

IMPACT OF COVID-19 LOCKDOWN ON PHYSICAL AND MENTAL HEALTH OF 5-12 YEARS OLD CHILDREN; FROM PARENTS' PERSPECTIVE: A CROSS-SECTIONAL STUDY

---Physical and Mental Health of Children during COVID-19 Lockdown: Parents' perspective

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ABSTRACT

The COVID-19 pandemic has forced children to spend increased amounts of time at home resulting in adverse effects on their physical and psychosocial wellbeing. Parents need to be aware about the changes in the mental and physical health of the children.

OBJECTIVES:

To identify the physical and mental health problems the children are facing because of the lockdown and to assess the awareness of such problems amongst the parents.

DESIGN:

A cross sectional online survey was conducted to assess the impact of COVID-19 on physical and mental health of the children from parents' perspectives.

SETTING:

Mumbai, Maharashtra, India

MAIN OUTCOME MEASURE:

Parent reported questionnaire.

RESULTS AND CONCLUSION:

There was a significant increase in the number of hours spent on mobile phones, sitting, and sleeping during the lockdown as compared to before the lockdown whereas the number of hours spent on physical activity significantly decreased and also impacted their mental health. By taking part in the survey, the parents of the children became aware of the changes occurring in their child. These findings can guide immediate programmatic and policy efforts to preserve and promote child health during the COVID-19 outbreak and crisis recovery period, and to inform strategies to mitigate potential harm during future pandemics.

KEYWORDS

COVID-19, lockdown, physical activity, mental health, children

INTRODUCTION

The tragic COVID-19 pandemic 'has collateral effects extending beyond direct viral infection,' said Myles Faith, PhD.

The psychological resilience of the Indian masses is increasingly being tested due to the pandemic of Corona Virus (COVID-19). The international focus has mostly been on testing, finding a cure and preventing transmission; whereas people, including children are going through a multitude of psychological problems to adapt to the current way of life in lockdown and dread of the associated disease.

Millions of children and their families worldwide have been affected by the application of measures (school closures, social distancing) to contain the spread of COVID-19 by the government in various countries. [1] Studies have shown that children are less directly affected than adults from a health standpoint. But they risk being amongst its victims, as the children's lives have had far reaching effects. [2] Some preliminary concerning reports indicate that COVID-19 pandemic is posing considerable challenges affecting the overall health and well-being of children. The confinement measures can have indirect, downstream implications; and furthermore, these effects could have long term repercussions. [3]

As part of necessary measures, schools have been shut and this has resulted in the children not having access to physical activities (PA) in school such as physical training, recess, and travelling to/from school. [4] Social distancing measures such as the closure of playgrounds, trails and beaches; and the cancellation of youth sports and recreational classes such as gymnastics, dance, karate and judo etc. This stops children from attaining required levels of PA. [5] The children have reduced scope of interaction with their friends, and now don't have the sense of structure which is stimulated by the school setting which is crucial for good mental health. [6] Increased screen time, decreased PA, lack of concentration, anxiety and early depression is caused because of lost social interaction and lack of structured routines. Due to increased sitting courtesy of online classes and mobile phone use with no supervision, the child adopts an abnormal posture and may develop a habit of the same and may also begin to gain weight. The sleep cycle of the children has also been disturbed due to addiction towards social media. Energy and fatigue levels

are affected, and the child becomes irritable. [7] The effect of physical exercise on mental health is well established in the literature, so the absence of physical health may in turn impact cognition and the confidence of the child, again adding to their mental stress. [8]

Although child health experts have already warned about the devastating effects of such behaviours, the evidence showing these negative effects is scant. [9] It is unclear how PA participation among school-going children have been affected by COVID-19 related lockdown, closures, cancellations, and restrictions. [10] New behavioural habits of physical inactivity during the lockdown that are extremely difficult to change have been adopted by children and when pandemic-related school closure and sports day cancellations end will have a great impact. Brief changes in physical behaviour may become perpetually established in later childhood and adulthood, leading to greater risk for serious health conditions. [11]

Due to increased amounts of time spent at home the parents need to be aware about the changes in the mental and physical health of the children. Investigating by way of the questionnaires from the parents' perspectives will allow us to understand the level of awareness that the parent has of the impact of COVID-19 lock down on the health and wellbeing of the child. The study might help them to understand their child's physical, emotional, and social needs better so that they can make necessary changes to have a healthy relationship; and conducive physical and mental environment in the house for promoting their child's health and behaviour. As the primary caregiver they will have a positive impact on the young minds.

