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Pandemic natives, pandemic immigrants: effects of COVID-19 confinement on the wellbeing of children in preschool education

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ABSTRACT

This study explores the behavioural effects of COVID-19 confinement in preschool children (aged 3–5) based on their parents' perceptions. Now that policy makers in numerous countries are drawing up new policies on teleworking and psychological support systems, the aim of this research was to test how parents' working situations had affected children's changes in habits and behaviour and in their enjoyment of remote learning. We have used parametric inferential statistics to interpret data collected on 267 children from seven schools located in Malaga (Spain). Firstly, we analysed the factors that had hampered children's enjoyment of homeschooling and we then carried out Pearson's Chi square tests of independence to determine statistically significant correlations with the parents' work situation. Secondly, we weighed the changes in habits and behaviour that children had experienced during lockdown and whether they were associated with their parents' work situation. Our data reflect the multiple external factors that have hindered preschool children's enjoyment of remote learning in a key phase of the individual development.

KEYWORDS

Preschool children; COVID-19; remote learning; wellbeing; behavioural symptoms; parents' work situation

Introduction

COVID-19 has rapidly impacted every aspect of human life. Among the consequences of this pandemic outbreak have been the home confinement and school closures that have affected more than 1.4 billion children around the globe, that is, 86% of the world's children have been taken out of school (Lancet Child & Adolesc Health 2020). As a consequence, parents have found themselves in an unprecedented situation where they had to work at the same time as trying to take care of their children and facilitate their online education.

There is currently little literature on how the pandemic has affected preschool education (Pavlenko and Pavlenko 2020; Szente 2020; Saldaña Montero 2020; Vicente Fernández, Vinader Segura, and Puebla Martínez 2020; Fernández Ruiz 2021; Yıldırım 2021) if compared with the amount of research being conducted on primary (e.g.

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Ceballos-Maron and Sevilla-Vallejo 2020), secondary (e.g. Owusu-Fordjour, Koomson, and Hanson 2020), and university education (e.g. Crawford et al. 2020; Avila-Muñoz, Santos-Diaz, and Trigo-Ibañez 2020). Teachers have invested much effort in order to help their students achieve their potential through distance learning. However, society has often forgotten about preschool children during lockdown, even though at least 40 million children missed out on their preschool education (Gromada, Richardson, and Rees 2020). Children this age need greater support to complete their school tasks, but both parents and government might have overlooked the importance of these early years in child development. To juggle workload and childcare has become a challenge in many households, which has had a considerable impact on the wellbeing of young children.

Secretary-General of the United Nations, António Guterres, stated that we were facing a 'generational catastrophe' (The Guardian 2020) and claimed that schools should reopen. However, there are more than just these educational inequalities ahead for the younger children, whom one may call pandemic natives.

We have coined the terms *pandemic natives* and *pandemic immigrants* drawing a parallel with those *digital natives* and *digital immigrants* proposed by Prensky (Prensky, 2001a, 2001b; Gértrudix Barrio et al. 2010). As Saavedra states in a publication for the World Bank (2021),

> 2020 marks a different childhood experience that these young people will remember for the rest of their lives. As well as a different form of education over a period of many months, that might impact their skills and economic prospects for the rest of their lives.

Against this atypical background, we have coined the term *pandemic natives* to encompass a generation of children being raised under the circumstances imposed by the COVID-19 pandemic, such as lockdown, school closures, limited social interaction, or mask wearing. We have built upon Piaget's stages of cognitive development (1964) to define *pandemic natives* as those children that were in the sensorimotor stage (aged 0–2) and in the preoperational stage (aged 2–7) at the beginning of 2020. Taking this year as a milestone, *pandemic natives* are those born approximately between 2013 and 2020. The children in the sensorimotor stage have experienced a lesser impact in their daily life and a relative unawareness of the numerous changes taking place at all levels and on a global scale. They do not depend so clearly on socialization to master the skills expected at their age. However, cognitive development for the children in the preoperational stage is fostered in social interaction into two substages: the symbolic function substage and, especially, the intuitive thought substage (Crow 2009; Beckley 2018). Vygotsky (1980) also pointed out that the greater the social interaction, the better developed the higher psychological functions and processes will be and the greater the knowledge acquired. And even if development during the sensorimotor stage does not seem to require such varied social relationships, it is clear that 'what happens in early years is of vital importance both for a person's future and for the social group to which s/he belongs' (Hidalgo García, Sánchez Hidalgo, and Lorence Lara 2008).

