



Effect of the COVID-19 pandemic, global lockdown restrictions and school closure on the physical activity, sedentary behavior and sleep pattern of children and adolescents in South India

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ABSTRACT

This study aims to evaluate the effect of the COVID-19 pandemic and the subsequent lockdown restrictions and school shut down on the physical activity, sedentary and sleep behavior of children and adolescents. This cross-sectional study was conducted at a school in Chennai, Tamil Nadu, South India, where students were randomly sampled. It was performed using a questionnaire that was created at Saveetha Medical College and Hospital, and was validated by a Pediatrician and a Psychiatrist, at the same hospital. The questionnaire consisted of questions in 3 categories: Physical activity, Sedentary behavior and Sleep pattern, of children and adolescents, before and during the COVID-19 pandemic.

450 students across the age group of 3 to 19 years were randomly selected and data was obtained from after due consent. The physical activity levels were found to be lowered during the lockdown as compared to the pre-pandemic levels. This reduced physical activity in

children and adolescents has many disadvantages such as increased risk of developing cardiovascular diseases along with stunted growth and development. It can also end up in obesity, diabetes, systemic hypertension, osteoporosis and also stress and anxiety in the long run. The sedentary behavior saw a rise during the lockdown, with increased number of hours spent sitting for online classes, watching TV to pass time, and simply lounging idly on the couch. The screen time also saw a considerable rise during the pandemic. The sleep pattern was altered during the lockdown, with bedtimes and wake up times being delayed. The fear surrounding the disease and future resulted in disturbed sleep and nightmares among the kids. Lethargy and fatigue increased during the pandemic, too. Using the data obtained, this study also recommends certain effective methods for ensuring adequate physical activity, reducing the sedentary behavior and improving the sleep quality, during the lockdown. This new normal of continuing our day to day activities during a global pandemic with stringent lockdown measures, although may seem difficult and impossible, is something that can be achieved and practiced. Ensuring that we remain physically fit, move around adequately and have a good night's sleep is as important as protecting ourselves from the disease, especially in the long run.

Keywords: COVID-19 pandemic; Global lockdown; School shut down; Physical activity; Regular activity; Cycling; Brisk walking; Sedentary behavior; Watching TV; Online classes; Screen time; Lounging; Altered Sleep pattern; Sleep quality and quantity; Delayed bedtime; Delayed wakeup time; Tiredness; Children and Adolescents; Growth and development; Risk of cardiovascular diseases; Lifestyle changes; Ensuring good quality of life

• INTRODUCTION

The year 2020 will forever be infamous for how it turned over the lives of many sadly even for how it took some. The word, 'COVID-19' has become a household name, for all the negative reasons, instilling fear and dread in a lot of people. Even though it's been more than two years since the announcement of corona virus disease being a pandemic, on March 11, 2020, the effect of the disease can be traced till date. On March 24, 2020, India, as a nation, went into lockdown, along with several other countries across the world, for 21 days, in order to reduce the spread of COVID-19. It was said that even the first-world countries, with the best medical facilities could not contain the virus, and according to the experiences from other nations and health experts, social distancing was the only option to mitigate it. The social distancing guidelines from WHO, were simple, keep a 6-feet physical distance from others, even if they don't appear to be sick. Bringing this into action seemed to be rather difficult task, given how India's population of 1.3 billion people had to be coerced to stay indoors and how some nonconformists amongst the community who had to be micromanaged into abiding the laws released by the government on the wearing of masks, sanitizing, lockdown timings and social distancing. Although the outcome of these stringent measures to tame the disease ended favorably in terms of reduction in the number of cases and the mortality rates, throughout the world, it ended up damaging the psyche, physical and emotional well being of the people involved. Be it due to working as a corona warrior on the frontlines or staying put at home behind closed doors, the mental and physical toll that it took on the general public has been so profound and immense, that people still haven't recovered from its aftermath.

Among the various setbacks that COVID-19 pandemic and the global lockdown brought about, this research article discusses in detail about its impact on physical activity, sedentary

behavior and sleep pattern, especially in children and adolescents, mainly due to school closures that resulted in reduced social interactions and increased screen time.

