Addiction in Disguise: An analytical study of Screen Exposure among School age children in India

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Abstract
Technology has facilitated the human life in many ways. However, the random use of technology has put vital aspects of life into danger. The excessive exposure to gadgets is working as a slow poison that interferes severely in natural working of human body. This is more crucial in age group of 6 to 14 years of age as most of the growth and development of vital organs of body occurs in this phase of life. The experiences at this age lay the foundation stone of adulthood. Among the addiction to internet, increasing use of social media and other online entertainment prevalent in Indian population, the common element is exposure to screen. The present study has focused on the extent of screen exposure among school age children in India and its impact on their physical well-being, academic achievement, behaviour and social quotient. The study revealed that children aging 6 to 14 years of age are exposed to screen exposure more than the number of hours recommended by World Health Organisation and American Academy of Paediatrics. Further, the excessive exposure to screen among the studied children has adverse impact on their physical well-being, academic achievement, behaviour and social quotient.

Key words: Screen Exposure, Addiction in disguise, Physical and Mental Well-being, Academic Achievement and Social Quotient)

Introduction
In the rapidly changing world, the human life is constantly under a threat of unpreparedness for those new aspects that have been added into their life styles. Sometimes, it happens due to ignorance when people are unable to recognize the impact of introducing new technology for either entertainment or work. But many times, they are being pushed towards the vulnerable situation when for the sake for technological and economic advancement, the human life is exposed to dangerous radiation and emission of rays.

The present paper is focusing on one of the very significant aspect where the impact of screen exposure in human life is ignored up to a great extent and in particular the quantity and impact of screen exposure among children ageing from 6 to 14 years.

Addiction as a life Style Disorder

Addiction is any activity, substance, object, or behaviour that is the primary focus in a person's life, which may prevent him/her from optimally performing other activities to the extent that it may harm the person or others physically, mentally or socially (Engs 1987). Based on the phenomenon of excessive gadgets use, gadgets could be the object of addiction for adolescents. The difficulty to be comfortable in a situation with minimum access to the object of interest, anxious when the object is absent, excessive use and feeling dependent on the object are symptoms of addiction. Further, the addiction risk includes the tendency of excessive use, difficulty to control, and interference with daily activities (Kwan & Leung, 2015, Kwon et al., 2013). In other words, Addiction is a

continued repetition of a behaviour or an activity independent upon the adverse or negative consequences of the same (Angres & Angres, 2008) or it can be a neurological impairments which leads to such behaviours (American Society for Addiction Medicine, 2012)

Addiction can also be considered as life style disorder as it indicates towards an obsession or excessive attachment to any substance, object or activity in the daily routine. Psychological control over substance and behaviour, preoccupation with the subject and the continuation of activities despite consequences are generally the symptoms of addiction (Morse & Flavin, 1992). The term addiction can be considered as the high degree of likeness towards a particular thing or subject. Thus, if somebody is addicted towards some object, substance or activity then he may loses control over his own mind and faces difficulties to get rid of that substance, object or activity. Further, Addiction has adverse impact on physical health, mental well-being and on the way an individual socializes with and relates to other people which can be summarized as below.[1]

Sacrifices: A person with substance dependence may give up some activities that previously brought them joy. For example, a person with alcohol use disorder may turn down an invitation to for outing with friends, if no alcohol is available. A person with nicotine dependence may decide not to meet up with colleagues if they plan to go to a smoke-free restaurant.
Dropping hobbies and activities: As an addiction progresses, the individual may stop activities they enjoy. People who are dependent on tobacco, for example, may find they can no longer physically cope with taking part in their favourite sport.
Maintaining a good supply: People with substance use disorders always make sure they have a good supply, even if they do not have much money. They may make sacrifices in their home budget or pocket money to ensure the availability of the substance.
Denial: A significant number of people with substance use disorder are not aware that they have a problem. They might be aware of physical dependence on a substance but deny or refuse to accept the need to seek treatment, believing that they can quit "anytime" they want to and they are not completely dependent on it.
Excess consumption or abuse of substances: Some types of substance use disorders, such as alcohol or opiate use disorders, can lead an individual to consume unsafe amounts of a substance. The physical effects of abusing a substance can be severe and include overdosing. However, for a person with substance use disorder, these effects will not able be to prevent the future overuse.

