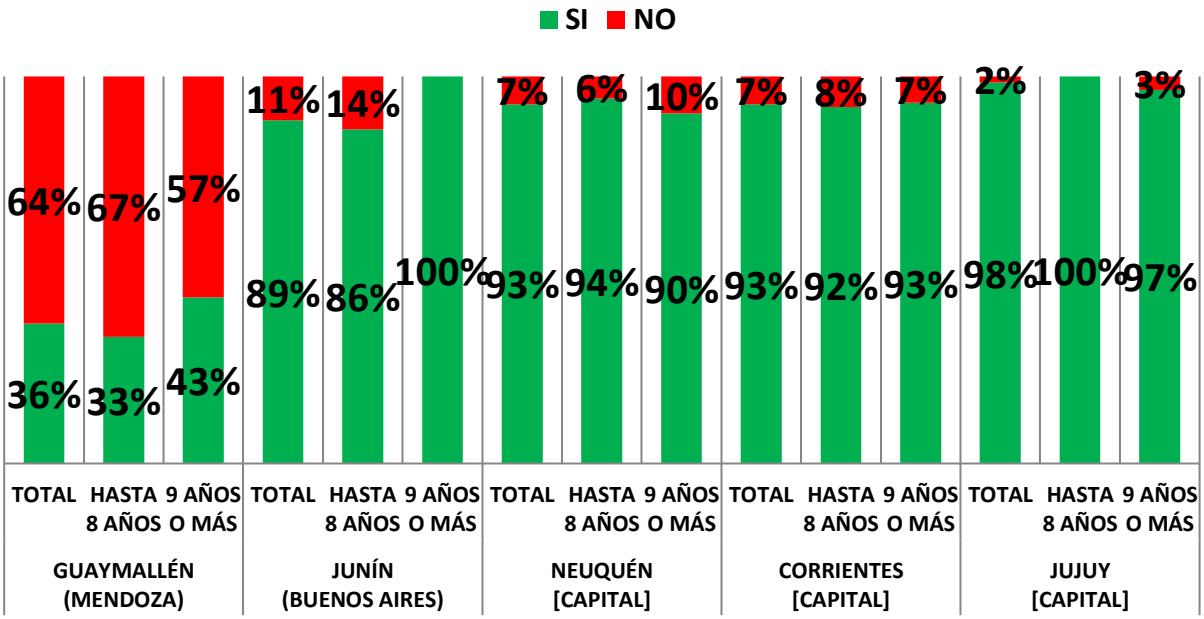
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	83
JUNIN, BUENOS AIRES	53
NEUQUÉN [CAPITAL]	56
CORRIENTES [CAPITAL]	166
JUJUY [CAPITAL]	65

Graph 1.3.33



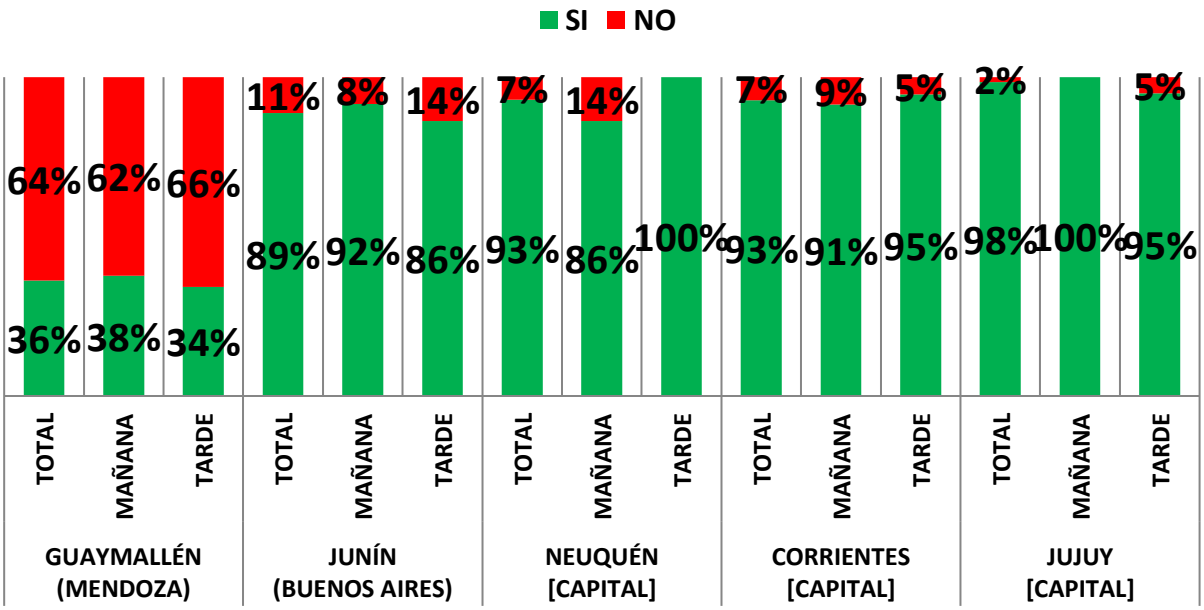
Of child pedestrians, 9 out of 10 children cross the street in the middle of the block in four out of the five cities studied. There are warning signals in Guaymallén where 2 out of 3 do not cross in the middle of the block, with increasing numbers among girls.

Graph 1.3.34



These warnings in Guaymallén increases among child pedestrians up to 8 years of age.

Graph 1.3.35

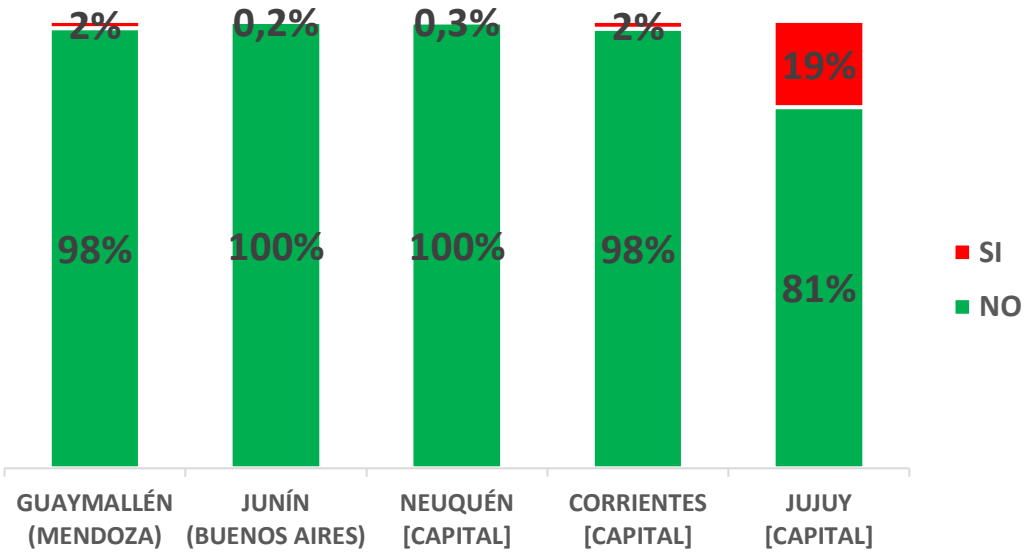


This warning signal in Guaymallén increases in the afternoon shift.