This study, thus aimed to survey the effects of the COVID-19 pandemic lockdown on physical and mental health of school-going children. These findings can guide immediate methodological and strategic efforts to conserve and encourage health during the COVID-19 pandemic and crisis convalescence period, and to design policies to reduce the possibility of harm during future pandemics. The specific objectives outlined of the study are as follows:

- 1) To identify the physical health problems the children are facing during the lockdown.
- 2) To identify the mental health problems the children are facing during the lockdown.
- 3) To assess the awareness of such problems amongst the parents.

METHODOLOGY

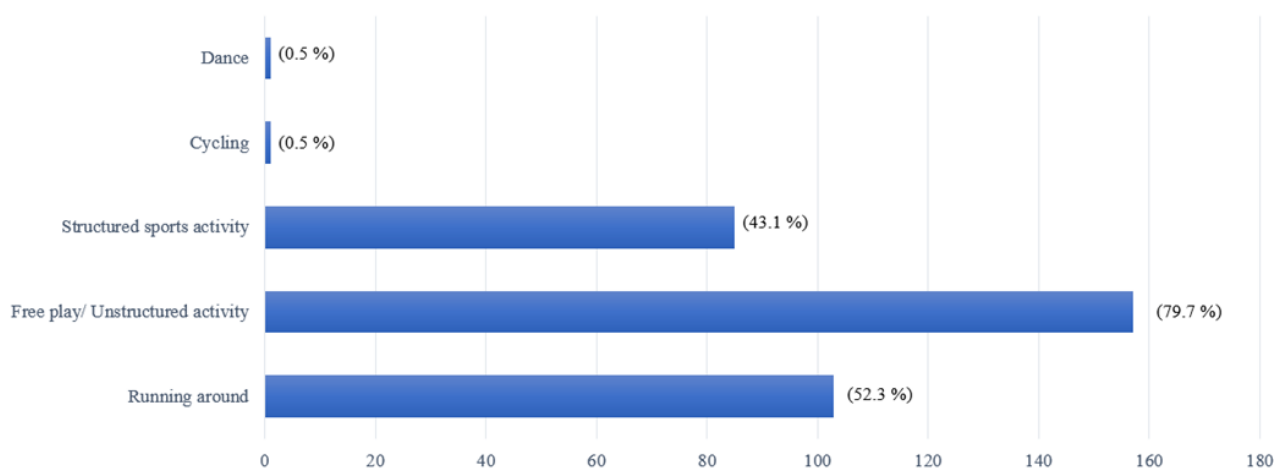
A cross sectional survey was designed to analyse the impact of COVID-19 on the physical and mental health of children. We collected data using an online survey platform to avoid face-to-face or physical interaction (Study period: January 2021 to February 2021). Potential respondents were invited through social media platforms and after obtaining informed e-consent were directed to fill in a google-form. Participation in the study was voluntary and anonymous. Parents/legal guardians of children of the age group 5-12 years of either gender; able to speak and read English; and currently staying with their child were included. Exclusion criteria was set as (a) refusal to participate in the study, (b) child with any congenital or acquired physical health problem or mental illness, or (c) parents themselves had any psychiatric or cognitive issues based on self-report. A non-randomized convenient sampling method was used to recruit the target population living in India. Sample size was not calculated before conducting the study, but maximum participation was desirable and anticipated owing to the current social relevance of this topic.

A semi structured questionnaire was developed with several open and close ended questions to examine the effect of lockdown on the mental and physical health of the children from parent-reported changes. PA characteristics were assessed using variables like the child's current level of PA; location of PA; and, the quantity and pattern of sleep; and use of digital devices. The rates of use of remote and streaming services for PA were also identified. Any mental health issues and emotional problems newly emerged or aggravated during lockdown were also enlisted. Another objective was to determine the level of awareness amongst parents about the importance of PA for the child. From pre COVID-19 and during lockdown periods parents reported observable changes in physical and emotional behaviour, which were then analysed.