Impact of addiction on the mental well-being
An inability to stop using: In many cases, such as a dependence on any substance or activity, a person will have made at least one serious but unsuccessful attempt to give up. There are withdrawal symptoms if a person stops taking them.
*Use and abuse of substances continue despite health problems***:** The individual continues regularly taking the substance, even though they have developed related illnesses. For example, a smoker may continue smoking after the development of a lung or heart disease. They may or may not be aware of the health impact of the substance or behaviour.
*Obsession***:** A person may become obsessed with a substance or activity, spending more and more time and energy in finding ways of getting that activity or substance.

Impact of addiction on the physical health
*Withdrawal symptoms***:** When levels of the substance or activity to which a person has dependence drop below a certain level, they may experience physical symptoms, depending on the substance. These include cravings, trembling, seizures, sweats, and uncharacteristic behaviour, including violence.
*Appetite changes***:** Some substances alter a person's appetite. Marijuana consumption, for example, might greatly increase their appetite while cocaine may reduce it.
*Damage or disease from using a substance***:** Smoking substances, for example, tobacco and crack, can lead to incurable respiratory diseases and lung Cancer. Injecting illicit drugs can lead to limb damage and problems with veins and arteries, in some cases leading to the development of infection and possible loss of a limb. Regularly consuming excessive amount of alcohol can lead to chronic liver problems.
*Sleeplessness***:** Insomnia is a common symptom of withdrawal. Using illicit stimulants, such as speed or ecstasy, might also encourage a disrupted sleep cycle, as a person might stay up late for several nights in a row to go to parties and use the substance.
*A change in appearance***:** A person may begin to appear more dishevelled, tired, and haggard, as using the substance or carrying out the addictive behaviour replaces key parts of the day, including washing clothes and attending to personal hygiene.

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[1] https://www.medicalnewstoday.com/articles/323459(Medically reviewed by Timothy J. Legg, Ph.D., CRNP — Written by Adam Felman on October 26, 2018) retrieved on 16th June, 2020.

*Increasing tolerance***:** The body experiences reduced effects of the substance over time, so a person feels the need to take more to achieve the same effect. A person may experience a few of these symptoms or many of them. Addiction can have a drastically different impact on every individual.

Screen Exposure as addiction in disguise

Today generation adolescents (born from 1995 to the present) are often referred to as Z generations, millennial, internet generation, or digital natives (Törocsik, Szucs, & Kehl, 2014). The difficulty to be comfortable in a situation with minimum access to the object of interest, anxious when the object is absent, excessive use and feeling dependent on the object are symptoms of addiction. As the addiction risk includes the tendency of excessive use, difficulty to control, and interference with daily activities (Kwan & Leung, 2015, Kwon et al., 2013).

This generation tends to have some problems if they are separated to their gadgets in this era of globalization. They always want to get short, up-to-date, and having real-time information with picture attached (Törocsik, Szucs, & Kehl, 2014). This is supported by a research conducted by Moeller et al. (2010). They asked teenagers not to use their mobile phones and chat for 24 hours. The results showed that teenagers displayed excessive anxiety as well as showing dependence symptom of gadgets.

Gadget addiction has several terms such as smartphone addiction, mobile phone addiction, problematic mobile phone use (PMPU), mobile phone dependence, compulsive mobile phone use, and mobile phone overuse (Al-Barashdi, Bouazza, & Jabur, 2015). Gadget addiction is a maladaptive behavior of media usage with characteristics of excessive gadget use, difficulty to control and interference with daily activities (Kwan & Leung, 2015; Kwon et al., 2013). Gadget addiction is included in behavioral addiction. Gadget addiction has negative effects on teenage life, whether in health, academic, social, or family. Regarding health, Rosen et al. (2014) found that the use of technology such as gadgets can predict decreased physical activity, poor diet, and increased likelihood of obesity in adolescents. In academics, gadget addiction negatively affects academic achievement, because teens are more easily distracted in the classroom and when working on tasks if gadgets are present; and they have issues related to time management ability (Pierce & Vaca, Srivastava, Hong et al. in Al-Barashdi, Bouazza, & Jabur, 2015). In social life, excessive gadget use plays a role in the lack of face-to-face interaction, since teenagers are more likely to communicate using short messages through gadgets (Srivastava, 2005). Even the use of gadgets can also interfere with the quality of face-to-face interaction with others because many people keep using their gadgets when talking to others (Drago, 2015).