DISTRACTORS - TOTAL

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	434
JUNIN, BUENOS AIRES	444
NEUQUÉN [CAPITAL]	340
CORRIENTES [CAPITAL]	457
JUJUY [CAPITAL]	415

Graph 1.3.36



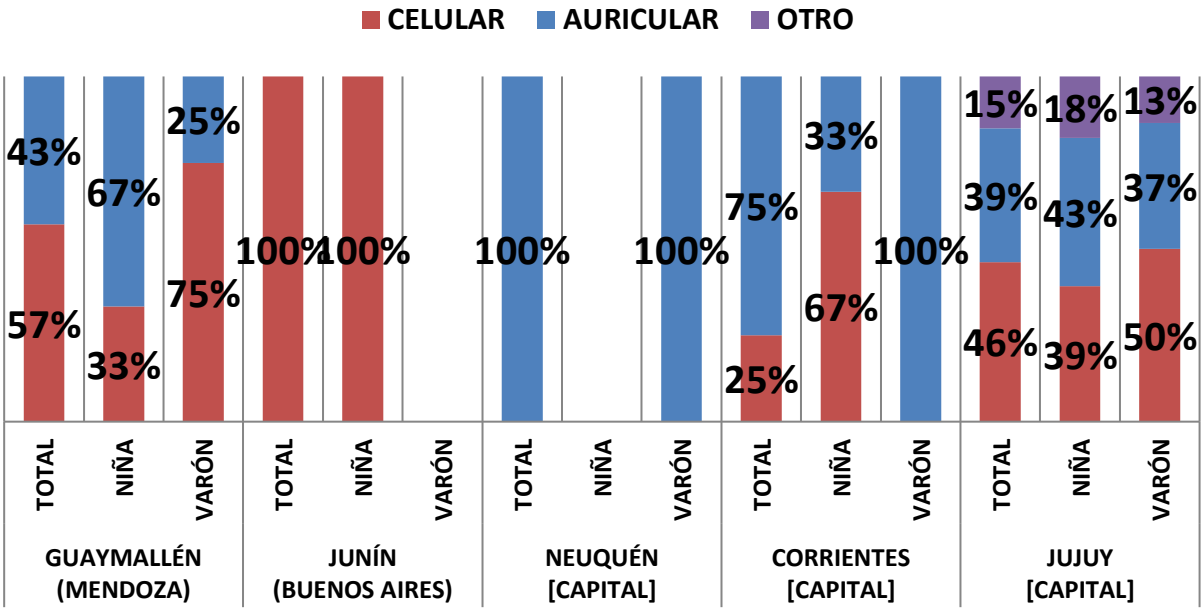
There is a minimal presence of distracting elements in four of the five cities assessed, with the exception of Jujuy where these are found in 1 out of 5 children.

DISTRACTORS - AMONG CHILDREN WHO "DID" CARRY THEM

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	7
JUNIN, BUENOS AIRES	1
NEUQUÉN [CAPITAL]	1
CORRIENTES [CAPITAL]	8
JUJUY [CAPITAL]	80

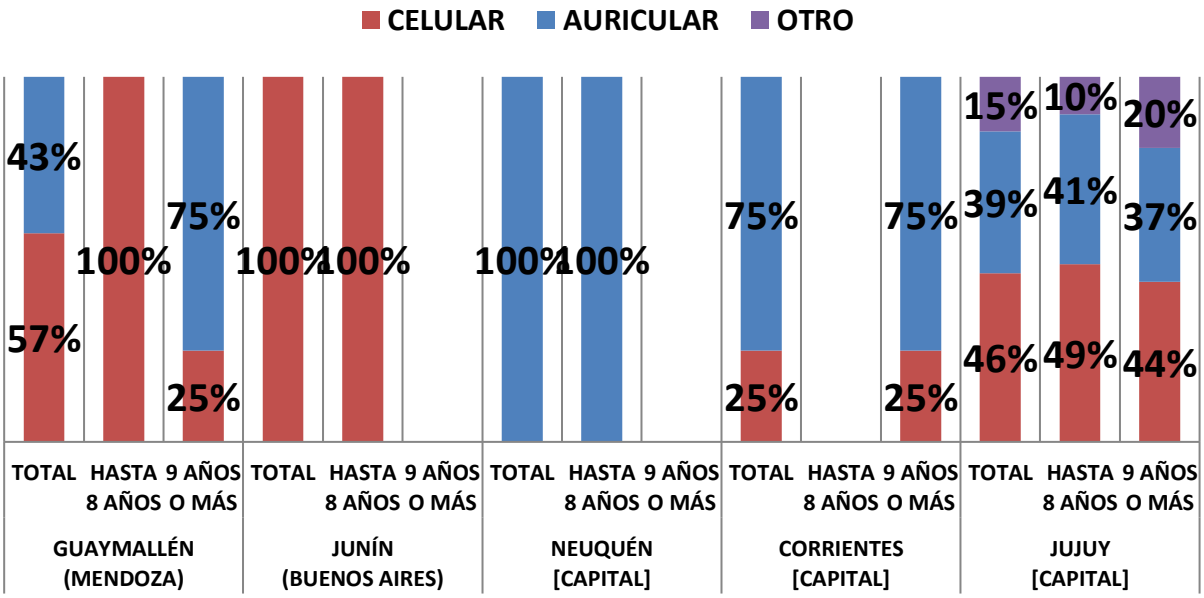
Due to the low number of cases of distracting elements recorded in most of cities assessed, analysis of results will be performed for Jujuy (80 cases). Results will be presented for all those where cases were recorded.

Graph 1.3.37



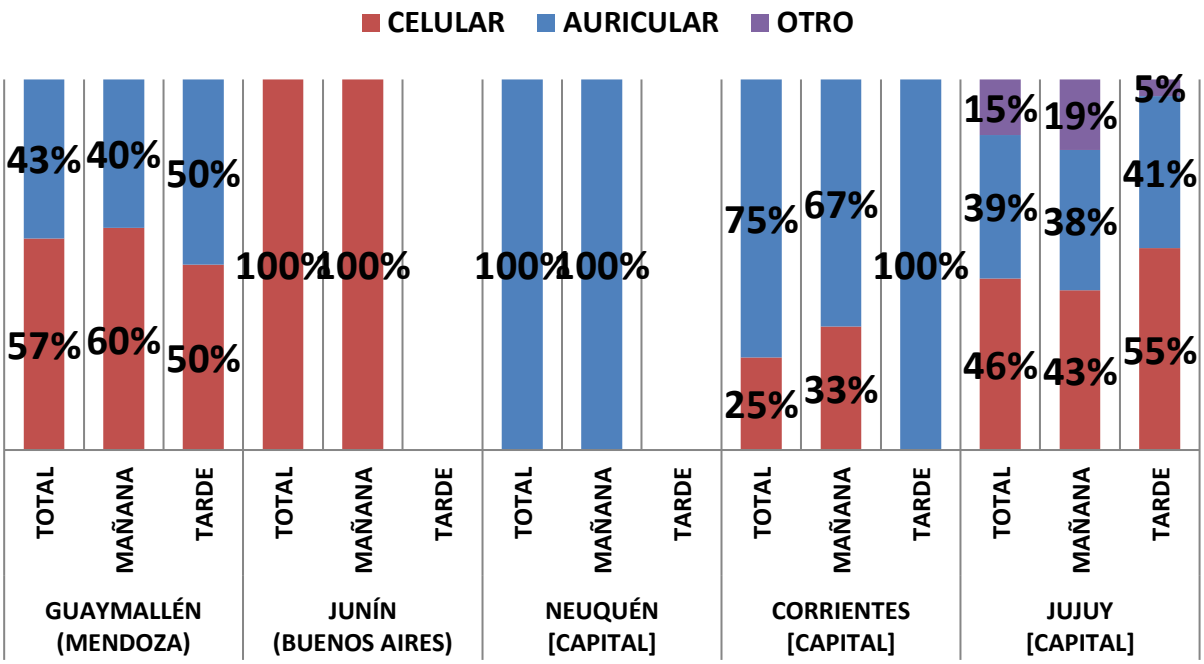
In Jujuy, the cell phone prevails among distractors, followed by the headphones, being both more frequent among boys while toys were more frequent among girls.

Graph 1.3.38



Also in Jujuy, both the mobile and the headphones are observed mainly among children up to 8 years of age.

