

Impact of Covid -19 Pandemic on the Physical Activity of 5-12 Years Aged Children

PROJECT SUBMITTED TOWARDS FULLFILMENT OF THE
REQUIREMENT FOR THE DEGREE BACHELORS OF PHYSIOTHERAPY.

SUBMITTED BY:

MISS. POOJA KISAN SHARMA

UNDER THE GUIDANCE OF:

DR. BHAGYASHRI BADVE

SUBMITTED TO:

MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES,
NASHIK



LSFPEFS's COLLEGE OF PHYSIOTHERAPY,
NIGDI, PUNE.

LATE SHREE FAKIRBHAI PANSARE EDUCATION FOUNDATION'S COLLEGE OF
PHYSIOTHERAPY.



CERTIFICATE

**THIS IS TO CERTIFY THAT MISS POOJA SHARMA (INTERN) HAS
SUCCESSFULLY COMPLETED HER PROJECT ON**

**“IMPACT OF COVID -19 PANDEMIC ON THE PHYSICAL ACTIVITY OF
5-12 YEARS AGED CHILDREN.”**

**PROJECT SUBMITTED TOWARDS FULFILLMENT OF THE REQUIREMENT FOR
THE DEGREE BACHELORS OF PHYSIOTHERAPY**

UNDER

MAHARASHTRA UNIVERSITY OF HEALTH SCIENCE, NASHIK.

**DR. VARSHA KULKARNI
PRINCIPAL**

ACKNOWLEDEMENT

In the accomplishment of this project successfully, many people have lent their guidance and support, and it would only be fitting to acknowledge the efforts that they have made knowingly and unknowingly.

I thank God and my parents for holding me up for being my beacons of light through the tough times. I also thank my professors and classmates whose support meant a lot.

I am extremely thankful to DR. ZOYA PANSARE, Director, Late Shree Fakirbhai Pansare Education Foundation's College of Physiotherapy, for giving us the opportunity as well as permission to conduct this project.

I am deeply indebted to DR. BHAGYASHRI BADVE, Project Guide and Assistant Professor of Community Physiotherapy, Late Shree Fakirbhai Pansare Education Foundation's College of Physiotherapy, Pune for their invaluable guidance and support, who has contributed her expertise in bringing out the best of me in this piece of project work.

I am extremely thankful to DR. VARSHA KULKARNI, Principal, Late Shree Fakirbhai Pansare Education Foundation's College of Physiotherapy, for giving us the opportunity as well as permission to conduct this project.

I offer my regard to all those who supported me in any respect during the completion of the study. Last but not the least, I express my sincere thanks to all the subjects who participated and gave their full co-operation for the study.

POOJA KISAN SHARMA
LATE SHREE FAKIRBHAI PANSARE
EDUCAION FOUNDATION'S
COLLEGE OFPHYSIOTHERAPY

INDEX

SR.NO	CONTENTS	PAGE NO
1.	INTRODUCTION	1842
1.1	NEED OF STUDY	1843
1.2	AIM AND OBJECTIVE	1843
1.3	HYPOTHESIS AND NULL HYPOTHESIS	1843
1.4	REASEARCH QUESTION	1843
2.	REVIEW OF LITERATURE	1844
3.	METHODOLOGY	1846
3.1	INCLUSION AND EXCLUSION CRITERIA	1846
3.2	OUTCOME MEASURES	1846
3.3	PROCEDURE	1846
4.	DATA ANALYSIS AND INTERPRETATION	1847
5.	RESULT	1853
6.	DISCUSSION	1854
7.	CONCLUSION	1856
8.	LIMITATIONS OF THE STUDY	1857
9.	FUTURE SCOPE OF THE STUDY	1858
10.	REFERENCES	1859
11.	ANNEXURE- I	1860
12.	ANNEXURE – II	1861

CHAPTER ONE

INTRODUCTION

- Physical activity is defined as any bodily movement produced by the contraction of skeletal muscles that results in a substantial increase in caloric requirements over resting energy expenditure.⁽¹⁾
- Children are more physically active than the adults. It is recommended that children and adolescents including those living with disabilities for health benefits should do at least an average of sixty minutes per day of moderate to vigorous intensity, mostly aerobic, physical activity, across the week.
- Physical activities include aerobic exercises, muscle strengthening, bone strengthening.

