

Research Paper

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

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ABSTRACT

In 2020, The World Health Organization Declared the Novel Corona Virus Disease 2019 Outbreak A Pandemic disease occurring worldwide with large number of deaths. On March 2020, The Government Ordered a National Lockdown. The Lockdown Included Such Measures As, Restriction on Movement, Encourage and Arrangement to Work from Home. Aim Of This Study Was to Assess, Physical Activity, Playfulness, Stress and Sleep Disturbances in School Going Children Had to Confine in Their Homes. It Was a Survey Study with Sample Size Of 100 School Students stopped going to school during covid-19. Students Were Divided into 2 Groups i.e., Group A Which Was Having 25 Boys and Girls of Age 8-11 Yrs and Group B Had 25 Boys and Girls of Age 14-15 Yrs. Four Assessment Parameters Were Used to Assess All the Components. Physical Activity Questionnaire (PAQ), Test of Playfulness (ToP), Perceive Stress Scale (PSS) And Sleep Disturbance Scale for Children (SDSC). Result Showed That Girls Had More Stress and Less Physical Activity Than Boys. Children Of 8-11 Yrs Had Less Stress and More Physical Activity Than Children Of 14-15 Yrs. It Is Concluded That Covid-19 Had Huge Impact on Children's Physical Health as Well as Mental Health. With This Study I Found That Occupational Therapy Can Suggest Various Ways to Increase Indoor Physical Play to Maintain Physical Health and Engagement in Purposeful Play, Reduction in Stress and Decrease the Sleep Disturbance by Activity Scheduling, Time Management, Deep Breathing Exercise, Jacobson's Relaxation Techniques, Meditation, Art Activity Etc.

Keywords: *Playfulness, Covid-19, Stress, Sleep Disturbance, Lockdown, Physical Health.*

On March 2020, The World Health Organization Declared the Novel Corona virus Disease 2019 Out Break a Pandemic. The Government Ordered a National Lockdown To restrict The Viral Transmission of Covid-19 Infection. The Lockdown Included Such Measures as Home Confinement, Restriction on Movement, Encourage and Arrangement to Work from Home by Telecommunicating and Temporary Closure of Non-Essential Business and School of Every Order and Degree ^[9]. Primary

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Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

School Children Might Be Largely Affected by School Closure or Suspension of Outdoor Activities Due to The Importance of Interpersonal Relationship and Autonomous Extra Family Experience in The Specific Development and Stage Moreover Children Age 6 To 10 Seems to Be More Prone than School Children to Understanding The Medical And Psychological Impact Of The Covid-19 ^[9]. Healthy Physical Development In Children Is Larger Dependent On Sufficient **Physical Activity** Reduce, Sedentary Behaviour And Adequately Factor Are Referred To As A Movement Behaviour According To World Health Organization Lack Of Regular Physical Activity And Increase Time Spend In Sedentary Activity Are Globally The Fourth Highest Factor Attributed To Mortality With Overweight And Obesity Being The Third Leading This Factor Of Mortality In Middle And High Income Countries, Behind Only High Blood Pressure And Tobacco Use. Regular Physical Activity Promote General Health, Prevent Obesity and Other Civilization Diseases. To Meet all The Criteria of The Optimal Movement Behaviour, It Is Recommended That Children and Adolescent Age 5 To 13 Years Strive to Achieve a Daily Minimum Of 60 Minutes of Moderate to Vigorous Physical Activity, Limit Sedentary Recreational Screen Time To 2 Hours Maximum, And Acquire 9 To 11 Hours of An Uninterrupted Sleep Per Night. ^[4]