Graph 1.3.39

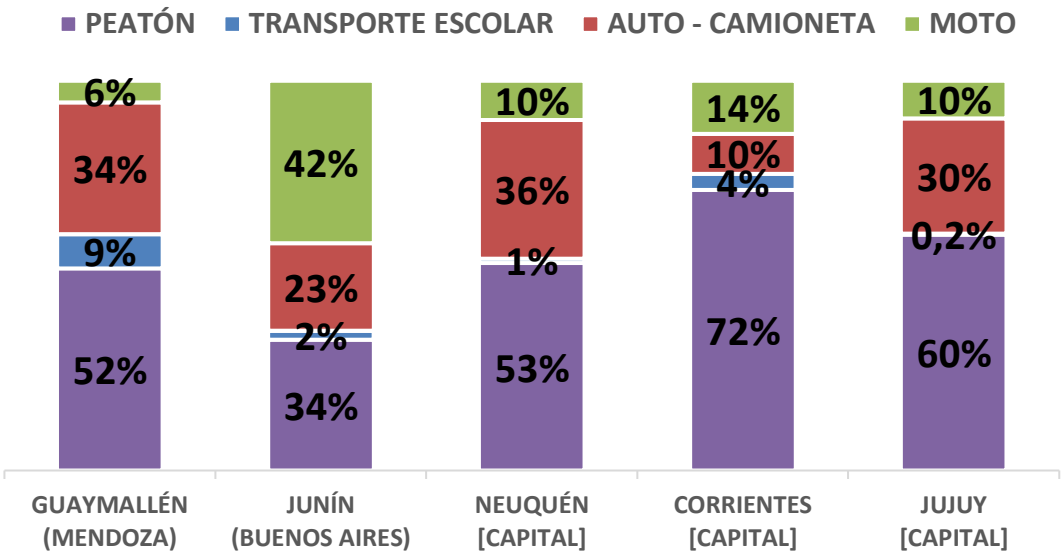


Also in Jujuy, both the mobile and the headphones are observed mainly in the afternoon shift.

CHILDREN TRAFFIC-TOTAL

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	434
JUNIN, BUENOS AIRES	444
NEUQUÉN [CAPITAL]	340
CORRIENTES [CAPITAL]	457
JUJUY [CAPITAL]	415

Graph 1.3.40

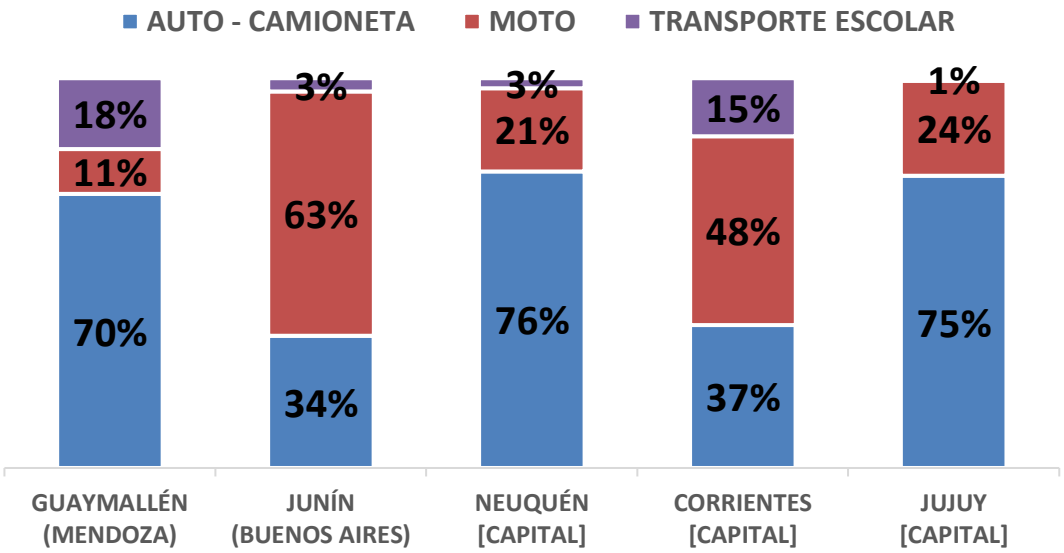


Considering all children observed, the highest number of pedestrians was found in Corrientes and the lowest in Junín. The largest percentage of those traveling to school by car or van was observed in Neuquén and Guaymallén; the smallest percentage was observed in Corrientes. The highest proportion of children traveling by motorcycle was observed in Junín, and the lowest in Guaymallén. The highest proportion of children traveling by school transport was observed in Guaymallén, and the lowest in Jujuy.

CHILDREN TRAFFIC- AS PASSENGERS

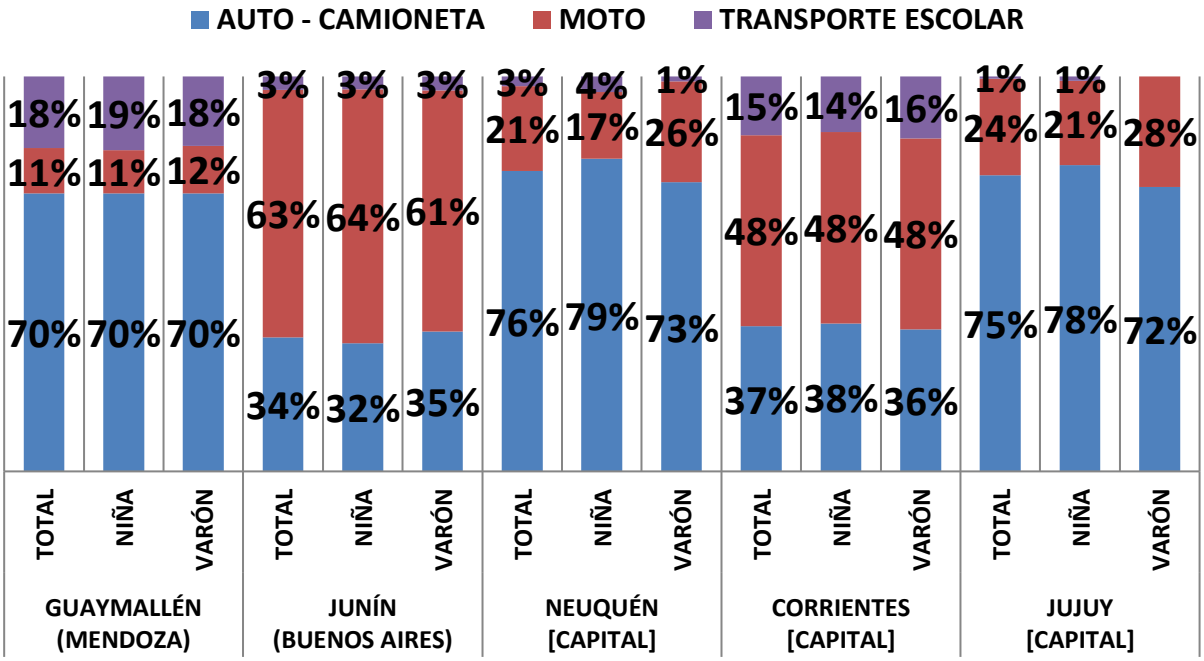
ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	209
JUNIN, BUENOS AIRES	295
NEUQUÉN [CAPITAL]	159
CORRIENTES [CAPITAL]	128
JUJUY [CAPITAL]	164

Graph 1.3.41



If child passengers are considered, the main means of transport were: the car or van in Neuquén, Jujuy, and Guaymallén; the motorcycle in Junín and Corrientes; school transport in Guaymallén and Corrientes.

Graph 1.3.42



There are no significant variations of the means of transport used when assessed by gender of child passengers.

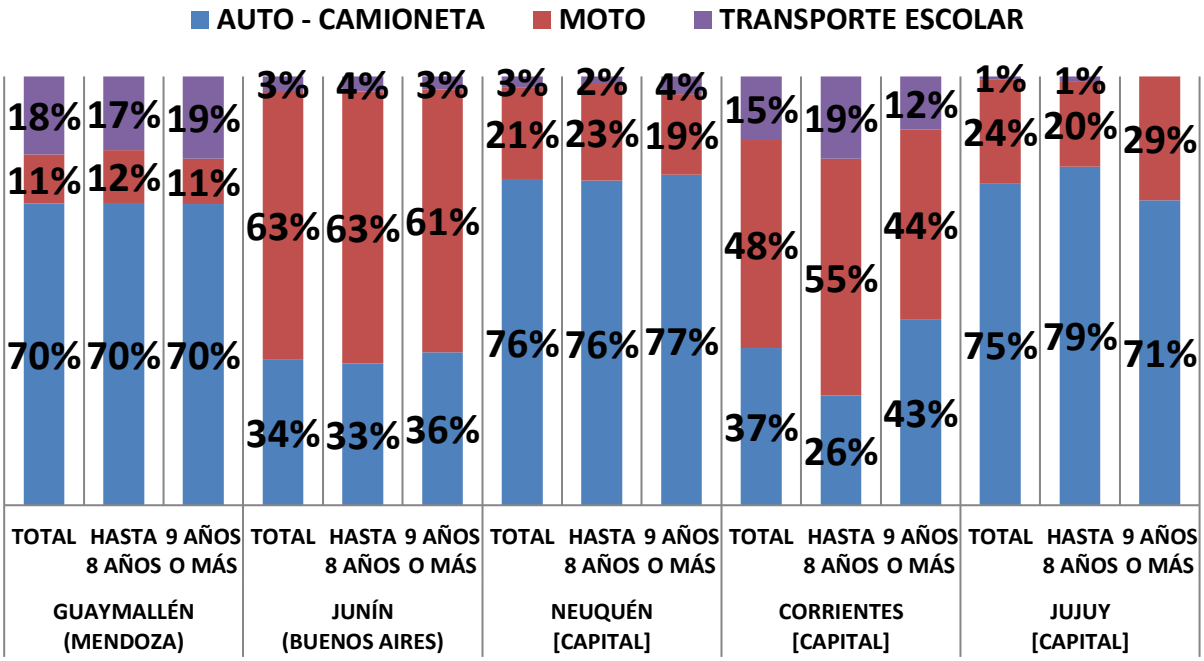
In Junín, the use of cars or vans slightly increases among boys, the motorcycle slightly increases among girls, there are no variations regarding school transport.

