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The Well-being of children in lock-down: Physical, emotional, social and academic impact

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ABSTRACT

The Covid-19 pandemic is having an unprecedented impact on societies. In the interest of maintaining social distancing, schools in many countries have closed their doors and children have been confined to their homes. Thus, the objective of the present study was to holistically analyze the well-being of children during a period of full lockdown in Spain, by considering physical, emotional, social, and academic indicators. The scale "Well-being of Children in Lockdown" (WCL) was used to measure the well-being of 1225 children from 2 to 12 years old from Northern Spain. The survey was completed by the parents and was designed to analyze children's well-being in terms of physical, emotional, social and academic aspects. The results suggest that the general well-being of children during lockdown was at an intermediate level. Analysis of the various measures of well-being revealed that the lowest levels were obtained for physical activity, along with creative and playful activities. Girls, younger children, and those who have access to an outdoor space showed the greatest levels of well-being. Finally, we discuss the implications of these findings for the well-being of children and, in particular, how this can be improved amid the current Covid-19 crisis.

1. Introduction

In the space of only three months, the Covid-19 pandemic has changed the world as we knew it. Although the first cases of an unknown form of pneumonia appeared at the end of 2019 in the city of Wuhan (China), the disease then took hold in an exponential manner, first affecting China before spreading to the rest of the world (Chen et al., 2020; Torales, O'Higgins, Castaldelli-Maia, & Ventriglio, 2020). At the beginning of March, COVID-19 was declared a pandemic, which prompted all the countries of the world to create contingency plans to tackle this extraordinary situation (WHO, 2020).

To date, COVID-19 does not appear to have had a particularly aggressive impact on children, at least at a clinical level (Hamzelou, 2020; Pavone, Giallongo, La Rocca, Ceccarelli, & Nunnari, 2020). In fact, the majority of infected children appear to be asymptomatic (Cai et al., 2020) or present only mild clinical manifestations (Jiao et al., 2020). It might therefore be tempting to assume that, in comparison with adults, children are less vulnerable to the effects of this new virus (Pavone et al., 2020). However, there are reasons to suggest that children are not impervious to the dramatic impact of the COVID-19 epidemic.

In the interest of maintaining social distancing, schools in many countries have closed their doors and children have been confined to their homes (United Nations Educational, Scientific and Cultural Organization, 2020). However, the management of this lockdown —including the associated restrictions — has varied from country to country. Spain has been one of the countries that has imposed the harshest restrictions on children, since for 6 weeks (from March 14th to 26th April) they were completely forbidden from leaving their homes (Garcia, 2020). And, although from April 26th onwards the Spanish government allowed children to go out, this was only for one hour each day, and they were required to always remain in close proximity to their homes (Lucas, 2020). The current investigation was carried out during the crucial period of total lockdown.

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The potential consequences of this lockdown for children have aroused the concern of pediatricians, psychologists and educators (Grechyna, 2020; Jiloha, 2020) and the scientific community in general (Holmes et al., 2020). The COVID-19 pandemic will have a long-lasting impact on children's well-being, and therefore academics need to gather high-quality data rapidly to ascertain the effects of lockdown and social isolation over time (Holmes et al., 2020). In other words, by considering how children are coping during the emerging stages of the pandemic we might be in a better position to put in place relevant support structures that may be needed once lockdown has been lifted i.e. interventions and educational support (Dalton, Rapa, & Stein, 2020; Holmes et al., 2020; Wang, Zhang, Zhao, Zhang, & Jiang, 2020).

Although the concept of well-being is highly variable and has been studied across a wide range of disciplines, age groups, cultures, communities and countries, resulting in an assortment of definitions (Diene, Oishi, & Tay, 2018; Pollard & Lee, 2003), from a holistic view, well-being has been defined as "a multidimensional construct incorporating mental/psychological, physical and social dimensions" (Columbo, 1984:288). In a similar vein, Dodge, Daly, Huyton, and Sanders (2012) define well-being as a point of balance between the individual's own resources and the challenges he or she faces, where psychological, social, and physical resources are balanced against the psychological, social, and physical challenges that the individual faces. Moreover, in reference to health, and according to the World Health Organization (WHO, 1946) "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"(p.100). Likewise, Diener (1984) adds the nuance of subjectivity to the concept of well-being which has been termed hedonic well-being and consists of (i) frequent pleasant feelings, (ii) infrequent unpleasant feelings, and (iii) a general judgment about what life is.

Whilst no studies have yet been conducted to analyze the well-being of children from a holistic perspective during the current COVID-19 crisis, several investigations have been carried out in different countries to analyze how the crisis is affecting children in lockdown, and to identify the main threats to this population.

From a physical standpoint, research conducted in China and Europe revealed that in lockdown children are physically less active, have irregular sleep patterns and eat less favorable diets, resulting in weight gain and a loss of cardiorespiratory fitness (Cachón-Zagalaz, et al., 2020; Jiao et al., 2020; Jiloha, 2020; Pietrobelli et al., 2020; Wang, et al., 2020). Research carried out in Europe and America also suggests that lockdown can have serious nutritional consequences, due to a lack of food for the most vulnerable groups and because of the overeating that results from being at home for long periods, with disrupted mealtime routines (Francis & Pegg, 2020; López-Bueno et al., 2020; Muscogiuri, Barrea, Savastano, & Colao, 2020; Rundle, Park, Herbstman, Kinsey, & Wang, 2020). Further, the dramatic reduction in outdoor physical activity and insufficient exposure to sunlight have been pointed out as some of the most obvious consequences of this lockdown situation (Lippi, Henry, Bovo, & Sanchis-Gomar, 2020). In addition to the fact that children have reduced their levels of outdoor physical activity, the activities carried out within their homes during lockdown are also a cause for concern in the scientific community. This is particularly due to the excessive use of new technologies and screens (Pietrobelli et al., 2020; Qin, Song, Nassis, Zhao, Cui, Lai, & Wang, 2020; Rundle et al., 2020). In fact, it has been found that children staying at home due to lockdown spend more time in front of the TV and surfing the internet, which can lead to psycho-social problems such as lower self-esteem (Thakur, Kumar, & Sharma, 2020).