Effect of the covid-19 pandemic, lockdown and school closures on physical activity of children and adolescents:

Regular physical activity promotes growth and development and has proven beneficial for physical, mental and psychosocial health, which in turn contributes to learning. Physical activity, specifically reduces the risk of developing cardiovascular diseases, osteoporosis, obesity, diabetes mellitus and systemic hypertension. It is also known to reduce stress, anxiety and depression. In children and adolescents, especially, regular exercise, outdoor games and activities improve muscle and bone strength, flexibility, social behaviors, goal orientation, sportsmanship, as well as mental health and general well-being. After the advent of COVID-19, exercise rates reduced tremendously from the required 60 minutes of moderate-to-vigorous physical activity for a minimum of three times a week, to hardly 15 minutes of exercise for less than two times a week. Social distancing guidelines required schools to shutdown and operate at online platforms. This made it difficult for school going children to physically interact with kids their age, leaving the idea of playing outdoor games with their friends, out of the question. Compared to urban areas, the rural counterpart allowed for more outdoor exposure all the while following the physical distancing guidelines. On top of all this, the general fear of the children contracting the deadly virus, made the parents be more cautious of keeping their kids indoors, that resulted in the deterioration of their physical health.

Effect of the covid-19 pandemic, lockdown and school closures on sedentary behavior of children and adolescents:

Sedentary behavior usually refers to the act of being seated but more generally involves any low-energy expenditures such as watching television, reading, and automobile transport. It is an established risk factor for various cardiovascular diseases. A crucial point to be noted is that, excessive sedentary behavior overpowers the benefits of staying physically active on a regular basis. With the onset of online school classes, due to the pandemic and global lockdown, the screen time has increased by a huge margin amongst the students. Increased screen time requires longer hours of sitting in front of devices, which in turn multiplies the deleterious effects of sedentary lifestyle on the general well-being of kids and adolescents by several folds. The fact that, school closures and social distancing resulted in additional hours spent at home, where the child or adolescent ended up lazying on a couch or sitting idly in front of a computer, simple because they had no where else to be, that was safe from the possibility of viral infection, made it a tough situation to handle.

When the times got hard, be it socially, emotionally or financially during the pandemic, distracting one's self became the easier option. Tuning out the world, by watching television, streaming videos online, or by playing video games with friends over the internet, although proving useful for children, ended up increasing the number of hours they sit still. While trying to avoid crowded places, parents opted for making their children travel individually by automobiles, which in turn increased their sedentary levels, adding another nail to the coffin. To top it all off, online classes resulted in an absolute stationary environment for more than 6 to 8 hours a day, establishing sedentary lifestyle practices, even amongst those who were physically active and non-sedentary, prior to the pandemic.

Effect of the covid-19 pandemic, lockdown and school closures on sleep pattern of children and adolescents:

Sleep is one of the things that makes us forget the weariness of the current day, and replenishes us for the next. Especially in children and teens, a good sleep of about 9 to 12 hours, is required for it to deliver the necessary health benefits. A good night's sleep can boost the immune system and make vaccines more effective, which is currently the topic of discussion almost everywhere. Proper sleep patterns can help prevent weight gain and also plays a pivotal role in weight loss strategies. A tight-knit sleep schedule results in increased productivity, better mood, and improved memory, which is even more important in school going kids and adolescents.

With the onslaught of emotions that the pandemic and the global lockdown has brought upon the general public, fear of contracting the disease along with uncertainty of the future, tops the list. This resulted in decreased quality of sleep among many. With schools being shut down and the commute to and from school not necessary during the lockdown period, children and adolescents had some extra time on their hands, which resulted in later than usual bed times and delayed morning wake up times. Be it the post-lunch session or the recess in between online classes, tiny naps were taken in between by the students, which amounted to altered sleep patterns at night, even reduced the sleep quality in some. The physical distancing from near and dear ones due to the school closures and the global lockdown, was to an extent compensated by spending more time on internet video calls, texting, and various social media platforms, all that could mean only one thing, 'more screen time, less sleep'.

Therefore, physical distancing, school shutdown, and a global lockdown, although proved tremendously useful in bringing down the number of COVID cases and the disease transmission rate, the tiny factors such as decreased physical activity, increased sedentary lifestyle and altered sleep patterns, which can easily be overlooked as being not being very significant, can prove to be detrimental, in the long run, if left ignored and unattended.

Many scholars and researchers suggest that incorporating a socio-ecological model, that combines measures to ensure adequate physical activity, less of a sedentary lifestyle and a good quality sleep-wake cycle, could be the missing jigsaw puzzle piece that would give us a containment of the deadly disease, as well as maintaining a good overall health of the public. However, not much satisfactory data is available to substantiate the same.

Therefore, this study aims at proving the above said theory correct, by evaluating the effect of COVID-19 pandemic, complete lockdown and school closure on children and adolescent's physical activity, sedentary lifestyle and sleep habits, and thereby creating a model that helps overcome these hurdles while smoothly tackling a deadly virus.