These children will constitute the younger generation that in the future will be aware of having experienced the COVID-19 pandemic and the ensuing consequences should be the object of research and careful monitoring in the future. Consequences such as whether they can be more prone to showing an inadequate social and emotional

development, or which geographical, political or socioeconomic disparities may compound the problem or compromise their wellbeing. Rollo (2020, 78) shares our perception when stating:

> The disruptive lockdown and social distancing measures implemented by virtually all states in their efforts to protect adults will likely leave today's children dealing with a legacy of social and physical estrangement, catastrophic economic collapse, the destruction of higher education, abandonment of environmental issues, gaps in vaccination and herd immunity for other diseases, the syphoning off of medicine and healthcare resources, as well as mass sickness and famine that will primarily affect black and brown children in the Global South.

Pandemic natives are undoubtedly a generation to which particular attention must be paid in the future.

Based on the definition we have provided, we focused on a specific group of these pandemic natives who are in the preoperational stage. We used the classification of the Spanish educational system itself to clearly delimit the scope of the study to preschoolers of 3–5 years old.

Preschool children lack strategies to deal with anxiety, stress and fear – all of which have been related to the COVID-19 outbreak (Cao et al. 2020; Pragholapati 2020; Wang et al. 2020) – and our research aims to demonstrate how they have managed and channelled these emotions, taking into account their parents' working conditions and how these conditions have affected their remote learning.

Consequently, our main objective was to assess to what extent the parents' work situation has influenced their children's remote schooling and their wellbeing. In order to do this, we outlined the main factors that hampered children's enjoyment of their homework and we focused on the ones that relate to their parents' working conditions to prove whether there is a statistically significant association. We then examined whether there was an association between the lack of wellbeing of the children during confinement and the work situation of the parents–neither of them working (NW), one of them working (OW), or both of them working (BW).

In this way, the accurate knowledge of these associations, whenever proved, should not only raise awareness, but also serve as a reference for adequate work-life balance policy making. As we have stated, the early years are paramount in a child's development, so it is crucial to get to know these data now that numerous governments worldwide are fulfilling their duty of care through law-making processes to optimize teleworking conditions.

Materials and methods

Population and sample size

The sample was randomly obtained from a population of 16,757 students, which comprises all children in preschool education in both state (n=216) and charter (n=51) schools in the city of Malaga (Spain). We used probability sampling, more precisely, a two-stage cluster sampling – namely, schools and parents or legal guardians. The questionnaire was administered to the parents – who would be the informants – of 267 preschool children (aged 3–5 years) in seven schools in Malaga. The sample consisted of

56.2% (n=150) males and 43.8% (n=117) females. Out of the 267 participants, 42.7% (n=114) were in Preschool 3 Year Olds, 36.0% (n=96) were in Preschool 4 Year Olds, and 21.3% (n=57) were in Preschool 5 Year Olds. Accepting a confidence level of 90% and placing the sampling error at 5%, the significance level was determined at α=.05.

Instrument

The research instrument deployed for gathering the data was an *ad hoc* online questionnaire, that was pretested on 20 parents among the target population. The questionnaire consisted of 25 items divided into 4 core areas:

- Student identification data (3 items)
- Family sociological data (7 items)
- Wellbeing. Context and conditions for home schooling (9 items)
- Remote learning (6 items)

The results presented in this study are related to the first three core areas.