Play is a Fundamental Right of All Children And its Importance for Encouraging Psychological and Physical Health Has Been Highlighted in Academic and Advocacy Context, International Play Association, In Crisis Situation Play Helps Children to Cope with Stress, Anxiety and Trauma and Provides Stability Normalcy and Enjoyment. It Is of Concern, Therefore That at A Time of Increase Stress and Worry Children Are Also Face Which Shift in Or Reduce Access to Play and The Affordance Its Offers for The Development, Coping and Well Being ^[26]. from The Beginning of The Pandemic Children Were Thought to Be Less at Rest from The Virus Medically, Than Older Age Group in The Population. Depending On Their Home Circumstances and Individual Experiences of The Pandemic. The Quote Above Is from The Medical Expert as Early in The Covid -19 Pandemic as May 2020, showed That from The Outset, Concern Over the Children's Lack of Acquire to Play During Lockdowns Was A Serious root For Concern, Linking Play Explicitly With Children's Mental Health And Well Being. Children Were No Longer Visible on The Street. First Non-Representative Studies from China Affected Most People, Reported Increasingly Level of **Stress**, Anxiety and Depression. Report That One Third To 3 To Of 18 Year Old Children And Adolescent Were Clingy Inattentive, Irritable And Worried. It Is Found That 23% Of 2nd To 6th Grade Children Had Depressive Symptom And 19% And That Is Symptom During the Pandemic Report That 44% Of 12 To 18 Old Year Displayed Depressive Symptoms, 37% Showed Anxiety, and 31% Had Both Types of Symptoms. High Level of Depression and Anxiety Were Recently Replicated to Non-Representative Studies from India with Children and Adolescent Age 5 To 18 Years and One Study from Brazil with Children and Adults and from 6 To 12 Years Underline the Negative Impact of The Pandemic on the Mental Health of Children. They Found That Children and Adolescent Experience Severe Psychological Distress Such as Worries, Helpless, Anxiety and Fear. Two European Non-Representative Studies from Italy and Spain Found That Mental Health Problems Such as Conduct Problem, Irritability and Loneliness in Children and Adolescent Increase In The Covid-19 Locked Down^[6]

Sleep Seems to Form a Crucial Link Between Physical and Psychological Well Being, Especially in Younger Individuals. For Instance, Sleep Duration in School Age Children Is Negativity for Behaviour and Mood Problems, Both Sleep and Timing Modulate the

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

Children's Ability to Educate, Regulate Motion Sleep, and Right Time with An Elongation of Time Spend in Bed Going Daily Activities Such as Remote Learning, Studying or Playing More. Moreover, Children with Irregular Sleep Pattern Seemed to Be More Distressed, Hyperactive and Inattentive and To Have Lower Tolerance for Frustration. Although Children Are Less Likely to Be, Severity Infected by The Virus the Covid-19 Pandemic Might Have a Dramatic Impact on Younger Individuals Due to Disruption of Daily Routine. The Experience Fears, Uncertainty's, Physical and Social Isolation and May Miss School For Prolonged Period. The Literature High Lights That Even Predictable School Closure Such as Holidays or Weekends Might Affect Children's Well Being in Term of Unhealthy Sleep Pattern and Poor or Physical Activity. Although Necessary Prolonged Home Confinement May Have Detrimental Effect on Mental Health Affecting People's Living by Influencing Their Everyday Behaviour. The Link Between Sleep Disturbance and Behavioural Self-Regulation Conduct and Attention and Emotional Disturbance Depression Anxiety and Stress Difficulties Has Been Well Established in Adults and In Adolescent and Even in Children.^[9] In This Study We Have Two Experimental Hypothesis Which Were That, There Would Be Low Score of Physical Activity, Playfulness and High Score of Stress and Sleep Disturbance in Girls and Children Of 14-15 Yrs Of Age Children Than Boys And Children Of 8-11 yrs.

METHODOLOGY

Material- Pen, Pencil, Paper

Methods-

Research Design- Survey

Sample Size- 100 School Students Were Divided In 2 Groups

Group A-: 8 To 11 Yrs. (25 Boys And 25 Girls)

Group B-: 14 To 15 Yrs. (25 Boys And 25 Girls).

Sample Design- Convenient Sampling

Age Range-8 to15 Yrs.

Place of Study- Community

Inclusion Criteria –

- 1) School Students
- 2) Age Range of Students 8 to15 Yrs.
- 3) Both Genders (Boys and Girls).

Exclusion Criteria –

- 1) Children Never Went to School.
- 2) Age Less Than 8 Yrs. And More Than 15 Yrs
- 3) Atypically Developing Children.
- 4) Having Physical Disability.

Withdrawal Criteria: -

Parents And Students Who Wants to Withdraw at Any Point of Time During study.

Outcome Measures:

- 1) For Physical Activity

Physical Activity Questionnaire for Children And Adult (PAQ-C) And (PAQ-A)³⁰.