A strong link amongst the four would assure that, the pandemic and lockdown has indeed resulted in decreased physical activity, increased sedentary behavior and disturbed sleep patterns on children and adolescents.

2. MATERIALS & METHODS

2.1. Physical activity, Sedentary behavior and Sleep pattern questionnaire:

This questionnaire was created at Saveetha Medical College and Hospital, and was validated by two Doctors, one being a Professor from the Department of Paediatrics and the other an Associate Professor from the Department of Psychiatry, at the same hospital.

The questionnaire consisted of questions in 3 categories: Physical activity, Sedentary behavior and Sleep pattern, of children and adolescents, before and after the COVID-19 pandemic.

2.1.1. Physical activity:

This category consists of 10 questions, with question numbers 4,5,8,9 and 10, being subdivided into 'a' and 'b'. It collects information based on the following:

- The time spent doing different types of activity in a week, that could be either 'moderate-intensity' activities or 'vigorous-intensity' activities
- The usual way of travel to and from places, and the time spent on the same
- Fitness, exercise, yoga, sports and leisure activities and the time spent on each of them

2.1.2. Sedentary behavior:

This category consists of 6 individual questions, and is based on:

- Number of hours of sitting or reclining at home or at work
- Mode of commuting to work by automobile, and time taken by it
- Time spent on watching television

Note that none of the above should involve time spent on naps or sleep

2.1.3. Sleep pattern:

This category consists of 10 questions, with question number 10 alone being subdivided into 'a' and 'b'. It collects data based on the following:

- Usual number of hours of quality sleep at night and any changes in recent times
- Bedtime and morning wake up time, and any delay in the two, if any
- Feeling tired and restless, before and after sleep
- Disturbed sleep, in the form of waking up in the middle of the night, or snoring
- Number of naps taken throughout the day, and the time spent on them

2.2. Participants

450 students belonging to the age group of 3 to 19 years, at a school in Chennai, Tamil Nadu, South India, were selected.

2.3. Consent Procedures

This study was examined and approved by IEC.

The study involved participants as a component of a health promotion initiative. This was explained to the Directors, Teachers, and students of the institution. All participants received informational sheets outlining the objectives, approaches, and process of the study. Prior to their inclusion in the study, all students and the parents of those who applied provided written informed permission.

Participants received assurances that their answers and information would be kept private and never revealed.

2.4. Procedure:

The 'Physical activity, Sedentary behavior and Sleep pattern' questionnaire was distributed among the participants and their responses were collected. Each domain of the data was cleaned individually and recorded. The results were tabulated and analyzed using the latest version of IBM SPSS software.

2.5. Study design:

This cross-sectional study was conducted with the help of a validated 3-domain questionnaire on Physical activity, Sedentary behavior and Sleep pattern.

2.5.1. Sampling Method and Sample size:

This study uses simple random sampling method, for a sample size of 450.

2.5.2. Study setting:

This study was conducted at a school in Chennai, Tamil Nadu, South India, where students were randomly sampled.

2.5.3. Inclusion criteria:

This study included students belonging to the age group of 3 to 19 years, who consented to participating in the study.

2.5.4. Exclusion criteria:

This study excluded students who were unavailable at the time of data collection and those who did not consent to taking part in the survey.

2.6. Potential risks& benefits:

Risks are practically nil, except sparing their valuable time. Study data and confidentiality will have to be maintained while using the information for scientific purpose

2.7. Expected outcome:

Compared to the pre-pandemic and pre-lockdown levels, the physical activity would be reduced during the lockdown. Whereas, the sedentary behavior increases and the sleep pattern gets altered, during the lockdown.

3. RESULTS:

Table 1 represents demographic characteristics of the participants. The ages of the students are divided into the following groups: 3 to 6 years (10.7%), 7 to 10 years (16.0%), 11 to 14 years (21.3%) and 15 to 19 years (52.0%). It has been done so, in order to analyze the effect of the lockdown restrictions according to each participant's schooling level, i.e., at the kindergarten, primary, middle, secondary and higher secondary levels, respectively.