Procedure and data analysis

The questionnaire was administered at the end of the school year – in July 2020. In order to ensure the data were homogeneous and reliable, headteachers were contacted and sent the web questionnaire, which they distributed among the students' parents. Once the data were structured in an Excel spreadsheet, variables were numerically coded in order to design a data matrix. The statistical analyses – inferential and descriptive – were conducted using SPSS software ver. 22.0.

Ethics

Ethics standards have been adhered to throughout every stage of the study. We have been thoughtful in designing the questionnaire, systematic in its distribution and execution, and accurate in reporting the results. Participation was voluntary for schools and parents and all the data they provided about their children have remained confidential.

Results

The hypotheses being tested were concerned with two main subjects, namely the effects of the parents' work situation on preschool children's remote learning and on their sleep, appetite, and behavioural patterns, according to parental views.

Firstly, regarding remote learning, informants were asked about the factors that they believed had hindered the children's enjoyment of remote learning. The item corresponded to a closed question where the participants could choose all the pertinent options and even specify others. Four major factors could be observed (Figure 1): for 183 (68.5%) informants it was their children's lack of contact with classmates and teachers, 135 (50.6%) informants selected the children's feelings of boredom, apathy, and frustration, 106 (39.7%) chose the duration of the confinement, and for 104 (39.0%)

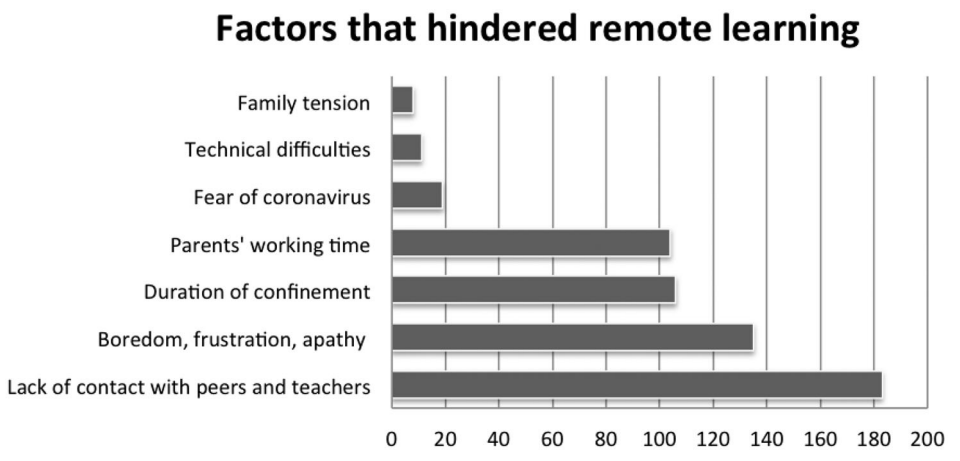

Figure 1. Factors that hindered the enjoyment of remote learning, according to their parent's opinions.

informants the time the parents dedicated to teleworking or on-site working was also a key factor. To a lesser extent, other decisive factors have been the fear of coronavirus for 19 (7.1%) children, technical difficulties (slow or non-existent internet connection or a lack of devices to work with, among others) for 11 (4.1%) children, and tension between family members (unemployment, financial situation or bad relationships, among others) for 8 (3%) children. Anecdotally, other factors provided by 2 (0.74%) informants were the presence of a newborn baby, jealousy, or impulsivity.

Once the causes that hampered the satisfactory achievement of remote learning had been empirically measured and compared, we could then focus on the factor that relates the time their parents devoted to their work with their availability to make their children's learning more enjoyable and playful, as is expected and desirable (Hirsh-Pasek et al. 2009) at their age (3–5 years).

We contrasted these data with the parents' work situation in order to validate or discard our first hypothesis that suggested that the parents' working condition is associated with the children's enjoyment of remote learning. The parents were divided into three groups: NW (n=51, 19.1%) – including in this group single-parents that were out of work – , OW (n=101, 37.8%), and BW (n=115, 43.1%) – including in this group working single-parents.