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

PAQ-A, Is A Self-Administered, 7-Day Recall Instrument. The PAQ-C And PAQ-A Can Be Administered in A Classroom Setting and Provides a Summary Physical Activity Score Derived from Eight Items (PAQ-C)/Nine Items (PAQ-A), Each Scored on A 5-Point Scale. The PAQ-C Is Appropriate for Elementary School Aged Children (8-14) And PAQ-A Is Appropriate for High School Aged Children (14-20).

2) For Playfulness

Test Of Playfulness (ToP)³¹- Assess A Child's Playfulness During Free play. The ToP Is Comprised Of 28 Items. Each Item Is Rated On 4-Point Scale. Each Score Indicates the Extent, The Intensity (Degree), Or the Skilfulness Observed. Aspect Of Play: Intrinsic Motivation, Suspension of Reality and Internal Focus of Control and Framing. Measures Children's Engagement, Motivation, Social Interaction, Affect and Creative During Play. Population ranges from 6 month to 18 yrs.

3) For Stress

Perceive Stress Scale (PSS)³²

This tool While Originally Developed In 1983 to assess stress, Remains A Popular Choice for Helping Us Understand How Different Situations Affect Our Feelings And Our Perceived Stress. Individual Ages Between 5 Yrs To 18 Yrs.

4) For Sleep

Sleep Disturbance Scale for Children (SDSC)³³. The SDSC Is A 26-Item Scale Was Developed To identify The Presence of Sleep Difficulties in Children Within the Previous Six Months. As Well As Giving an Overall Score the Instrument Uses Five Sub domains related to sleep disturbance: Disorders of Initiating and Maintaining Sleep, Sleep Breathing Disorders, Disorders of Arousal, Disorders of Excessive Somnolence, And Sleep Hyperhidrosis. The SDSC Is Administered to Participants Ages 6-15 Yrs

Procedure

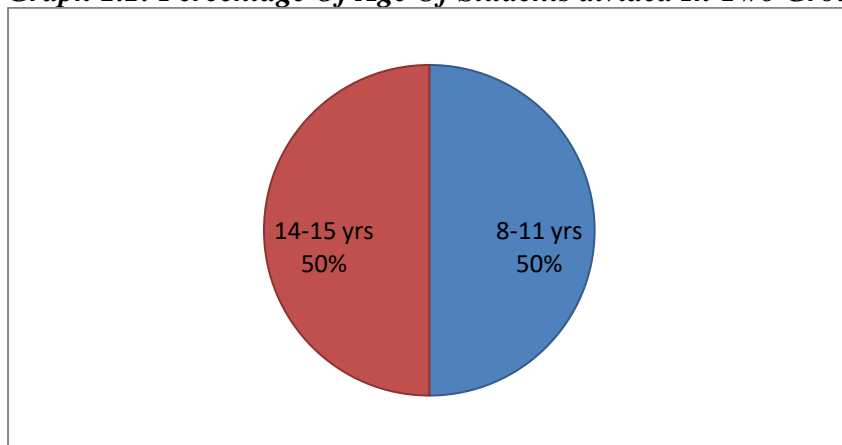
For observational Study, Subject Were Selected as Per Inclusion and Exclusion Criteria and Divided in To Two Groups. Group A And Group B with Age Range 8 To 11 Yrs. And 14 To 15 Yrs. (Respectively). Each Group had 25 Boys And 25 girls. Parent Filled the Consent Form. Each Group Was Assessed, For Physical Activity, Playfulness, Stress and Sleep. First Of All, Physical Activity and Stress, Was Assessed By researcher. For Assessing Playfulness, All Parents Were Asked to Record a Video of 15 Minutes of Children Playing and Hand over It To me For Examine the Play. The Sleep Scale Was Given to Parents as It Parent Assess Questionnaire. The Data Was Collected for All Four Questionnaires and Analyzed Using Statistical Tool with Respect to Age and Gender.

RESULTS

Descriptive Information of Subjects Age: Total Number of 100 Subjects Were Selected for the Study Who's Mean Age is reflected in Graph 1.1.

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

Graph 1.1: Percentage Of Age Of Students divided In Two Groups.