Table 1: Demographic characteristics of participants

Demographics	n (%)
Age group (in years)	
3-6	48 (10.7)
7-10	72 (16.0)
11-14	96 (21.3)
15-19	234 (52.0)
Sex	
Female	225 (50)
Male	225 (50)

■ Fig. 1: Age distribution

Table 2 represents the Physical Activity characteristics before and during lockdown. The percentage of participants spending adequate time on outdoor activities before lockdown was 53.1%, it came down to 18.9% during lockdown. Similarly, the frequency of cycling to and from places before lockdown and during lockdown was found out to be 69.3 % and 13.6% respectively. 42.0% of the participants used the stairs more than elevators, whereas during lockdown, only 13.6% did the same. About 43.6% of the students regularly accessed the gym facilities before the COVID-19 restrictions. After the establishment of COVID-19 lockdown restrictions, the percentage of students that ensured regular exercise dropped down to 20.3% : by using dumb bells (5.8%), by doing Zumba/Yoga (8.7%) and by attending online gym sessions (5.8%). Brisk walking of at least 30 to 45 minutes per day was practiced by 41.6% of participants pre-lockdown and only by 22.2% of participants during lockdown. Extracurricular classes (i.e., dancing, karate, tennis, etc.) were undertaken by 60.7% of school-going children and adolescents, this hit a significant low level of 18.9% during lockdown.

Table 2: Physical Activity characteristics before and during lockdown

Physical Activity	Before lockdown n (%)	During lockdown n (%)	Mean Differences	Deviation	Squared Deviation
Spending adequate time on outdoor activities	239 (53.1)	85 (18.9)	-154	-2	4
Cycling to and from places	312 (69.3)	61 (13.6)	-251	-99	9801
Using the stairs more than elevators	189 (42.0)	61 (13.6)	-127	25	625
Regularly accessed the gym facilities before lockdown	196 (43.6)	—	—	—	—
Ensuring regular exercise during the lockdown	—	26 (5.8)	-105	47	2209
By using dumb bells	—	39 (8.7)			
Zumba/yoga	—	26 (5.8)			
Online gym sessions	—				
Brisk walking	187 (41.6)	100 (22.2)	-87	65	4225
Attending extracurricular classes (i.e, dancing, karate, tennis, etc.)	273 (60.7)	85 (18.9)	-188	-36	1296

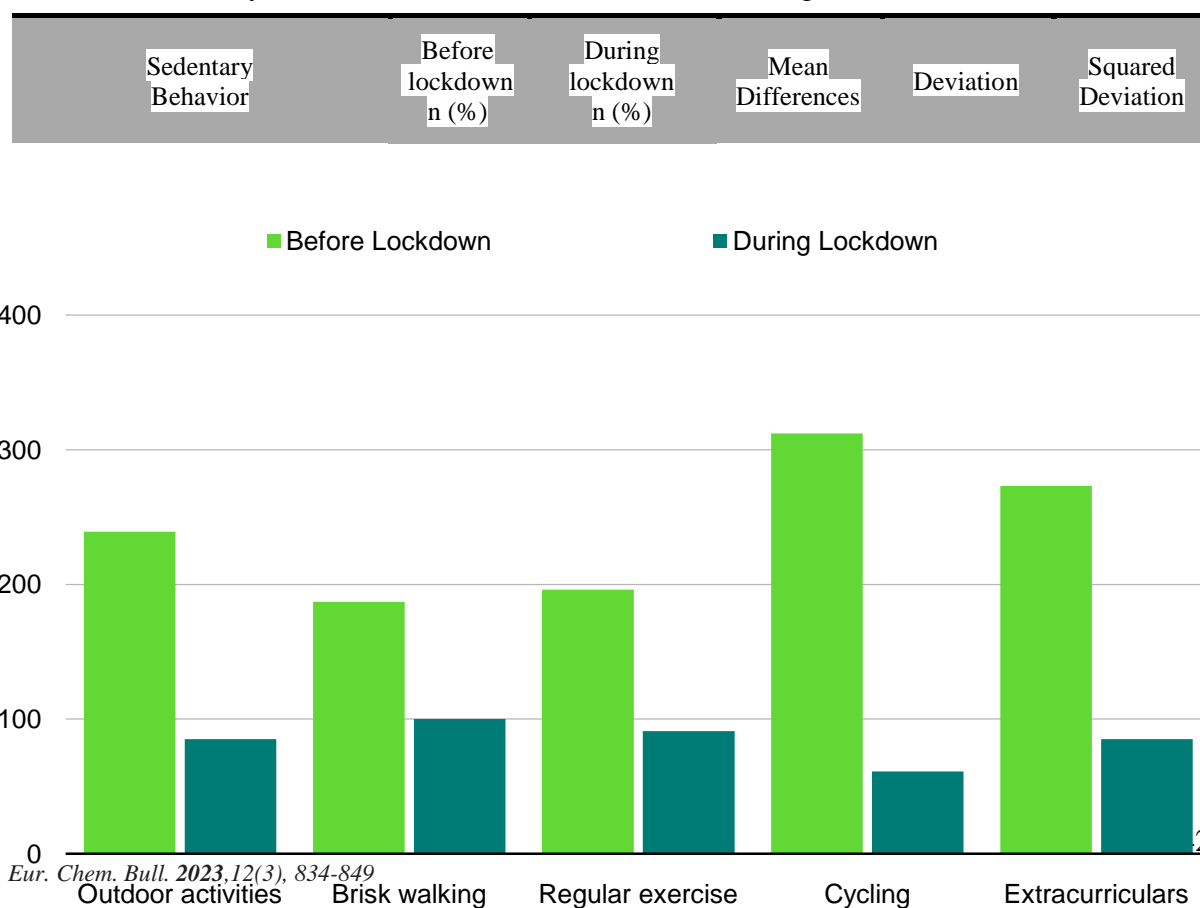
Table 3 represents the Paired T-test values for the Physical Activity data from Table 2. The Mean value is -152, t value is -6.18 and the p value is 0.000162 (significant <0.05).