The use of cars or vans in Neuquén increases among girls, motorcycles among boys, and school transport among girls.

In Corrientes, there is a minimum increase of cars and vans among boys, there are no variations in motorcycles, while school transport slightly increases among boys.

The use of cars or vans in Jujuy increases among girls and motorcycles among boys. School transport is exclusively used by girls.

Graph 1.3.43



There are no significant variations in Guaymallén regarding cars, vans or motorcycles. School transport represents the most used means of transport among those aged 9 years or more by a minimum difference.

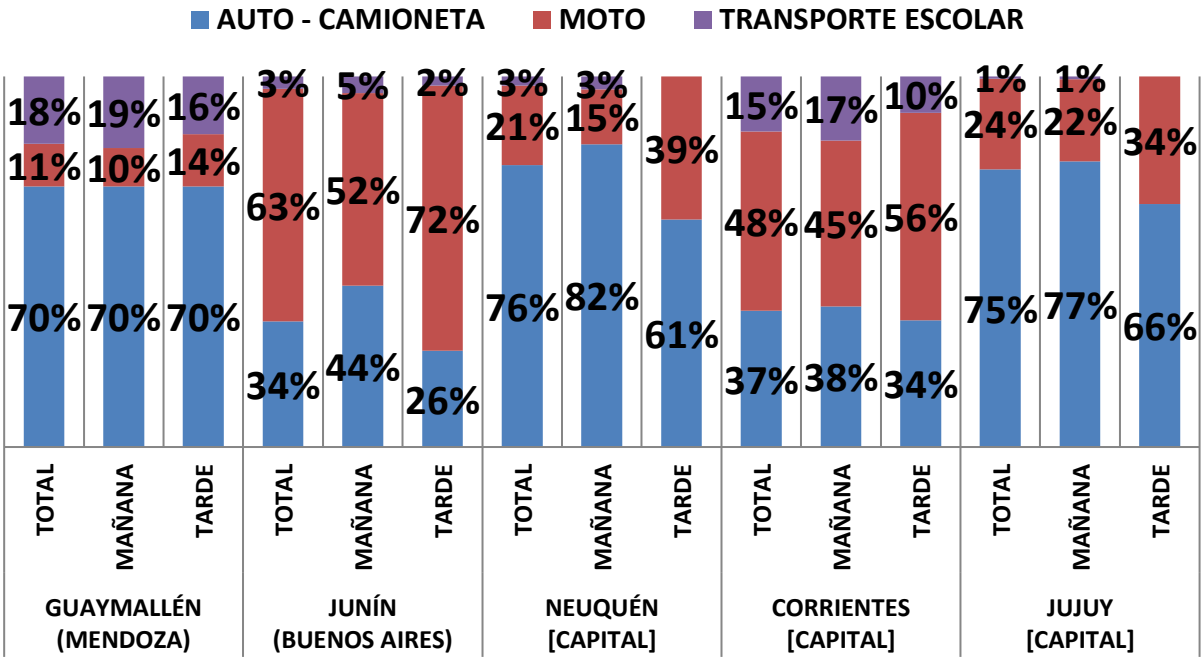
In Junín, the use of cars or vans slightly increases among boys aged 9 or more, the motorcycle slightly increases among those up to 8 years; there are no variations for school transport regarding gender.

There are no significant variations between the different categories in Neuquén in the use of cars or vans, the use of motorcycles increases among child passengers up to 8 years of age, while there is a slight increase of school transport among children aged 9 or more.

The use of cars or vans in Corrientes clearly increases among those aged 9 or older. Both the use of the motorcycles and school transport increase among those aged up to 8 years of age.

The use of cars or vans in Jujuy increases among those aged up to 8 years old, the use of motorcycles increases among those aged 9 or older. School transport is exclusively used by those aged up to 8 years old.

Graph 1.3.44



No significant variations for cars or vans were observed in Guaymallén, the use of motorcycles stands out in the afternoon shift. School transport slightly increases in the morning.

The use of cars or vans in Jujuy increases in the morning shift, the use of motorcycles increases in the afternoon. School transport slightly increases in the morning.

The use of cars or vans in Neuquén increases in the morning, the use of motorcycles increases in the afternoon. School transport is exclusively used in the morning.

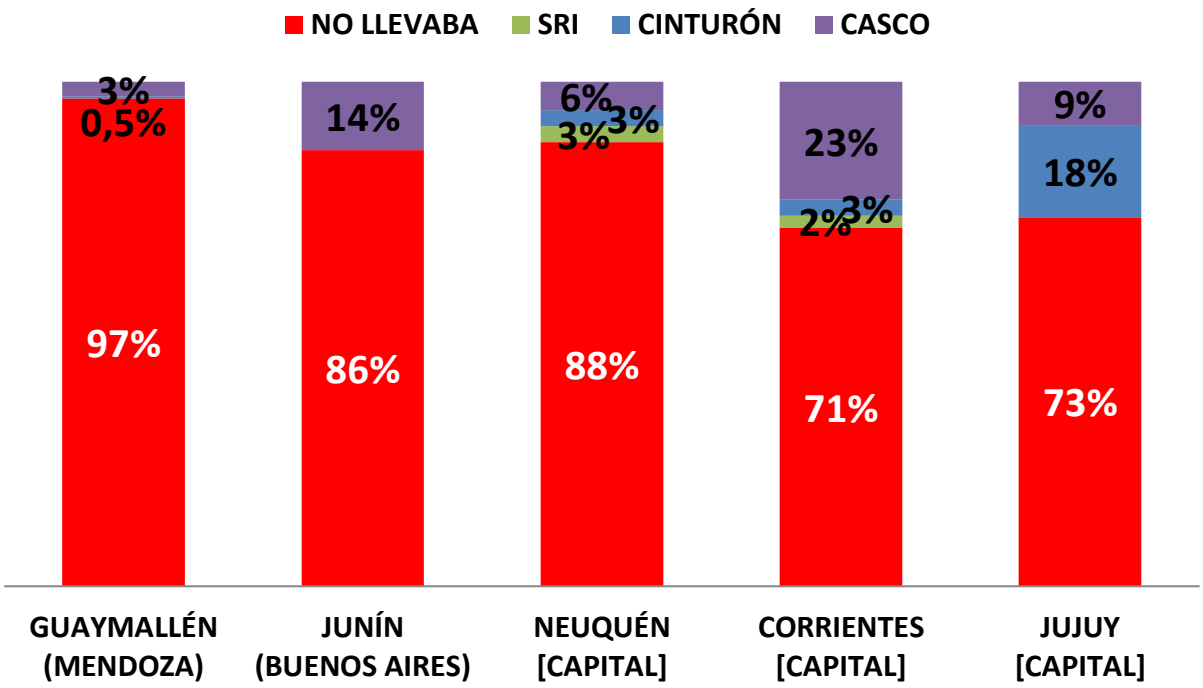
The use of cars or vans in Corrientes also increases in the morning shift, the use of motorcycles also increases in the afternoon. School transport increases in the morning.