2) Assessment Of Physical Activity,

PAQ³⁰ Mean Score of Age 8 - 11 Yrs And 14-15 yrs. Are 2.70 And 1.88 Respectively, Mean Difference Is .854 Which Reflects That Younger Age Group Is Having More Physical Activity Than Elder Ones. When Independent Sample T-Test Was Applied and T Test Statistics Value Is 7.430 At P Value Is 0.00 For Age Group 8 To 11 Yrs.

Graph 2.1 Showing Age, Mean, Standard Deviation Of PAQ

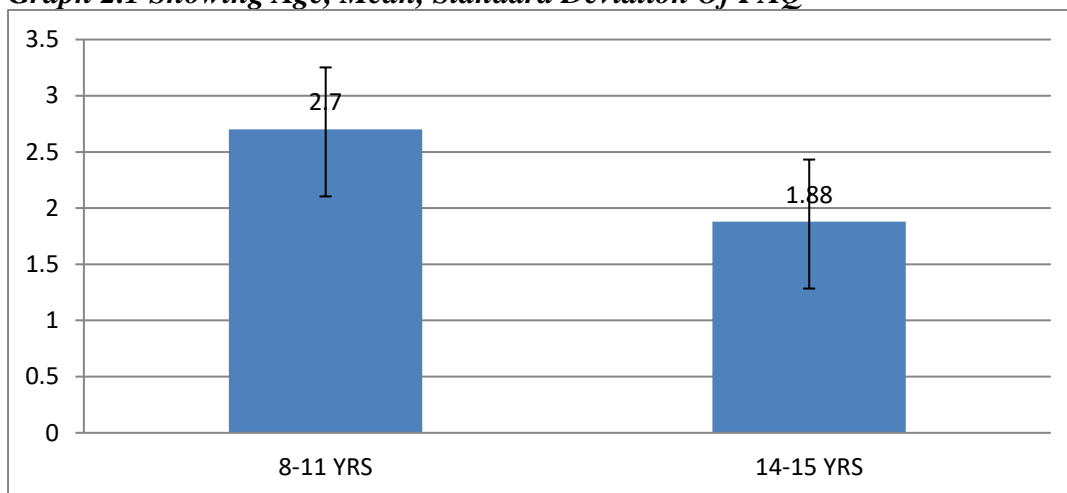


Table 2.2 P Value Calculated By Individual T Test

Independent Sample Test			
T Test For Equality Of Means			
Age	T	DF	Significant Value
8-11 Yrs	7.430	98	0.00
14-15 Yrs	7.430	88.63	0.00

3)Assessment of Playfulness

a) Intensity:

The Test of Playfulness (ToP)³¹ Was Assess On The Basis Of Intensity, Mean Score Of Girls Were 11.62 And Boys Were 12.66, Mean Difference Was Girls And Boys. Independent Sample T Test Was Used . Intensity While Assess ToP, Shows T Value Of

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

2.87 And P Value Is 0.01 which Is Highly Significant. That Shows, Girls Were Less Playful Than Boys.

Graph 3.1 Showing Age , Mean, Standard Deviation Of Playfulness(Intensity)