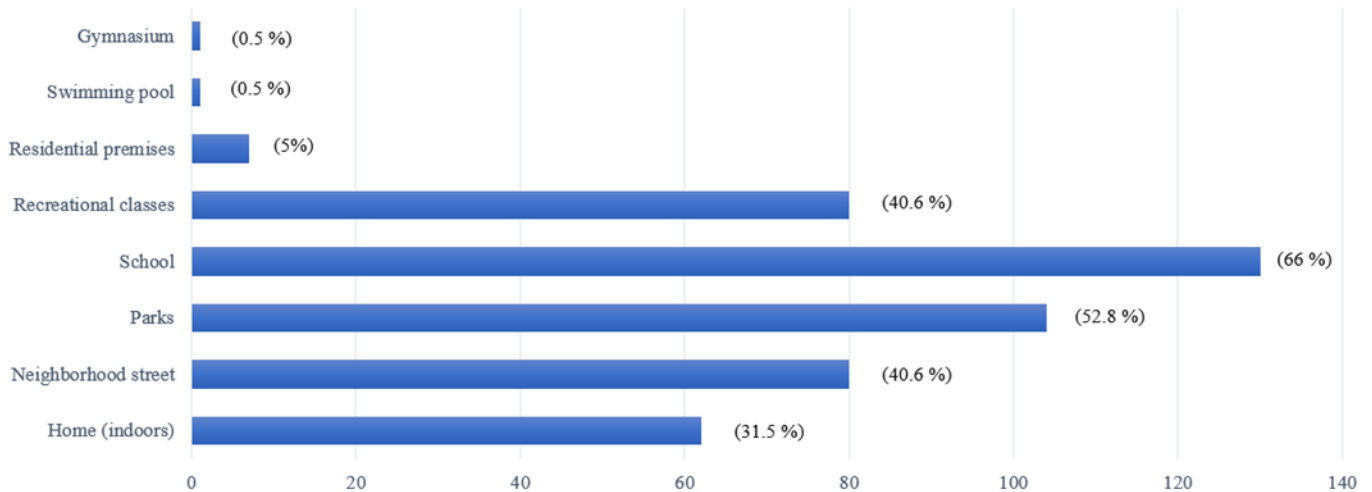
RESULTS

A total number of 197 children participated in the study. The mean age of the participated children is 9.52 with a standard deviation of 2.34.

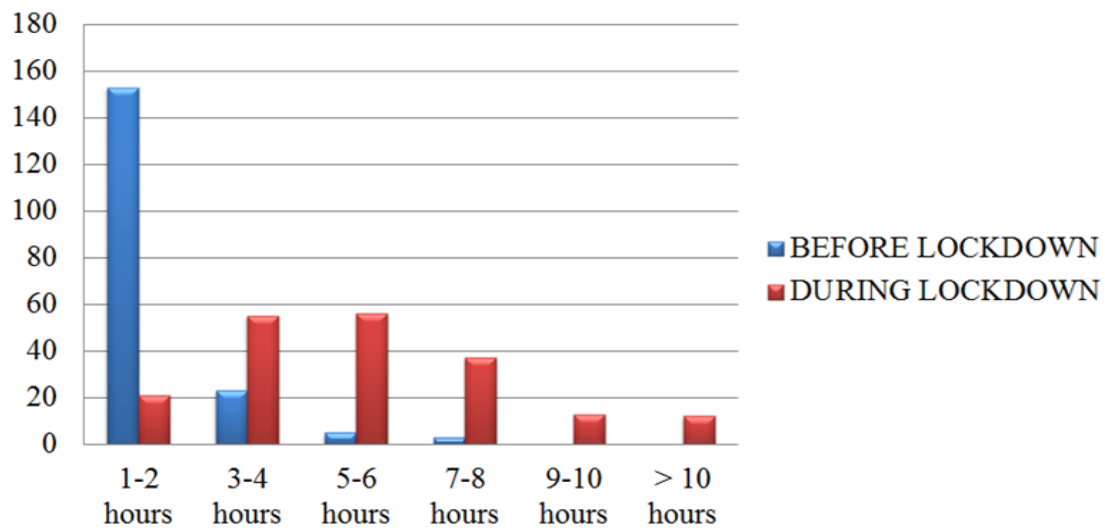
Different physical activities before lockdown