From an emotional perspective, research carried out worldwide has found that lockdown is generating feelings of fear, worry, sadness, loneliness or stress among children. Moreover, children from low income families or migration backgrounds and those with limited living space are feeling these effects to a significantly greater extent (Ravens-Sieberer et al., 2021; Duan, Shao, Wang, Huang, Miao, Yang, & Zhu, 2020; Garcia de Avila et al., 2020; Jiao et al., 2020; Jiloha, 2020; Leung, Lam, & Cheng, 2020; Patrick et al., 2020; Qiu et al., 2020; Xie, Xue, Zhon, & Zhu, 2020; Yeasmin et al., 2020). In addition, children have been showing clinginess, distraction, irritability, and a fear of asking questions related to the pandemic (Wang et al., 2020). Similarly, studies carried out in Spain have found that, during this lockdown, children are showing fears that they had never expressed before, including increased irritability, nervousness, behavior problems, and loneliness (Ezpeleta, Navarro, de la Osa, Trepat & Penelo, 2020; Idoiaga, Berasategi, Eiguren, & Picaza, 2020; Idoiaga, Berasategi, Dosil, & Eiguren, 2021; Orgilés, Morales, Delvecchio, Mazzeschi, & Espada, 2020). Moreover, a recent review of research articles on the impact of lockdowns in previous epidemics (Brooks et al., 2020; López-Bueno et al., 2020) reveals that the psychological impact was wide-ranging, substantial, and long lasting, and included problems such as anxiety, anger, sleep disorders, depression and even post-traumatic stress. In addition, it has been found that changes in parental negative feelings and children's externalizing behavior were mediated by perceived stress and that perceived stress in parents and children was associated with negative coping strategies (Achterberg, Dobbelaar, Boer, & Crone, 2021; Gassman-Pines, Ananat, & Fitz-Henley, 2020; Patrick et al., 2020; Raw, Waite, Pearcey, Creswell, Shum, & Patalay, 2021). A study examining changes in parent-reported child and adolescent mental health throughout the UK's first COVID-19 national lockdown revealed that the principal stressors of parents included the need to suddenly home school their children, work remotely, and excessive worrying about the pandemic situation (Cluver et al., 2020; Dockery & Bawa, 2020; Vindegaard & Benros, 2020).

At academic and social levels, children may be absent from school for a prolonged period of time due to lockdown and social distancing measures (Jiao et al., 2020). Thus, their social interactions will be limited, dramatically reducing their opportunities to socialize and play with peers (Wang et al., 2020), which will lead to increasing feelings of loneliness and isolation during lockdown (Jiao et al., 2020; Okruszek, Aniszewska-Stańczuk, Piejka, Wiśniewska, & Żurek, 2020; Singh & Singh, 2020). Several researchers have noted that all these changes could also have long-term consequences for the affected cohorts and is likely to increase the inequality suffered by the most vulnerable members of the population (Armitage & Nellums, 2020; Burgess & Sievertsen, 2020). Finally, a study conducted in the UK indicates that one of the main concerns of children is that they miss school (Kleinberg, van der Vegt, & Mozes, 2020).

Although few of the studies on the situation of children in lockdown were comparative, some did point to differences based on gender and age. With respect to gender, boys were found to have worse sleep patterns, higher levels of hyperactivity, inattention and boredom (Cellini, Di Giorgio, Mioni, & Di Riso, 2020), and a greater decrease in self-concept (González-Valero et al., 2020). Moreover, a research study conducted in Spain also found that girls and younger children were more prone to engaging in physical activity and daily routines during the COVID-19 lockdown (Cachón-Zagalaz, Zagalaz-Sánchez, Arufe-Giráldez, Sanmiguel-Rodríguez, & González-Valero, 2021). Additionally, in terms of age, it has also been found that older children are more likely to represent the pandemic as something that is linked with fear (Idoiaga el al., 2021) although these older children also show more adaptive calm behaviors and tend to adopt a more balanced view of the restrictions (Pisano, Galimi, & Cerniglia, 2020). In contrast, the younger children showed more regressive behaviors in lockdown, and a greater variety of oppositional behavior (Pisano et al., 2020).

In sum, given the multiple threats to children's health and well-being that are being observed on an international scale, it would be of value to conduct studies that determine how children are coping with lockdown. However, the well-being of children should not be researched from a single perspective, level, or indicator, since their lives are lived in multiple domains, each of which has an impact on their well-being (Ben-Arieh, Kaufman, Andrews, Goerge, Lee, & Aber, 2001; Bradshaw & Mayhew, 2005; Hanafin et al., 2007; Land, Lamb, Meadows, & Taylor, 2007).

Thus, the main objective of the present study was to analyze the holistic well-being of children during a period of total lockdown in Spain, by considering the physical, emotional, social, and academic dimensions of such well-being. We will also explore whether their well-being varies according to age or gender, or by having access to outdoor spaces (e.g., garden, balcony) in the house where they are confined.

Although this study is exploratory, based on the few previous studies presented in the introduction it is hypothesized that: 1) gender differences in children's well-being will be observed in favor of girls; 2) age differences in children's well-being will be observed in favor of older children; and 3) differences in well-being may also emerge according to whether or not the children's homes have an outdoor space, with greater levels of well-being observed in children who lived in houses with an outdoor space during lockdown.

2. Methodology

2.1. Sample

The sample consisted of 1225 children from the Basque Country (North of Spain). The questionnaire was completed by the parents of these children, and they were asked to answer the questions based specifically on each of their children. Of the sample, 59.6% were from Bizkaia (n = 59.6), % 23.8 from Gipuzkoa (n = 445) and 16.5% were from Araba (n = 310). The sample consisted of 48% girls (n = 588) and 51.2% boys (n = 627) whilst 0.8% reported other (n = 10). With regard to age, 55.52% were aged between 2 and 6 years (n = 658), 27.93% between 7 and 9 years (n = 331) and 16.54% between 10 and 12 years (n = 196). We selected those pupils who were between 2 and 12 years old with age ranges corresponding to early childhood-education (2 to 6 years), the first cycle of Primary Education (7 to 9 years) and the second cycle of Primary Education (10 to 12 years). Table 1 displays the distribution of participants according to gender and age.

In relation to the educational level of the parents, 3.4% of parents had completed primary studies (n = 42), 2.6% secondary studies (n = 32), 18% bachelor studies (n = 221), 75.7% university studies (n = 927) and 0.2% had not completed any studies (n = 3). With regard to their occupation, 2% were directors or company owners (of an organization with>25 employees) (n = 24), 55.2% were technical specialized professionals (e.g., lawyer, doctor, engineer, teacher) (n = 677), 13.6% were specialized service worker (e.g., bricklayer, plumber, waiter (13.6%), 2.1% were laborers or construction workers (n = 26), 0.2% were domestic workers (n = 3), 2% were retired (n = 2) and 5.0% were unemployed (n = 61). In relation to whether or not the participants had access to outdoor space in their home, 63.4% said yes (n = 663) and 36.6% said no (n = 383).

2.2. Instrument

The "Well-Being of Children in Lockdown (WCL)" scale (Berasategi, Idoiaga, Dosil, & Eiguren, 2020) was employed to measure the well-being of children at physical, emotional, social and academic levels. This scale was previously validated for the Spanish child population. This questionnaire consists of 22 items and the overall alpha value of the scale was 0.804. This instrument comprises 6 sub-scales: Emotions (5 items), Playful and creative activities (4 items), Academic (3 items), Addictions (4 items), Routine (4 items), and Physical activity (2 items).

Table 1
Sample according to gender and age.

