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Impact Of Digital World On Adolescent Mental Health

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Abstract: In the age of digital technology, there is a widespread use of mobile phones and other gadgets especially by adolescents. They are spending an average of 3-4 hours a day on messaging, chatting, gaming, watching videos etc. Due to the excessive use, adolescents are facing mental health issues. Though, the modern digital world brings a new height by making the communication smarter, quicker and full of knowledge among the adolescents, but at the same time it paves the ways towards its misuse and abuse. Thus, the digital world has both positive and negative effects on the young minds and their mental health. The present investigation focuses mainly on the analysis of findings of different studies conducted by the researchers. However, findings of literature reviews suggest a negative effects on the mental health of adolescents', but it differ basing on the type of use; procrastination and passive use are related to more negative effects, whereas, societal and active use are related to more positive effects. The use of digital technology has stronger effects on short-term markers of hedonic well-being (e.g. negative affect) than long-term measures of eudaimonic well-being (e.g. life satisfaction). The negative effect of it predisposes socio-emotional and psychological vulnerabilities, such as mental health disorders. Further, behavioural and emotional dysregulation and adverse experiences such as cyber- bullying are also marked among them. Although adolescents are more vulnerable, effects are comparable for both adolescents and adults. It appears that both low and excessive use are related to decreased well-being, whereas moderate use is related to increased well-being. The current investigation still has many limitations: high-quality studies with large-scale samples, objective measures of digital technology use, and experience sampling of well-being are at the fore front for future research.

Index Terms - Adolescence, Digital World, Mental health, Well-being.

I. INTRODUCTION

In the 21st century, increasingly popular digital technologies are the Internet of Things (IoT), artificial intelligence (AI), big data, block chain technology and 5G telecommunications networks. These technologies are interconnected with each other and benefit human life. The devices of digital technology take part in an important way in adolescents' social lives as well as entertainment. In recent years, both academics and the public have expressed concern about the rise of digital technology, focusing on smartphones and social media use. It is observed that children start using technological devices at a very early age (during the period of kindergarten) and the use of technological devices get more common by age. The transition to new digital technological devices has resulted in changes in mood and habits of device using. For example, in 1970s, children used to start watching television at the age of four, however, today they start to interact with digital technological devices when they are four months old.

The term 'Adolescence' is defined as "the time between puberty and adult independence," during which adolescents actively develop their personalities. Compared with adults, adolescents are more open-minded, more social-oriented, less agreeable, and less conscientious more impulsive and less capable of inhibiting behavior, more risk-taking and sensation seeking, and derive larger parts of their well-being and life satisfaction from other peers. During adolescence, general levels of life satisfaction and self- esteem drop and are often at their all-time lowest. At the same time, media use increases and reach a first peak in late adolescence.

Secondly, Digital technology is a general term that covers various devices, services, and types of use. Now a days adolescents are spending much more time on television, smartphones, tablets, and social media than in school. The increasing trends in the usage of digital media brings a havoc among the adolescents, by making them disorganized, disobedience, disloyal, and bullying. Watching online videos, using social media, and browsing websites etc. by both tweens (8- to 12-year-olds) and teens (13- to 18-year-olds) report that watching videos on YouTube is the favorite form of digital media activity, followed in order of preference by Snapchat, TikTok, Instagram, Discord, Facebook, Twitter, Pinterest, and Reddit. On an average, teens spend close to an hour and a half a day on social media. In the context of daily interaction, most people in Malaysia use WhatsApp, Facebook, TikTok, Instagram, Zoom, and Hangout Meet. Facebook and WhatsApp applications have become the choice that dominates 80% to 90% of social media usage among adolescents, as these applications are able to speed up communication relationships and be able to reach other users at a time. Excessive use of digital technologic devices such as television, video games, and computers poses a danger on the body and mind of kids and adolescents. Effects of technological devices such as violence and aggression, sleep problems, fear, antisocial behaviours, eating disorders, obesity, attention problems and addiction are of particular concern for the adolescents of digital age.