The use of cars or vans in Jujuy increases in the morning shift, the use of motorcycles increases in the afternoon. School transport is exclusively used in the morning shift.

CHILDREN TRAFFIC- AS OCCUPANTS - SAFETY MEASURES

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	209
JUNIN, BUENOS AIRES	295
NEUQUÉN [CAPITAL]	159
CORRIENTES [CAPITAL]	128
JUJUY [CAPITAL]	164

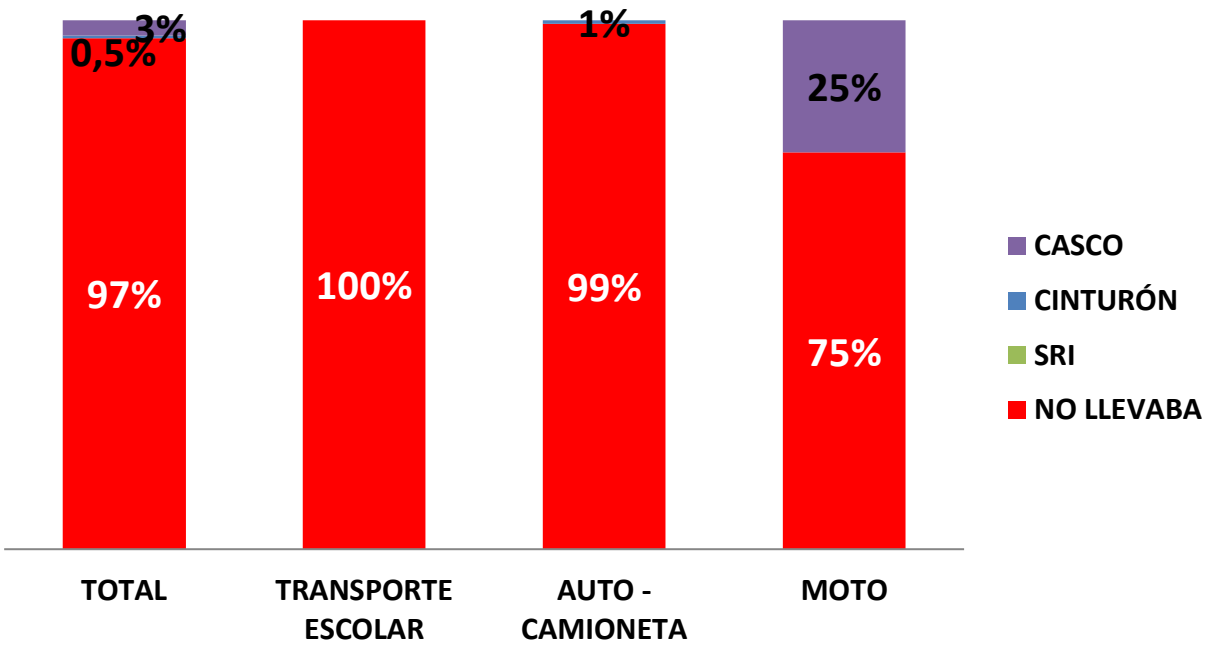
Graph 1.3.45



There are clear warning signals for all cities assessed connected to the number of people not using child safety measures when taking children to school. Most critical case is Guaymallén, Neuquén and Junín come in second place, and Jujuy and Corrientes in the third position.

Graph 1.3.46

GUAYMALLÉN (MENDOZA)



In Guaymallén, not using safety measures is even more critical among children traveling in school transport, cars and vans.

Chart 1.3.7

CHILD GENDER			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GIRL	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			31%	3%
		NOT WEARING	100%	100%	69%	97%
	Total		100%	100%	100%	100%
BOY	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		2%		1%
		HELMET			18%	2%
		NOT WEARING	100%	98%	82%	97%
	Total		100%	100%	100%	100%

Chart 1.3.8

CHILD AGE			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
YOUNGER THAN 8	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			23%	3%
		NOT WEARING	100%	100%	77%	97%
	Total		100%	100%	100%	100%
9 YEARS OLD OR OLDER	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		1%		1%
		HELMET			27%	3%
		NOT WEARING	100%	99%	73%	96%
	Total		100%	100%	100%	100%

In the case of those traveling by motorcycle, not using safety measures increases among those aged up to 8 years of age.

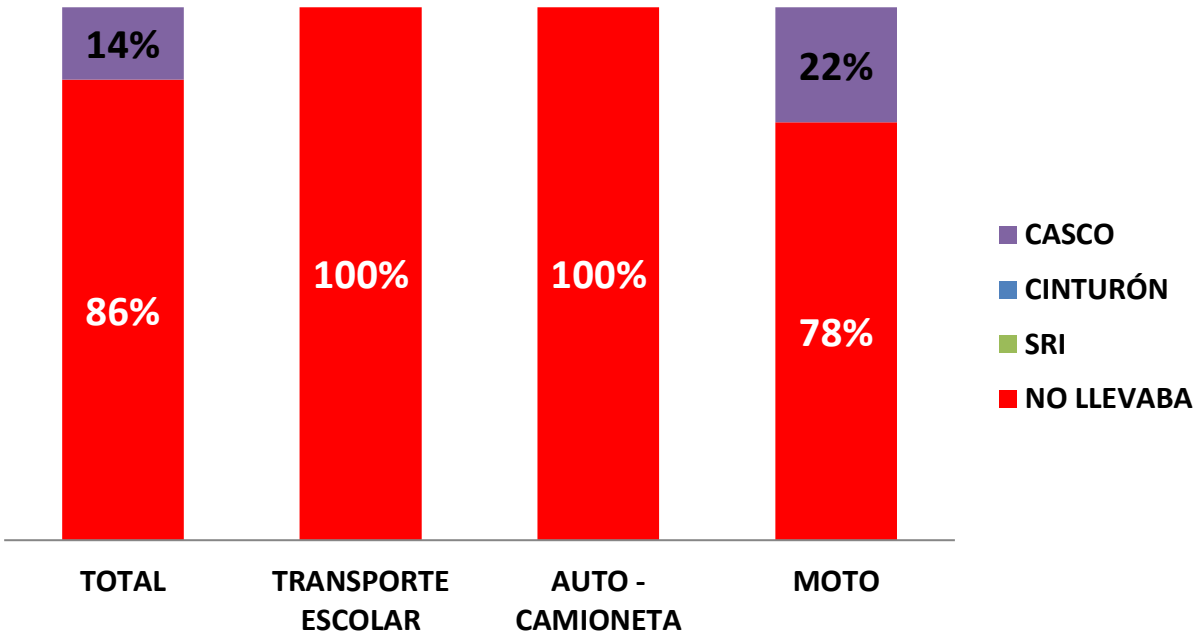
Chart 1.3.9

SHIFT			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
MORNING	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		1%		1%
		HELMET			27%	3%
		NOT WEARING	100%	99%	73%	97%
	Total		100%	100%	100%	100%
AFTERNOON	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			22%	3%
		NOT WEARING	100%	100%	78%	97%
	Total		100%	100%	100%	100%

Not using child safety measures on motorcycles increases in the afternoon shift.

Graph 1.3.47

JUNIN, BUENOS AIRES



Also in Junín, not using safety measures is even more critical among children traveling in school transport, cars and vans.

Chart 1.3.10

CHILD GENDER			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GIRL	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			20%	13%
		NOT WEARING	100%	100%	80%	87%
	Total		100%	100%	100%	100%
BOY	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			24%	15%
		NOT WEARING	100%	100%	76%	85%
	Total		100%	100%	100%	100%

Among children traveling by motorcycle, there is an increase in the non-use of safety measures in girls.

Chart 1.3.11

CHILD AGE			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
YOUNGER THAN 8	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			23%	15%
		NOT WEARING	100%	100%	77%	85%
	Total		100%	100%	100%	100%
9 YEARS OLD OR OLDER	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			18%	11%
		NOT WEARING	100%	100%	82%	89%
	Total		100%	100%	100%	100%

In the case of those traveling by motorcycle, not using safety measures increases among those aged 9 and older.