		AGE			Total
		2–6 years	7–9 years	10–12 years	
Gender	Boy	310	165	109	584
	Girl	342	165	114	621
		652	330	223	1205

The items included in the first dimension are related to emotions (e.g., crying more than usual, feeling more nervous than usual, getting angry more than usual). Those in the second dimension are related to playful or creative activities (e.g., taking part in creative activities such as theater, music, and art, playing different games throughout the day, and engaging in leisure activities with family throughout the day). The third dimension consists of items related to academic issues (e.g., having been sent materials, assignments, and homework by the school, spending enough time on schoolwork during the day, and working on school projects with family throughout the day). The items of the fourth dimension are related to addictive habits regarding technology or eating (e.g., eating more treats such as cookies, chocolate, and chips during lockdown or over-using new technology). The fifth dimension is concerned with daily routines including the maintenance of a daily schedule of eating and sleeping habits (e.g., having an agreed routine and trying to stick to it, eating a well-balanced diet, and having healthy sleeping habits). Finally, the sixth dimension contains items related to physical activity (e.g., getting enough physical exercise during the day, and moving the body enough). The participants were required to respond on a 4-point Likert-type scale ranging from strongly agree (4) to strongly disagree (1). The estimated reliability coefficients were 0.872 for the first factor, 0.783 for the second, 0.696 for the third, 0.627 for the fourth, 0.646 for the fifth and 0.847 for the sixth factor. The reliability of the entire scale was 0.804. The various subscales and the global scale have shown acceptable internal consistency values (>0.60). The negative statements were recoded to positive statements.

Socio-demographic data were also collected regarding children's gender, age, the socio-economic status of the family (taking into account the profession and education level of their parents) and whether or not they have outdoor space in their home. The socio-economic status of the family was measured by combining the occupation of the parents and their level of education (White, 1982; Sirin, 2005).

2.3. Data analysis and procedure

In order to recruit the participants, all the centers registered in the database of the Department of Education of the Basque Government were considered, and the schools were asked to forward these questionnaires to the families of the pupils. The questionnaires were sent to a total of 1741 schools, by email using the Google forms program, 42% of which replied that they would disseminate the information. Both the data of the sample and the consent for participating in the study were collected with the help of Google online forms. Family members were informed of the research study by e-mail. In the same questionnaire it was explained that participation in the study was voluntary and anonymous. Moreover, the parents or legal guardians of the children gave written consent for two phases of this research. Thus, the study complied with all the provisions of Law 15/1999 on the Protection of Personal Data, since it reported the voluntary nature of participation and the need for participants to give their consent before starting to answer the questionnaire. First, consent was given to analyze the data, and second, to make the data public in scientific articles whilst respecting anonymity. The data were collected during the period of confinement from March 14 to April 22. However, after analyzing the database in Microsoft Excel (https://products.office.com/), the questionnaires showed a pattern of>50% non-response for the second phase of the questionnaire. For this reason, we decided to exclude all the questionnaires with a completion rate lower than 50%, withdrawing a total of 30 questionnaires. This research received the approval of the Ethics Committee of the University of the Basque Country [M10/2020/055]. The data were analyzed using SPSS v. 25. Before proceeding to explain the relevant analyses, the assumptions of normality and homocedasticity of variances were checked to decide on the use of parametric or non-parametric tests (Rasch & Guiard, 2004). Specifically, the Kolmogorov-Smirnov statistical test indicated that the data did not follow a normal distribution for all variables of the study. However, it

should be noted that there is support in the scientific literature for the robustness of parametric tests even when there is a violation of the assumptions of normality and homocedasticity, taking into account the asymmetry and kurtosis of the data, which, for most variables did not exceed 1. It should be noted that descriptive analyses were carried out for each dimension, after which ANOVAs were conducted to determine whether there were differences in the dependent variables according to the independent variables such as gender, age and access to outdoor space in their homes. For the difference between the age groups, Bonferroni's tests were used, specifying the effect sizes using Cohen's d (Cohen, 1988). For the difference between the age groups, Bonferroni tests were used. In addition, the effect sizes were calculated using Cohen's d.

3. Results

3.1. The well-being of children from a holistic perspective: physical, emotions, playful and creative activities, addictions, routine, and academic aspects.

The mean scores relating to the general well-being of children aged between 2 and 12 years are displayed in Table 2, along with the mean scores obtained on each of the sub-scales. It can be observed that the mean scores of the various dimensions range between 2 and 3.

The lowest scores are obtained for physical activity ($M = 2.19$) and the highest score was obtained for routine ($M = 3.23$) this being the only sub-scale to exceed a mean score of 3 points on a Likert-type scale ranging from to 1 to 4 (1 = Strongly disagree; 4 = Strongly agree). With respect to overall well-being, the mean score was between disagree and agree ($M = 2.89$).

Regarding the percentage scores related to academic aspects it was observed (see Table 3) that most parents think that their child receives schoolwork sometimes (46.7%) or frequently (26.0%). Most parents also consider that their child sometimes or frequently spends time doing schoolwork (54.8%). Moreover, 36% report that they rarely work with their child on school projects, 38% report doing this sometimes, and 13.2% report doing this frequently.

With regard to routines, most families have an agreed routine some of the time (56.4%) or frequently (19.2%). Similarly, the majority reported having breakfast, lunch and dinner at the same time each day (48.6% sometimes and 43.5% frequently). The majority of parents believe that their children have healthy sleeping habits (51.0% sometimes and 38.0% frequently). Most parents also believe that their children are eating a well-balanced diet (54.3% sometimes and 41.4% frequently). Moreover, most parents think that their children never engage in physical activity (53.8%) and 43.2% said that their children move their body only rarely.

As far as emotions are concerned, most parents point out that their child cries more than usual (93.9%), feels more nervous than usual (89.8%), gets angry more than usual (87.1%) and feels sadder than usual (94.9%). In contrast, the majority think that their child is happy (58.2% sometimes and 24.0% frequently).

With regard to addictions, most parents believe that their child is eating more than usual (94.6%), particularly treats (98.1%). The parents also perceive that the children are over-using new technology (86.9%)

Table 2
Descriptive analysis of the various dimensions of well-being.

Dimensions	N	Minimum	Maximum	M	SD
Emotions	1.225	1.20	4.00	3.00	0.71
Playful and creative activities	1.225	1.00	3.20	2.30	0.46
Academic	1.225	1.00	4.00	2.67	0.67
Addictions	1.225	1.00	4.00	2.79	0.56
Routine	1.225	1.00	4.00	3.23	0.45
Physical	1.224	1.00	4.00	2.19	0.67
Well-being Total	1.224	1.77	3.91	2.89	0.35

Table 3
Percentage well-being scores for children in confinement: academic aspects, routine, physical activity, emotions, addictions, playful and creative activities.