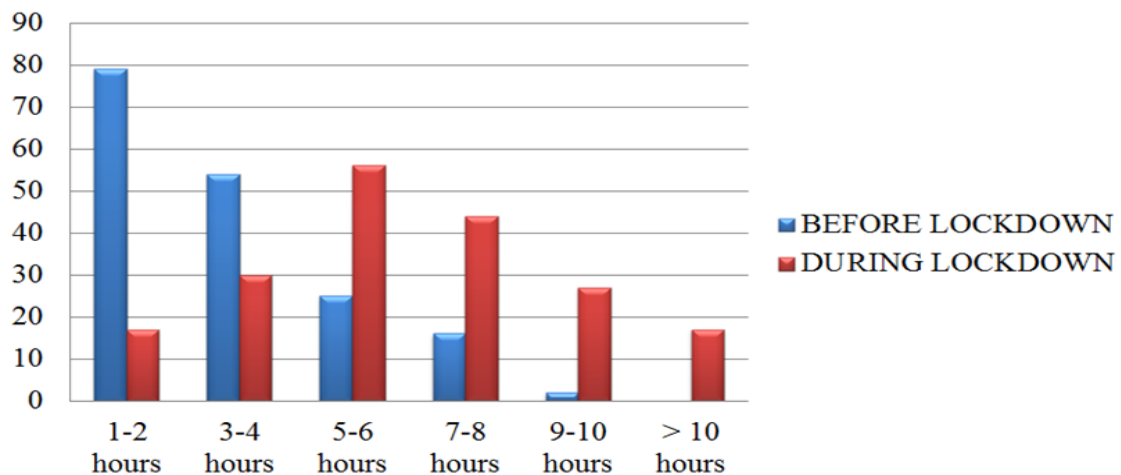
Location of physical activity prior to lockdown



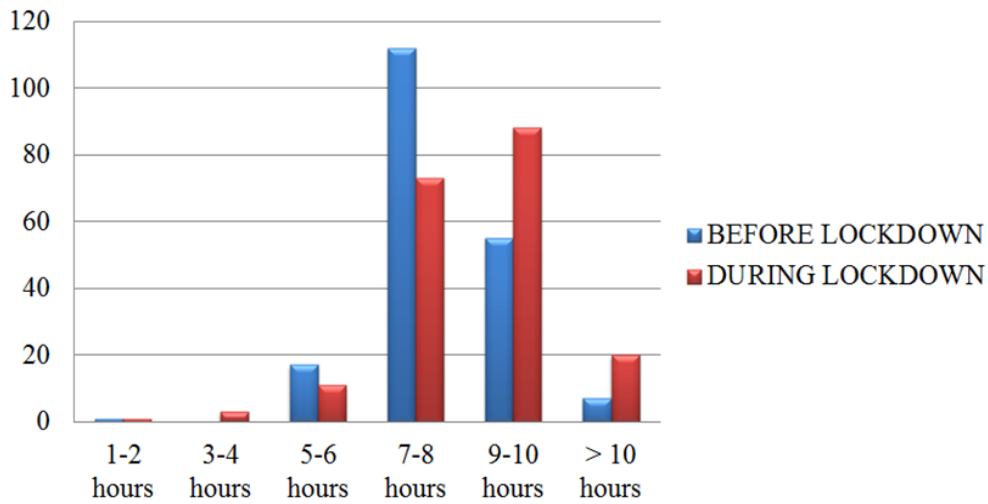
Number of hours spent on the mobile phone



