Locked-down!: Parental perception of children's changing access and use of urban green spaces and playgrounds after COVID 19 outbreak

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Abstract: Slightly more than a year ago, our lives have completely changed with a newly discovered virus. This new strain of Coronavirus family has rapidly infected many people in china. The virus, now commonly called COVID-19, has also transferred to almost every part of our world with international flights, causing a global pandemic. This new situation has changed many children's daily lives. During the first months of COVID-19 pandemics, almost 99.5% of all children in the world lived with movement restrictions and 60% lived under full or partial lockdowns. In Turkey, children locked down for over 2 months with no outside permission. This study aimed to understand effect of lockdown process on children's daily lives, physical activity patterns, and visits urban green spaces and playgrounds. The emerging findings illustrate that children's daily habits have changed during the lockdown. Many children showed symptoms of boredom, loneliness, lack of communication, anxiety and even depression. Children invested more time in watching TV. Slightly more than half of the children spent only around an hour for physical activity every day, and a third of children have spent no time on any physical activity. Percentage of children visiting urban green spaces and playgrounds declined rapidly. On average, children payed 27 minutes shorter visits to urban green spaces than they visited before COVID-19.

Keywords: Covid-19, lockdown, children's access, urban green spaces, outdoor play

Sokağa Çıkmak Yasak!: COVID 19 salgını sonrasında çocukların kentsel yeşil alanlara ve oyun alanlarına erişiminin ve kullanımının değişen durumuna ilişkin ebeveyn algısı

Öz: *Bir yıldan biraz daha uzun bir süre önce, yeni keşfedilen bir virüsle hayatımız tamamen değişti. Coronavirüs ailesinin bu yeni türü, Çin'de hızla birçok insana bulaştı. Artık yaygın olarak COVID-19 olarak adlandırılan virüs, uluslararası uçuşlarla da dünyamızın neredeyse her yerine bulaşarak küresel bir pandemiye neden oldu. Bu yeni durum birçok çocuğun günlük hayatını değiştirdi. COVID-19 pandemisinin ilk aylarında, dünyadaki tüm çocukların yaklaşık %99,5'i hareket kısıtlamaları ve %60'ı tam veya kısmi karantina altında yaşadı. Türkiye'de ise çocuklar 2 aydan fazla bir süre dışarı çıkış izinleri olmadan yaşadılar. Bu çalışma, karantina sürecinin çocukların günlük yaşamlarına, fiziksel aktivite örüntülerine, kentsel yeşil alanlara ve oyun alanlarına yapılan ziyaretlere etkisini anlamayı amaçlamıştır. Ortaya çıkan bulgular, karantina sırasında çocukların günlük alışkanlıklarının değiştiğini gösteriyor. Birçok çocuk can sıkıntısı, yalnızlık, iletişim eksikliği, kaygı ve hatta depresyon belirtileri gösterdi. Çocuklar televizyon izlemeye daha fazla zaman ayırdılar. Çocukların yarısından biraz fazlası her gün fiziksel aktivite için sadece yaklaşık bir saat harcarken, üçte biri herhangi bir fiziksel aktivite için hiç zaman ayırmadılar. Kentsel yeşil alanları ve oyun alanlarını ziyaret eden çocukların yüzdesi hızla azaldı. Ortalama olarak, çocuklar kentsel yeşil alanlara COVID-19'dan önce ziyaret ettiklerinden 27 dakika daha kısa ziyaretlerde bulundular.*

Anahtar Kelimeler: *Covid-19, karantina, çocukların erişimi, kentsel yeşil alanlar, açık hava oyunları*

INTRODUCTION

Pandemics can be life-changing experience for human kind and seriously affect their activities. COVID-19 is an new strain of the coronavirus family that has caused the global pandemic of respiratory distress syndrome in 2003 (WHO, 2020b). Since the beginning of pandemics, it has already affected 214 countries. As of October 1st , 2021, almost 235 million cases reported worldwide and 4.8 million people died because of COVID-19 related health issues (Worldometer, 2021).The first public message on COVID-19 released on 31st of December 2019 by The Wuhan Municipal Health Commission, although the outbreak had started earlier in December (WHO, 2020b). On 30th of January 2020, World Health Organization (WHO) declared public health emergency of international concern (WHO, 2020a). The Turkish government started preparations about COVID-19 outbreak when the virus first spread in China. On 10th of January, 2 months earlier than the first COVID-19 case reported in Turkey, the Scientific Committee was set up by the Ministry of Health. On the 3rd of February, all China flights landing and departing from Turkey were cancelled, which was followed by Iran, Italy, South Korea and Iraq flights in February. First COVID-19 case in Turkey reported on 11th of March and the next day all schools and nurseries were suspended for a week and universities were also suspended for three weeks. Limited lockdown, specifically covering people over 65, was declared on 21st of March 2020. On the 3rd of April, Turkish government extended lockdown limits to cover children and young people up to 20 years old. This meant that all nursery, primary, secondary and high school students and some university students were included to complete

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lockdown 24 hours and 7 days a week for unforeseen future.