	Nothing		Few		Some		A lot	
	n	%	n	%	n	%	n	%
Academic Aspects								
Item 1. Your child has been sent materials, assignments, and homework by your school	77	6.3	258	21.1	572	46.7	318	26.0
Item 2. Your child spends enough time on his/her schoolwork during the day	131	10.7	422	34.4	527	43.0	145	11.8
Item 20. Your child works on school projects with your family throughout the day	145	11.8	452	36.0	466	38.0	162	13.2
Routine								
Item 3. Your child has an agreed routine and tries to stick to it	22	1.8	277	22.6	691	56.4	235	19.2
Item 4. Your child usually has breakfast, lunch, and dinner at the same time each day	12	1.0	85	6.9	595	48.6	533	43.5
Item 7. Your child has healthy sleeping habits	13	1.1	121	9.9	625	51.0	466	38.0
Item 13. Your child is eating a well-balanced diet	6	0.5	47	3.8	665	54.3	507	41.4
Physical Activity								
Item 5. Your child gets enough physical exercise during the day	72	5.9	659	53.8	411	33.6	83	6.8
Item 6. Your child moves his/her body enough	57	4.7	529	43.2	512	41.8	126	10.3
Emotions								
Item 8. Your child cries more than usual	75	6.1	187	15.3	421	34.4	542	44.2
Item 9. Your child feels more nervous than usual	125	10.2	226	22.0	474	38.7	357	29.1
Item 10. You get angry more than usual	158	12.9	331	27.0	436	35.6	300	24.5
Item 11. Your child feels sadder than usual	63	5.1	147	12.0	480	39.2	535	43.7
Item 12. Your child is happy	23	1.9	195	15.9	713	58.2	294	24.0
Additions								
Item 14. Your child is eating more than usual during lockdown	66	5.4	231	18.9	494	40.3	434	35.4
Item 15. Your child is eating more treats (e.g., cookies, chocolate, and chips) during lockdown	26	2.1	193	15.8	618	50.4	388	31.7
	161	13.1	455	37.1	484	39.5	125	10.2

(continued on next page)

Table 3 (*continued*)

	Nothing		Few		Some		A lot	
	n	%	n	%	n	%	n	%
Item 16. Your child is over-using new technology								
Item 17. Your child is watching too many TV programs, cartoons, or movies	125	10.2	462	37.7	533	43.5	105	8.6
Playful and creative activities								
Item 18 Your child is taking part in creative activities (e.g., theater, music, and art)	86	7.0	495	40.4	451	36.8	193	15.8
Item 19. Your child plays different games throughout the day	13	1.1	242	19.8	639	52.2	331	27.0
Item 22. Your child plays with your family throughout the day	6	0.5	319	26.0	677	55.3	223	18.2

or watching too many TV programs, cartoons, or movies (89.8%).

Finally, with regard to playful and creative activities most parents think that their children take part in activities (93%), play different games throughout the day (98.9%) and play with their family throughout the day (99.5%).

3.2. The well-being of children in lockdown according to gender

The results in Table 4 show significant gender differences in overall well-being, with girls showing higher scores than boys [F (1,1212) = 9.39, p = .002, d_{cohen} = 0.18]. Similarly, in relation to emotions, girls also show higher scores than boys [F (1,1213) = 6.14, p = .013, d_{cohen} = 0.014], whilst a similar pattern of results is observed for playful and creative activities [F (1,1213) = 21.80, p = .001, d_{cohen} = 0.27] or the physical activities that they practice [F (1,1212) = 4.88, p = .027, d_{cohen} = 0.13], with girls again showing higher scores than boys. In all cases, the effect sizes are small.

3.3. The well-being of children in lockdown according to age

Further, differences according to age were analyzed using Multivariate analyses with Pillai's Trace statistic, V = 0.31, [F (12,2356) = 35.75, p = .001], revealing significant differences in general well-being [F (2,1184) = 8.38, p = .001, $\eta 2$=0.014] with the younger children (2–6 years) showing higher scores. Similarly, differences were found for playful and creative activities [F (2,1184) = 79.47, p = .001, $\eta 2$ = 0.12], addictions [F (2,1184) = 118.82, p = .001, $\eta 2$ = 0.17] and physical activities [F (2,1184) = 18.24, p = .001, $\eta 2$=0.030], with the younger children again showing the highest scores on all of these sub-scales. In contrast, the medium and older-aged children obtained higher scores on academic aspects [F (2,1184) = 11.17, p = .001, $\eta 2$=0.05]. All effect sizes are small. In order to observe the differences between the groups it is necessary to inspect the results of the post hoc analyses displayed in Table 4.

3.4. Access to outdoor space and the well-being of children

Table 5 shows how the dimensions under study differ according to

Table 4
Results of t-student and ANOVA analyses of the different dimensions of well-being according to gender and age.

Dimensions					
Gender	N	M	SD		
Emotions	Boys	588	2.95	0.72	
	Girls	627	3.05	0.70	
Playful and creative activities	Boys	588	2.24	0.45	
	Girls	627	2.36	0.46	
Academic	Boys	588	2.67	0.68	
	Girls	627	2.67	0.66	
Addictions	Boys	588	2.77	0.55	
	Girls	627	2.81	0.56	
Routine	Boys	588	3.24	0.46	
	Girls	627	3.21	0.44	
Physical	Boys	587	2.45	0.68	
	Girls	627	2.54	0.66	
Well-being Total	Boys	587	2.86	0.35	
	Girls	627	2.92	0.35	
Age		N	M	SD	
Emotions	2–6 years	659	2.98	0.72	
	7–9 years	331	3.04	0.70	
	10–12 years	196	3.02	0.71	
Playful and creative activities	2–6 years	659	2.44	0.43	
	7–9 years	331	2.26	0.40	
	10–12 years	196	1.98	0.44	
Academic	2–6 years	659	2.44	0.69	
	7–9 years	331	3.02	0.46	
	10–12 years	196	2.91	0.50	
Addictions	2–6 years	659	2.84	0.56	
	7–9 years	331	2.78	0.49	
	10–12 years	196	2.63	0.60	
Routine	2–6 years	659	3.25	0.45	
	7–9 years	331	3.23	0.44	
	10–12 years	196	3.17	0.43	
Physical	2–6 years	658	2.60	0.65	
	7–9 years	331	2.40	0.64	
	10–12 years	196	2.33	0.70	
Well-being Total	2–6 years	658	2.91	0.35	
	7–9 years	331	2.93	0.33	
	10–12 years	196	2.81	0.35	
Gender	t	df	p	d	
Emotions	−2.48	1213	0.013*	0.14	
Playful and creative activities	−4.67	1213	0.001***	0.27	
Addictions	−1.30	1213	0.193	0.001	
Academic	-0.149	1213	0.881	0.08	
Routine	1.30	1213	0.196	0.07	
Physical	−2.21	1213	0.027*	0.13	
Well-being Total	−3.06	1213	0.002**	0.18	
Age	F	df	p	η2	Post hoc
Emotions	0.819	2	0.441	0.001	
Playful and creative activities	79.47	2	0.001***	0.12	1 > 2, 2 > 3, 1 > 3
Addictions	118.82	2	0.001***	0.17	1 > 2, 2 > 3,1 > 3
Academic	11.17	2	0.001***	0.05	1 < 2, 2 > 1, 3 > 1
Routine	2.81	2	0.060	0.030	
Physical	18.24	2	0.001***	0.014	1 > 2, 2 > 3,1 > 3
Well-being Total	8.38	2	0.001***	0.93	1 > 2, 1 > 3

Note: ***p < .001; **p < 0.01; *p < 0.05; age: 1 = 2–6 years; 2 = 7–9 years; 3 = 10–12 years.