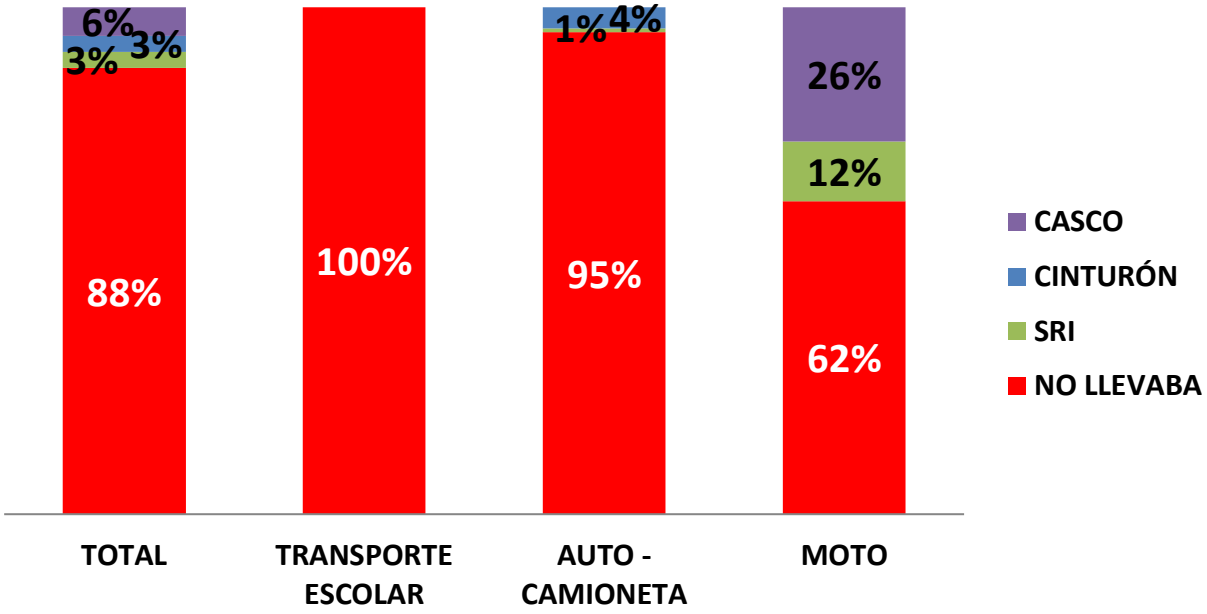
Chart 1.3.12

SHIFT			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
MORNING	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			36%	19%
		NOT WEARING	100%	100%	64%	81%
	Total		100%	100%	100%	100%
AFTERNOON	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			13%	9%
		NOT WEARING	100%	100%	87%	91%
	Total		100%	100%	100%	100%

Not using child safety measures on motorcycles increases in Junín in the afternoon shift.

Graph 1.3.48

NEUQUÉN [CAPITAL]



In Neuquén, not using safety measures is even more critical among children traveling in school transport, cars and vans.

Chart 1.3.13

CHILD GENDER			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GIRL	PASSENGER - SAFETY MEASURE	CRS		2%	8%	3%
		SEAT BELT		3%		3%
		HELMET			23%	4%
		NOT WEARING	100%	95%	69%	91%
	Total		100%	100%	100%	100%
BOY	PASSENGER - SAFETY MEASURE	CRS			14%	4%
		SEAT BELT		5%		4%
		HELMET			29%	7%
		NOT WEARING	100%	95%	57%	85%
	Total		100%	100%	100%	100%

Among children traveling by motorcycle, there is an increase in the non-use of safety measures in girls in Neuquén.

Chart 1.3.14

CHILD AGE			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
YOUNGER THAN 8	PASSENGER - SAFETY MEASURE	CRS			12%	3%
		SEAT BELT		4%		3%
		HELMET			32%	7%
		NOT WEARING	100%	96%	56%	87%
	Total		100%	100%	100%	100%
9 YEARS OLD OR OLDER	PASSENGER - SAFETY MEASURE	CRS		3%	11%	4%
		SEAT BELT		5%		4%
		HELMET			11%	2%
		NOT WEARING	100%	92%	78%	90%
	Total		100%	100%	100%	100%

Among the case of those traveling by motorcycle, not using safety measures increases among those aged 9 and older, as well as those traveling by car of van.

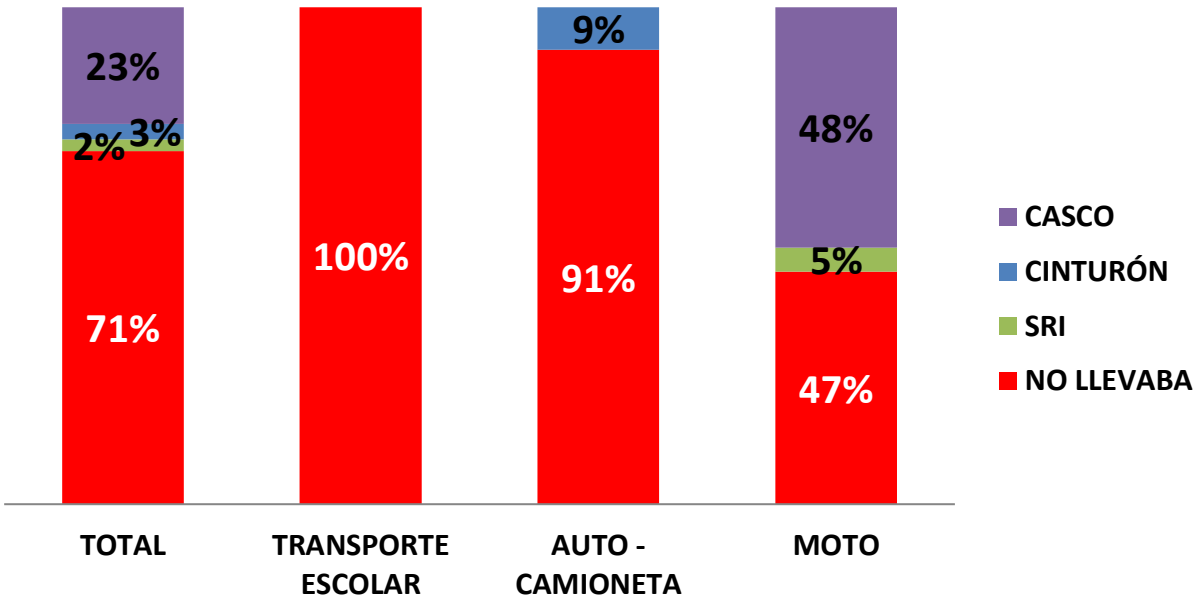
Chart 1.3.15

SHIFT			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
MORNING	PASSENGER - SAFETY MEASURE	CRS		1%	24%	4%
		SEAT BELT		5%		4%
		HELMET			24%	3%
		NOT WEARING	100%	94%	53%	88%
	Total		100%	100%	100%	100%
AFTERNOON	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			29%	11%
		NOT WEARING		100%	71%	89%
	Total			100%	100%	100%

Children not using child safety measures on motorcycles also increases in Neuquén in the afternoon shift, the same happens with cars and vans.

Graph 1.3.49

CORRIENTES [CAPITAL]



In Corrientes, not using safety measures is even more critical among children traveling in school transport, cars and vans.

Chart 1.3.16

CHILD GENDER			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GIRL	PASSENGER - SAFETY MEASURE	CRS			3%	2%
		SEAT BELT		8%		3%
		HELMET			48%	23%
		NOT WEARING	100%	92%	48%	72%
	Total		100%	100%	100%	100%
BOY	PASSENGER - SAFETY MEASURE	CRS			6%	3%
		SEAT BELT		9%		3%
		HELMET			48%	23%
		NOT WEARING	100%	91%	45%	70%
	Total		100%	100%	100%	100%

In Corrientes, not using safety measures on motorcycles slightly increases among girls. There are no differences in this respect regarding gender among those traveling by car or van.

Chart 1.3.17

CHILD AGE			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
YOUNGER THAN 8	PASSENGER - SAFETY MEASURE	CRS			8%	4%
		SEAT BELT				
		HELMET			42%	23%
		NOT WEARING	100%	100%	50%	72%
	Total		100%	100%	100%	100%
9 YEARS OLD OR OLDER	PASSENGER - SAFETY MEASURE	CRS			3%	1%
		SEAT BELT		11%		5%
		HELMET			53%	23%
		NOT WEARING	100%	89%	44%	70%
	Total		100%	100%	100%	100%

The use of safety measures does not show any significant difference when comparing age groups.