Table 3: Physical Activity - Paired T-test values

Mean value	-152
t value	-6.18
p value (Significant level)	0.000162 (<0.05)

Table 4 represents the Sedentary Behavior characteristics before and during lockdown. The duration of watching television, went from 1 to 2 hours a day, before lockdown, to more than 4 hours a day, during lockdown. thus, the 'Watching TV' entity contributing to sedentary behavior, had an increase in the percentage of participants from 10.7% to 42.2%. The screen time went from 0 to 2 hours a day, among 32.0% of participants, mostly, from usage of mobile phones and social media, pre-lockdown, to 6 to 8 hours a day, among 89.3% of participants, owing to the increased duration of online classes during lockdown. The students admitted to leisurely sitting at home for lesser hours before the lockdown (10.7%), as compared to lounging on the couch for longer hours during the lockdown (89.3%).

Table 4: Sedentary Behavior characteristics before and during lockdown



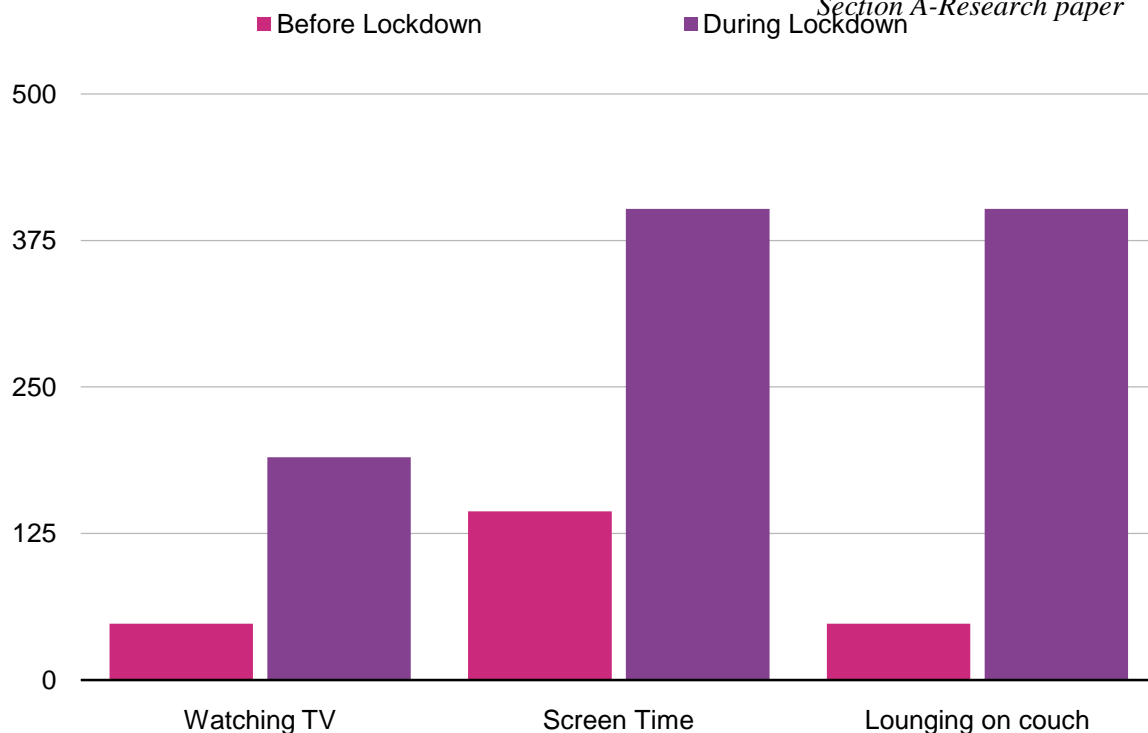


Table 4: Sedentary Behavior characteristics before and during lockdown

Watching TV

	48 (10.7)	190 (42.2)	142	-109.3	11946.5
Online classes and Screen time	144 (32.0)	402 (89.3)	258	6.7	44.89
Lounging on couch for longer hours	48 (10.7)	402 (89.3)	354	102.7	10547.3

Table 5 represents the Paired T-test values for the Sedentary Behavior data from Table 4. The Mean value comes up to be 251.33, t value is 5.73 and p value is 0.00459 (significant <0.05).