Table 5
Descriptive statistics and t-student analysis of different dimensions of well-being as a function of whether or not children have access to an outdoor space at home.

Dimensions		N	M	SD
Emotions	No	383	2.96	0.72
	Yes	663	3.06	0.69
Playful and creative activities	No	383	2.27	0.46
	Yes	663	2.34	0.45
Addictions	No	383	2.74	0.60
	Yes	663	2.81	0.53
Academic	No	383	2.62	0.63
	Yes	663	2.69	0.69
Routine	No	383	3.20	0.44
	Yes	663	3.26	0.45
Physical	No	382	2.37	0.62
	Yes	663	2.61	0.67
Well-being Total	No	382	2.84	0.35
	Yes	663	2.94	0.34
Outdoor space at home	t	df	p	d
Emotions	−2.28	1044	0.021*	0.15
Playful and creative activities	−2.58	1044	0.010*	0.17
Addictions	−1.94	1044	0.052	0.13
Academic	−1.61	1044	0.107	0.10
Routine	−1.95	1044	0.053	0.13
Physical	−5.99	1044	0.001***	0.38
Well-being Total	−4.35	1044	0.001***	0.28

Note: ***p < .001; **p < 0.01; *p < 0.05.

whether or not children have access to an outdoor space at home. Differences were found for general well-being, with those children having access to an outdoor space obtaining the highest scores [F (1,1043) = 18.94, p = .001, d_{cohen} = 0.28]. Similar differences emerged for the emotions [F (1,1044) = 5.31, p = .02, d_{cohen} = 0.15], playful and creative activities, [F (1,1044) = 6.70, p = .010, d_{cohen} = 0.17] and physical activities [F (1,1043) = 34.50, p = .001, d_{cohen} = 0.38] sub-scales, with the highest scores being obtained by children with access to an outdoor space in all cases. All of the effect sizes are small.

4. Discussion

The purpose of this study was to analyze, from a holistic perspective, the well-being of children in lockdown, by using physical, emotional, social and academic indicators. We expected to observe differences in the children's well-being based on gender, age or whether they have access to outdoor space at home. These hypotheses have been partially supported and we will analyze each of them below.

First the results of our study suggest that children show the lowest levels of well-being for the domains of physical activity and the greatest levels of well-being with regard to routine. Some of the results obtained are clearly positive. Thus, for example, with regard to routine, most parents said that their child had an agreed-upon routine and tried to stick to it. This is a positive outcome, since other studies have also pointed out that caregivers can help to alleviate childreńs stress by creating and sticking to a daily routine during lockdown (Goldschmidt, 2020). Therefore, setting up, creating and maintaining daily routines could be a key strategy for safeguarding the well-being of children during lockdown (López-Bueno et al., 2020).

Moreover, the results also indicate that most children played different games throughout the day and engaged in playing activities with other family members. In fact, recent studies have pointed out that during lockdown, parents play more than usual with their children (Karadeniz & Çakmakcı, 2021; Villadsen, Conti, & Fitzsimons, 2020). Likewise, they took part in creative activities, albeit to a lesser extent. This finding is very positive, since semi-structured play activities and the use of games were two activities recommended by specialists and therapists to help parents and caregivers of young children to cope with the lockdown period (Narzisi, 2020). In contrast, with regard to physical activity, parents claim that their children did little or only some physical exercise during the day or that they did not move their body enough, factors that could lead them to gain weight or even have cardio respiratory problems (Jiao et al., 2020; Jiloha, 2020; López-Bueno et al., 2020; Wang et al., 2020).

Continuing with these negative results, most parents also think that their children received too much school work and spent too much time engaged in such tasks. The perception of schoolwork overload has also been mentioned in previous studies (Brom et al., 2020; Cross, 2020). In addition, results related to emotional responses were also somewhat negative, with the majority of parents stating that their children cried more than usual, felt more nervous than usual, got angry more than usual and were sadder than usual during the lockdown. These results are in line with previous studies conducted in Spain showing that lockdown generated clear negative emotions among children (Ezpeleta et al., 2020; Idoiaga et al., 2020; Idoiaga et al., 2021; Orgiles et al., 2020).

Addictions were reported by parents in relation to eating habits, TV viewing and use of new technology (screens). Most parents believe that their child was eating more, particularly sweets or fast-food (Pietrobelli et al., 2020). Moreover, parents also think that their children have overused new technology or watched too many TV shows, cartoons or movies during lockdown. In the same vein, European and American researchers have recently pointed out that lockdown can have serious nutritional consequences (Muscoiuri, Pugliese, Barrea, Savastano, & Colao, 2020; Schmidt et al., 2020) or can promote the overuse of new technologies and screens (Pietrobelli et al., 2020; Qin et al., 2020; Rundle et al., 2020).

Second, and supporting the first hypothesis, our findings indicate that there are gender differences with regard to the well-being of children, with girls showing greater levels of well-being in comparison with their male counterparts. When analyzing the various domains of well-being, it is noteworthy that girls show greater positive emotional expression. Previous research has also found evidence for gender differences in emotion expression in children and adolescents (Brody, 1999), with girls being generally more emotionally expressive than boys (Brody, 1999; Hess et al., 2000; Panjwani, Chaplin, Sinha, & Mayes, 2016). In a *meta*-analytic review of gender differences in emotion expression from infancy through adolescence, Chaplin and Aldao (2013) found some overall gender differences, with girls showing more positive emotions (e.g., happiness) and internalizing emotions (e.g., sadness, anxiety, sympathy) than boys, whilst boys show more externalizing emotions (e.g., anger, contempt) than girls. Therefore, this tendency to express their emotions in such an extreme situation may have served the girls better when it comes to channeling their emotions in a positive way. It would thus be interesting to work more closely on the emotional expression of children in lockdown. That is to say, parents could be helped or guided in supporting the processes of emotional expression with their children, while schools could even propose activities that would encourage children to express their feelings. Whilst the ways of achieving this are diverse, the important thing would be to create spaces where the children feel safe to express their emotions.