Physical activity will benefit the body and mind health in variety of ways including mentally, physically and academically.

These benefits are for Body

- burns fat
- decrease risk of chronic disease
- increase the strength of muscle and bone
- increase fitness and healthy lifestyle
- increase balance and coordination
- builds core skills

For Mind

- Increase confidence and self esteem
- Decrease stress anxiety and depression
- Increases sleep quality
- Increase friendship and social skills
- Increase concentration, learning and academic performance .⁽¹⁾
- COVID-19 is caused by a coronavirus which can result in acute respiratory distress in humans and is transmitted through respiratory droplets and contact routes.⁽²⁾ It was declared as a global pandemic virus outbreak on March 11, 2020 by the WHO The COVID-19 global pandemic has brought many challenges to people's lives including quarantine and other social distancing measures put in place to prevent the rapid spread of infection and serious illness or death.⁽³⁾ The scale and scope of this pandemic are exceptional, and come with economic, health, and

educational disruptions emanating that will have long-lasting effects on young people's development.⁽⁴⁾

- Preliminary evidence suggests social restrictions needed to reduce the spread of COVID-19 have increased engagement in sedentary behavior, disrupted sleep patterns, and decreased opportunities for children and adolescents to engage in physical activity. These behaviors are detrimental to long-term cardiometabolic and psychological health outcomes in the general population, and it is possible that such behaviors will develop into long-term poor health outcomes in children and adolescents.⁽⁵⁾

1.1Need Of Study

- The Covid-19 pandemic is an unprecedented time all across the world, extensive social distancing policies are put into place, restricting people daily activities and worldwide pleas from governments asking people to stay safe and stay at home. The pandemic has affected majorly the activities of children as they are restricted to be at home. Physical activities like playing in park, jumping, running, cycling, swimming have stopped due to pandemic.⁽⁵⁾
- The study will provide the effects of pandemic on the physical activity of children.

1.2Aim

To check impact of pandemic on the physical activity of the children.

1.2 Objective

To study the impact of pandemic on the physical activity of the children.

1.3 Null Hypothesis

- There is no impact of Covid - 19 pandemic on the physical activity of children.

1.3 HYPOTHESIS

- There is an impact of Covid -19 pandemic on the physical activity of children.

1.4 Research Question

- Has the pandemic affected on the physical activity of children?

CHAPTER TWO

REVIEW OF LITERATURE

1. **Moore SA, Faulkner G, Rhodes RE, Brussoni M, Chulak-Bozzer T, Ferguson LJ, et al. Impact of the COVID-19 virus outbreak on movement and play behavior of Canadian children and youth 2017.** A sample of Canadian parents of 1472 completed an online survey which assessed the immediate changes in child movement and play behavior. The study demonstrated adverse impact on the physical movement and play behavior of Canadian children. It recommended levels of physical activity has reduced.
2. **Neece C, McIntyre LL, Fenning R. Examining the impact of COVID-19 in ethnically diverse families with young children with intellectual and developmental disabilities 2020.** The study examined the impact of COVID-19 in 77 ethnically, linguistically and socioeconomically diverse families with young children with intellectual and developmental disabilities. Parents gave a 5 question interview. The results concluded that parents had difficulty receiving professional support. It showed the potential effects on the child wellbeing and mental health due to several causes among anxiety and stress due to the closure of school.
3. **Benner AD, Mistry RS. Child development during the COVID-19 pandemic through a life course theory lens. Child Development 2020.** It demonstrated the negative effects like decreased concentration, boredom, irritability, restlessness and nervousness.
4. **Guo Y-F, Liao M-Q, Cai W-L, Yu X-X, Li S-N, Ke X-Y, et al. Physical activity, screen exposure and sleep among students during the pandemic of COVID-19 2021.** The study aimed to determine the health levels (physical activity, screen time, sleep status) where 10,933 students participated and their status before pandemic was also checked. This survey revealed that the school closure during the COVID-19 pandemic might have several adverse impacts on the healthy lifestyle habits of school-aged children and adolescents, including decreased engagement in physical activity, longer screen exposure and irregular sleeping duration.
5. **Dunton GF, Do B, Wang SD. Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the U.S 2020.** The 325 participants, parents of children between

5-13years completed a 20 minutes online survey which showed the results with reduced physical activity and increased sedentary behavior.