On the 13th of May, children age 0 to 13 could go out for the first time after 41 days of lockdown. Two days later young people age 14 to 20 could also go out for only 4 hours a week. These measures were effective until mid-June 2020. During this period, urban green spaces (UGS) and playgrounds were also banned. Even after weekly allowance was granted, children and young people could not go to parks and UGS until the open space ban was retrieved. Police officers regularly patrolled large parks and green spaces, to keep children out. Children, especially in large cities, had not interacted with green spaces and playgrounds for several months. However, the availability and having access to UGS in their neighbourhoods are very critical for children. There are numerous studies investigated the relationship between green space and play (Ward, 1977; Moore, 1986; Chawla, 2002). UGS in the neighbourhoods increase inhabitants' life standards, providing them opportunities to engage with exercise and sports. A growing body of knowledge also shows that access to green is related with children's physical wellbeing, social engagement, increased social cohesion and social sustainability (Edwards *et al.*, 2010; Francis *et al.*, 2012; de Vries *et al.*, 2013; Washington *et al.*, 2019). A lack of exposure to green spaces in urban environments can cause physical health (Cleland *et al.*, 2008, 2010; Potestio *et al.*, 2009) and mental health issues (Francis *et al.*, 2012; Nutsford *et al.,* 2013).

During the first months of COVID-19 pandemics, almost 99.5% of all children in the world lived with to movement restrictions and 60% lived under full or partial lockdowns (UNICEF, 2020). The recent study related with the effects of COVID-19 on the adults' use and perception of UGS has identified that visits to UGS have reduced and this has caused motivational and behaviour changes (Ugolini *et al.*, 2020). Another study reported children's physical activity levels have dropped and their screen time has increased during social isolation process (Brito *et al.*, 2020). There appears to have been no attention given to children's wellbeing outside of effects on education, although there is a good deal of research evidence on importance of green spaces and play in child development. Although COVID-19 poses very low risk to children (Carroll *et al.*, 2020; Košir *et al.*, 2020), they are the most vulnerable urban population because of the side effects of mitigation measures (Kyriazis *et al.*, 2020). The long term indoor experience might have a big impact on children's physical and mental health, social development and their interaction skills. Evidence from Scotland shows that children faced with boredom, loneliness, range of worries during lock down (Children's Parliment, 2020a, 2020b). Survey in the UK identified that COVID-19 increased the symptoms of mental illnesses on the vast majority of children with previous mental health issues (Young Minds, 2020). Besides being at home for over 2 months might have increased children's tendency to stay home and interact with indoor related activities. Studies show that children with more indoor tendencies spent less time outdoors (Veitch *et al.*, 2006). Many children might have concerns to use green spaces and playgrounds since government revoked the lockdown in Mid-June. Children's access to green spaces is already limited because of parental worries (Valentine, 1996; Valentine, G. and McKendrick, 1997; Veitch *et al.*, 2006).To protect their children from COVID-19, parents might further limit their children's access and use of UGS and playgrounds. It is important to enlighten the effects of COVID-19 crisis on children's access and use of UGS. However, majority of papers published on the emergence of the issue are thinking papers. There is limited researched base evidence on effect of Covid-19 on children, their use of urban environment and their physical activity. Therefore, this paper aims to understand what was the parental perception on children's worries in lockdowns in the first few month of COVID-19 outbreak and how COVID-19 lockdown influenced children's daily lives and their interaction with UGS during and after lockdown.

MATERIALS AND METHODS

Research method

This paper investigates children's and parental attitude towards green spaces after COVID-19 and the future of children's access to green spaces in urban areas. Therefore, children and their parents were prime subjects of this research. During study design and data collection, children could not go out because of mitigation measures, and many parents could work from home to look after their children. Therefore, meeting with children or parents was very unlikely. Besides, undertaking research in person was a health concern. Face-to-face interviews or questionnaires would increase personal contact, and methods such as postal questionnaires would have increased circulation of the virus. Therefore, many traditional research methods were far too risky for both subjects and researchers.