The girls of our study have also practiced more physical activities in lockdown and engaged in more creative and playful activities. A recent cross-cultural study (Gracia, Garcia-Roman, Oinas, & Anttila, 2020) has found that boys are generally more likely to engage in screen-based activities and exercise, while girls are more actively involved in domestic work, non-screen cultural activities (e.g., reading, studying, arts), personal care, and socializing. Therefore, it is possible that this predisposition or tendency towards engaging in certain indoor activities has been beneficial for girls in terms of being better able to adapt to lockdown. It is curious that, even in terms of physical activity — where boys usually score higher — in lockdown girls were also more active (López-Bueno et al., 2020). This could be because boys are used to more outdoor-based physical activities (e.g., team sports, running, cycling) and fewer indoor physical activities (e.g., dancing, yoga) (Moeijes, Van Busschbach, Lockhart, Bosscher, & Twisk, 2019) and have thus found it more challenging to adapt their physical activity to a confined space.

Third, with regard to the second hypothesis, our findings indicate that there are age differences in general well-being, but in this case the youngest children have shown greater levels of well-being in comparison with their older counterparts, although this does not mean that young children are immune to the consequences of lockdown. This could be due to the fact that younger children are not yet subject to the same pressure from teachers as older children. In fact, ensuring the academic progress of children whilst being forced to study at a distance has also been one of the great challenges of this pandemic, and one of the main sources of stress for families (Burgess & Sievertsen, 2020; Cluver et al., 2020), since families have had to adapt and balance home schooling and home officing (Vindegaard & Benros, 2020).

Moreover — and possibly because they have less free time — older children are less likely to engage in physical and creative activities (López-Bueno et al., 2020). Other studies have shown the importance of physical or creative activities for the well-being of youngsters during lockdown. This should be a major concern, since increased inactivity can lead to children developing sedentary habits, one of the major risks associated with lockdown. In fact, several studies have already warned of the serious risk of obesity (linked to sedentariness) that is emerging during this pandemic (Rundle et al., 2020).

Finally, and supporting the last hypothesis, access to an outdoor space at home also appears to be an important factor in the well-being of children in this situation, since children who have such access appear to show higher levels of general well-being. In particular, our results indicate that those with outdoor space show more positive emotions and engage in more physical, playful, and creative activities when compared with children who do not have access to such space. Whilst other studies have also reported the benefits of an exterior space for the well-being of children in lockdown (Brussoni, Ishikawa, Brunelle, & Herrington, 2017), it is important to bear in mind that the majority of Spanish families do not have a private outdoor space as they live in multifamily buildings, and thus many children have been forced to remain indoors for the entire duration of the lockdown period (Grechyna, 2020).

This study has certain limitations that will have to be considered in future research. The first limitation is that the questionnaire was completed by parents and therefore we were not able to include the voices of the children. In fact, the responses of the parents could have been susceptible to subjectivity bias. Therefore we assumed that it would have been more appropriate to conduct an investigation where the children were asked directly, but this was impossible in a state of total confinement and therefore the research team decided to survey the parents. However, we believe that asking children directly about this research topic could prove to be fruitful in the future. Another limitation of this work is that our sample was composed of children with an average socio-economic level, as it was not possible to access the most vulnerable members of the population due to (among other issues) the type of online survey used, given the circumstances and constraints of the lockdown. In addition, the study was conducted just one month after the start of the lockdown period, meaning that the cumulative effects of the passage of lockdown were not captured and thus it will be necessary to continue analyzing the situation over a longer period of time in order to identify the consequences of such cumulative effects. Finally, this study also failed to take into account certain aspects that could be key, such as changes to the routines of parents in lockdown, the availability of parents to keep up with children in their homeschooling process, the number of children in each family that require parental attention, and the model used by schools to continue formal education during confinement.

5. Conclusions

The findings of this research have a number of practical and clinical implications for improving the well-being of children during lockdown. In particular, our results suggest the importance of channeling the emotions of children in such critical situations and also the relevance of allowing them to have free time to carry out the things they enjoy doing, both of which will benefit their sense of well-being. Moreover, being able to enjoy outdoor activities — even for a short period each day — would be another protective factor for children and is something that had been completely forbidden in Spain for more than six weeks.

In conclusion, our results show that the lockdown situation is having a notable impact on children. Although children are resilient by nature and in many cases routines and playful activities that were beneficial to them were carried out in their homes, this study has shown that at the emotional, physical, addictions and academic levels, the well-being of children could be improved during confinement situations. It is therefore important that the local and national authorities introduce measures that can mitigate these effects from a multi-dimensional perspective that considers the social, emotional, academic, and physical aspects of well-being.

Compliance with Ethical Standards

This research has obtained the approval of the Ethics Committee for Research Involving Human Subjects (CEISH) of the University of the Basque Country [M10/2020/055]. All participants gave signed informed consent to participate in the research.

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CRediT authorship contribution statement

Naiara Berasategi Sancho: Conceptualization, Methodology, Software, Supervision. **Nahia Idoiaga Mondragon:** Data curation. **Maria Dosil Santamaria:** Visualization, Investigation, Methodology, Software. **Amaia Eiguren Munitis:** Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Achterberg, M., Dobbelaar, S., Boer, O. D., & Crone, E. A. (2021). Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on wellbeing of parents and children. *Scientific Reports, 11*(1), 1–14.

Armitage, R., & Nellums, L. B. (2020). Considering inequalities in the school closure response to COVID-19. *The Lancet Global Health, 8*(5), e644. https://doi.org/10.1016/S2214-109X(20)30116-9

Ben-Arieh, A., Kaufman, N.H., Andrews, A.B., Goerge, R.M., Lee, B.J., & Aber, J.L. (2001). Measuring and monitoring children's well-being at the community level. In Measuring and monitoring children's well-being (pp. 107–117). Springer, Dordrecht.

Berasategi, N., Idoiaga, N., Dosil, M., & Eiguren, A. (2020). The design and validation of a scale for measuring well-being of children in lockdown (WCL). *Frontiers*. https://doi.org/10.3389/fpsyg.2020.02225

Bradshaw, J., & Mayhew, E. (2005). The well-being of children in the UK, London: Save the children. *Journal of Social Policy, 35*(03), 529.

Brody, L. (1999). *Gender, emotion, and the family*. Cambridge, MA: Harvard University Press.

Brom, C., Lukavský, J., Greger, D., Hannemann, T., Straková, J., & Švaříček, R. (2020). July). Mandatory home education during the COVID-19 lockdown in the Czech Republic: a rapid survey of 1st-9th graders' parents. *Frontiers Education, 5*, 103.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., et al. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet, 395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Burgess, S., & Sievertsen, H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. Avalaible at: https://cutt.ly/MygIxwE.

Brussoni, M., Ishikawa, T., Brunelle, S., & Herrington, S. (2017). Landscapes for play: Effects of an intervention to promote nature-based risky play in early childhood centers. *Journal of Environmental Psychology, 54*, 139–150.

Cachón-Zagalaz, J., Sánchez-Zafra, M., Sanabrias-Moreno, D., González-Valero, G., Lara-Sánchez, A. J., & Zagalaz-Sánchez, M. L. (2020). Systematic review of the literature about the effects of the COVID-19 pandemic on the lives of school children. *Frontiers in Psychology, 11*, 2457.