6. Güngör NK. Overweight and obesity in children and adolescents 2014. The article gives a complete idea about obesity and factors affecting obesity. It has detailed information about the definition ,evaluation, prevention, treatment of overweight and obesity. It explains about the etiology and complications of obesity.

7 Schlieber M, Han J. The role of sleep in young children's development: A review. J Genet Psychol 2021. It is a review which gives details about the importance of sleep on growth and development of children . Factors affecting the sleep are well explained.The ways to implement proper amount of sleep.

CHAPTER THREE

METHODOLOGY

- Study design - Cross –sectional
- Study type - Observational
- Sampling - Random sampling
- Study Duration - 6 Months
- Sample size - 385
- Study area - PCMC (Pune)

3.1 Inclusion Criteria

- Children of age 5-12 Years
- Literate parents.

3.2 Exclusion Criteria

- Specially abled children
- Children with any health condition

3.3 Outcome Measure

Self made questionnaire is made which will be circulated through google forms..

3.4 Procedure

- Consent and approval from the ethical committee was taken .
- A google form was created including consent and questions regarding the physical activity of the children.
- It was circulated via virtual platform.
- The acquired data from the results was used to answer the research question.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

Do you feel your child's physical activity levels are reduced in pandemic?

Yes	277 parents
No	73 parents

Yes	79.1%
No	20.9%

Do you feel that your child's physical activity levels are reduced in pandemic?
350 responses

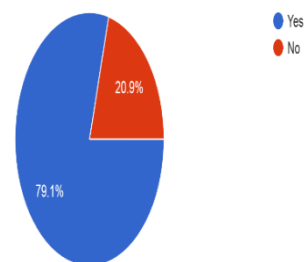


Figure no .1

Has your child visited the garden/play area in the pandemic?

5 times/week	50 parents
3 times/week	54 parents
1 time/week	135 parents
Not visited	111 parents

5 times/week	14.3%
3 times/week	15.4 %
1 time/week	38.6%
Not visited	31.7%

Has your child visited the garden /play area in the pandemic ?
350 responses

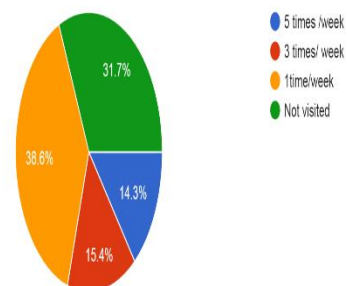


Figure no .2

For how long does your child play in a day ?

Half hour	89 parents
One hour	111 parents
Two hour	80 parents
More than 2 hour	70 parents

Half hour	25.4%
One hour	31.4%
Two hour	22.9%
More than 2 hour	20%

For how long does your child play in a day ?
350 responses

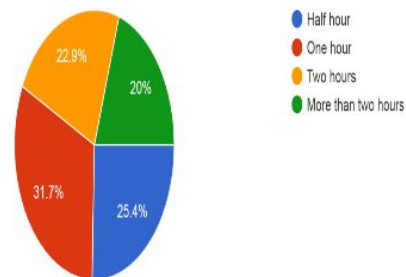


Figure no . 3

What are the activities that your child does during play time?

Jumping	21 parents
Running	52 parents
Sitting Games	73 parents
All of the above	204 parents

Jumping	6%
Running	14.9%
Sitting Games	20.9%
All of the above	58.3%

What are the activities that your child does during play time?
350 responses

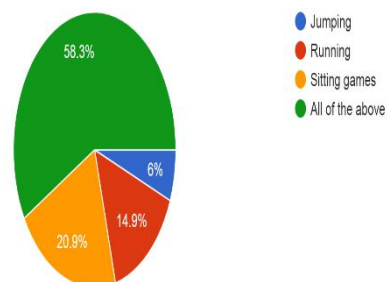


Figure no.4

Is your child engaged in any online /offline physical activity classes ?

Yes	261 parents
No	89 parents

Yes	74.6%
No	25.4%

Is your child engaged in any online /offline physical activity classes?
350 responses

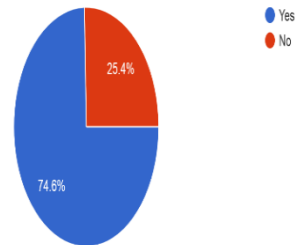


Figure no .5

For how long does your child sit at one place ?