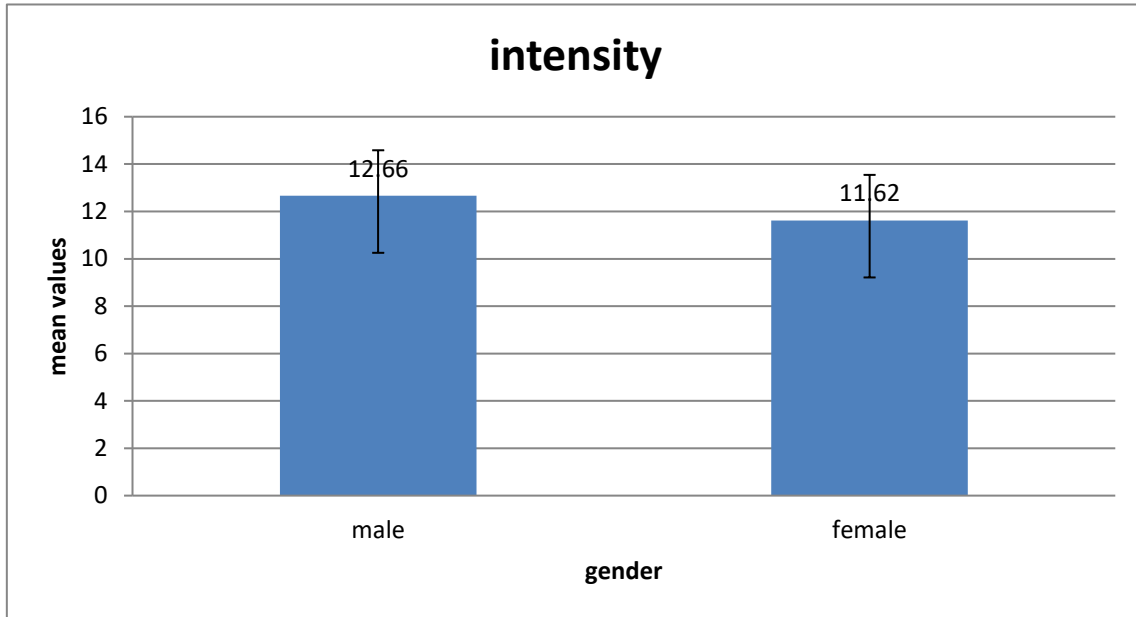


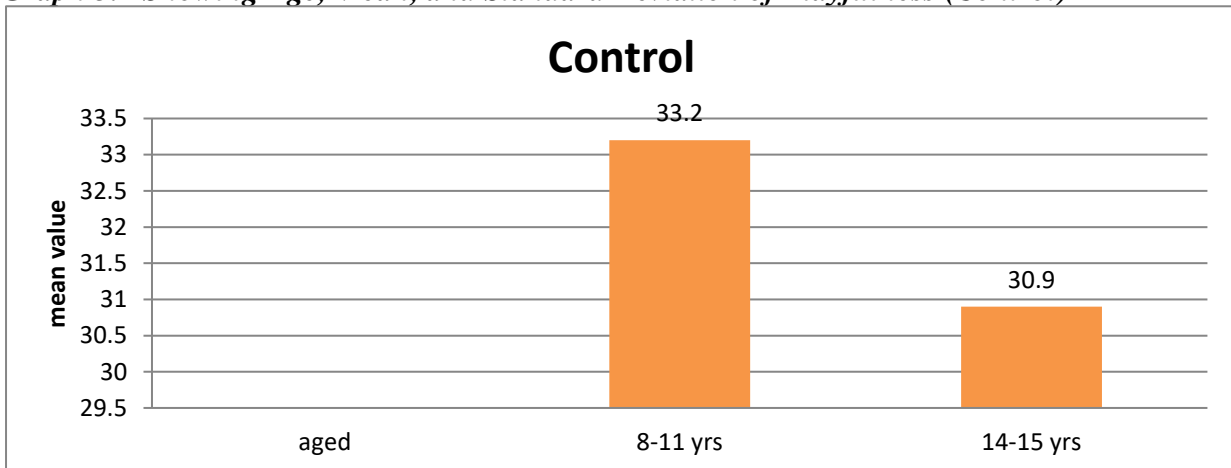
Table 3.1 P Value Calculated By Individual T Test

Independent Sample Test			
Gender	T Test for Equality of Means		
	T	DF	Significant Value
Boys	2.387	98	0.01
Girls	2.387	93.454	0.01

B) Control

Then ToP Was Assess Based on Control, Mean Score Were 33.20 And 30.90 Of 8 to 11 Yrs And 14-15 Yrs Respectively. Mean Difference Was 2.300. Independent Sample T Test Was Applied, T Value Is 2.342 And P Value Is .021, Which Is Highly Significant.

Graph 3.2 Showing Age, Mean, and Standard Deviation of Playfulness (Control)



Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

Table 3.2 P Value Calculated By Individual T Test

Independent Sample Test			
Age	T Test for Equality of Means		
	T	DF	Significant Value
8-11 Yrs	2.342	98	0.02
14-15	2.342	91.809	0.02

4) Assessment of Stress Score,

While Using Perceive Stress Scale³², The Mean Score Were 12.72 And 26.60 Of 8-11 Yrs And 14-15 Yrs. Respectively. Mean Difference Were 13.88, Which Show That Younger Age Group Had Less Stress Than Older Age Group. Independent Sample T Test Was Applied, T Value Is 10.657 And P Value Is 0.00, Which Is Highly Significant.

