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### ORIGINAL MANUSCRIPT



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# Why are you allowed to go to school on your own? Exploring children's voices on independent mobility

Idoia Legorburu<sup>1</sup> | Nahia Idoiaga Mondragon<sup>2</sup> Israel Alonso<sup>1</sup> | Naiara Berasategi<sup>1</sup>

<sup>1</sup>Department Didactics and School Organization, University of the Basque Country UPV/EHU, Leioa, Spain

<sup>2</sup>Department of Evolutionary and Educational Psychology, University of the Basque Country UPV/EHU, Leioa, Spain

#### Correspondence

Nahia Idoiaga Mondragon, The University of the Basque Country UPV/ EHU, Department of Evolutionary and Educational Psychology, The University of the Basque Country UPV/EHU, Sarriena auzoa z/g, 48940 Leioa, Spain. Email: nahia.idoiaga@ehu.es

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### Abstract

This study aims to analyse 1002 children's and adolescent's reasons for going to school alone or accompanied and to explore how parents influence their choice. The findings revealed that children who could go to school alone feel that their parents trust them more. Moreover, children who live close to school are more likely to commute autonomously and those who do so feel their environment is safer. Finally, there are significant gender differences in autonomous travel to school, largely due to parental influence. In conclusion, there is a real need to work with children and families to develop targeted interventions to support the normalisation of children's autonomous walking and to address the fears of parents.

### KEYWORDS

active commuting, children's autonomy, family education, school-community relationship, student transportation

## BACKGROUND

Children's independent mobility, defined as the freedom to move around their neighbourhood without adult supervision (Tranter & Whitelegg, 1994), has multiple physical, mental and social development benefits. Research suggests that, in terms of physical benefits, children who travel

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to school or engage in other daily activities autonomously have higher rates of physical activity (Larouche et al., 2020; Masoumi et al., 2020). Conversely, reduced independent mobility can decrease physical activity levels and increase sedentary activities (Page et al., 2005). This reduced mobility therefore has direct consequences for children's physical health. According to the World Health Organization, the numbers of children who are obese or overweight have reached epidemic levels worldwide. In Spain, currently, more than 40% of children between 6 and 9 years of age are overweight (Gobierno de España, 2020). According to several authors, an independent and active journey to school can be a powerful strategy to promote physical activity and, consequently, improve children's health (Campos-Sánchez et al., 2020; Larouche et al., 2020; Savolainen et al., 2020).

In addition to promoting healthy physical development, researchers have identified a wide range of reasons to encourage walking to school. For example, from a mental health perspective, active commuting to school can improve emotional, psychological and social well-being and personal development (Campos-Sánchez et al., 2020; Fromel et al., 2020; Shaw et al., 2013). Furthermore, the growth of unaccompanied travel to school, that is, alone or with friends, can foster children's autonomy and improve both parents' and children's perception of safety (Herrador-Colmenero et al., 2017).

However, children's mobility has been drastically reduced over the last 50 years (Masoumi et al., 2020; Shaw et al., 2013). Specifically, in Spain only 30% of children go to school alone or with friends (Román Rivas & Salís Canosa, 2010). Numerous studies have been carried out in order to find out what factors influence children's independent mobility. They conclude that multiple personal, social and cultural factors are involved in independent and active lifestyles (Hillman & Adams, 1992; O'Brien et al., 2000; Rissotto & Tonucci, 2002). One of the most important determinants is the age of children. The older they are, the more likely they are to travel alone in their neighbourhood (Shaw et al., 2015; Wolfe & McDonald, 2016). Another influencing personal factor is gender. Several articles have pointed out the difference between the independent mobility of boys and girls, highlighting the unequal opportunities and rights of women from childhood onwards (Foster et al., 2014; Murray, 2009). Parents' propensity to allow their children to walk to school may also depend on the quality of the physical environment and their fears about it. These fears include traffic or the insecurity of their neighbourhood (Lee et al., 2015; Wolfe & McDonald, 2016; Wyver et al., 2010). Regarding the surroundings in which they live, distance to school (Rodríguez-López et al., 2017; Schoeppe et al., 2016) or climate (Broberg et al., 2013; Rothman et al., 2014) are other influential factors.