The common element in any kind of addiction to internet, social media or different gadgets is exposure to screen. Thus, the unnoticed yet most harmful aspect of excessive use of internet or any other entertainment or educational activity on gadgets is the hidden addiction to screen. However, there is dearth of studies explaining or examining this phenomena. Though, the consequences of spending excessive time on screen have been highlighted many times by World Health Organisation in many ways. The addiction to screen has made the adolescents inactive to a severely harmful level. According to World Health Organisation (WHO)[2], Failure to meet current physical activity recommendations is responsible for more than 5 million deaths globally each year across all age groups. Currently, over 23% of adults and 80% of adolescents are not sufficiently physically active. If healthy physical activity, sedentary behaviour and sleep habits are established early in life, this helps shape habits through childhood, adolescence and into adulthood."What we really need to do is bring back play for children," says Dr Juana Willumsen, WHO focal point for childhood obesity and physical activity. "This is about making the shift from sedentary time to playtime, while protecting sleep. "The pattern of overall 24-hour activity is key: replacing prolonged restrained or sedentary screen time with more active play, while making sure young children get enough good-quality sleep.

Theoretical framework

The theoretical framework helps in understanding of the theories and concepts that are relevant to the topic of research and the broader areas of knowledge being considered. As the present study focussing on children aging 6 to 14 years, the various theories and concept around the process of development and impact of various experiences on the overall growth in the children become the part of present study.

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[2]https://www.who.int/news-room/detail/24-04-2019-to-grow-up-healthy-children-need-to-sit-less-and-play-more retrieved on 19th June, 2020 at 4:30 PM.

The transition from childhood to adulthood is full of unanticipated challenges and many milestones to achieve. This age is a vulnerable group to both physical, emotional and so many adjustment issues. However, growing up in today's technology and market driven world is not easy either for an adolescent or for any adult, as life brings many crises, disappointment and failure. The issues of independence, body image, identity, social role and sexual behaviour can produce adaptive or maladaptive response as the adolescents attempt to cope with the various challenges of developmental tasks. In process of proceeding towards adulthood, many adolescents develop addiction to many substance, object or activities. However, in the competitive world, children at much younger age are being pushed towards use of technology sometimes for the sake of ignorance but other times for the sake of convenience, comfort and luxury. The developmental tasks that emerge during the childhood and adolescence can either stimulate new adaptive ways of coping or lead to regression and maladaptive coping responses. The major theories in the field of role of environment and other experiences in the growth and development of children can be summarized as:

Theory of cognitive development
Piaget's (1936) theory of cognitive development explains how a child constructs a mental model of the world. He proposed the idea that the intelligence is not a fixed trait, and considered it cognitive development as a process which occurs due to biological maturation and interaction with the environment. Thus, various stimulations and situations provided at the childhood age impact the level of intelligence.

Psychosocial Theory
Erikson's theory (1963) described the impact of social experience across the whole lifespan. Erikson mentioned that social interaction and relationships played a role in the development and growth of human beings. Thus, the social relationships and interactions a child go through in the childhood have a significant impact on his overall personality.

Attachment Theory
According to Bowlby (1973, 77), the affection bond is nucleus to formation of identity in a child. This bond promotes comfort during stressful periods, reducing negative effects and allow to develop a healthy and realistic sense of self. However, attachment to insensitive and unrealistic modes of affection is dangerous.

Social Cognitive Theory

Bandura (1989) describes in the Social Cognitive Theory the influence of individual experiences, the actions of others, and environmental factors on individual health behaviors. Opportunities need to be provided for social support through instilling expectations, self-efficacy, and using observational learning and other reinforcements to achieve behavior change. Learning always occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. The Social Cognitive theory stated the unique way in which individuals acquire and maintain behavior, while also considering the social environment in which individuals perform the behavior. These past experiences influences reinforcements, expectations, and expectancies, all of which shape whether a person would engage in a specific behavior and the reasons why a person engages in that behavior. Thus, all the experiences, learning and situation occur at childhood can mold the behavior and actions that takes place later on.

The above mentioned discourse helped to understand the relevance of the various experiences and the kind of environment being provided around is significant for the personality development of children.

Review of related literature

Review of literature provides us with the knowledge of the research work already done in our field. It results in better understanding of the field and also helps in exploring the gaps in the studies done previously. An attempt was made to review some of the studies to enhance our knowledge.