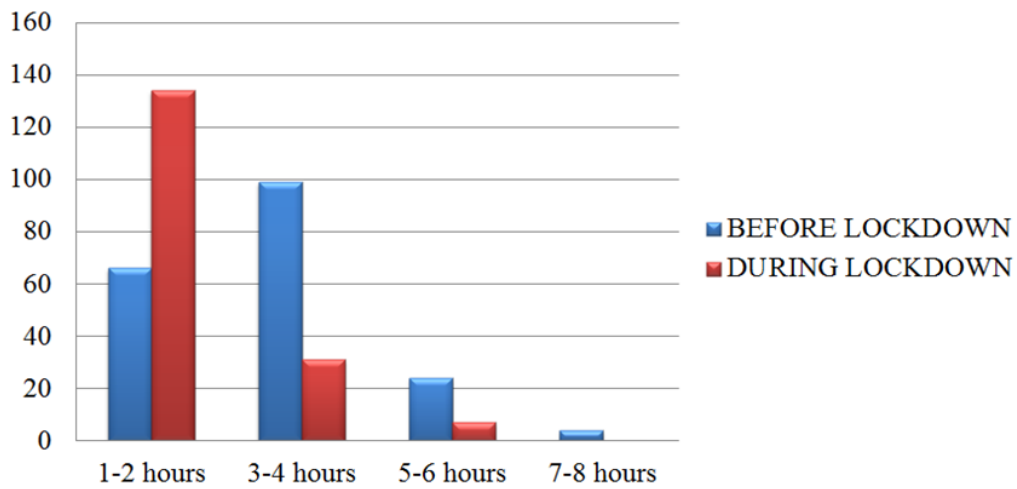
Number of hours spent sitting



Number of hours spent sleeping

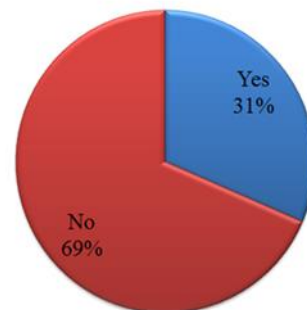


Number of hours spent in physical activity



There was a significant increase in the number of hours spent on mobile phone from 1-2 hours to 3-6 hours, number of hours spent sitting idly from 1-2 hours to 5-6 hours, and hours spent sleeping increased from 7-8 hours to 9-10 hours during the lockdown as compared to before the lockdown whereas the number of hours spent on physical activity was significantly decreased from 3-4 hours to 1-2 hours.

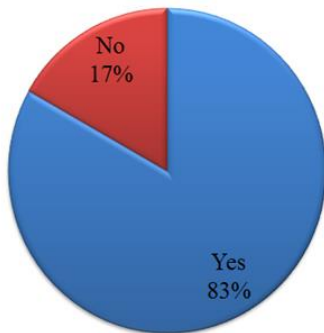
Does your child participate in any online physical activity training?



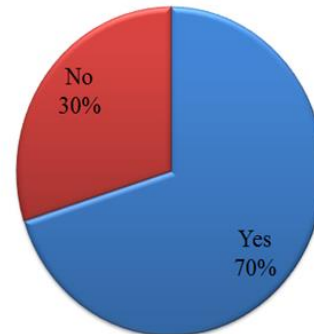
It was observed that 69% of the children do not participate in any online physical activity training.

83% of the children engage in excessive amounts of screen time.

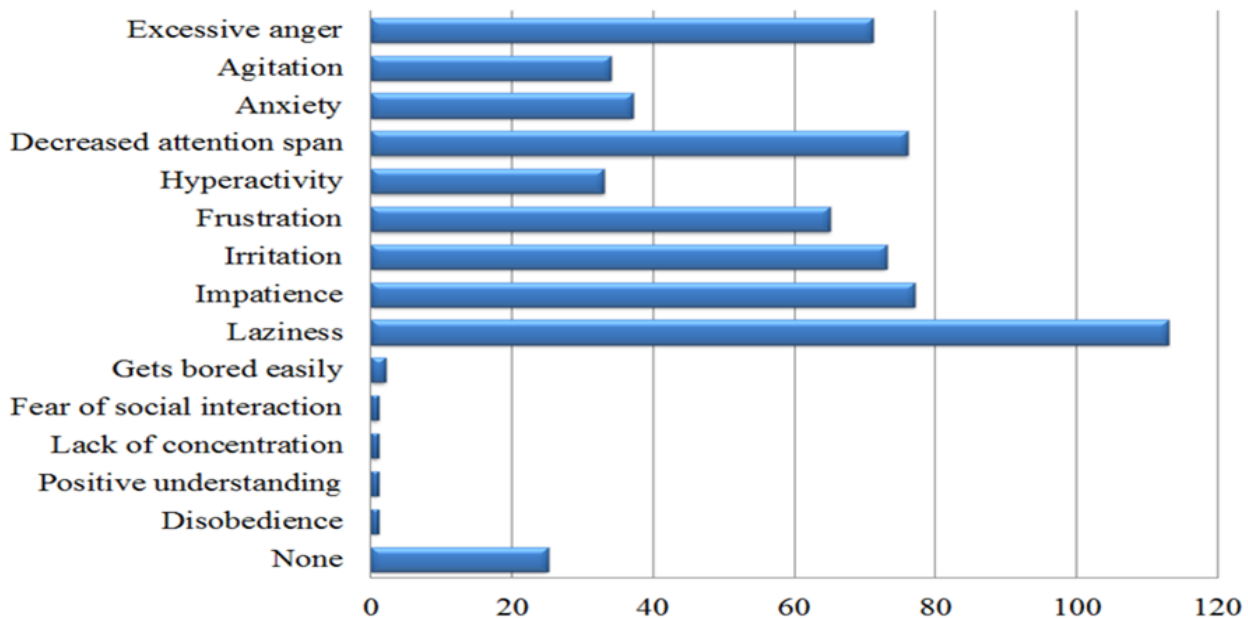
Do you think your child engages in excessive amount of screen time?