Nowadays use of online surveys has some major advantages over traditional surveys. First, internet surveys are effortless, time and cost-effective with free data collection interfaces and basic analysis tools (Wu, Sun and Tan, 2013; Bhoi, 2015) ; second, it allows collection of a large sample which would only be achieved by large organizations (COUPER, 2000); third, online surveys provide a diverse pool of participants (Hewson, Vogel and Laurent,

2016); forth, it removes interviewer bias (Van Selm and Jankowski, 2006) because there would be no direct contact between researcher and participant, and participants may feel freer to express their opinions. The latter is likely to increase the validity of the research. **Data collection and Sampling**

This research relayed on the parental opinions because children might not have enough experience with computers to undertake questionnaires, younger children might not read or write and they might not provide reliable information on the internet platform. Targeting parents, who are concerned about their children's health during lockdown, and their children's future after COVID-19 pandemics, has achieved large numbers of return within a few days. An online platform, Google forms®, was used to host surveys. This research adopted non-probability sampling techniques for this survey. First, adopting traditional probability sampling techniques would be inappropriate because there is no systematic way of choosing participants randomly from any source such as parents' list. Second, there is no attempt to do statistical sampling the online population. Oppositely, this research aimed to access as much participants as possible to gain insight about children's lives during COVID-19 lockdown and how this is going to affect their future. Therefore, this research adopted non-probability snowball sampling technique. The questionnaires were shared with a few parents and a couple of children day care organizations, which would pass the questionnaire link to parents. We asked parents to forward the questionnaire to other parents they know. Doing this, we have increased variety of parents in the sample and included parent that we could not have included in traditional methods. The Survey started on 26th of May 2020 and continued until no new participant involved over 10 days. At this point snowballing stopped, and we have reached a possible number of participants. The survey ended at the end of June.

RESULTS AND DISCUSSION

Two hundred and thirty-seven parents took part in surveys. According to the result, 15.6% of whom were fathers and 84.4% of them were mothers. Having a large percentage of mother's response is not surprising because traditionally looking after children is the mother's responsibility. During the snowballing, possibly mothers may have sent the participation link to fellow mothers. Parents mentioned that 47.3% (*n*=112) of children were males and 53.7% (*n*=125)of them were female. Age of the children varied between 3 and 15, but over 60% of children were aged between 3 and 6 (Table 1).

COVID-19 pandemic is an uncertain situation because of the obscurity of the future. The percentage of worried/extremely worried parents was 43.4%, which was followed by partially worried (40.9%), hardly worried (13.5%), not worried (1.3%) parents (Table 2). When qualitative data investigated the three pillars of parental worry identified as contamination of disease, uncertainty of situation, and economic concerns. Similar concerns were shared among parents elsewhere (Gassman-Pines *et. al.* 2020). The parents also mentioned that they are worried about having no one to look after children during lock down when they are at work, children's behaviour changes, getting ill, death, concerned about children's physical and mental health, children's social development and interaction, and children's future to some extent.

Table 1. Descriptive of the study population

	***N* (237)**	**Percentage (%)**
Father	*37*	*15.6*
Mother	*200*	*84.4*
Boys	*112*	*47.3*
Girls	*125*	*53.7*
	Child Age	
3	*43*	*18.1*
4	*50*	*21.1*
5	*26*	*11.0*
6	*26*	*11.0*
7	*13*	*5.5*
8	*11*	*4.6*
9	*13*	*5.5*
10	*19*	*8.0*
11	*13*	*5.5*
12	*13*	*5.5*
13	*3*	*1.3*
14	*2*	*0.8*
15	*5*	*2.1*

Overall, 63.8% of parents were worried/extremely worried about children's lack of social interaction, and 63.3% of them were worried/extremely worried about children's social development during the lockdown. Parents were less worried about children's mental health compared to other categories. Slightly over 18% of parents were extremely worried, and 30% of parents were worried about their children's mental health in this process. Parents' these concerns are not in vain. Almost two years after first corona case identified in China, we are still uncertain about when COVID-19 infection will end. As of today, large percentage of population vaccinated in Turkey and many developed countries, no new lockdowns were expected but we still live under mitigation measures and many people avoid public spaces.