Internet Addiction

The addictive internet use has negative impacts on mental health. There is a positive relationship between internet addiction and psychiatric disorders like depression, bipolar disorder, obsessive-compulsive disorder, attention deficit disorder, etc. So the addictive internet use should need clinical help (Young, 1998).Internet

gaming and shopping is causing depressive symptoms among the college students. Implementation of programmes is needed to detect and decrease these activities among them (Cotton, 2001).Excessive internet use not only generates disorders but it can sometimes be distressing and disabling (Shapira et al., 2003).Excessive technology use may affect academic performance, relationships, as well as overall development among youth. Such baffling technology use has been identified as technology addiction and has many negative impacts on health and social behaviour (Young, 2004). Generation-Y i.e. the present generation is psychologically addicted to the social Medias like face book, Twitter, Linked In etc. The addiction causes intra-psychic conflicts such as intolerance and relapse among the youth (Cabral, 2011).Professor of Psychology in Swansea University's College of Human and Health Sciences claims the Net addiction as the cause of the depression, social isolation, and disrupted sleep of the present generation. He also argues that the same has many other negative impacts on their health effectively (Mitchel, 2012).

Impact on Mental Well-Being

Using a screening tool, researchers found that the more handheld screen time a child's parent reported, the more likely the child was to have delays in expressive speech, concluding that for each 30-minute increase in screen time, a child was 49 per cent more likely to be at risk of expressive speech delay. (Sundus 2018). The study found that the more time children between the ages of six months and two years spent using handheld screens such as smart phones, tablets and electronic games, the more likely they were to experience speech delays. But children who are suffering from anxiety experience nervousness, shyness and fear. They try to avoid people, places and activities. Child shows aggression or appears tense when they can't get online and this feeling magically goes when their devices are given back. This behaviour can be easily notice. Dr Graham says 'Child gets upset or shows anger when by small things and when they get online they become calmer. Too much gadget use introduces depression in children of certain ages. It also leads mental health issues in children in childhood and adolescence. They may act depressed or we can see worst of these symptoms in a couple of days.

Loss of Moral Values

Children use internet to see adult content rather to search for educational websites. This practice leads bad impact on their character. They forgot their moral values. They are the future of the country. They become mentally advanced beyond their age negative relationships between gadget use and family functioning (Mesch, 2003; Villegas, 2013; Huisman et al., 2014; Drago, 2015). One study showed that gadget addiction risk negatively affects family functioning. This finding is also supported by Mesch (2003). He found that both types of activity and excessive use of gadgets had a negative impact on family functioning (Carvalho et al., 2014).Gadget addiction negatively affects adolescents' family functioning, where higher gadget addiction risk leads to worse family functioning. (Annisa et al 2017)

Gadgets Addiction

Gadgets occupy kid's minds. Leave child with a Smartphone, tablet Xbox or any other handheld device he can spend hours or even weeks with it. So you don't have to worry about the child because there is no risk of getting injured or harmed by these gadgets Subrahmanyama K, Patricia G, Robert K, Elisheva G (2001).Too much gadget use can also affect the long-term vision problem. And the chance of myopia also increases in children when they spend about 8 hours daily on gadgets. (Jonathan LP, Andrew LF 2016).

Gaps in existing literature

1. There is dearth of studies focusing on screen exposure as a common element in the addiction to gadgets or internet and its overall impact on human life.
2. The school age group is less studied however, it is one of most significant phases of human life.
3. The impact of addiction to gadgets or internet on academic achievement is less studied.

Significance of the study

Technology has become a necessary evil of human lives. Many times due to ignorance but sometimes people are compelled to be the victim of radiation, emission of electromagnetic rays and excessive exposure to screen of various Gadgets. Technology has intruded into the nature to that extent that human beings even did not realise that it has become part of their life styles and gradually taking away the quality of life. In this way, technology

can be rightly considered as slow poison. The present study has tried to highlight the common feature in gadgets addiction and internet addiction among young minds i.e Exposure to Screen. Further, it has tried to identify pattern of Screen exposure in the lives of children of school going age and the impact of on their physical health, academic achievement, behaviour and social quotient. The age group of 6 to 14 years of age is chosen as it is the most important age group as far as physical and mental development in human life is concerned. Secondly, it lays the foundation stone of adulthood.