Cachón-Zagalaz, J., Zagalaz-Sánchez, M., Arufe-Giráldez, V., Sanmiguel-Rodríguez, A., & González-Valero, G. (2021). Physical Activity and Daily Routine among Children Aged 0–12 during the COVID-19 Pandemic in Spain. *International Journal of Environmental Research and Public Health, 18*(2), 703.

Cai, J., Xu, J., Lin, D., Yang, Z., Xu, L., Qu, Z., … Zeng, M. (2020). A Case Series of children with 2019 novel coronavirus infection: Clinical and epidemiological features. *Clinical Infectious Diseases, 198*. https://doi.org/10.1093/cid/ciaa198

Cellini, N., Di Giorgio, E., Mioni, G., & Di Riso, D. (2020). Sleep quality, timing, and psychological difficulties in Italian school-age children and their mothers during COVID-19 lockdown (in press). Retrieved from: https://psyarxiv.com/95ujm/.

Chaplin, T. M., & Aldao, A. (2013). Gender differences in emotion expression in children: A meta-analytic review. *Psychological Bulletin, 139*, 735–765. https://doi.org/10.1037/a0030737

Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., et al. (2020). AEscalating infection control response to the rapidly evolving epidemiology of the Coronavirus disease 2019 (COVID-19) due to SARS-CoV-2 in Hong Kong. Infect Control Hosp Epidemio. *The Lancet Psychiatry, 7*(4), e15–e16.

Cluver, L., Lachman, J. M., Sherr, L., Wessels, I., Krug, E., Rakotomalala, S., … Butchart, A. (2020). Parenting in a time of COVID-19. *Lancet, 395*, e64. https://doi.org/10.1016/S0140-6736(20)30736-4

Cohen, J. (1988). *Statistical power analysis* (2nd ed.). Hillsdale NJ: Erlbaum.

Columbo, S. A. (1984). *General well-being in adolescents: Its nature and measurement [Doctoral dissertation]*. Saint Louis University.

Dalton, L., Rapa, E., & Stein, A. (2020). Protecting the psychological health of children through effective communication about COVID-19. *The Lancet, 4*(5), 346–347.

Diene, E., Oishi, S., & Tay, L. (2018). *Handbook of well-being*. Salt Lake City, UT: DEF Publishers.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575.

Dockery, M., & Bawa, S. (2020). *Working from home in the COVID-19 lockdown*. Bentley: Bankwest Curtin Economics Centre.

Dodge, R., Daly, A. P., Huyton, J., & Sanders, L. D. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing, 2*(3), 222–235.

Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *Journal of Affective Disorders, 275*, 112–118.

Ezpeleta, L., Navarro, J. B., de la Osa, N., Trepat, E., & Penelo, E. (2020). Life conditions during COVID-19 lockdown and mental health in Spanish adolescents. *International Journal of Environmental Research and Public Health, 17*(19), 7327.

Francis, N. N., & Pegg, S. (2020). *Socially distanced school-based nutrition program feeding under COVID 19 in the rural Niger Delta*. The Extractive Industries and Society.

Garcia, C. (2020, 14 April). Los psicologos insisten: “Si el estado de alarma es relajado, los ni~nos deberıan ser los primeros en irse” [Psychologists insist: “If the state of alarm is relaxed, children should be the first to leave”]. El Paıs. https://elpais.com/elpais/202E/04/14/mamas_papas/1586856472_075125.html.

Goldschmidt, K. (2020). The COVID-19 pandemic: Technology use to support the wellbeing of children. *Journal of Pediatric Nursing, 53*, 88–90. https://doi.org/10.1016/j.pedn.2020.04.013

González-Valero, G., Zurita-Ortega, F., Lindell-Postigo, D., Conde-Pipó, J., Grosz, W. R., & Badicu, G. (2020). Analysis of self-concept in adolescents before and during COVID-19 lockdown: Differences by gender and sports activity. *Sustainability, 12*(18), 7792.

Gracia, P., Garcia-Roman, J., Oinas, T., & Anttila, T. (2020). Do Boys’ and Girls’ Daily Activities Differ? Cross-Country Evidence. SocArXiv. https://doi.org/10.31235/osf.io/nruq7.

Garcia de Avila, M. A., Hamamoto Filho, P. T., Jacob, F. L. D. S., Alcantara, L. R. S., Berghammer, M., Jenholt Nolbris, M., … Nilsson, S. (2020). Children’s anxiety and factors related to the COVID-19 pandemic: An exploratory study using the children’s anxiety questionnaire and the numerical rating scale. *International journal of environmental research and public health, 17*(16), 5757.

Gassman-Pines, A., Ananat, E. O., & Fitz-Henley, J. (2020). COVID-19 and parent-child psychological well-being. *Pediatrics, 146*(4).

Grechyna, D. (2020). Health Threats Associated with Children Lockdown in Spain during COVID-1. https://doi.org/10.2139/ssrn.3567670.

Hamzelou, J. (2020). World in lockdown. *New Scientist, 245*(3275), 7. https://doi.org/10.1016/S0262-4079(20)30611-4

Hanafin, S., Brooks, A. M., Carroll, E., Fitzgerald, E., GaBhainn, S. N., & Sixsmith, J. (2007). Achieving consensus in developing a national set of child well-being indicators. *Social Indicators Research, 80*(1), 79–104.

Hess, U., Senécal, S., Kirouac, G., Herrera, P., Philippot, P., & Kleck, R. E. (2000). Emotional expressivity in men and women: Stereotypes and self-perceptions. *Cognition and Emotion, 14*, 609–642. https://doi.org/10.1080/026999300501176488

Holmes, E. A., O’Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., … Ford, T. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet Psychiatry*.

Idoiaga, N., Berasategi, N., Dosil, M., & Eiguren, A. (2021). Struggling to breathe: A qualitative study of children’s well-being during lockdown in Spain. *Psychology & Health*, 1–16.

Idoiaga, N., Berasategi, N., Eiguren, A., & Picaza, M. (2020). Exploring children’s social and emotional representations of the Covid-19 pandemic. *Frontiers in Psychology, 11*, 1952.

Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., et al. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics*. https://doi.org/10.1016/j.jpeds.2020.03.013

Jiloha, R. C. (2020). COVID-19 and mental health. *Epidemiology International, 5*(1), 7–9. https://doi.org/10.1016/S0262-4079(20)30611-4

Karadeniz, G., & Çakmakcı, H. A. K. (2021). Turkish fathers’play attitude with children during covid-19 lockdown. *European Journal of Education Studies, 8*(2).

Kleinberg, B., van der Vegt, I., & Mozes, M. (2020). Measuring emotions in the COVID-19 real world worry dataset. arXiv preprint arXiv:2004.04225.

Land, K. C., Lamb, V. L., Meadows, S. O., & Taylor, A. (2007). Measuring trends in child well-being: An evidence-based approach. *Social Indicators Research, 80*(1), 105–132.