15 minutes	41.7%
Half hour	27.7%
One hour	17.7%
More than one hour	12.9%

15 minutes	41.7%
Half hour	27.7%
One hour	17.7%
More than one hour	12.9%

For how long does your child sit at one place ?
350 responses

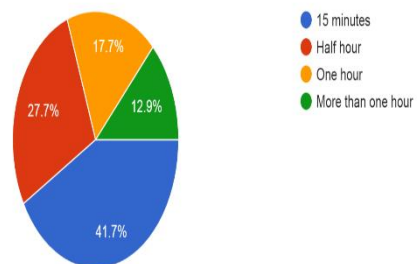


Figure no .6

Do you think your child has gained weight since 1st march 2020 ?

Yes	242 parents
No	108 parents

Yes	69.1%
No	30.9%

Do you think your child has gained weight since 1st march 2020 ?
350 responses

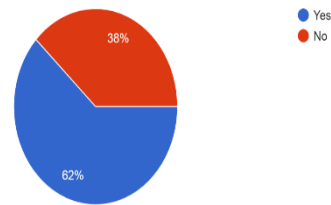


Figure no. 7

Do you think his/her eating habits have changed ?

Yes	62%
No	38%

Yes	217 parents
No	133 parents

Do you think his/her eating habits have changed ?
350 responses

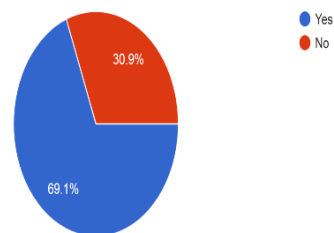


Figure no. 8

How many times a day your child eats junk food in a day ?

One	158 parents
Two	69 parents
More than that	43 parents
None of the above	80 parents

One	45.1%
Two	19.7%
More than that	12.3%
None of the above	22.9%

How many times a day does your child eat junk food in a day ?(Junk food-chips,maggie, cold drinks)
350 responses

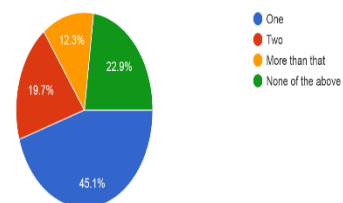


Figure no. 9

How long is your child using gadgets ,smart phones apart from school?

Half hour	126 parents
One hour	122 parents
Two hour	60 parents
More than two hour	42 parents

How long is your child using gadgets ,smart phones apart from school?

350 responses

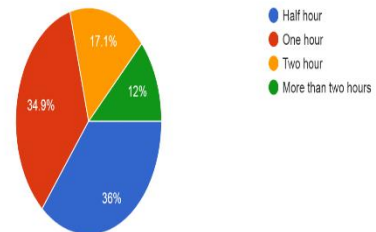


Figure no.10

Figure 10

Half hour	36%
One hour	34.9%
Two hour	17.1%
More than two hour	12%

Does your child stay awake after 11?

Yes	153 parents
No	197 parents

Does your child stay awake after 11?

350 responses

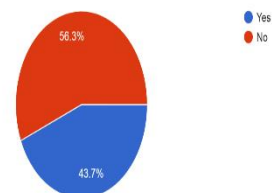


Figure no.11

Yes	43.7%
No	56.3%

Do you see any sleep pattern disturbed since march 2020?