While several recent studies have been conducted on school journeys, these usually involve only parents or teachers, or they use questionnaires with closed responses instead of gathering the voices of children (Aminpour & Bishop, 2021). In the present study, however, we use the voices of the children as the main source of information since it is important to have the children's perspective on an issue in which they are directly involved. Therefore, the main aim of this study is to analyse children's and adolescent's reasons for going to school alone or accompanied and to explore how parents impact this decision.

### METHOD

### Procedure

The sample was recruited in the Basque Country region located in Northern Spain. Data collection took place between January and March 2020 at 10 schools in the province of Bizkaia, (four private and six public schools). All schools selected belong to an initiative for the promotion of active and healthy journeys to school. They were contacted through the coordinator of this initiative and all the schools contacted agreed to participate in the project. In addition, families had 1 week to sign an informed consent form authorising their child's participation in the study. Each school decided how many classrooms and which grades would participate in the study between the ages of 8 and 16. The specific classrooms that where the questionnaire was passed were chosen by the schools and all children in the classrooms were given parental permission to participate in the study.

The questionnaires were answered in class with the presence of the group's teacher and one or two project researchers to help the children and adolescents with any doubts or problems they might have in completing the questionnaire. The children who did not participate were those who did not attend class on the day of the study (due to illness, etc.).

### Study design and instrument

A qualitative content analysis study was conducted with a non-probabilistic sample. The instrument used was an ad hoc questionnaire conducted by computer with the help of the teacher. First, to measure independence in mobility, we employed a scale developed by the laboratory of child participation psychology of the Institute of Cognitive Sciences and Technologies, directed in Rome by Professor Francisco Tonucci (Tonucci & Natalini, 2006; Tonucci et al., 2002), which is composed of seven items. These items measure the degree of independence in children's mobility when engaging in certain actions such as going alone to different places or carrying out different activities without the company of an older family member or an adult (e.g. going to school; going out with friends to play; practicing sports; riding a bike; shopping; going out to play in the street, park or town square; going out onto the street after dark). The children were also asked whether or not their parents allowed them go to school alone.

Second, the children and adolescents were asked an open-ended question, allowing them all the time and space they needed to answer. Specifically, they were asked to answer the following question: 'Why are you allowed to go to school on your own?' On the other hand, if they indicated that their parents did not allow them to go to school alone, they were asked to answer this question: 'Why are you not allowed to go to school on your own?'.

### Data analysis method

Two types of analysis were carried out using the Iramuteq software to analyse children's responses to the open-ended questions. The first was based on the Reinert method, and the second was based on lexical similarity analysis.

### Reinert method analysis

The Reinert method using Iramuteq software for lexical analysis (Reinert, 1983, 1990) was employed to analyse the text corpus. The researchers that have used the Reinert method in the field of

social representations (Idoiaga & Belasko Txertudi, 2019; Idoiaga et al., 2021; Kalampalikis, 2005; Klein & Licata, 2003; Lahlou, 2001) have empirically demonstrated the capacity of this method to analyse these through symmetries created between the lexical world and the shared representations. Moreover, Iramuteq software eliminates problems of reliability and validity in text analysis (Klein & Licata, 2003), and it makes it easier to account for the specificity of the representations brought to light (Aubert-Lotarski & Capdevielle-Mougnibas, 2002). Using this method, which follows a descending hierarchical analysis format, the analyst obtains a series of classes and statistical cues in the form of specific words and typical text segments (see Idoiaga et al., 2020). Specifically, the software identifies the words and text segments with the highest Chi-square values, that is, those words and text segments that best identify each class or idea that the participants have repeatedly mentioned.

In accord with previous research using the Reinert method (Vizeu & Bousfield, 2009), the raw data were entered into the Iramuteq software, and the most significant items of vocabulary in each class were selected based on two criteria: (1) an expected value of the word greater than 3; and (2) proof of association of the Chi-square, tested against the class ( $\chi^2 \ge 3.89$  (p = .05); df = 1). The Iramuteq software also determined which text segments were associated with each class or group of words and classified them according to their chi-square value. In this work, the text segments with the most significant chi-square of each class were collected.

Once these 'lexical universes' were identified, they were associated with 'passive' variables (independent variables). In the present case, the passive variables were gender (girl or boy) and whether or not they travel to school alone.