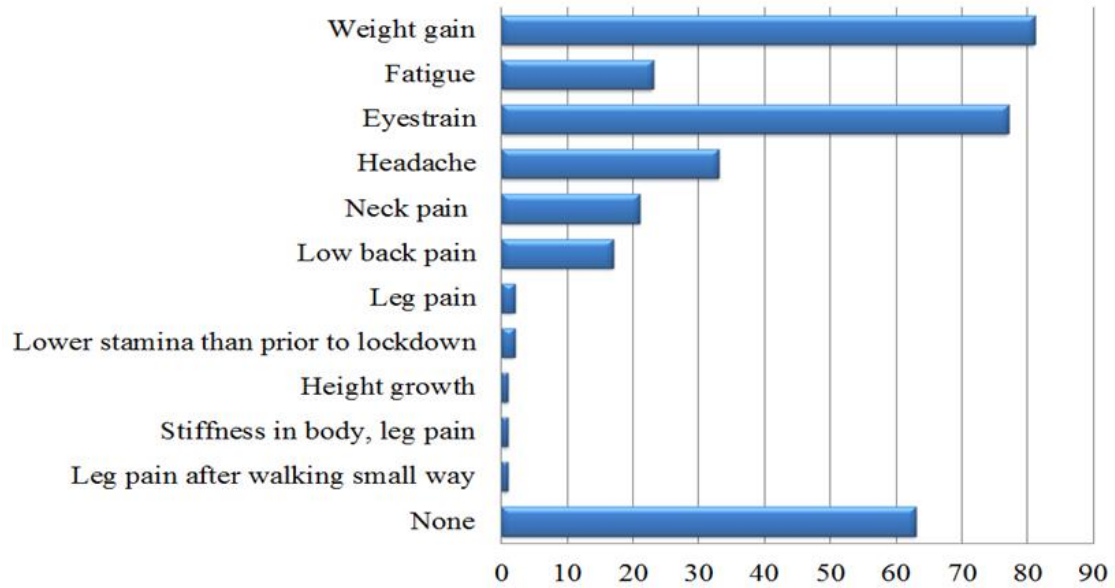
Have you observed any behavioral changes in your child during lockdown?



Do you observe any of the following behavioral changes in your child during lockdown?



Which of the following physical changes are seen in your child during lockdown?

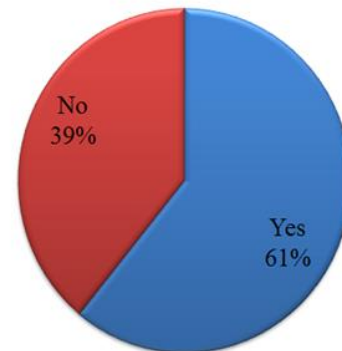


70.8% of the respondents reported behavioural changes in their child. The major behavioural changes were laziness (57.4%), impatience (39.1%), irritation (37.1%), decreased attention span (38.6%), excessive anger (36%), frustration (33%), anxiety (18.8%), agitation (17.3%) and hyperactivity (16.8%).