We performed Pearson's chi-square test to determine whether the observed frequencies and the expected frequencies in the different categories of a contingency table – factors and parents' work situation – showed a statistically significant difference. If $p < .05$, we would reject H_0 – the null hypothesis of independence between the variables – can be rejected in favour of H_1 – the alternative hypothesis of association between the variables. The test evidenced two statistically significant associations: that family tension and the time that parents devoted to work as factors that interfered with remote learning are dependent on the parents' work situation (Table 1).

Secondly, regarding the children's emotional wellbeing, informants were asked whether they had appreciated any changes in their children's habits or behaviour (Figure 2). 165 (61.8%) answered affirmatively to this dichotomous question. When

Table 1. Results of Chi-square tests of independence.

Variables	Hypotheses	Observed frequencies	Test statistic and *p* value
x: Family tension y: Parents' work situation	H_0: Family tension as a factor is independent of the parents' work situation. H_1: Family tension as a factor is dependent on the parents work situation.	Table 2	10.280 df: 2 *p*=.006
x: Time for work y: Parents' work situation	H_0: Time for work as a factor is independent of the parents' work situation. H_1: Time for work as a factor is dependent on the parents' work situation.	Table 2	62.865 df: 2 *p*=.000
x: General habits and behaviour changes y: Parents' work situation	H_0: Conduct changes are independent of the parents' work situation. H_1: General changes are dependent on the parents' work situation.	Table 2	6.599 df: 2 *p*=.037
x: Bad moods y: Parents' work situation	H_0: Bad moods are independent of the parents' work situation. H_1: Bad moods are dependent on the parents' work situation.	Table 2	11.119 df: 2 *p*=.004
x: Bad behaviour y: Parents' work situation	H_0: Bad behaviour is independent of the parents' work situation. H_1: Bad behaviour is dependent on the parents' work situation.	Table 2	26.960 df: 2 *p*=.000
x: Fear of coronavirus y: Preschool year group	H_0: Fear of coronavirus as a factor is independent of the preschool year group. H_1: Fear of coronavirus as a factor is dependent on the preschool year group.	Table 3	13.942 df: 2 *p*=0.001
x: General habits and behaviour changes y: Preschool year group	H_0: Conduct changes are independent of the preschool year group. H_1: General changes are dependent on the preschool year group.	Table 3	9.402 df: 2 *p*=.009
x: Bad moods y: Preschool year group	H_0: Bad moods are independent of the preschool year group. H_1: Bad moods are dependent on the preschool year group.	Table 3	27.947 df: 2 *p*=.000

they were required to specify, 75 (28.1%) informants reported the observation of bad behaviour, 63 (23.6%) observed bad moods, and 60 (22.5%) detected changes in sleep patterns. To a lesser extent, fears (26, 9.7%) and poor appetite (22, 8.2%) were also

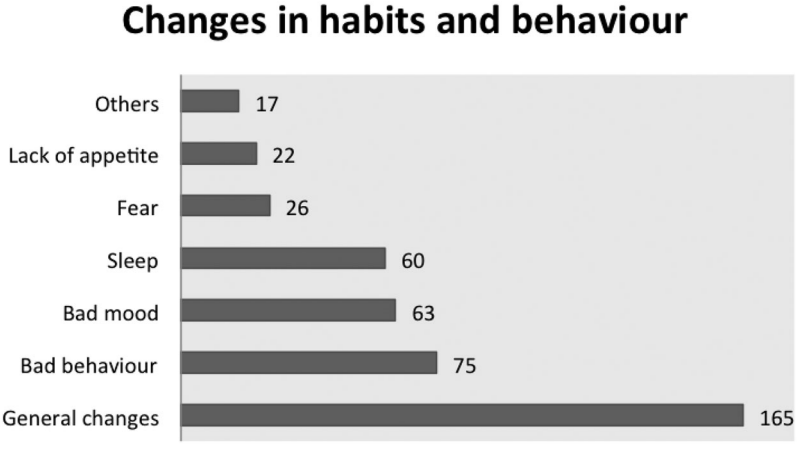

Figure 2. Changes observed in preschool children in habits and behaviour.