Consequently, the analyst obtains a series of classes composed of familiar words and typical text segments (quotations) with the highest chi-square values (the total chi-square value of each quotation is calculated with the sum of the chi-square values of each word in that quotation concerning the class). This provides the basis for 'interpreting' the classes as lexical worlds. The Reinert method produces statistical, transparent and reproducible data until the final point of interpretation. Then, the analyst assigns a label; the researchers will give a title to the group of words and text segments grouped by the software (Schonhardt-Bailey, 2013). In this final phase, to create the labels or titles of each class, this research employed a systematic process whereby two of the researchers independently named each class based on the words and associated quotes. Finally, the third researcher created a final label that was approved by all three researchers.

### Lexical similarity analysis

Iramuteq also conducted a lexical similarity analysis. This analysis views the corpus as a whole, regardless of whether the answers were from one participant (subject) or another. It considers that the more times two elements are treated in the same way, the closer they will be in the representational structure to the object they refer to (Molina-Neira, 2017). To do this, the software identifies the co-occurrences between words according to their connections in the text, helping to identify the structure of the content of the text corpus due to its visualisation in graphic form, which illustrates the content of the social representation of the object studied and its internal organisation, its shared components, and specificities (Marchand & Ratinaud, 2012). The similarity analysis produces a summary of the structure contained in a representation in the form of a tree-shaped graph representing the maximum forms and the related forms, where the nodes are the forms, and the lexical communities are displayed (Ormeño, 2017).

## RESULTS

A total of 1002 children participated in this study. The mean age of the participants was 11.26 years (SD = 4.97) with an age range of 8–16 years. Of the sample, 49.3% were girls, and 50.7% were boys. Most of the children in the sample commuted to school accompanied by an adult, and only 36.33% of the sample travelled independently to school (alone or with friends), despite the fact that the 53% had parental permission to go to school alone. Regarding mode of travel, 380 of the participants travelled to school by bus, five by bicycle, 28 by public transport, 269 by car, 307 on foot and 18 were missing answers. Therefore, 33.4% of the sample travelled actively, and the rest in motorised vehicles.

The results were divided into two groups. The first group contained the responses of the children who were allowed to go to school alone (including those who did and did not go to school alone) were analysed while the second contained those who were not allowed to go alone.

# Children's responses to the question of why they were allowed to go to school alone

First, to explore the main emotional discourses produced by the participants, the text corpus was analysed using the Iramuteq software. This allowed us to elucidate the terms used by children to explain why they were allowed to go to school alone. The entire corpus contained 4654 words, of which 350 are unique.

### Reinert method results

The Reinert method's descending hierarchical analysis divided the corpus into 443 segments and four classes. The results of this analysis can be observed in Figure 1.

The analysis has identified the main reasons expressed by the children who were allowed to go to school alone. Specifically, two clusters or groups of reasons were recognised, the first linked to environmental factors of the route itself and the second linked to personal reasons. Specific words and text segments represent each pattern, referred to as a class.

The first cluster, composed of the first class and with a weight of 17.43%, has been labelled 'Closeness and accessibility' and was more frequently mentioned by children who go to school alone (p < .05). Within this class, children stated that they go alone mostly because they live near the school. The following are the most significant quotations of this class: 'I live near the school and it is easy to get there in 15 min by bus' ( $X^2 = 276.15$ ; Boy, 14 years); 'Because the school is very close to my house' ( $X^2 = 228.09$ ; Boy, 9 years); 'The bus stop is very close to my home' ( $X^2 = 223.18$ ; Girl, 14 years).

The second principal cluster, composed of personal reasons, starts with the second class (27.71%), labelled as 'Going alone or accompanied'. Children's voices within this class explain why even though they are allowed to go to school alone, they choose to go alone or accompanied. The following are some of the most significant quotations of this class: 'Because I am old enough to go alone' ( $X^2 = 378.50$ ; Boy, 12 years); 'Sometimes I go alone with a friend and my mother and father do not worry about it' ( $X^2 = 344.96$ ; Boy, 11 years); 'Yes, but when I am older because my brother goes alone and he is older' ( $X^2 = 389.46$ ; Girl, 9 years).