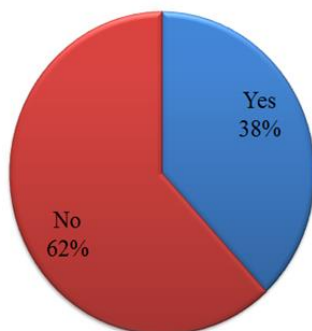
63 % of parents agree that their children do not engage in enough physical activity.

54.3% of the respondents reported physical changes in their child such as weight gain (41.1%), eyestrain (39.1%), headache (16.8%), fatigue (11.7%), neck pain (10.7%) and low back pain (8.6%).

Do you think the lockdown has impacted the mental health of your child?



Do you think your child engages in enough amount of physical exercise?



61.5% think that the lockdown has impacted their child's mental health.

P55: "Most of the kids might be under stress or may have been impacted mentally because they are feeling left alone".

P90: "It is not possible to supervise them all the time...We need methods to keep children engaged in a healthy way".

During pandemic, some parents inculcated new hobbies and interests in their children.

P127: "While COVID isn't a good experience for any one of us, it has definitely taught a lot of things to every age group and has made people think "Out of The Box". Sitting inside and playing video games and on mobile phones or watching online platforms were easy options; but not the only options to keep yourself engaged."

By participating in this survey, the parents are now more observant and are sensitized about the increased amount of screen time by their children, be it online education or playing games or social media. From the perspective of parents.

P47: "It helped me to analyse the change in my child."

P129: "By answering this survey I realized how much time my child spends on screen time."

P141: "It's an eye opening for a parent that along with physical health, mental health should also be taken into consideration."

While appreciating the relevance of this research study in the current situation, parents perceived the benefit of participation as:

P87: "We look forward to it creating a right impact on our lifestyle!"

While unanimously appreciating the need for physical activity for their children, some parents expressed the need for more information and guidance in this regard.

P75: "Kindly organize a webinar to create awareness of all the side effects of online school to children"

P114: "There should be some measures taken by the government for mediation for children."

DISCUSSION

In this sample of school-going children, there were significant perceived declines in children's PA as reported by parents. A different pattern in terms of location of PA, type of PA along with other variables may represent a unique trend observed during the COVID-19 pandemic.

One of the most unique findings to come out of the study could be the percentage of children who had begun using remote and streaming services to engage in PA during the COVID-19 period representing a significant departure from how children were typically accessing organized PA prior to the pandemic.

Parents unanimously mentioned that school closure has been the major factor and has affected the physical activities of their child. Studies conducted prior to lockdown have identified that children are engaged more in sedentary time and reduced levels of PA on weekends as compared to weekdays. Children tend to put-on weight during holidays, especially those who are not enrolled in recreational activities and summer camps. [5] It can be hypothesized that there may be vast repercussions on children's overall physical health during the prolonged lockdown situation because of school closure lasting a year or more. With a rise in inactivity and disrupted sleep schedules/quality in children during the COVID-19 lockdown there have been disrupted behaviour across 24-hour day. In a national survey, only 4.8% of children were meeting combined movement behaviour guidelines during COVID-19 restrictions. [12]

Also, various mental health issues were identified. Parents reported that in online education the kids are losing concentration and focus. Because of the limitations in physical activity, the children are unable to channel their energy which could have created an adverse impact on the psychological state of the child. Confinement measures and changes in daily routine have shown to negatively affect parents' psychological dimensions, thus exposing children to a significant risk for their well-being and psychological maladjustments.

We acknowledge several limitations of this study. The results of this survey are specific to the population of school going children. The results are not applicable to children with physical or mental disabilities who may have had a different experience during the lockdown. Family structure and dynamics such as number of siblings, nuclear or joint family, parents' working status, etc. will have an influence on the child's behaviour and was not analysed in the present study. This study did not consider the effects of a child's dietary habits and nutrition on their physical and mental health.