Objectives of the study

The main aim of the study was to examine the impact of daily exposure to Screen on the physical well-being, academic achievement, behaviour and Social quotient of children of 6 to 14 years of age in India.

Methodology

The study is an analytical study designed to investigate the impact of exposure to Screen among the children belonging to 6 to 14 years of age. As India is witnessing one of the largest chunk of internet users in Asia[3] and increasing trend of use of Social Media among the adolescents (Rana, 2017), the present study has tried to examine the impact of Screen exposure on the physical health, academic achievement, behaviour and Social Quotient of the children of 6 to 14 years of age in India. In India, Right to Education Act 2009 provides free elementary education to children aging 6 to 14 years of age. Thus, it is considered as school age among children for the purpose of the present study.

With the help of Snowball technique, the parents of the children belonging to the particular age group as mentioned above were accessed and they responded on the behalf of their children as the children themselves would not be able to critically analyse the impact of Screen exposure in various dimensions of their own life. Thus, the present study is based on the responses of parents for their children aging 6 to 14 years. In total, 150 respondents participated in the study.

A questionnaire based on 7 point Likert scale was prepared. It consisted of following aspects:

Screen Exposure: Exposure to Screen in daily routine among children was asked from the respondents. The guidelines of World health Organisation in this regard was taken into consideration for the purpose of developing categories. It is important to mention that as per the guidelines of World Health Organisation and American Academy of Paediatrics, a screen exposure of more than two hours in daily routine is not recommended. Thus, the prevalence of Screen Exposure among children ageing 6 to 14 years of age was examined in terms of number of hours spent daily on screen.

Indicators of addiction to Screen Exposure in life: On the basis of existing literature regarding the symptoms of any type of addiction in one's life, few aspects indicating screen exposure were examined among the children. It consisted of love for screen exposure, disturbance in daily routine activities due to screen exposure, feeling of anxiety if not provided with screen and screen exposure as a source of pleasure.

Physical Well Being: Healthy condition of the vital organs of the human body and ability to perform physical activities effectively determine physical well-being. To investigate physical well-being among children exposed to screen daily, respondents were asked about any itching/irritation/dryness in eyes, recommended Glasses/spectacles, complains of headache, pain/itching/irritation/infection in my ear, weight issues and if the child is malnourished(calcium/vitamin D deficient/anaemic/ weak metabolism/allergic).

Academic Achievement: Performance in various scholastic and non- scholastic activities may determine the academic achievement of children and that plays a key role in the overall growth and development of the children. To examine the same, the respondents were asked about worry for exams or other tasks, grades in the last two classes ,hesitance in practicing subject of Maths, loss of important information given by teacher in class, reluctance to sit and focus for a longer time either for reading or writing among children, lack of various

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concepts taught in class among children and effect of content (games/cartoons/films/other entertainment) shown on Screen on the pronunciation, grammar and correct use of words in child.

Behaviour: Preference of screen over outside activities, often loss of temper, difficult to convince for daily routine activities, insistence on junk food and feeling of dizziness were examined among the children to gauge their age appropriate behaviour.

Social Quotient: Social Quotient is the term coined by Edward Thorndike in 1920 and it refers to the ability to present oneself in different social situations. The concerns for appreciation from others (friends/family/relatives) for his/her looks and belongings (toys, stationery, accessories, games) and to become famous in his/her peer group, incidence of frequent argument with family and friends and fear of public speaking were examined for social quotient among children exposed to screen.

Findings of the study

The findings of the present study consisted of three parts namely the demographic details of the children, an identification of the various indicators of addiction to Screen Exposure among children and multivariate analysis of the impact of Screen Exposure on physical well-being, academic achievement, behaviour and Social Quotient of the children.

A. Demographic details of the children studied

TABLE -1

DEMOGRAPHIC PARTICULARS	FREQUENCY	PERCENTAGE
GENDER OF CHILD		
Male	85	56.67
Female	65	43.33
AGE OF CHILD		
6 years to 8 years	34	22.67
8 years to 10 years	34	22.67
10 years to 12 years	40	26.67
12 years to 14 years	42	28.00
EDUCATION OF THE PARENTS		
Illiterate	1	0.67
upto 10th	1	0.67
upto 12th	3	2.00
Graduate	21	14.00
Post graduate	93	62.00
Doctrate/any other	31	20.67
WORKING STATUS OF PARENTS		
Both working	86	57.33
only father working	59	39.33
only mother working	5	3.33
TYPE OF FAMILY		