Leung, C. C., Lam, T. H., & Cheng, K. K. (2020). Mass masking in the COVID-19 epidemic: People need guidance. *The Lancet, 395*(10228), 945–947. https://doi.org/10.1016/S0140-6736(20)30520-1

Lippi, G., Henry, B. M., Bovo, C., & Sanchis-Gomar, F. (2020). Health risks and potential remedies during prolonged lockdowns for coronavirus disease 2019 (COVID-19). *Diagnosis, 1(in*, press). https://doi.org/10.1515/dx-2020-0041

López-Bueno, R., López-Sánchez, G. F., Casajús, J. A., Calatayud, J., Tully, M. A., & Smith, L. (2020). Potential health-related behaviors for pre-school and school-aged children during COVID-19 lockdown: A narrative review. *Preventive Medicine, 106349*.

Lucas, B. (2020, 26 April). The Health Order on children’s measures: 14-year-olds may not walk and the caregivers may accompany the children. El Pais. Retrieved from: https://elpais.com/sociedad/2020-04-25/la-orden-de-sanidad-sobre-las-medidas-de-los-ninos-los-de-14-no-pueden-pasear-y-las-cuidadoras-podran-acompanar-a-los-pequenos.html.

Moeijes, J., Van Busschbach, J. T., Lockhart, K. L., Bosscher, R. J., & Twisk, J. W. (2019). Characteristics of sports participation and psychosocial health in children: Results of a cross-sectional study. *European Journal of Sport Science, 19*(3), 365–374.

Muscogiuri, G., Barrea, L., Savastano, S., & Colao, A. (2020). Nutritional recommendations for CoVID-19 quarantine. *European Journal of Clinical Nutrition*, 1–2.

Narzisi, A. (2020). Handle the autism spectrum condition during Coronavirus (COVID-19) stay at home period: Ten tips for helping parents and caregivers of young children. *Brain Sciences, 10*(4), 207. https://doi.org/10.3390/brainsci10040207

Okruszek, L., Aniszewska-Stańczuk, A., Piejka, A., Wiśniewska, M., & Żurek, K (2020) Safe but lonely? Loneliness, mental health symptoms and COVID-19. PsyArXiv. (in press). https://doi.org/10.31234/osf.io/9njps.

Orgilés, M., Morales, A., Delvecchio, E., Mazzeschi, C., & Espada, J. P. (2020). Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. PsyArXiv. https://doi. org/10.31234/osf.io/5bpfz.

Panjwani, N., Chaplin, T. M., Sinha, R., & Mayes, L. C. (2016). Gender differences in emotion expression in low-income adolescents under stress. *Journal of Nonverbal Behavior, 40*(2), 117–132.

Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., … Davis, M. M. (2020). Well-being of parents and children during the COVID-19 pandemic: A national survey. *Pediatrics, 146*(4).

Pavone, P., Giallongo, A., La Rocca, G., Ceccarelli, M., & Nunnari, G. (2020). Recent covid-19 outbreak: Effect in childhood. *Infect dis trop med, 6*, e594.

Pietrobelli, A., Pecoraro, L., Ferruzzi, A., Heo, M., Faith, M., Zoller, T., ... & Heymsfield, S. B. (2020). Effects of COVID-19 lockdown on lifestyle behaviors in children with obesity living in Verona, Italy: A longitudinal study. Obesity.

Pisano, L., Galimi, D., & Cerniglia, L. (2020). A qualitative report on exploratory data on the possible emotional/behavioral correlates of covid-19 lockdown in 4-10 years children in Italy. PsyArXiv. (in press) https://doi.org/10.31234/osf.io/stwbn.

Pollard, E., & Lee, P. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research, 61*, 59–78.

Qin, F., Song, Y., Nassis, G. P., Zhao, L., Cui, S., Lai, L., ... & Wang, Z. (2020). Prevalence of insufficient physical activity, sedentary screen time and emotional well-being during the early days of the 2019 novel coronavirus (COVID-19) outbreak in China: A national cross-sectional study.

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry, 33*(2), e100213. https://doi.org/10.1136/gpsych-2020-100213

Rasch, D., & Guiard, V. (2004). The robustness of parametric statistical methods. *Psychology Science, 46*, 175–208.

Ravens-Sieberer, U., Kaman, A., Erhart, M., Devine, J., Schlack, R., & Otto, C. (2021). Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *European Child & Adolescent Psychiatry*, 1–11.

Raw, J., Waite, P., Pearcey, S., Creswell, C., Shum, A., & Patalay, P. (2021). Examining changes in parent-reported child and adolescent mental health throughout the UK’s first COVID-19 national lockdown.

Rundle, A. G., Park, Y., Herbstman, J. B., Kinsey, E. W., & Wang, Y. C. (2020). COVID-19 related school closings and risk of weight gain among children. *Obesity*.

Schmidt, S. C., Anedda, B., Burchartz, A., Eichsteller, A., Kolb, S., Nigg, C., … Woll, A. (2020). Physical activity and screen time of children and adolescents before and during the COVID-19 lockdown in Germany: A natural experiment. *Scientific Reports, 10*(1), 1–12.

Singh, J., & Singh, J. (2020). COVID-19 and its impact on society. *Electronic Research Journal of Social Sciences and Humanities, 2*(1), 168–172. https://doi.org/10.7202/1068547ar

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*(3), 417–453.

Thakur, K., Kumar, N., & Sharma, N. (2020). Effect of the pandemic and lockdown on mental health of children. *The Indian Journal of Pediatrics, 87*, 552-552.

Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry, 0020764020915212*.

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020). Adverse effects of school closures, 2020. Available: https://en.unesco.org/covid19/educationresponse/consequences.

Villadsen, A., Conti, G., & Fitzsimons, E. (2020). *Parental involvement in home schooling and developmental play during lockdown-Initial findings from the COVID-19 Survey in Five National Longitudinal Studies*. London: UCL Centre for Longitudinal Studies.

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity, 89*, 531–542.

Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet, 395*(10228), 945–947. https://doi.org/10.1016/S0140-6736(20)30547-X

White, K. R. (1982). The relation between socioeconomic status and academic achievement. *Psychological Bulletin, 91*(3), 461–481.

World Health Organisation. (1946). *Constitution of the World Health Organization*. Geneva: World Health Organisation.

World Health Organization (WHO) (2020, 11 March). WHO Director-General's opening remarks at the media briefing on COVID-19, WHO. Retrieved from: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19—11-march-2020.

Xie, X., Xue, Q., Zhon, Y., & Zhu, K. (2020). Mental health status among children in home confinement during the coronavirus disease 2019 outbreak in Hubei Province, China. *JAMA Pediatrics* [published online ahead of print April 24, 2020].

Yeasmin, S., Banik, R., Hossain, S., Hossain, M. N., Mahumud, R., Salma, N., et al. (2020). Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. *Children and Youth Services Review, 117*, 105277.