Table 5: Sedentary Behavior - Paired T-test values

Table 5: Sedentary Behavior - Paired T-test values

Mean value	251.33
t value	5.73
p value (Significant level)	0.00459 (<0.05)

Table 6 represents the Altered Sleep Pattern characteristics before and during lockdown. Inadequate amount of sleep (3 to 4 hours of sleep or less than 2 hours of sleep at night) was reported among 2.9% of participants before lockdown and among 34.7% of participants during lockdown. Number of naps taken and their duration, saw a spike from 1 to 2 naps per day, with a total duration of 5 to 15 minutes, before lockdown, as reported by 11.6% of participants, to about 2 to 3 hours of naps per day, during lockdown, in among 62.9% of participants. Bedtime that was delayed mostly by 30 to 60 minutes, before lockdown, was seen in 10.7% of children and adolescents attending school, who are part of the study, as compared to the delayed bedtime by more than 2 hours, during lockdown, seen in 72% of the participants. Similarly, delays morning wake up time before lockdown (delayed by 10 to 20 minutes mostly), were reported in about 10.7% of participants, and during lockdown (delayed by more than 2 hours), in among 72% of participants. Out of the total participants, 32.0% agreed to feeling tired throughout the day, before lockdown, and this percentage increased to 54.7% during lockdown.

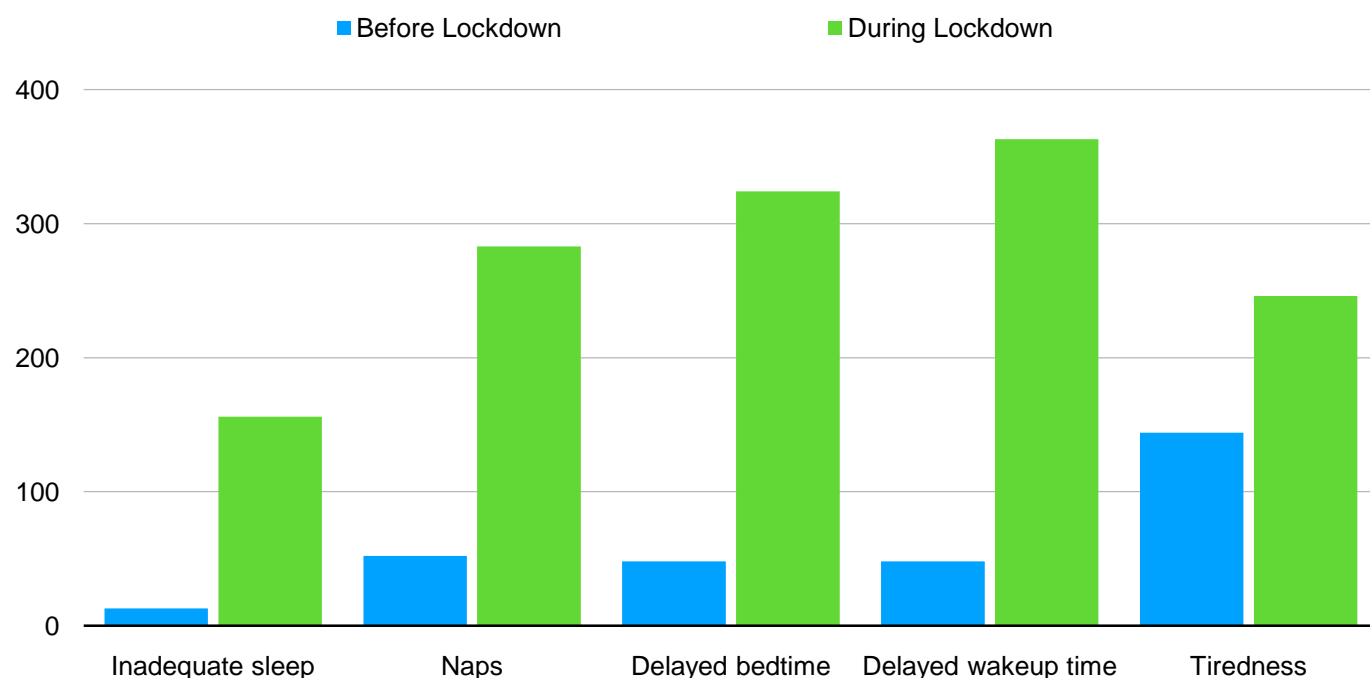
Table 6: Altered Sleep Pattern characteristics before and during lockdown