Table 2. Observed distribution of variables statistically associated to the parents' work situation.

	NW	OW	BW	Total
Family tension (as a hindrance to remote learning)				
No	46 (90.2%)	99 (98.0%)	114 (99.1%)	259 (97.0%)
Yes	5 (9.8%)	2 (2.0%)	1 (0.9%)	8 (3.0%)
Total	51 (100.0%)	101 (100.0%)	115 (100.0%)	267 (100.0%)
Time parents devoted to work (as a hindrance to remote learning)				
No	49 (96.1%)	73 (72.3%)	41 (35.7%)	163 (61.0%)
Yes	2 (3.9%)	28 (27.7%)	74 (64.3%)	104 (39.0%)
Total	51 (100.0%)	101 (100.0%)	115 (100.0%)	267 (100.0%)
Changes in habits and behaviour				
No	13 (25.5%)	47 (46.5%)	42 (36.5%)	102 (38.2%)
Yes	38 (74.5%)	54 (53.5%)	73 (63.5%)	165 (61.8%)
Total	51 (100.0%)	101 (100.0%)	115 (100.0%)	267 (100.0%)
Bad moods				
No	40 (78.4%)	87 (86.1%)	77 (67.0%)	204 (76.4%)
Yes	11 (21.6%)	14 (13.9%)	38 (33.0%)	63 (23.6%)
Total	51 (100.0%)	101 (100.0%)	115 (100.0%)	267 (100.0%)
Bad behaviour				
No	22 (43.1%)	76 (75.2%)	94 (81.7%)	192 (71.9%)
Yes	29 (56.9%)	25 (24.8%)	21 (18.3%)	75 (28.1%)
Total	51 (100.0%)	101 (100.0%)	115 (100.0%)	267 (100.0%)

noted. Anecdotally, other changes mentioned were tantrums (3, 1.12%), attention seeking (2, .74%), bladder and bowel control (2, .74%), nervousness (2, .74%), sadness and depression (2, .74%), aggressiveness (1, .37%), low frustration tolerance (1, .37%), imaginary friend (1, .37%), and thumb sucking (1, .37%). On a brighter note, other carers reported that children had improved their way of eating (1, .37%), were more relaxed (1, .37%), and more affectionate and helpful (1, .37%).

Our hypotheses that these changes in habits and behaviour were related to their parents' work situation were tested. The chi-square tests performed rejected the null hypotheses in three cases: general changes in habits and behaviour, bad moods and bad behaviour (Table 1). The data for all the associations mentioned are tabulated as shown in Table 2.

Although the main aim of our study was to get to know the effect of the parents' work situation in both children's remote learning and emotional wellbeing, the correspondent chi-square tests were performed to reject an association between all these factors and behaviour patterns and the children year groups (Table 1). As a result, we observed an association between the age groups and three other variables: how fear of coronavirus affected their enjoyment of remote learning, general changes in habits and behaviour, and bad moods (Table 3). It must be mentioned that the same chi square tests were performed including the variable 'gender', instead of 'year group', but it did not prove to be statistically significant in any of the cases.

Overall, the main findings are set out below:

- Family tension was most often described as a factor that hindered remote schooling in NW families (9.8% against 2.0% in OW households and .9% in BW households).
- In BW families, the time devoted to their work had a severe impact on their children's enjoyment of remote schooling (64.3% against 27.7% of the OW households and in 3.9% of the NW households).

Table 3. Observed distribution of variables statistically associated to the children's preschool year group.