Graph 4.1 Showing Age and Mean of Perceive Stress Scale

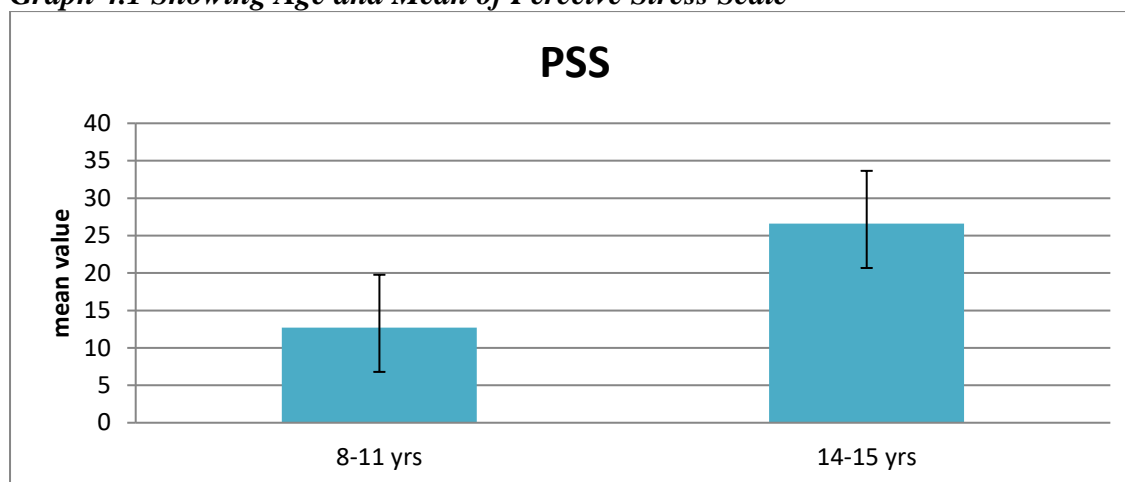


Table 4.1 P Value Calculated By Individual T Test

Age	T Test for Equality of Means		
	T	DF	Significant Value
8-11 Yrs	10.657	98	0.00
14-15yrs	10.657	95.205	0.00

5) Assessment of Sleep Disturbance

When Sleep Disturbance Scale for Children³³ Used for Assessing the Sleep Disturbance the Mean Score Were 37.38 And 44.48, In 8 To 11 Yrs And 14-15 Yrs Respectively. The Mean Difference in Age Was 7.10 And In Gender 6.980 Which Shows That Children Aged 8 To 11 Yrs Had Less Sleep Disturbance Then 14 To 15 Yrs. Independent Sample T Test Was Used, T Value Was 3.541 For Age And For Gender It Was 3.474and P Value Was Same In Both Age i.e., 0.001, Which Reflects High Significance.

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

Graph 5.1 Showing Age and Mean Value SDSC.

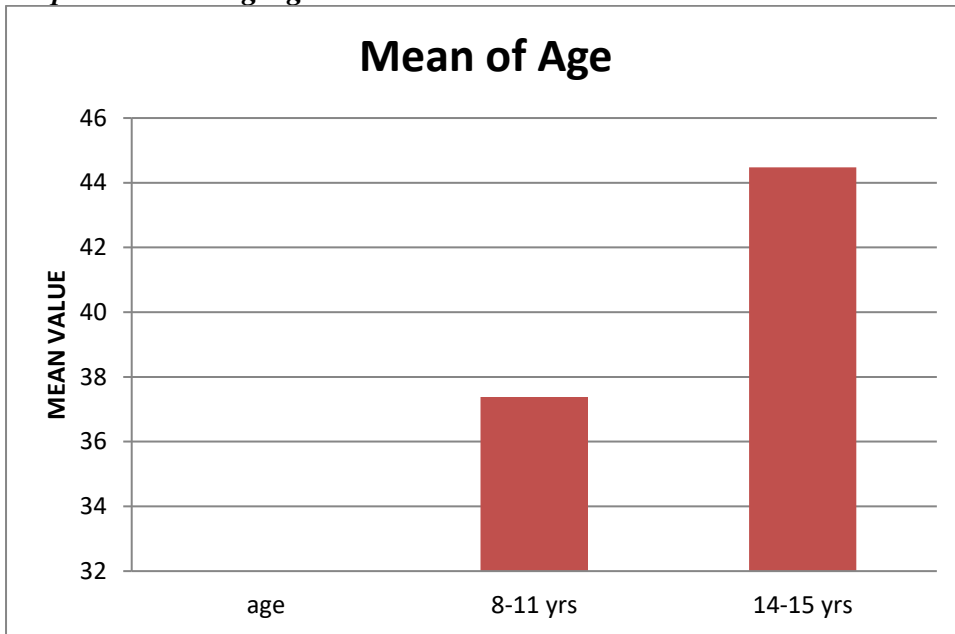


Table 5.2, P Value Calculated By Individual T Test.