The widespread use of digital technologies, especially the social media like Facebook, Twitter, WhatsApp, and mobile phones by adolescents and the time spending on texting, gaming, and watching irrelevant video contents leads them to both physical and mental health issues. Due to this excessive and

unnecessary use the adolescents are suffering from ADHD, insomnia, less in appetite etc. In spite of such negative outcome, unlike the opposite side of a coin, it also helps to encourage the adolescents to improve their communication and knowledge. It thus, follows that digital technology has both positive as well as negative effects on the young minds. However, there is no denying the fact that negative impact is much more vigorous than its positive repercussions. As far as the harmful effects of digital technology is concerned, social media and mobile devices may lead to psychological and physical issues. On the positive side, it empowers learning and communication. The need of the hour is to help and nurture our young minds in a way that they learn to focus on the positivity of the digital technology so that they can use it to the optimum and get benefitted in the best possible manner.

Excessive use of digital technology among children and adolescent and their mental health issues in the current time is of great concern for the psychologists and social scientists. Studies shows that, over 90% of teenagers are online every day, with nearly one-third of them through access to a smartphone. In an Indian study, nearly 75% of adolescents were moderate Internet users, however, <1% satisfied the criteria for Internet addiction. While engagement with digital technology has possible benefits by enhancing communication, social connections, and technical skills, excessive use has potential negative impact on mental health and development. Long hours of digital technology use (including online activities, television, gaming, etc.) have been associated with low academic achievement, an increased risk of depression, attention impairments, attention deficit hyperactivity disorder, complex risks from circumstances involving privacy disclosure, besides a decline in familial interpersonal relationships and social circle, with a consequent increase in loneliness. These risks are further compounded in adolescents with existing mental illnesses.

The Impact of technology on the mental health of students is multifaceted, encompassing both negative and positive effects. While technology can facilitate learning and provide support, excessive use and reliance on digital devices often lead to mental health challenges.

POSITIVE IMPACT OF DIGITAL TECHNOLOGIES ON ADOLESCENTS

1. Building Relationships

Popular messaging apps and social media platforms connect teenagers with other teenagers to support relationship building and socialization. These digital tools allow teens to keep in contact with their friends from school, via video chats, group messaging, or funny Tik Toks.

2.LEARNING PROBLEM-SOLVING SKILLS

Given the rapid advancement of technology, teens face the challenge of new innovations as they learn how to use different devices and apps. Their problem-solving approaches may include figuring out how to connect a new PlayStation to the television or moving data over from one phone to another. Or even using Google Maps to navigate a new city. As innovative applications and technology advancements develop, teens can apply the rudiments of problem-solving to each new hurdle, developing skills that will later pay

off in the "real world." For example, when a person works in an office, technological virtuosity is a valuable expertise.

3.Enhanced Education and Digital Learning Tools

The simple reality is that today's kids are learning in ways that adults would not have imagined when we were growing up. Teens are using the Duolingo app to learn languages, the Audible app to listen to books, and the Evernote app to take notes from class. With smartphone applications, social networking, and interactive websites, teens are approaching a new horizon in their daily business, as a result they are quickly able to adopt with a multitude of digital learning tools, which enhancing educational opportunities.

4.Interactive Creativity and Digital Expression

Transcending colored markers and crayons, smartphone applications and interactive websites offer teens the ability to share their artistic passions far and wide. For example, teens can record a musical performance for YouTube, make a mood board on Instagram, edit photos using Canva, or learn a new TikTok dance and post it to their account.

➢Negative Impact of Digital Technologies on Adolescents

The following are the negative effects of using digital technologies

- Psychological Disorders.
- Physical Exertion.
- Violence and Aggression.
- Cyber bullying and sexting.
- Risky sexual behavior

❖ Psychological Disorders

- Isolation
- Depression and anxiety

➢ Isolation

Digital technologies, such as social media platforms like Facebook, Twitter, Snapchat, and Instagram are designed to bring people together, yet they may have the opposite effect in some cases because most of the time they are active on social media platforms for posting and sharing messages, photos, videos and gaming. This behavior may isolate them from the social life. It also does not allow them to spend enough time with their family members.