	Preschool 3 Year Olds	Preschool 4 Year Olds	Preschool 5 Year Olds	Total
Fear of coronavirus (as a hindrance to remote learning)				
No	113 (99.1%)	87 (90.6%)	48 (84.2%)	248 (92.9%)
Yes	1 (0.9%)	9 (9.4%)	9 (15.8%)	19 (7.1%)
Total	114 (100.0%)	96 (100.0%)	57 (100.0%)	267 (100.0%)
Changes in habits and behaviour				
No	51 (44.7%)	25 (26.0%)	26 (45.6%)	102 (38.2%)
Yes	63 (55.3%)	71 (74.0%)	31 (54.4%)	165 (61.8%)
Total	114 (100.0%)	96 (100.0%)	57 (100.0%)	267 (100.0%)
Bad moods				
No	101 (88.6%)	56 (58.3%)	47 (82.5%)	204 (76.4%)
Yes	13 (11.4%)	40 (41.7%)	10 (17.5%)	63 (23.6%)
Total	114 (100.0%)	96 (100.0%)	57 (100.0%)	267 (100·0%)

- As for general changes in habits and behaviour, this was a major factor (74.5%) in children living in NW homes against 63.5% in children in BW households and 53.5% in children in OW households.
- Children in BW households had bad moods (33.0% against 21.6% in NW households and 13.9% in OW households).
- Informants who were out of work experienced the worst behaviour in their children (56.9% against 24.8% in OW households and 18.3% in BW households).
- Children in the 5-year-old group were the most affected by their fear of coronavirus hampering their enjoyment of remote learning (15.8% against 9.4% of the 4-year-olds and only .9% of the 3-year-olds).
- Children in the 4-year-old group showed more changes in habits and behaviour (74.0% against 55.3% for 3-year-olds and 54.4% for 5-year-olds).
- Again, children in the 4-year-old group were the ones where bad moods were more prevalent (41.7% against 17.5% in the case of 5-year-olds children and 11.4% in the case of 3-year-olds).
- Gender did not prove to be statistically significant when contrasted with any of the variables mentioned in this study.

Discussion

School closures have led to home schooling and 'the burden of education now falls largely on parents' (Doyle 2020). This adds to all the difficulties parents have had to face since the start of the pandemic, namely losing their jobs, being under work pressure, redefining family roles, or taking care of their own mental wellbeing (Fontanesi et al. 2020).

Most of the papers reviewed on early childhood and COVID-19 focus either on paediatrics, distance learning, or the emotional impact of lockdown. Comparatively, few studies – cross-sectional or longitudinal – establish a relationship between children's wellbeing and parent-dependent variables.

We can observe this relationship in several pieces of research from Italy, the first Western country to be hit by the pandemic: a first study (n=854, targeting parents of children aged 2–14) that measures the impact of parents' stress and children's psychological problems (Spinelli et al. 2020); a second study (n=878, targeting parents of children aged

3–13) that analyzes the effect of parents psychological distress on their children hyperactivity or inattention (Marchetti et al. 2020); a third study (*n*=838, targeting parents of children aged 3–18) focused on parents' stress and anxiety with regard to work life balance, concluding that 'paying attention to parents' reactions and emotions can help find children and adolescents who are at a higher risk for psychological maladjustment during COVID-19, and plan specific interventions in the long term' (Liang et al. 2021); and a fourth study (*n*=1480, targeting parents of children aged 3–18 from Italy, Spain, and Portugal) on psychological symptoms and behavioural changes in children and adolescents that hints that the results 'might reflect less parental emotional availability to support children, increasing inadequate parenting practices, such as hostility or inconsistent discipline' (Francisco et al. 2020).

In China, a large-scale cross-sectional population study (*n*=29,202 targeting parents of children aged 2–12) was conducted on vulnerability and resilience in children, taking into account parent – child interactions, and parental stress.