Asking parents to report on children's PA and sedentary behaviour was necessary for the youngest children in the

sample (e.g., ages 5–7 years) who may not yet have the reading or cognitive capabilities to reliably report for themselves. However, parents may be less aware of the amount of time their middle-school children (e.g., ages 9–12) are spending on activities even when both children and parents may be at home together due to the pandemic. Along these same lines, asking parents to compare their children's late-COVID-19 (Jan–Feb 2021) PA and sedentary behaviour levels to their pre-COVID-19 (February 2020) levels may introduce some reporting error and biases because most school-aged children were not in their parents' presence during school hours in February 2020. Also, some parents with essential jobs working out of the home and parents who were working full-time at home during the early-COVID-19 period may not have an accurate representation of how much time their children were spending in each type of activity. Furthermore, parents' levels of physical activity were not assessed, so it cannot be determined how children may be role-modelling their parents. Lastly, the survey respondents were mainly more highly educated parents with higher household income levels. Findings may not extend to children whose parents have not attained a college degree or who reside in lower income households. It will be useful for future research on the impact of COVID-19 on children's PA and sedentary behaviour to collect data from a more diverse sample and among lower income families.

MANAGERIAL IMPLICATIONS FOR THEORY AND PRACTICE

The immediate collateral effects of the COVID-19 outbreak on children that may arise indirectly because of lockdown are affirmed by this survey. These detrimental consequences and downstream implications should not be ignored.

Considering children, the upcoming risk accounts for suggesting specific modifications and types of activities to ensure maintaining health, at least partly, by physiological balance and physical fitness and avoid the occurrence of new unhealthy habits or routines that young people could retain after lockdown. [14] An understanding of the issues is essential for those who hope to advocate effectively for children to prevent irreversible damage to the adults of the future.

Overall, this study results emphasize the need for urgent attention and directed efforts to enable parents and

children to both adequately respond to the pandemic and ensure optimum health of the children. Program and policy strategies should be directed towards developing prevention programs to attenuate the indirect impact of COVID-19 pandemic on children's wellbeing and to avoid persistent lifelong changes in behaviour extending beyond the duration of the COVID-19 lockdown. Public health measures must therefore balance the effects of pandemic restrictions against the risk of negative health effects in children.

Using the socio-ecological model, policymakers, educators, parents/guardians, healthcare providers, and community organizations can identify and implement simple, enjoyable, and creative strategies to increase physical activity, decrease sedentary behaviour, and promote optimal sleep in order to preserve health in children and adolescents during the COVID-19 pandemic and to mitigate potential harm during future pandemic. Financial resources can be directed towards health promotion campaigns/advertisements via social media.

Parents should be sensitized about the physical and mental needs of their children which are age appropriate, and they should be equipped with strategies which will negate these damaging effects. According to WHO recommendations, children and adolescents aged 5 to 17 years should engage in at least 60 minutes of moderate to vigorous intensity physical activity every day for example, aerobic exercises like jumping, spot running or dancing. Keeping this in mind, parents can devise a daily routine plan for their child and incorporate enough opportunities to play, read, rest and engage in physical activity.

School authorities can reinforce the need for physical activity such as Zumba and aerobics and incorporate them during online classes. This can bring a sense of regularity in the child. Teachers also have a role to play in the promotion of mental health. They can teach simple exercises, including deep breathing, muscle relaxation, and positive self-talk. They can conduct creative online academic and non-academic sessions by making their classes more interactive, engaging students in the form of quizzes, puzzles, small competitions to break the monotony of the online classes. They can ask the students to keep their videos on and make correct their postures hence keeping them alert.

In summary, this study explores the physical and psychological effects, emphasizes the role of parenting

and education, and guides to offer practical advice about how best to provide support as a healthcare professional.

IMPLICATIONS FOR RESEARCH

Interventional studies targeting physical activity and mental health could be conducted in children to determine if the negative impacts of lockdown could be nullified. The study can be extended to rural areas.

CONCLUSION

This study provides preliminary evidence in the wake of the COVID-19 pandemic and has shown that social restrictions to contain the spread of the virus have disrupted behaviours across the 24-hours day with decrease in PA, increase in sedentary behaviour, and disrupted sleep schedules/sleep quality in children. The confinement measures can have indirect, downstream implications; and furthermore, these effects could have long term repercussions. The parents of the children are not fully aware of the changes occurring in their child and need professional support and guidance.

ACKNOWLEDGMENT:

We acknowledge the valuable participation of the parents, and the kind support of the principal and research committee of our institute for the conduct of the study.

FUNDING: The authors have not received any kind of financial support in the conduct or publication of this research.

CONFLICTS OF INTEREST: The authors declare that they have no conflict of interests.

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