➢ DEPRESSION AND ANXIETY

Social Media, with the aid of using its nature, actively encourages social comparisons, as its miles plagued by records which could effortlessly be used as metrics of obvious social success (e.g., friends, likes, shares, fans and so forth). These metrics are problematic in themselves, because if adolescents don't get enough likes to a comment or picture they have posted, or if someone has more likes or friends than them, it can make them feel inferior. Furthermore, the disparity between real life and what people actually post on social media means that they tend to only see an extremely edited 'highlight reel' of other people's lives. This effectively gives the misunderstanding that others lead a more interesting, perfect, exciting life than our own, which, actually has its justifiable share of ups,

middles and downs for everybody. So, this kind of negative social comparisons may experience higher levels of depression and anxiety in adolescents.

❖ PHYSICAL EXERTION

- Eyestrain
- Sleep problems
- Poor posture

Reduced physical activity

II. REVIEW of LITERATURE

Several studies have been conducted concerning social media and mental health of adolescents, which shows both positive and negative relation between adolescent's mental health and digital media use.

Linda Charmaraman, Olaide Sode, David Bickham 2020, The drastic changes in internet access, mobile phone use, and social media activity over the past few decades warrant an examination of how this exposure might relate to mental health issues in adolescence. This chapter will describe and discuss (1) the existing evidence examining associations between mental health and technology use including depression, anxiety, body dissatisfaction, attention-deficit disorders (and risks of distraction), and addictive behaviors and (2) the impacts of risky online communities on adolescents' mental health, focusing on networks promoting pro-eating disorder behaviors and pro suicidality. Recommendations for parents, educators, and providers are included in each section.

Candice L Odgers, Michaeline R Jensen, 2020, Adolescent mental health in the digital age: Facts, fears, and future directions. Adolescents are spending an increasing amount of their time online and connected to each other via digital technologies. Mobile device ownership and social media usage have reached unprecedented levels, and concerns have been raised that this constant connectivity is harming adolescents' mental health.

Nesi et al. (2019) reported that 57% of adolescents who were admitted to an inpatient unit reported positive online experiences, such as receiving social support or encouragement, 2 weeks before hospitalization. The proportion of girls receiving support this way was significantly higher than boys (64% vs. 46%, respectively).

Akkin Gurbuz et al. (2017) did not show a significant difference between the proportion of depressed and nondepressed adolescents who engaged in social interactions online (e.g. chat online with friends, read their status updates or make friends online), the relationship between the severity of depression symptoms and online engagement may be more nuanced.

McCrae et al. (2017), explore the positive significant correlation between number social media platforms across all three negative emotional states- depression, anxiety, suicidal idea, and stress. Similarly, other studies found a positive relationship between time spent scrolling through social media app and negative body image on Facebook. Those who had spent more time on social media had 2.2 times the risk of reporting eating and body image concerns, compared to their peer who spent less time on social media.

Seabrook and Kern (2016), explore the positive interaction, social support and social connectedness on social networking sites. Whereas negative interaction and social comparison on social networking sites were related to higher level of depression and anxiety.

Kaur and Bashir (2015), found both positive and negative effect of social media on mental health of adolescents, in which positive aspects were social support social connectedness, enhanced communication and general awareness. While negative effect includes depression, stress, fatigue, online harassment, cyber-bullying, sexting, suppression of emotional and decrease the intellectual abilities.

Rosen et al. (2013) & Pantic (2014), found the major symptoms of depression among the participants who spent most of their time in online activities on social networking sites.

Besides these, the findings of several other studies in recent years indicate a relationship between the use of mobile technological devices (laptops, tablets) and musculoskeletal disorders among children and teenagers. Using smartphones causes impaired joint position sense in flexion, decreased deep cervical flexors activity, and forward head posture.

A study conducted with children aged 6-17 has found that the risk of obesity is two times more for children who use technological devices for a long time and do less physical activity. Despite the importance of sleep-in optimal adolescent health and development, sleep deficits are prevalent in this age group. In a study has shown that night-time use of at least one screen-based media devices, and specifically mobile phones or televisions, was associated with adverse sleep outcomes, particularly insufficient sleep duration, late midpoint of sleep, and poor sleep quality among adolescents.