Yes	217 parents
No	133 parents

Yes	62%
No	38%

Do you see any sleep pattern disturbed since march 2020?
350 responses

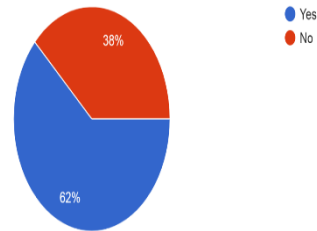


Figure no 12

CHAPTER FIVE

RESULT

- A total of 385 parents were asked to fill the questionnaire out of which 35 were not ready to be a part of the study . The parents of children between the age of 5-12 years have answered the google questionnaire.
- Figure no.1 shows there 79.1 % parents have answered yes to reduced physical activity.
- Figure No. 2 shows 14.3% children visited the garden 5 times/week ,15.4 % visited 3 times /week ,38.6% visited 1 time/week and 31.7% did not visit the garden .
- Figure No 3 shows 25.4 % play for half hour /day , 31.7% play for one hour /day ,22.9% play two hours /day ,20% play more than two hour /day. Figure No 4 shows 6% children jump ,14.9% children run, 20.9% play sitting games, and 58.3% children include all games.
- Figure No 4 shows 74.6% children were engaged in online physical classes.
- Figure No 6 shows 41.7% children sit for 15 minutes at one place ,27.7% children sit for half hour at one place,17.7% children sit fir one hour at one place and 12.9% children sit for more than 1 hour at one place.
- Figure No. 7 shows 62% children have gained weight and 38% children have not gained weight .
- Figure No 8 shows 69.1% children have changes in their eating habits and 38% did not have a change.
- Figure No 9 shows 45.1% children had one time/day junk food ,19.7% had it two times/day,12.3% had it more than that and 22.9% did not support the option .
- Figure no 10 shows 36% children used phone extra half hour after school , 34.9% used it one hour extra , 17.1% for two hours and 12%for more than two hours
- Figure no 11 shows 43.7% children were awake after 11 pm and 56.3% were not awake after 11 pm.
- Figure No 12 shows 62% children sleep pattern was disturbed after 1st march 2020 and 38% children had no disturbances.
- Figure No 9 shows 45.1% children had one time/day junk food ,19.7% had it two times/day,12.3% had it more than that and 22.9% did not support the option .
- Figure no 10 shows 36% children used phone extra half hour after school , 34.9% used it one hour extra , 17.1% for two hours and 12%for more than two hours
- Figure no 11 shows 43.7% children were awake after 11 pm and 56.3% were not awake after 11 pm.
- Figure No 12 shows 62% children sleep pattern was disturbed after 1st march 2020 and 38% children had no disturbances.

CHAPTER SIX

DISCUSSION

Exercise is a type of physical activity consisting of planned, structured, and repetitive bodily movement done to improve and/or maintain one or more components of physical fitness. Benefits of physical activity - Increased maximal oxygen uptake resulting from both central and peripheral adaptations ,reduced total body fat, reduced intra-abdominal fat ,Reduced insulin needs, improved glucose tolerance ,reduced inflammation ,decreased anxiety and depression ,improve cognitive function. During the pandemic of COVID-19, the confinement at home with reduced opportunities for physical activity, thus the levels of physical activity significantly decreased among students . Participations in team sports and activity at recess might benefit to the well-being of students and promote the prosocial behavior and counteract dissatisfaction in adolescents. Physical education classes might play an important role in helping youth attain sufficient levels of physical activity during school time ⁽⁵⁾ Of public health concern is these short term changes in behavior in reaction to COVID-19 may become permanently entrenched, leading to increased risk of obesity, diabetes, and cardiovascular disease in children as they get older ⁽⁶⁾ Overall, these data suggest during the early-COVID-19 period, children overwhelmingly spent their unstructured free time doing sedentary pursuits instead of physical activities. ⁽⁶⁾

In this study ,it was found that the parents of around 79.1% have seen reduction of the physical activity of their children . The percentage suggests there is a huge change in the physical activity ,their play has reduced and these changes will have long term effect on the physical fitness of children .

Obesity is characterized by an excess of body fat or adiposity. Obesity is a complex, multifactorial condition affected by genetic and non-genetic factors. In children and adolescents, the overweight state is generally caused by a lack of physical activity, unhealthy eating patterns resulting in excess energy intake, or a combination of the two resulting in energy excess. The heritability of body weight is high and genetic variation plays a major role in determining the interindividual differences in susceptibility or resistance to the obesogenic environment ⁽⁷⁾ SParents of 69.9 % children have suggested there is change in the eating habits of their children. Eating right and on time is essential for good health. The changes can lead to obesity ,lethargy, slowed brain functions ,reduced weight, deficiencies etc.Weight gain is observed in about 62% children , obesity can lead to various musculoskeletal and cardiovascular complications further in later stage .It reduces activity , increases blood pressure, metabolic disorders , increased depression and anxiety etc. Chronic sleep

loss affects physical health by increasing the risk of obesity and associated diseases. Inadequate sleep may result in tiredness, irritability, a short attention span, difficulty in modulating impulses and emotions, and increased behavioral problems. Adhering to a consistent sleep schedule is essential for daytime functioning, decreasing the risks of developmental outcomes produced by inadequate sleep. Sleep parameters are closely linked to children's development in numerous domains, including physical, cognitive, behavioral, and social-emotional functioning, with implications for learning, behavior, and overall well-being⁽⁸⁾ 56.3 % parents report of their child staying awake after 11 pm at night and 62% report of sleep pattern disturbances after 1 march 2020. Adequate amount of sleep and on time is essential for all body functions and proper brain activity . It shows reduced concentration ,decreased brain activity, lethargy ,irritability. The child is prone to have various heart conditions ,diabetes, and different health conditions.