Survey also investigated what parents thought how their children feel about COVID-19 situation. According to parents, children were more concerned about other people's health than their own. Only 21.1% of the children were worried/extremely worried about their health, and 29.6% were worried/extremely worried about other people's health. Results showed that children were not

Table 2. Parents feeling about COVID-19 situation and what they think how their children feel about and cope with situation

	Not Worried		Hardly Worried		Partially Worried		Worried		Extremely Worried	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
How do parents feel about COVID-19 situation	3	1.3	32	13.5	97	40.9	62	26.2	43	18.1
	How Parents feel about their children's situation during COVID-19 lockdown									
Physical health	10	4.2	33	13.9	63	26.6	77	32.5	54	22.8
Mental health	18	7.6	46	19.4	59	24.9	71	30.0	43	18.1
Social development	6	2.5	25	10.5	56	23.6	74	31.2	76	32.1
Social interaction	9	3.8	26	11.0	50	21.1	79	33.3	73	30.8
Children's future	11	4.6	19	8.0	47	19.8	74	31.2	86	36.3
	What parents think how their children feel about themselves during COVID-19 lockdown									
Their health	35	14.8	80	33.8	72	30.4	30	12.7	20	8.4
Other people's health	26	11.0	55	23.2	86	36.3	49	20.7	21	8.9
Social interaction	30	12.7	54	22.8	79	33.3	53	22.4	21	8.9
Future	41	17.3	78	32.9	64	27.0	27	11.4	27	11.4

concerned about their future after COVID-19 (22.8%) as much as their parents (67.5%). The survey asked parents how children spent their time during the lockdown. Children spent the majority of their time playing, watching TV, and playing computer or console games (Table 3).

On average, children spent 2.19 hours per day for playing on their own, followed by watching TV (1.62 hours/day) and family play/games (1.61 hours/day). Children spent less than an hour for physical activity (0.98 hours/day) and reading (0.85 hours/day). Slightly more than half of the children spent only around an hour for physical activity during 24-hour period. Moreover, 30.8 % of children have spent no time on any physical activity. This indicates that most children had a very sedentary life during the lockdown. A decreasing level of physical activity isn't a new trend on children's research (Guthold *et al.*, 2020). However, with COVID-19 because of movement limitations decline in physical activity has accelerated, which might have led physical activity levels dropped to dangerous levels. Recent study also underlined the fact that children have become less active and more dependent to screen time during the social isolation, which confirms our findings (Brito *et al.*, 2020).

Table 3. How children spent their time during lockdown and issues they face

	None		1 Hours		2 Hours		3 Hours		4 Hours		5 Hours		Mean
	N	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***Hours***
Reading	72	30.4	141	59.5	16	6.8	6	2.5	0	0.0	2	0.8	0.85
Studying	67	28.3	100	42.2	32	13.5	18	7.6	12	5.1	8	3.4	1.29
Playing themselves	7	3.0	74	31.2	76	32.1	44	18.6	19	8.0	17	7.2	2.19
Family Play /Games	17	7.2	127	53.6	53	22.4	23	9.7	6	2.5	11	4.6	1.61
Computer / Console Games	66	27.8	70	29.5	60	25.3	23	9.7	10	4.2	8	3.4	1.43
Watching TV	36	15.2	75	31.6	82	34.6	34	14.3	6	2.5	4	1.7	1.62
Social Interaction through social media	55	23.2	105	44.3	48	20.3	18	7.6	5	2.1	6	2.5	1.29
Physical Exercise	73	30.8	123	51.9	25	10.5	9	3.8	3	1.3	4	1.7	0.98

	Issues children face during lockdown				
	Boredom	**loneliness**	**Lack of Communication**	**Anxiety**	**Depression**
N (237)	220	141	121	84	56
Percentage (%)	92.8	59.5	51.1	35.4	23.6

This study identified that the vast majority of parents (87.7%) also agreed that children felt lack of physical activity during lockdown. This temporary change in children's life might affect their daily physical activity routines and use of outdoor spaces. There are several reasons indicating the change. First, children's first total lockdown continued over 2 months and second intermittent lockdown for over 9 months, although COVID-19 seems to pose very low risk to children and there are research evidence on importance of green spaces and play in child development (Carroll *et al.*, 2020; Košir *et al.*, 2020). Children were forced to spend their times indoors, and they were likely to develop new habits to adopt this lifestyle. The rise on screen time is one indicator of indoor habits (Brito *et al.*, 2020). Second, schools and universities continue online teaching; therefore children spent most of their day in front of screen (TV, computer or tablet) to attend their classes. This situation keeps children indoors, limits their physical activity, and possibly increases their addiction to screen. Third, future of the pandemics is still uncertain, which makes parents and children more cautious about use of public spaces. Because of situation children are likely to continue their social isolation and indoor life for unforeseen future, which is likely to increase their sedentary life style because studies showed that children with more indoor tendencies spent less time outdoors (Veitch *et al.*, 2006). Children should go out and engage with fast physical activity at least 1 hour a day as WHO recommended (WHO, 2015).