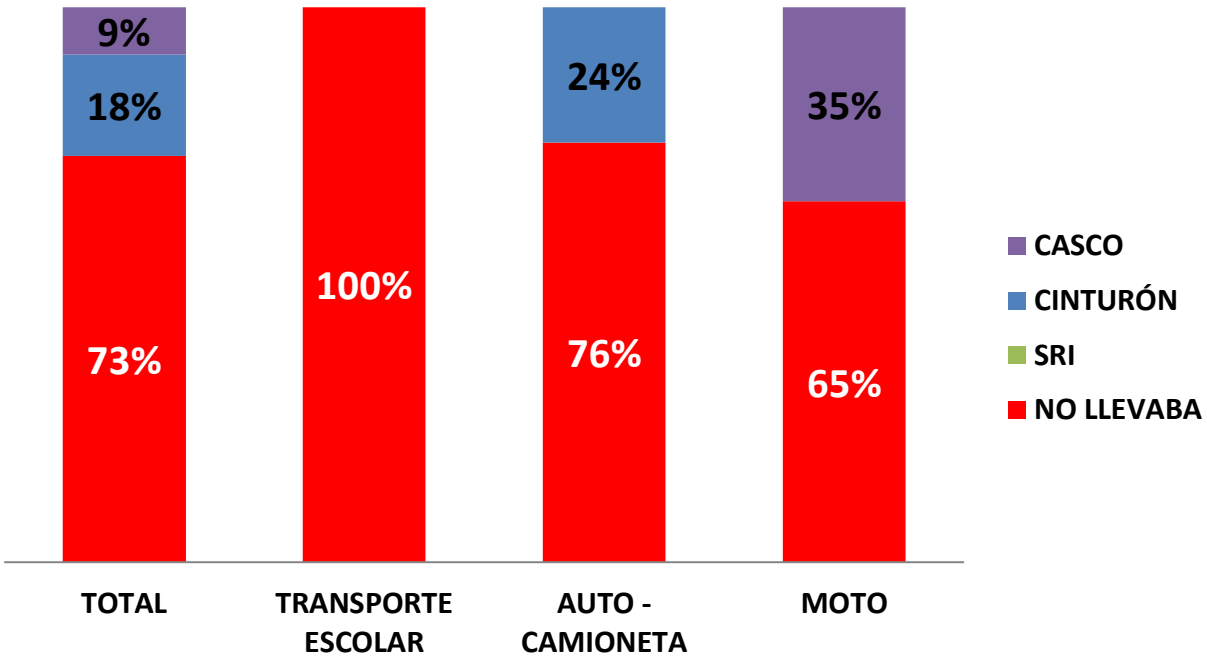
Chart 1.3.18

SHIFT			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
MORNING	PASSENGER - SAFETY MEASURE	CRS			8%	3%
		SEAT BELT		12%		5%
		HELMET			44%	20%
		NOT WEARING	100%	88%	49%	72%
	Total		100%	100%	100%	100%
AFTERNOON	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT				
		HELMET			57%	32%
		NOT WEARING	100%	100%	43%	68%
	Total		100%	100%	100%	100%

Children not using child safety measures on motorcycles also increases in Corrientes in the afternoon shift, the same happens with cars and vans.

Graph 1.3.50

JUJUY [CAPITAL]



In Jujuy, not using safety measures is critical. The situation among those traveling in school transport is even worse.

Chart 1.3.19

CHILD GENDER			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GIRL	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		23%		18%
		HELMET			26%	6%
		NOT WEARING	100%	77%	74%	76%
	Total		100%	100%	100%	100%
BOY	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		26%		19%
		HELMET			43%	12%
		NOT WEARING		74%	57%	69%
	Total			100%	100%	100%

In children traveling by motorcycle in Jujuy, non-use of safety measures increases among girls, and slightly increases among those girls traveling by car or van.

Chart 1.3.20

CHILD AGE			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
YOUNGER THAN 8	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		30%		23%
		HELMET			38%	7%
		NOT WEARING	100%	70%	63%	69%
	Total		100%	100%	100%	100%
9 YEARS OLD OR OLDER	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		19%		13%
		HELMET			33%	10%
		NOT WEARING		81%	67%	77%
	Total			100%	100%	100%

Among those traveling by motorcycle, not using safety measures increases for those aged 9 or older.

Chart 1.3.21

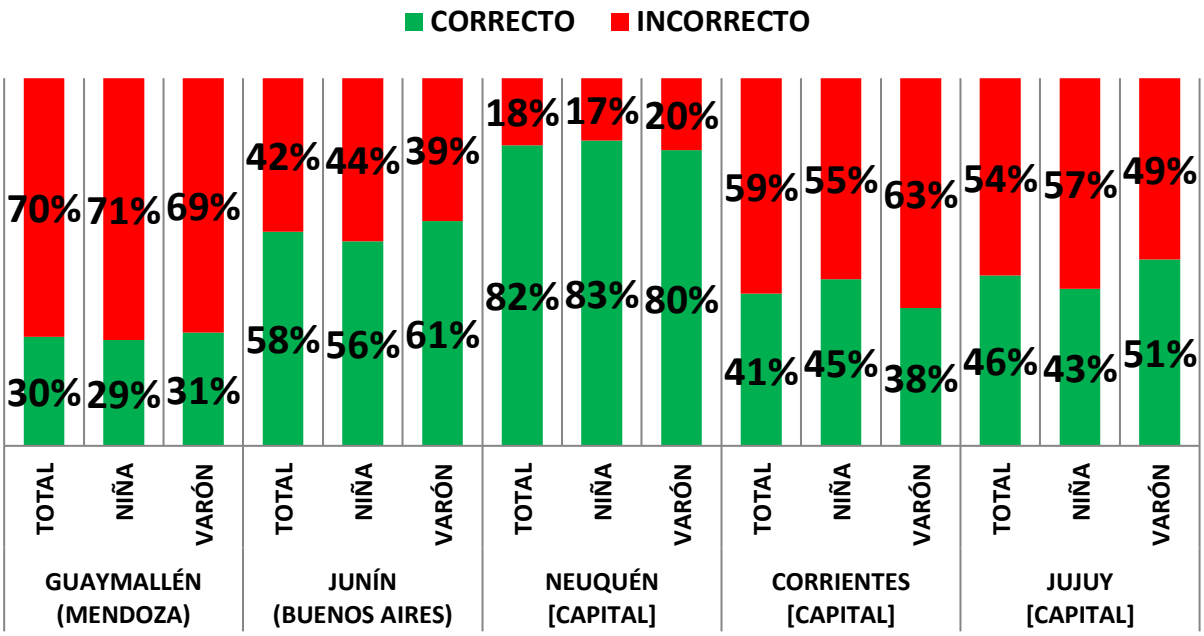
SHIFT			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
MORNING	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		25%		19%
		HELMET			33%	7%
		NOT WEARING	100%	75%	67%	73%
	Total		100%	100%	100%	100%
AFTERNOON	PASSENGER - SAFETY MEASURE	CRS				
		SEAT BELT		21%		14%
		HELMET			40%	14%
		NOT WEARING		79%	60%	72%
	Total			100%	100%	100%

Children not using child safety measures on motorcycles also increases in Corrientes in the morning shift, the same happens with cars and vans.