CHAPTER SEVEN

CONCLUSION

- The study shows there is reduced physical activity of 79.1% children between the age group of 5-12 years .
- There is an impact on the physical activities of children which can cause various health conditions in the future.

CHAPTER EIGHT

LIMITATIONS

- The study was constricted to a small area.
- The study could not include any physical testing due to Covid-19 restrictions.

CHAPTER NINE

FUTURE SCOPE OF STUDY

- The study can be done in larger areas.
- The study can include detailed analysis based on gender, age group which is more affected .
- The study can include any physical testing to check for physical fitness of children.
- The study can include the impact on the quality of life of children.

REFERENCES

- [1]. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. 10th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2017.
- [2]. Moore SA, Faulkner G, Rhodes RE, Brussoni M, Chulak-Bozzer T, Ferguson LJ, et al. Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Act*. 2020;17(1):85.
- [3]. Neece C, McIntyre LL, Fenning R. Examining the impact of COVID-19 in ethnically diverse families with young children with intellectual and developmental disabilities. *J Intellect Disabil Res*. 2020;64(10):739–49.
- [4]. Benner AD, Mistry RS. Child development during the COVID-19 pandemic through a life course theory lens. *Child Dev Perspect*. 2020;14(4):236–43.
- [5]. Guo Y-F, Liao M-Q, Cai W-L, Yu X-X, Li S-N, Ke X-Y, et al. Physical activity, screen exposure and sleep among students during the pandemic of COVID-19. *Sci Rep [Internet]*. 2021;11(1):8529
- [6]. .Dunton GF, Do B, Wang SD. Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the U.S. *BMC Public Health [Internet]*. 2020;20(1).
- [7]. Güngör NK. Overweight and obesity in children and adolescents. *J Clin Res Pediatr Endocrinol [Internet]*. 2014;6(3):129–43.
- [8]. Schlieber M, Han J. The role of sleep in young children's development: A review. *J Genet Psychol [Internet]*. 2021;182(4):205–17.

ANNEXURE I

CONSENT FORM

Title of Project:

Name of Researcher: _____

1. I confirm that I have read and understand the information sheet dated _____ for the above study.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.
3. I agree to take part in the above study.

Name of Participant

Date

Signature

ANNEXURE II

SELFMADE QUESTIONNAIRE

Q.1 Parents full name

A)

Q.2 Child's full name

A)

Q.3 What is the age of your child ?

A)

Q.4 Do you consent to be a part of the study ?

A) Yes

B) No

Q.5 Do you feel that your child's physical activity levels are reduced in pandemic?

A) Yes

B) No

Q.6 Did your child visit garden /play area during pandemic ?

A) Yes

B) No

Q.7 For how long did your child play in a day during pandemic ?

A) Half hour

B) One hour

C) Two hour

D) More than two hours

Q.8 Has your child visited the garden/play area during the pandemic ?

A) 5times/week

B) 3times/week

C) 1 time/week

D) Not visited

Q.9 What are the activities that your child did during the play time?

- A) Jumping
- B) Running
- C) Sitting activities
- D) All of the above

Q.10 Was your child engaged in any online/offline physical activity classes ?

- A) Yes
- B) No

Q.11 For how long did your child sit at one place ?

- A) 15 minutes
- B) Half hour
- C) One hour
- D) Two Hour

Q.12 Do you think your child has gained weight since 1st march 2020 ?

- A) Yes
- B) No

Q.13 Do you think his /her eating habits have changed ?

- A) Yes
- B) No

Q.14 How many times a day did your child eat junk food in a day ? (Junk food – chips ,Maggie , cold drinks)

- A) One
- B) Two
- C) More than that
- D) None of the above

Q .15 How long was your child using gadgets ,smart phones apart from school ?

- A) Half hour
- B) One hour
- C) Two hour
- D) More than two hours

Q.16 Did your child stay awake after 11p.m during pandemic ?

- A) Yes
- B) No

Q.17 Do you see any sleep pattern disturbed since march 2020?

- A) Yes
- B) No