Independent Sample Test			
Age Group	T Test For Equality Of Means		
	T	DF	Significant Value
8-11 Yrs.	3.541	98	.001
14-15 Yrs.	3.541	78.549	.001

Graph 5.2 Showing gender and Mean Value SDSC.

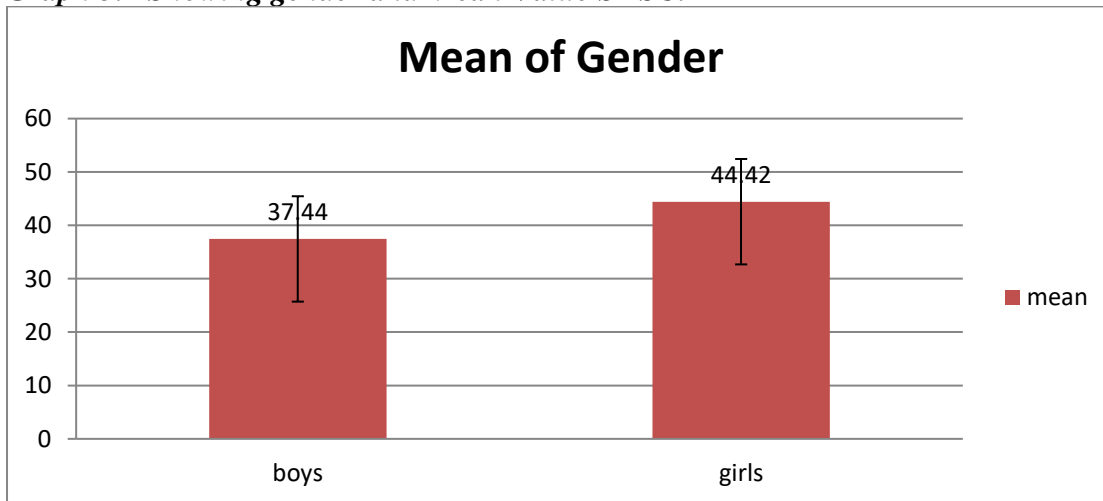


Table 5.3 P Value Calculated By Individual T Test

Independent Sample Test			
Gender	T Test For Equality Of Means		
	T	DF	Significant Value
Boys	3.474	98	.001
Girls	3.474	86.547	.001

DISCUSSION

The PAQ³⁰ Was Taken to Assess the Physical Activity Score On 100 Subjects Age Between 8-11 Yrs And 14-15 Yrs on Both Gender. Independent Sample T Test Calculated For PAQ, Mean Score of Age 8 To 11 Yrs And 14-15 yrs. Are 2.70 and 1.88 Respectively, Mean Difference Is .630 Which Reflects That Younger Age Group had More Physical Activity Than Elder Ones. When Independent Sample T-Test Was Applied, Occurred Value Is 7.430 at Significant Level P Value Is 0.00, Which Statistically Highly Significant. Our Experimental Hypothesis H₁ Is Proved. Moore et al¹ Found That Children and Youth Were Less Active, Played Outside Less, Were More Sedentary, Engaged in More Recreational Screen –Based Activities and Slept More During The Covid -19 Virus Outbreaks Compared With Before The Restrictions Which Support Our Results. Naiara B. Sancho²⁵, Did Survey On 1225 Children From two to 12 Yrs on the Well-Being of Children in Lock-Down: Physical, Emotional, Social, And Academic Impact. Study By Christina Niermann²⁶ Conducted An Online Survey And Assessed On Quality Of Life And Physical Activity Result Shown That Young Adult Maintained Their Physical Activity Or Increase Which Doesn't Support Our Result.