CHILDREN TRAFFIC - AS OCCUPANTS - VEHICLE PARKING ZONE

ARGENTINA	QUANTITY
GUAYMALLÉN (MENDOZA)	209
JUNIN, BUENOS AIRES	295
NEUQUÉN [CAPITAL]	159
CORRIENTES [CAPITAL]	128
JUJUY [CAPITAL]	164

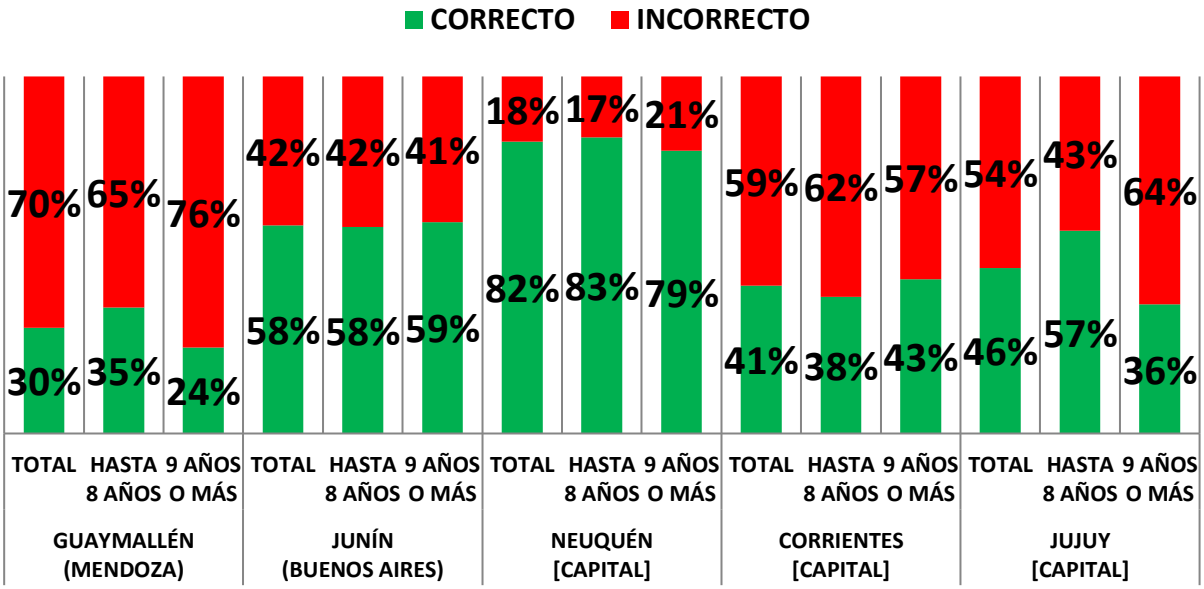
Graph 1.3.51



The indicator´s best performance is shown in Neuquén, where 8 out of 10 children are transported in vehicles that use the drop off areas correctly. Junín comes second with almost 6 out of 10 children, Jujuy after Junín with almost half of the children observed and in Corrientes, 4 out of 10. The worst situation is observed in Guaymallén where the indicator is satisfactory only for 3 out of 10 child passengers.

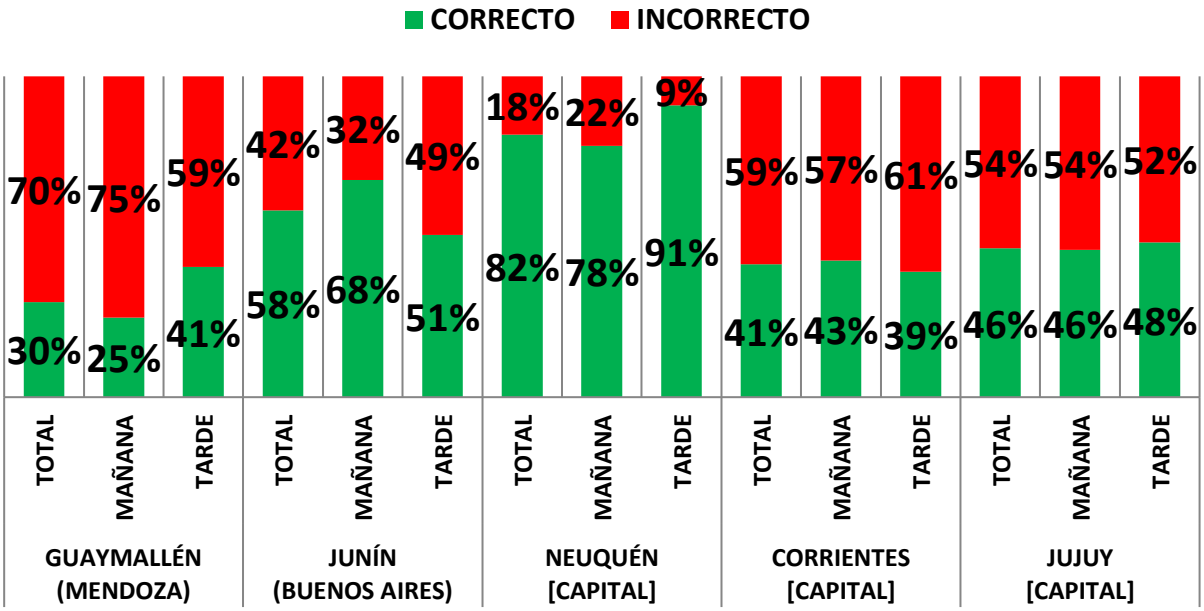
In Guaymallén (minimally), Junín and Jujuy dropping off children at an incorrect area increases when transporting girls, while in Neuquén (slightly) and Corrientes this happens when the passenger is a boy.

Graph 1.3.52



In Guaymallén, Neuquén and Jujuy dropping off at an incorrect area increases when the passenger is 9 years or older, in Corrientes this happens when the passenger is up to 8 years of age. In Junín, no variations were observed regarding child passengers´ age.

Graph 1.3.53



In Guaymallén, Neuquén and Jujuy (minimally) dropping off at an incorrect area increases during the morning, while in Junín and Corrientes it increases in the afternoon shift.

Chart 1.3.22

CITY			PASSENGER - TYPE OF VEHICLE			
			SCHOOL TRANSPORT	CAR - VAN	MOTORCYCLE	Total
GUAYMALLÉN, MENDOZA	PASSENGER-VEHICLE PARKING ZONE	CORRECT		37%	33%	30%
		INCORRECT	100%	63%	67%	70%
			100%	100%	100%	100%
JUNIN (BUENOS AIRES)	PASSENGER-VEHICLE PARKING ZONE	CORRECT	100%	58%	56%	58%
		INCORRECT		42%	44%	42%
			100%	100%	100%	100%
NEUQUÉN [CAPITAL]	PASSENGER-VEHICLE PARKING ZONE	CORRECT	100%	79%	88%	82%
		INCORRECT		21%	12%	18%
			100%	100%	100%	100%
CORRIENTES [CAPITAL]	PASSENGER-VEHICLE PARKING ZONE	CORRECT	53%	13%	60%	41%
		INCORRECT	47%	87%	40%	59%
			100%	100%	100%	100%
JUJUY [CAPITAL]	PASSENGER-VEHICLE PARKING ZONE	CORRECT	100%	54%	23%	46%
		INCORRECT		46%	78%	54%
			100%	100%	100%	100%

In Guaymallén, dropping off at an incorrect area is observed in all school transport child passengers, in 6 out of 10 of those traveling in car or van, and in 2 out of 10 of those traveling on a motorcycle.

In Junín, 4 out of 10 vehicles (car, van or motorcycle) stop incorrectly.

In Neuquén, incorrect parking is observed in 1 out of 5 vehicles (car or van) transporting child passengers, and in 1 out of 8 motorcycles.

In Corrientes, dropping off at an incorrect area is observed in almost half of child passengers in school transport, in almost 9 out of 10 of those traveling in car or van, and in 4 out of 10 traveling by motorcycle.

In Jujuy, incorrect dropping off is observed in almost half of child passengers in cars or vans, and in almost 8 out of 10 motorcycle passengers.

Preliminary Conclusions

Most of children observed got to school on foot. Only in Junín child passengers exceeded pedestrians.

Regarding pedestrians:

Neuquén is the place with the highest number of children arriving on their own. In Jujuy, many children walk to school with another child.

When crossing on the corner Junín and Corrientes show the worst practices. Guaymallén, however, shows the best results. For those that look before crossing: Guaymallén shows the worst performance. Junín and Neuquén have the best results for this indicator.

¿Do they watch before crossing at the zebra? Jujuy shows the highest percentage.

Risk of crossing in the middle of the block: Junín and Jujuy show the worst results. Neuquén, on the contrary, shows an almost perfect result.

Guaymallén shows the higher risk level regarding crossing in the middle of the block without looking. Jujuy, however, stands out for its good performance.

Although Neuquén shows high risk levels due to the number of children getting to school on their own, there are good practices observed regarding crossings and looking before crossing.

Regarding child passengers:

Extremely low use of safety measures in all cities, from 97% of non-use in Guaymallén to 71% in Corrientes.

Bad results regarding drop off habits in Guaymallén, Corrientes, Jujuy.

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