The third class, which has been labelled 'Self-perception of maturity and autonomy' (26.29%), was mentioned more by children who travel to school alone (p < .05) and have 11 years (p < .05)



**FIGURE 1** The hierarchical clustering dendrogram of the responses of children who were allowed to go to school independently, showing the most frequent words and those with the most significant association  $\chi^2(1)$ , p < .001 extracted by the Reinert method

or 12 years (p < .05). This class focuses on how these children who travel alone perceive themselves as older and autonomous people, as express in the following quotations: 'Because I'm not afraid to do things alone' ( $X^2 = 218.89$ ; Boy, 11 years); 'Because I have become older and more autonomous' ( $X^2 = 187.89$ ; Girl, 12 years); 'Because my mother and father think I am autonomous and older' ( $X^2 = 168.87$ ; Girl, 12 years).

Finally, the fourth class, named 'Parental trust', emerges with a weight of 28.57%. In this class, the children remarked that letting them go to school alone was a reflection of their parents' confidence in them, as expressed both by the children who usually travelled alone and by those who did not usually travel alone but were allowed to do so. Some of the most significant quotations of this class are: 'My mother and father know what I am like they trust me and because I have to learn to go to school safely on my own' ( $X^2 = 361.67$ ; Girl 11 years); 'It is safe, and my mother and father trust me' ( $X^2 = 339.05$ ; Girl, 11 years); 'Because my mother and father trust me and know that I know how to take care of myself' ( $X^2 = 323.78$ ; Girl, 13 years).

### Lexical similarity analysis section

Second, a lexical similarity analysis was conducted to generate an image that would reflect the co-occurrences between all the words in the corpus beyond their division into classes. The idea was to analyse how the corpus words were interconnected on a common plane, which can be observed in Figure 2.

The similarity analysis revealed that the corpus is divided around five nuclei, of which the centre is the word 'go'. From this nucleus, the nucleus of going 'alone' is represented, together



FIGURE 2 Results of the lexical similarity analysis of children who are allowed to go to school alone

with the desire to learn and to enjoy it. The nucleus 'go' is also linked to 'near'. This branch represented how proximity to the school is important. Likewise, the 'go' branches represent how the children travel to school with their friends or siblings, they know the people on the journey, find it easy, and how sometimes they make their way by bus.

Another important nucleus is represented by the word 'grow-up' because being allowed to go to school alone makes the children feel older, independent and more autonomous. Finally, there is a nucleus which is composed of three important words: 'mother', 'father' and among them the word 'trust'. Feeling trusted also makes them be responsible and feel that their town is safe.

# Children's answers to the question of why they were not allowed to travel to school alone

The corpus of responses of the children that were not allowed to go alone to school was composed of 5911 words, of which 389 are unique.

### Reinert method results

The Reinert method's descending hierarchical analysis divided the corpus into 417 segments and four classes. The results of this analysis can be observed in Figure 3.

The analysis has identified the main reasons the children were not allowed to go to school alone. Specifically, two clusters or groups of reasons were recognised, the first linked to environmental factors of the route itself and the second linked to personal reasons. All the classes were more frequently mentioned by children who do not travel to school alone (p < .05).

The first cluster, comprising the first class and with a weight of 30.06%, has been labelled 'The school is far away'. Within this class the children state that they do not travel to school alone, primarily because they live far away from the school. The following are the most significant quotations of this class: 'The road from my house to school is too dangerous and it is too far to walk'. ( $X^2 = 344.47$ ; Boy, 12 years); 'My home is far away and I don't know the way'



**FIGURE 3** The hierarchical clustering dendrogram of the responses of children who were not allowed to go to school independently, showing the most frequent words and those with the most significant association  $\chi^2(1)$ , p < .001 extracted by the Reinert method

 $(X^2 = 297.89; Boy, 10 years);$  'The school is far from home and I can't go alone' ( $X^2 = 272.51;$  Girl, 13 years).