Joint	78	52.00
Nuclear (only parents and Child)	72	48.00
THE NO. OF CHILDREN IN FAMILY		
1	37	24.67
2	91	60.67
3	17	11.33
More	5	3.33
TOTAL	**150**	**100.00**

The above Table-1 indicates that majority of children were male (56.67%). Data analysis revealed that 22.67% of children were in the age group of 6 years to 8 years and 8 years to 10 years and 26.67% were in the age group 10 years to 12 years. Further, 28% of children were in the age group 12 years to 14 years. Majority of parents were postgraduates (62%). It was found that both the parents of most of the children were working (57.33%). Further, 52% of children belong to joint family and rest were from nuclear family. However, most of the children have one sibling (60.67%) whereas only 3.33% respondents have more than 3 siblings.

Number of Hours Spent on Screen

In order to know the extent of screen exposure among children the respondents were asked about the numbers of hours daily spent on screen by the children. As per the American Academy of Paediatrics and World Health Organisation[4], a screen exposure of more than 2 hours is not recommended for children aging 6 to 14 years. Thus, it become the criteria for asking the number of hours spent by children on screen daily.

TABLE -2 DAILY SCREEN EXPOSURE					
HOURS	0-2 Hours	2-4 hours	4-6 hours	more	Total
FREQUENCY	35	46	49	20	150
PERCENTAGE	23.3	30.7	32.7	13.3	100

The above Table-2 shows that 23.3% of the children have daily screen exposure of 0-2 hours, 30.7% of the children daily screen exposure of 2-4 hours whereas 32.7% of the children watch screen daily for 4-6 hours. However, 13.3% of respondents watch screen for more than 6 hours. Thus , it is clear that majority of the children spent number of hours on screen daily more than what recommended by American Academy of Paediatrics and World Health Organisation. However, we get to know in the present study that majority of parents (64.6%) were aware about the guideless related to screen exposure of World Health Organisation but still the excessive exposure to screen was allowed for the children.

B. Indicators of addiction to Screen Exposure among Children
TABLE-3

PARTICULARS	STRONGLY DISAGREE	SOMEWHAT DISAGREE	DISAGREE	Total disagree	NEUTRAL	AGREE	SOMEWHAT AGREE	STRONGLY AGREE	Total agree	Total
LOVES TO SPEND TIME WITH SCREEN (TV/Mobile/L	4(2.7%)	6(4%)	8(5.3%)	18(12%)	24(16%)	53(35.3%)	16(10.7%)	39(26%)	108(72%)	150

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aptop/ipad)									
SCREEN A SOURCE OF PLEASURE	8(5.3%)	10(6.7%)	21(14%)	39(26%)	20(13.3%)	41(27.3%)	26(17.3%)	24(16%)	91(60.66%)	150
ANXIOUSNESS OR DISTURBANCE IF NO SCREEN EXPOSURE OF DESIRED CHOICE	18(12%)	8(5.3%)	24(16%)	50(33.33%)	25(16.7%)	40(26.7%)	21(14%)	14(9.3%)	75(50%)	150
INTERFERENCE IN DAILY ROUTINE ACTIVITIES	9(6%)	7(4.7%)	24(16%)	40(26.67%)	25(16.7%)	47(31.3%)	23(15.3%)	15(10%)	85(56.67%)	150

The above Table-3 indicates majority of the children (72%) love to spend time with screen. Further, 60.6% of the children consider screen as a source of pleasure. Moreover, children feel disturbed in the absence of screen exposure of their choice. Moreover, (56.6%) of the parents agreed that screen exposures interfere with daily routine activities of their children. On the basis of the explored indicators, the children may be considered addicted to Screen Exposure to a certain extent.

C. Impact of Screen Exposure on the Physical well-being, Academic Achievement, Behaviour and Social Quotient of Children with the help of One Way Multivariate Analysis of Variance (MANOVA)
To study the impact of one independent variable i.e. Daily Screen Exposure on four dependent variables involved in the study i.e. Physical Well- Being, Academic Achievement, Behaviour and Social Quotient of children, One way MANOVA was conducted using General Linear Modelling approach. But before conducting MANOVA, the assumptions of one way MANOVA which are absence of multicollinearity, normality of data and equality of covariance matrices were checked in the data.
Absence of Multicollinearity: It was checked with the help of Correlation analysis between dependent variables i.e. Physical well-being, Academic Achievement, Behaviour and Social Quotient of children.