Altered Sleep Pattern	Before lockdown n (%)	During lockdown n (%)	Mean Differences	Deviation	Squared Deviation
Inadequate amount of sleep	13 (2.9)	156 (34.7)	143	-70.4	4956.16
Increased number of naps throughout the day	52 (11.6)	283 (62.9)	231	17.6	309.76
Delayed bedtime	48 (10.7)	324 (72.0)	276	62.6	3918.76
Delayed morning wake up time	48 (10.7)	363 (80.7)	315	101.6	10322.6

Table 6: Altered Sleep Pattern characteristics before and during lockdown

Feeling tired throughout the day	144 (32.0)	246 (54.7)	102	-111.4	12409.9
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Table 7 represents the Paired T-test values for the Altered Sleep Pattern data from Table 6.



The Mean value comes up to be 213.4, t value is 5.34 and p value is 0.00592 (significant <0.05).

Table 7: Altered Sleep Pattern - Paired T-test values

Mean value	213.4
t value	5.34
p value (Significant level)	0.00592 (<0.05)

To sum the above results, during the COVID-19 pandemic, due to social distancing and various lockdown restrictions, physical activity saw a decline, a rise in the sedentary behavior

and alterations in the sleep pattern, among children and adolescents who took part in this study.

4. DISCUSSION:

The year 2020 was supposed to be a milestone year, with the UN and the WHO having various goals to be achieved and plans to be executed that year. Not only was the 'Vision 2020' hope disrupted, but the present and future of the general public became blurry, with respect to their health and work conditions. By the time, the news of COVID-19 unraveled completely to the entire world, much damage had already been done. With the sharp increase in death and mortality rates, governments of various countries decided to establish strict social distancing and lockdown restrictions, in an attempt to contain the virus, that was spreading ever so rapidly and taking the lives of many along its course. Thankfully, the death rates started falling down and the government was able to prevent the country from deteriorating further. Although this success came at a cost. Prolonged lockdown entailed school and office closures, shutdown of public places like parks and gyms, along with rigorous social distancing rules, that greatly affected the physical health, emotional stability and mental sanity of people belonging to various age groups and social standing.

This study mainly focuses on the effect the COVID-19 pandemic and its subsequent stringent lockdown measures had on the children and adolescents, who were forced to stay at home, away from their friends and family and attend school classes online. As growing children need to be out in the open for their play time and their interactions with kids their age, the lockdown restrictions proved to be detrimental for their overall physical, mental and emotional well being.

According to WHO, children and adolescents require a minimum of 45 minutes of outdoor play or exercise per day, to ensure proper muscle and bone development. This was drastically affected during the pandemic. Being locked behind doors, they were unable to meet their near and dear ones outside and subsequently not able to play games like cricket, basketball, football, or even simply ride the swings and play catch with their friends at the local parks. With the closure of schools and commencement of online classes, the little bit of physical activity that the students got while traveling to school also got cut. Similarly, attending extracurricular classes like dance, karate, tennis, etc., also became a problem, owing to the lockdown. Brisk walking and cycling to and from places, also saw a decline during the pandemic. This reduced physical activity in children and adolescents has many disadvantages such as increased risk of developing cardiovascular diseases along with stunted growth and development. It can also end up in obesity, diabetes, systemic hypertension, osteoporosis and also stress and anxiety in the long run.