The second principal cluster of personal reasons starts with the second class (32.66%), labelled as 'Parents do not allow'. The children's voices within this class explain that they do not go to school alone because their parents do not let them. The following are some of the most significant quotations of this class: 'My mother and father don't want anything bad to happen to me and because it is dangerous for a child to walk alone in the street' ( $X^2 = 529.77$ ; Girl, 11 years); 'The road is very long and since I still don't have a cell phone, if something happens to me I won't be able to tell them and my father and mother will be worried and I don't want that and I'm sure they won't either' ( $X^2 = 514.85$ ; Girl, 11 years); 'Because my mother and father are very protective and won't let me go alone until I'm older' ( $X^2 = 489.92$ ; Boy, 11 years).

The third class, which has been labelled 'Fear of danger' (21.63%), was mentioned more frequently by girls (p < .001). This class focuses on the fears that children express about the journey. For example, all the dangerous things that they think may happen to them: 'Because I can find a stranger and they can hurt me and I think I'm too young to go to school alone'. ( $X^2 = 385.85$ ; Girl, 11 years); 'Because my mother and father are very responsible and I might find myself with a bad person'. ( $X^2 = 379.86$ ; Girl, 12 years); 'Because my mother and father are afraid that I might get lost and meet a bad person and they would be very sad' ( $X^2 = 365.32$ ; Girl, 13 years); 'My father and mother would say that there could be bad people and they could kidnap me and I don't feel safe and I could get lost' ( $X^2 = 290.40$ ; Girl, 11 years).

Finally, the fourth class, named 'Being too young', emerges with a weight of 15.61%. This class was mentioned more frequently by boys (p < .05)) and children who have 8 years (p < .05) or 9 years (p < .05). Some of the most significant quotations of this class are: 'They tell me that I am still young' ( $X^2 = 303.66$ ; Boy, 9 years); 'Because I am still too young' ( $X^2 = 303.66$ ; Boy, 11 years).

### Lexical similarity analysis section

In this case, a lexical similarity analysis was also carried out, the representation of which can be observed in Figure 4.

The similarity analysis revealed a corpus that is divided into six nuclei. If we begin by analysing the representation from top to bottom, we see that these children first express the idea that their home is 'far away' from the school. Second, it is emphasised that they are still too 'young' to 'go' 'alone' by walking or riding a bicycle, and that they could get hurt or even run over by a car. Third, we come to the nucleus where the central word is 'mother'. Mothers are represented as being linked to love and fear and concern for what might happen or for ensuring safety. Moreover, a prominent branch from this nucleus concerns the 'bad' 'people' that could be encountered on the journey and the possibility of being robbed or kidnapped because these are strangers. Finally, linked to the nucleus of 'mother', is the word of 'father', and its branches include the dangers associated with darkness.

### DISCUSSION

To the best of our knowledge, this study is one of the first to examine the issue of independent mobility to school from the perspective of children. Our findings reveal some key factors for understanding how independent mobility is represented by both children who are allowed to go to school alone and those who are not.

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FIGURE 4 Results of the lexical similarity analysis of children who are not allowed to go to school alone

An in-depth analysis of the results shows that the two groups—children who are allowed to go to school alone and those who are not—follow the same structure. That is, the two groups emphasise the same aspects from their different positions. On the one hand, there are environmental reasons that motivate students to go to school alone or accompanied, and on the other hand, there are personal reasons.

However, environmental reasons are more important for those children who are accompanied to school. In the data collected, distance to school is recurrently highlighted as the main reason for not traveling to school independently. These results confirm others the literature regarding distance and child mobility. In particular, Saint-Malo Broberg (2015) states that distance to school is the most important determinant for choosing the mode and autonomy of travel to school. This is evidence of the influence that parents' choice of school has on children's lives. Children whose parents choose a nearby school are more likely to make the journey autonomously and will be able to enjoy all the positive consequences of this type of journey. Specifically, the consequences of the autonomous school journey seen in this study were autonomy, responsibility,

independence and the feeling of maturity, as also shown in previous studies (Román Rivas & Salís Canosa, 2010; Romero, 2015; Silva-Piñeiro, 2018).

Moreover, the mere act of parents allowing their children to go to school alone, even if they are eventually accompanied, makes children feel that their parents trust them. Several studies have highlighted the importance of perceived confidence or trust in children for their development and well-being (Harbaugh et al., 2003; Rotenberg, 1995).