TABLE-4 Correlations		PHYSICAL WELL BEING	BEHAVIOUR	ACADEMIC ACHIEVEMENT	SOCIAL QUOTIENT
PHYSICAL WELL BEING	Pearson Correlation	1	$.565^{**}$	$.535^{**}$	$.501^{**}$
	Sig. (1-tailed)		.000	.000	.000
	N	150	150	150	150
BEHAVIOUR	Pearson Correlation	$.565^{**}$	1	$.684^{**}$	$.579^{**}$
	Sig. (1-tailed)	.000		.000	.000
	N	150	150	150	150
ACADEMIC ACHIEVEMENT	Pearson Correlation	$.535^{**}$	$.684^{**}$	1	$.553^{**}$
	Sig. (1-tailed)	.000	.000		.000
	N	150	150	150	150
SOCIAL QUOTIENT	Pearson Correlation	$.501^{**}$	$.579^{**}$	$.553^{**}$	1
	Sig. (1-tailed)	.000	.000	.000	

	N	150	150	150	150
**. Correlation is significant at the 0.01 level (1-tailed).					

Above Table-4 shows that there is Correlation between four dependent variables. For the purpose of applying MANOVA test, all the dependent variables should be moderately correlated (0.5<r<0.7) and there should not be a strong Correlation between dependent variables. Since the test is done at 95% confidence interval level, the significant values has to be less than 0.05, for the significant correlation between the dependent variables. From the above mentioned Table, it can be inferred that there exist statistically significant moderate correlation between all dependent variables as all the correlation coefficient values are between 0.5 to 0.7 and all the p values are less than 0.05. Thus, there is a statistically significant moderate correlation between Physical Well-being, Academic Achievement, Behaviour, and Social Quotient of children.

Normality of data: It was checked by calculating Skewness of data. Skewness greater than 1 and less than -1 indicates non normal distribution.

TABLE-5 Statistics		DAILY SCREEN EXPOSURE	PHYSICAL WELL BEING	BEHAVIOU R	ACADEMIC ACHIEVEM ENT	SOCIAL QUOTIENT
N	Valid	150	150	150	150	150
	Missing	0	0	0	0	0
Mean		2.36	3.52	3.81	3.37	3.79
Std. Deviation		.985	1.091	.981	1.298	.922
Skewness		.077	-.177	.268	.040	.424
Std. Error of Skewness		.198	.198	.198	.198	.198

The above Table-5 indicates that daily Screen exposure has Skewness of 0 .077, physical well-being has Skewness of -0.177, behaviour has 0.268, academic achievement has Skewness 0.040 and social quotient has Skewness value 0.424. All the Skewness values are less than one and greater than -1 indicating normal distribution of data.

Equality of Covariance matrices: It is checked by applying Box's M test. For this test level of significance used is 0.001 and if the p value of the test is greater than 0.001 then only the assumption is fulfilled.

TABLE-6 Box's Test of Equality of Covariance Matrices[a]	
Box's M	49.013
F	1.539
df1	30
df2	24166.206
Sig.	.030
Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.	
a. Design: Intercept + DAILYSCREENEXPOSURE	

From the above Table-6, it is clear that there are no significant differences between covariance matrices as the P value i.e. 0.030 is greater than 0.001 which is used as a significance level.

Based on the above assumptions, the MANOVA is applied on the data collected to study the impact of daily screen exposure on the Physical Well Being, Academic Achievement, Behaviour and Social Quotient of children.

Hypothesis used for MANAOVA Test

H0: There is no adverse impact of daily screen exposure on the physical well-being, academic achievement, behaviour and social quotient of children.

Ha: There is adverse impact of daily screen exposure on the physical well-being, academic achievement, behaviour and social quotient of children.

If, significant values are less than 0.05 the null hypothesis is rejected and alternate hypothesis is accepted showing adverse impact of Independent variable on dependent variables.