The **Test Of Playfulness**³¹ Was Used For Assessing Playfulness On 100 Students Of Age Range 8 To 11 And 14 To 15 In Both Genders. ToP Assessed On The Basis Of Intensity, Mean Score Of Girls Were 11.62 And Boys Were 12.66, Mean Difference Was 1.040 In. Independent Sample T Test Was Used; Shown T Value Of 2.87 And P Value Is 0.01 which Is Highly Significant. This reflects Girls Were Less Playful Than Boys Were. Our Experimental Hypothesis Is Proved. Study of Andre Pombo et al¹¹, Based On The Data Of 2159 Children, In Her Study Shown That During Confinement, There Was Decrease In Children's Physical Activity Time And Increase In Screen Time And Family Activities Also Boys Engaged In More Playful Screen Time Than Girls(P<0.05), And Girls Played More Without Physical Activity Than Boys(P<0.05).

Again, ToP³¹ Was Used for Assess Playfulness Based on Control, Mean Score Were 33.20 And 30.90 Of 8 To 11 Yrs And 14-15 Yrs Respectively. Mean Difference Was 2.300. Independent Sample T Test Was Applied, The T Value Was 2.342 And P Value Is .021, Which Is Highly Significant, Which Proves Our Experimental Hypothesis. Carol Barron²⁸, Did Survey and Included 4-18 Yrs Children. They Found That Various Lockdown and Social Distancing Measures Created Largely Similar Impacts on Play Behaviours. Result Shows That No Change Were Found In 4-14 Yrs Children's Play but in Children Age Between 10-18 Difference Were Present in This Group Which Support Our Study.

The **Perceive Stress Scale**³² Was Used While Assessing Stress, The Mean Score Were 12.72 And 26.60 Of 8-11 Yrs And 14-15 Yrs. Respectively. Mean Difference Were 13.88, Which Shows That Younger Age Group Had Less Stress Than Older Age Group. Independent Sample T Test Was Applied, T Value Is 10.657 And P Value Is 0.00 Which Is Highly Significant Which Shown That Our Experimental Hypothesis Is Proved. Meichun Mohler-Kuo²⁷, Did Study and Took Sample of Young Adult, As Well As Children, Adolescents, And Their Parents in His Study, Result Showed That the Most Perceived Stresses During the First-Lockdown Due to Covid-19, Adults Felt Most Stressed, And Symptoms of Mental Health Problems Which is in Our Study's Support.

The **Sleep Disturbance Scale in Children**³³ Was Used to Check the Sleep Disturbance In Children Of 8 To 11 Yrs And 14 To 15 Yrs. Also, Between Boys and Girls. When Children

Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

Were Assessed on The Sleep Disturbance Scale the Mean Score Were 37.38 And 44.48 In 8 to 11 Yrs And 14-15 Yrs Respectively. The Mean Score Were 37.44 And 44.42 In Boys and Girls Respectively. The Mean Difference Were 6.98 And 7.10 In Genders and Age Respectively. Which Shows That Children Aged 8 To 11 Yrs Had Less Sleep Disturbance Than 14 To 15 Yrs and Girls Had More Sleep Disturbance Than Boys Did. Independent Sample T Test Was Used, T Value Was 3.47 In Gender And 3.54 In Ages and P Value Is 0.01, Which Reflects High Significance.

Nicola Cellini⁹, SDSC Showed That Lockdown had a Significant Effect ($P < 0.01$) In Boys and Girls and Age 8 To 11 Yrs Than 14-15 Yrs. It Is Shown That Elder Age Group Children Faced More Sleep Disturbance Than Younger Ones and Girls Faced More Sleep Disturbance Than Boys of Both the Group. In addition, Study of Shuang-Jiang Zhou¹⁰ et al, His Cross-Sectional Study Included Chinese Adolescents and Young Adult 12-29 Years of Age During Covid-19. The Result Revealed That a High Prevalence of Sleep Problems Among Adolescents and Young Adults During the Part of The Covid-19 Epidemic, Especially Among Young Group, It Is Also Revealed That Female Were at A Greater Risk Which Support Our Results.

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Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

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Study on Physical Activity, Playfulness, Stress and Sleep in School Going Children Confined to Home During Covid-19 With Respect to Age and Gender

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Conflict of Interest

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