In addition, the results also show that although children who are allowed to travel alone and those who are not living in the same neighbourhoods, children who are not allowed to go to school alone represent their nearby contexts as much more dangerous and perceive serious risks to themselves. The analysis of similarities clearly shows that the fears and dangers that the children express come from the influence of their parents, particularly the arguments concerned with unfamiliar or dangerous people (e.g. robberies, kidnappings or dark streets). This is consistent with the findings of McDonald et al. (2010), who argue that parents who drive their children to school reinforce the fear of strangers. Additional studies (Mackett et al., 2008; Prezza & Pacilli, 2007) have reported similar results, claiming that children who are less autonomous in their mobility have a stronger fear of crime. In contrast, it appears that children who are allowed to go to school independently perceive their environment as a safer and more walkable place.

One of the most striking aspects of our results is the gender difference. Many previous research studies have investigated gender differences in independent mobility. For example, Brown et al. (2008), in a study in two different areas, claim that boys enjoy better mobility than girls and become independent much earlier. Similarly, Foster et al. (2014) report that parental fear of strangers is associated with a lower likelihood of independent mobility for girls. In this regard, the present study shows the different views of boys and girls regarding the school route. Girls significantly mention the fear of meeting bad people (e.g. kidnapping, robbery) or being run over. These situations, although highly improbable, are an added difficulty for girls when walking the school route independently and generate a lack of freedom for girls.

On the other hand, for boys, the reasons for being accompanied are primarily concerned with their immaturity and lack of capacity to carry out the tasks that the route requires (e.g. looking at zebra crossings or remembering the route). However, this difference in reasoning between the genders does not affect boys and girls in the same way, as the girls' reasons are persistent and will not change over time, while the reasons given by boys are temporary, and in a few years, they will be able to face the challenge of going to school alone. A similar idea was presented by Foster et al. (2014), where parental fears of strangers affect girls to a greater extent, which imposes tighter restrictions on their independent mobility.

### Strengths and limitations

This article has a large sample of children talking about their perceptions of independent mobility in their environment. One of the strengths of the paper is precisely the direct testimony of the children, without the interpretations of adults. In addition, the work has an exhaustive analysis to understand and disseminate children's voices.

In terms of limitations, the study is unable to explore in depth the differences that distance and the neighbourhood in which they live may generate in their perception of independent mobility, and consequently, in the results of this study. In fact, it would be also interesting to have collected data on the socioeconomic level of the neighbourhoods and the home-school distance of each student in order to be able to establish relationships in this respect. Moreover, the fact that the studies were carried out in schools and with the support of teachers may have influenced the students' responses, since they were not done in a context where they were completely alone.

### **Practical implication**

The work presented here therefore has several implications for the private-family, school and public-social spaces. That is to say, we have exposed keys for families, schools and public administrations to understand the consequences of their actions or inactions. In the first place, families must understand that they are the main sources in the construction of security or fear, and that the representations of fears expressed in family conversations have a great influence on the perceptions that children and adolescents have of their environment. Therefore, it is essential for families to provide confidence so that children feel able and confident to move independently. Similarly, schools must address the problem of children's poor mobility (both independent and active) to improve their physical condition and their psychological and personal development. Finally, institutions have the fundamental task of ceding part of the public space to children and adolescents, so that as citizens they can participate in their neighbourhoods and cities without constant adult supervision and develop and strengthen their personal and social skills.

### CONCLUSIONS

The autonomous school journey is a beneficial practice for both the mental health and the maturational development of children. Therefore, schools, with the support of institutions, should promote projects that aim to encourage autonomous and active travel to school. However, these projects should not only focus on pupils, but also their families. Parents can sometimes be barriers to their children's ability to travel independently, adding to their fears and insecurities. In addition, there are considerable differences between boys and girls, so that children adopt different roles based on their gender. In conclusion, there is a real need to work with children and families to develop targeted interventions to support the normalisation of children's autonomous walking and to address the fears of parents.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available upon request from the corresponding author. The data are not publicly available due to containing information that could compromise the privacy of research participants.

### ORCID

Idoia Legorburu la https://orcid.org/0000-0002-3971-3636 Nahia Idoiaga Mondragon la https://orcid.org/0000-0003-0345-8570 Israel Alonso la https://orcid.org/0000-0003-1139-5223 Naiara Berasategi https://orcid.org/0000-0003-1775-3431

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