TABLE-7 Multivariate Tests[a]							
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.955	762.086[b]	4.000	143.000	.000	.955
	Wilks' Lambda	.045	762.086[b]	4.000	143.000	.000	.955
	Hotelling's Trace	21.317	762.086[b]	4.000	143.000	.000	.955
	Roy's Largest Root	21.317	762.086[b]	4.000	143.000	.000	.955
DAILY SCREEN EXPOSURE	Pillai's Trace	.280	3.739	12.000	435.000	.000	.093
	Wilks' Lambda	.740	3.797	12.000	378.634	.000	.095
	Hotelling's Trace	.323	3.813	12.000	425.000	.000	.097
	Roy's Largest Root	.188	6.832[c]	4.000	145.000	.000	.159
a. Design: Intercept + DAILY SCREEN EXPOSURE							
b. Exact statistic							
c. The statistic is an upper bound on F that yields a lower bound on the significance level.							

The above Table-7 indicates that daily screen exposure has adverse impact on Physical well-being, academic achievement, behaviour and Social quotient of children as wilk'S lambda significance level is 0.000 which is less than 0.05. Hence, null hypothesis is rejected and it can be concluded that the daily screen exposure has adverse impact on the physical well-being, academic achievement, behaviour and social quotient of children. Since, wilk's lamda is significant, Univariate ANOVA can also be conducted on each dependent variable.

TABLE-8 Tests of Between-Subjects Effects							
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	PHYSICAL WELL BEING	11.419[a]	3	3.806	3.347	.021	.064
	BEHAVIOUR	15.458[b]	3	5.153	5.880	.001	.108

	ACADEMIC ACHIEVEMENT	20.742[c]	3	6.914	4.382	.006	.083
	SOCIAL QOUTIENT	11.659[d]	3	3.886	4.937	.003	.092
Intercept	PHYSICALWELLBEING	1611.961	1	1611.961	1417.568	.000	.907
	BEHAVIOUR	1984.562	1	1984.562	2264.783	.000	.939
	ACADEMIC ACHIEVEMENT	1593.721	1	1593.721	1010.124	.000	.874
	SOCIAL QOUTIENT	1879.648	1	1879.648	2387.688	.000	.942
DAILY SCREEN EXPOSURE	PHYSICAL WELLBEING	11.419	3	3.806	3.347	.021	.064
	BEHAVIOUR	15.458	3	5.153	5.880	.001	.108
	ACADEMIC ACHIEVEMENT	20.742	3	6.914	4.382	.006	.083
	SOCIAL QOUTIENT	11.659	3	3.886	4.937	.003	.092
Error	PHYSICALWELLBEING	166.021	146	1.137			
	BEHAVIOUR	127.935	146	.876			
	ACADEMICACHIEVEMENT	230.351	146	1.578			
	SOCIALQOUTIENT	114.935	146	.787			
Total	PHYSICALWELLBEING	2036.000	150				
	BEHAVIOUR	2317.000	150				
	ACADEMICACHIEVEMENT	1958.000	150				
	SOCIALQOUTIENT	2285.000	150				
Corrected Total	PHYSICALWELLBEING	177.440	149				
	BEHAVIOUR	143.393	149				
	ACADEMICACHIEVEMENT	251.093	149				
	SOCIALQOUTIENT	126.593	149				

a. R Squared = .064 (Adjusted R Squared = .045)

b. R Squared = .108 (Adjusted R Squared = .089)

c. R Squared = .083 (Adjusted R Squared = .064)

d. R Squared = .092 (Adjusted R Squared = .073)

This Table -8 indicates that daily screen exposure has adverse impact on physical well-being of children as significance level is 0.021<0.05.

The above Table-8 also states that daily screen exposure has adverse impact on behaviour of children as significance level is 0.001<0.05. Further, it shows that daily screen exposure has adverse impact on academic achievement of children as significance level is 0.006<0.05. Lastly, daily screen exposure has adverse impact on social quotient of children also as significance level is 0.003<0.05.

Conclusion

In the present era, use of technology has become a necessity for all irrespective of the age factor, to keep in pace with the constantly changing and advancing global world. However, the habit of living close to gadgets indicates towards an addiction to screen among children. As it is unnoticed up to a great extent, it can be rightly considered as addiction in disguise. In the present study, it was found that excessive exposure to screen has become part of daily life among children aging 6 to 14 years of age. Screen is the source of pleasure for them and they get disturbed if not provided with the exposure to screen of their choice. Moreover, there is a significant adverse impact of exposure to screen on the physical well-being, academic achievement, behaviour and social quotient of children. It is strongly recommended through the study that the exposure of children to screen of all types should tried to be controlled and guided so that they can be saved from the various resultant deficiencies in future life.

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