According to parents the vast majority of children showed the symptoms of boredom (92.8%). Children also faced loneliness (60%), lack of communication (51.1%), anxiety (35.4%) and depression (23.6%). Besides, only 13.9% of these symptoms existed before COVID-19 outbreak. The vast majority of parents (87.7%) mentioned their children feel the lack of physical activity. Similar results have been identified elsewhere (Children's Parliment, 2020a, 2020b). The number of children with anxiety and depression has also increased during the first lockdown period, when this study was undertaken. In the United Kingdom, COVID-19 pandemic increased the symptoms of mental illnesses on the vast majority of children with previous mental health issues (Young Minds, 2020). Furthermore, psychological distress of parents will likely to affect children's psychological wellbeing (Gassman-Pines *et. al.* 2020). Children's complaints and mental health related issues might have gradually increased during the second lockdown. Parents also feared a change in their children's habits after lockdown (Table 4). Parents believed that behaviour patterns developed during lockdown would cause permanent behaviour changes (63.3%) and will have a negative impact on children's access and use of urban open spaces and playgrounds (54.9%). This means that new behavioural habits might significantly influence children's behaviour patterns after lockdown and cause more physically inactive lifestyle.

Table 4. Children's interaction with urban green spaces and playgrounds before and after lockdown

Behaviour patterns developed at home during lock down will cause permanent behaviour change on children			
Yes		No	
n	%	n	%
150	63.3	87	36.7
Behaviour patterns developed at home during lock down will have negative impact on children's access and use of urban green spaces and playgrounds			
Yes		No	
n	%	n	%
130	54.9	107	45.1
Have you ever take your children to green spaces and play grounds before Covid 19 outbreak			
Yes		No	
n	%	n	%
232	97.9	5	2.1
Did you take your children to urban green spaces when they are allowed for the first time after total lock down.			
Yes		No	
n	%	n	%
160	67.5	77	32.5
Did you take your children to play grounds when they are allowed for the first time after total lock down.			
Yes		No	
n	%	n	%
83	35.0	154	65.0

To understand children's use of UGS and playgrounds before COVID-19 outbreak, parents were asked whether they took their children to green spaces or playgrounds before lockdown. Data suggested that 97.9% of the parents took their children to UGS and playgrounds before lockdown. However, 67.5% of the parents took their children to green spaces and only 35% of them took children to playgrounds when children were allowed in parks and green spaces for the first time after lockdown. This is an exceptionally large decrease in the percentage of children visiting green spaces and playgrounds, where seems to be quite unpopular after COVID-19 outbreak.

The survey also identified the regularity of children's visits to green spaces and playgrounds declined dramatically after COVID-19 outbreak. The percentage of children visiting green spaces more than once a week was 71.7% before lockdown and it was drop to 28.7% afterwards (Table 5). The percentage of weekly or less regular visits to green spaces increased. The percentages of the regularity of children visiting playgrounds declined even more dramatically. 51.9% of children visited playgrounds over

Table 5. Regularity of children's visits to urban open spaces and play grounds, and time spent green spaces and play grounds before COVID -19 and after first lockdown period in minutes

	Regularity of Children's Visits to Green Spaces and Play Grounds							
	Green Spaces				**Playgrounds**			
	Before COVID 19		**After Lockdown**		**Before COVID 19**		**After Lockdown**	
	n	%	n	%	n	%	n	%
Several times a week	170	71.7	68	28.7	123	51.9	40	16.9
Once a week	55	23.2	93	39.2	56	23.6	39	16.5
Once forthnightly	6	2.5	21	8.9	22	9.3	15	6.3
Once a month	2	0.8	16	6.8	20	8.4	227	11.4
Less than a month	1	0.4	21	8.9	6	2.5	33	13.9
Never	3	1.3	68	7.6	123	4.2	83	35.0
	Time Spent in Urban Green Spaces or Playgrounds (Minutes)							
	Mean				Std. Deviation			
Before covid 19 outbreak	68.70				66.86			
After covid 19 normalization	41.23				42.113			
Change on time spent open spaces or play grounds	-27.47				57.138			

one occasion weekly before lockdown, and only 16.9% seemed to visit playgrounds more than once a week after lockdown. According to results fortnightly and more regular visits to playgrounds significantly declined after COVID-19 and monthly or less regular visits to playgrounds increased. The percentage of the parents who indicated that they have never taken their children to the playground increased from 4.2% to 35% after lockdown.