In United States, they conducted a more modest, yet interesting, study (*n*=247, targeting parents of children under 18) to assess 'how specific parental behaviors (i.e. parental emotion socialization, maintenance of home routines, and availability to discuss the pandemic with child) contributed to effective parental buffering of the impact of pandemic-related stress on children's symptomatology' (Cohodes, McCauley, and Gee 2021).

In Spain – the same country where the present research has been conducted – we are aware of only one other similar study whose target group were children aged 3–11 (*n*=167, evaluated by the parents) that analyzed the 'dimensions related to self-regulation (emotional, attentional, and behavioral) and in willingness to study' (Giménez-Dasí et al. 2020).

Therefore, the novelty of our research lies in the fact that this is, to our knowledge, the first three-cornered study to address the effects of parents' work-life balance in preschoolers' wellbeing and their enjoyment of home schooling. It is also the first one to focus specifically on children aged 3–5, even focusing on specific year groups.

In Spain, all preschools closed as soon as confinement was officially declared, unlike other countries such as Sweden or the United States (Pramling Samuelsson, Wagner, and Eriksen-Ødegaard 2020). We have provided evidence that 64.3% of children whose parents were working – either both of them or a working single parent – struggled the most in enjoying their homework and they were mostly prone to showing bad moods (33.0%). By contrast, in households where carers were out of work, and therefore spent the whole time together, family tensions were more likely to become an issue: 74.5% of the children exhibited changes in habits and behaviour, and 56.9% also experienced bad behaviour in their child. These factors, when combined together, can create traumatic atmospheres in families and in some cases would require psychological services to 'relieve their distress' (Zhou 2020).

Regarding the year group variable, 5-year-olds showed more fear of coronavirus (74.0%), which may be due to a better understanding of the implications of the disease and a better grasp of the concept of death. Meanwhile, 4-year-olds were, by far, the ones who had most changes in habits and behaviour (74.0%) and also the ones who were more prone to having bad moods (41.7%).

We strongly advocate that the needs of younger children should be addressed, in order to protect their health and rights. Our findings could help provide greater context for policy makers and raise awareness that the different degrees of psychological distress

generated needs to be tackled. ECEC studies, such as the *Study on the effective use of early childhood education and care (ECEC) in preventing early school leaving (ESL)* (European Commission 2014), could certainly benefit from our dataset to update their lines of research in order to preempt and take account of needs arising from the current social context, as it has been proved that 'evidence-based interventions can improve life outcomes' (Shonkoff 2010).

Nonetheless, we also want to clarify that, even if our research intends to improve the future life of these children, 'children's immediate well-being is important in its own right' (Ben-Arieh 2010, 12). Thus, we aim for the impact of this study to be twofold. On the one hand, we expect this research to inform decision-makers on psychological support systems to monitor and care for these pandemic natives' future lives. On the other hand, as it has been stated that the COVID-19 pandemic will not be the last one in our lifetime (Craven et al. 2020), we also want this study to inform decision-makers on family-friendly policies so that children of this age are taken into account in future lockdowns or similar situations.

As for the limitations of the study, we have relied on parental perceptions on their children's experiences, instead of the children's own viewpoints, due to their limited ability for self-reflection at these ages, which would have compromised the reliability and validity of the results (Riley 2004). Future work will explore whether other factors – such as the parents' level of education, the presence of siblings or other relatives, and the availability of open spaces and study spaces in the house – were related to these children's wellbeing during lockdown.

Previous literature has proven that older students' performance has improved at other educational levels, such as university (Gonzalez et al. 2020), and the skills they have gathered throughout their lives will help them be competent pandemic immigrants. On the contrary, young children are pandemic natives that will most likely excel in behaviour patterns inherent to the 'new normal', but they will be raised in a society with less social interaction and physical contact, a key factor in their cognitive, emotional, and psychomotor development. Therefore, the time is now. Even if governments worldwide are having to work on numerous fronts, administrations cannot look the other way when it comes to meeting young children's specific needs and must legislate accordingly with young families in mind.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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