A study conducted on 2426 children and adolescents from five schools in Shanghai, China, revealed that the median time spent in Physical Activity decreased drastically from 540 min/week (before the pandemic) to 105 min/week (during the pandemic).⁵ A survey of Spanish children showed that preschoolers had a decrease in physical activity with a mean difference of -43.3 min/day.⁶ In a survey of U.S children, about 36% of parents reported that their child had done much less physical activity during the lockdown as compared to pre-pandemic levels.³ From a national survey of Canadian children and youth, it was found out that, only 4.8% of children and 0.6% of youth were meeting combined movement behavior guidelines during COVID-19 restrictions.¹⁰

In this study, the percentage of participants spending adequate time on outdoor activities before lockdown was 53.1%, it came down to 18.9% during lockdown.

The sedentary behavior saw a rise during the lockdown, with increased number of hours spent sitting for online classes, watching TV to pass time, and simply lounging idly on the couch. The screen time also saw a considerable rise during the pandemic.

A research conducted on 2426 children and adolescents from five schools in Shanghai, China, revealed that the screen time increased considerably to an average of 30 hours per week, during the pandemic.⁵ A survey of Spanish children showed that preschoolers had an increase in sedentary time, with a mean difference of 50.2 min/day.⁶ In a survey of U.S children, it was revealed that children engaged in an average of 91.1 minutes of sitting for school related activities and 398.5 minutes of sitting for leisure activity.³

In this study, the students admitted to leisurely sitting at home for lesser hours before the lockdown (10.7%), as compared to lounging on the couch for longer hours during the lockdown (89.3%).

The sleep pattern was altered during the lockdown, with bedtimes and wake up times being delayed. The fear surrounding the disease and future resulted in disturbed sleep and nightmares among the kids. Lethargy and fatigue increased during the pandemic, too.

From a research conducted on 2365 Australian parents, 1 in 6 parents revealed that their child's sleep was a problem.⁴ A survey of Spanish children showed that preschoolers had reduced sleep efficiency, with a mean difference of -2.09%.⁶ A cross sectional survey by Guerrero et al, revealed that, 30.1% of children aged 5-13 years and 27.9% of youth aged 14-17 years, did not meet sleep duration recommendations, and had longer sleeping hours.⁷ According to an online survey by Mitra et al, sleep duration increased in 41.4% of participants, and children with decreased outdoor activities had increased sleeping time and decreased sleep quality.¹¹ A survey on school going adolescents and young adults in China, showed that 55.4% of the participants (4283/7736), had sleep disturbances.¹²

In this study, inadequate amount of sleep (3 to 4 hours of sleep or less than 2 hours of sleep at night) was reported among 2.9% of participants before lockdown and among 34.7% of participants during lockdown. Out of the total participants, 32.0% agreed to feeling tired throughout the day, before lockdown, and this percentage increased to 54.7% during lockdown.

Plan for the future: Effective methods for ensuring adequate physical activity, reducing the sedentary behavior and improving the sleep quality, can be formulated at the local and international levels, with inputs from each and every individual. For example, at certain times of the day, a neighborhood colony can ensure physical exercise by gathering members of each household and encouraging them to take part in yoga or active zumba sessions from the comfort of their balconies or their front doorstep. Social media can be used positively for indulging in fitness challenges. At the household level, families can have dance-off nights or scavenger hunts, that will bring up not only their movement levels, but also their mood.

With regard to sedentary behavior, parents and schools, can encourage students to take a 5 minute break that involves standing, walking or moving around the house, in between the online school sessions. Watering the plants, playing with pet animals, taking up cooking or baking, playing charades, or even cleaning their rooms at home can help break the sedentary cycle.

For ensuring good quality and quantity of sleep, parents can establish a 'no phones/computers/video games before bedtime' for their kids. Having an open conversation regarding the pandemic and reassuring their feelings of protection can help ease the fear and anxiety among the children, and can guarantee sleep with no nightmares and interruptions.

Therefore, this new normal of continuing our day to day activities even during a global pandemic or a lockdown, although may seem difficult and impossible, is something that can be achieved and practiced. Ensuring that we remain physically fit, move around adequately and have a good night's sleep is as important as protecting ourselves from the disease, especially in the long run. It is thus advised that we incorporate a change in lifestyle adhering with the current pandemic and lockdown guidelines, that both protects us from the deadly coronavirus, and also ensures a quality living, that we enjoy and appreciate.

5. CONCLUSION:

Based on the statistical analysis done, it has been established that during the COVID-19 pandemic, due to stringent lockdown measures, the physical activity levels reduced significantly. Whereas, the sedentary behavior characteristic increased and the sleep pattern got altered, during the lockdown. Therefore, lifestyle modifications are needed in order to keep up with the new normal, wherein we get to protect ourselves from the deadly virus, as well as take care of our physical, mental and emotional health, thereby ensuring good quality of life.

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