Dramatic reduction on use of UGS and playgrounds is not solely related with children's adaptation to indoor life, but it is also related with parental worries. In the past number of studies showed that parental worries are one of the most common reason keeping children away from UGS (Valentine, 1996; Valentine, G. and McKendrick, 1997; Veitch *et al.*, 2006). The interpretation of the effects of COVID-19 is constantly changing, and the risk to children is still highly unknown. This uncertainty makes parents worried about their children as was highlighted above. The vast majority of parents were afraid of their children getting infected or transmitting the diseases to family, as a result children's access to UGS and playgrounds have rapidly declined during pandemics. This research also investigated duration of visits to green spaces and playgrounds both before and after COVID-19 lockdown. Time spent in UGS and playgrounds calculated in minutes per visit. According to results, the average visit was around 68 minutes before the COVID-19 outbreak and it has dropped to 41 minutes after the outbreak (Table 5). On average, children spent 27 minutes less than they used to spend on UGS and playgrounds after lockdown. This is almost a third less than daily recommended level of physical activity on open spaces (WHO, 2015). Although use of Parks and UGS reduced dramatically, these are the only safe places for children's interaction with their friends, involving into physical activity for our children. Simple and relatively inexpensive strategies can be developed to ensure the usability of UGS and give children chance to minimize physical and physiological effects of COVID-19. First, more investment to public hygiene might provide a solution to better site management and reduce parental worries. In the short term, placement of public disinfectants to the important spots such as playgrounds, outdoor gyms, outdoor sports courts, and where people regularly sit, can create reassurance on the public. Replacing necessary materials such as handrails and playground equipment, with self-cleansing or antibacterial materials, will reduce transmission of COVID-19 and similar infectious diseases in the future (Vasilev, 2019). Using information technologies data can be obtained from individuals to identify potential risks. Parents and children would be informed in advance in terms of use of those specific public green spaces.

More public investment made in increasing UGS, indirectly help to increase resilience to infectious diseases, contributing better public health, and having excessive benefits in terms of urban sustainability such as cooling atmosphere through evapotranspiration, reducing heat island effect, cleaning air and rain water filtration and retention in the soil. Investment in more public green spaces should also reduce density and pressure on current UGS. Low density on public parks and open spaces will encourage children and parents to use those places. However, in order to contribute to our future, these investments should be made with social justice, sustainable development, and climate change policies in mind (Pinheiro and Luís, 2020). Every child should have equal access to UGS and playgrounds. Investment in green and natural play will also likely to reduce parental worries because natural

materials are more resilient to contamination and transmitting diseases compared to metal and plastic playground equipment. This will enable parents to allow children to play outdoors with a peace of mind. Natural play areas would be better for children because they boost the physical activities for children, help to enhance problem-solving skills, support mental development, gain experiences and knowledge from nature. Natural play areas are also more sustainable option because of the long term usability and low coast management requirements.

CONCLUSION

Since the beginning of the COVID-19 pandemics, the number of publication on the issue raises daily bases; However, only 1% of those studies are related to build environment (Pinheiro and Luís, 2020). This study was motivated by the social isolation of children that was imposed during the COVID-19 pandemic in 2020. This study begs the question of how children as users of public green space and playgrounds have experienced the social and physical constraints that emerged during temporary death of public space. Findings from online survey identified what makes children and parents worried about COVID-19 outbreak, and highlighted some changes in behaviour and attitude related to the physical activity habits and visitation of UGS.

This study contributes to the knowledge on understanding children's and parental worries during first 6 months of COVID-19 outbreak, and how lockdown influenced children's daily activities and their interaction with UGS. This article is one of the first evidence based research papers published on children's use of UGS and playgrounds during children's total lockdown and shortly after mitigation measures were loosened. However, there are limitations of the study. First, this study is relaying on parental opinions. Second, this study covers the first 6 months of pandemics. Therefore, when it is safe to recruit children, the study should be repeated to get their first hand opinions and understand how children coped with intermittent lockdowns, how their physical activity behaviour is affected, and how children's interaction with parks and playgrounds changed during COVID-19 pandemics.

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