Similarly, research conducted in Singapore, it was identified that headache is more common among smartphone users and as the daily talk time increases as minutes (>60 mins) and frequency of headache

also increases which is considered as a dose-response relationship. Studies report that spending a long time with mobile phones causes problems such as eye strain, eye irritation, blurred vision, rash, and diplopia. Moreover, excessive digital technologic device use might cause postural defects, musculoskeletal pain, anxiety, depression, and a decrease in proprioception. On the other hand, studies have shown that addiction to smartphones can be an obvious risk factor for poor academic performance.

- **OBJECTIVES:**

To examine the associations between use of digital technology and their impact on mental health of adolescents, as well as their levels of depression, anxiety and loneliness through a systematic review of researches.

- **THE CURRENT STUDY:**

A number of systematic reviews and meta-analyses have been conducted over the past 10 years on the use of digital technology to enhance mental health among adolescents and young people. A higher- level synthesis of information across these meta-analyses and reviews is needed to identify whether there is converging evidence for their effectiveness and to assess systematic issues with research in this area. Consequently, this systematic overview provides a high-level synthesis of the current evidence on the effectiveness of digital world impact on mental health targeting adolescents and young people (i.e., aged 10-24 years as defined by the World Health Organization and others) with diagnosed or self-reported mental health conditions, including affective, behavioral, and trauma- related conditions (e.g., anxiety, depression, psychological distress, eating disorders, and posttraumatic stress disorder). Furthermore, it aims to characterize the factors, including digital platforms and design elements used, that contribute to the effectiveness and socio-emotional wellbeing.

III. METHODS:

We engaged in a systematic review of the literature focused on Internet technology usage among adolescents and its impact on mental health, sense of connectedness and their levels of depression, anxiety, and loneliness. To avoid possible selection bias, criteria for this systematic review were developed with the intent of locating all directly relevant articles.

- **DATABASE SEARCH:**

The review was conducted using a predefined protocol. We conducted an electronic review of the literature from the databases. The data for this review consisted of articles from the following online databases: Google Scholar, MEDLINE, PubMed, PsycINFO, Cochrane, CINAHL, ERIC, Psychology and Behavioral Sciences Collection, Science and Technology Collection and the refined EBSCO Social Sciences database. The initial search was narrowly construed in conceptual and logical terms: (adolescent OR adolescence)? (Digital world OR social media)? (Depression OR anxiety OR loneliness OR wellbeing)? The review was limited to peer-reviewed articles published in English between 2008 to 2022. We used a combination of keywords: (digital media, digital technology, cyber bullying, web-based, internet-based, mobile phone,) AND (adolescent, youth, young, child, student) AND (mental health, socio-emotional wellbeing, wellbeing). Our search was limited to overview types of studies, such as meta-analyses and systematic reviews.

- **DATA SYNTHESIS:**

We synthesized evidence from the articles describing the effectiveness of digital world on mental health interventions against clinical outcomes, therapy used, and digital platform deployed as well as reviewed factors associated with effectiveness, sustainability of outcomes, completion, and adherence. Finally, we reviewed and synthesized the extent to which there was evidence on the cost-effectiveness and the potential generalizability of the findings to low- and middle-income countries. Given the high heterogeneity of the studies, we did not conduct a statistical analysis

IV.DISCUSSION:

This review aimed to compare and contrast the digital experiences of adolescents with its impact on mental health, clinically significant symptoms like anxiety, depression, eating disorders or suicidal self-injury and to establish whether these young people are at greater risk of digitally related harm compared with their wellbeing. The review also aimed to identify the potential benefits of digital experiences for adolescents and to answer the question of whether studies of digital experiences of adolescents with life satisfaction and wellbeing. A variety of methodological approaches and measures of digital experiences in the reviewed studies reflect the complexity of the topic. It remains challenging for researcher that the digital world affords a wide variety of contents and interactions that can have diverse and contrasting impacts on mental health, such that for a host of contextual reasons, adolescents vary in their response to similar contents or interactions. Many of the included studies adopted cross-sectional correlation designs. Although these have helped characterize the relationships between adolescent digital experiences and mental health outcomes, they do not allow us to draw causal inferences or establish a temporal sequence of events. To determine when the association developed, or how it has changed over time, we need longitudinal or experimental research designs.

First, many digital practices, for example, connecting with peers or seeking distraction from studies, appear universal problem across the different conditions. One disorder that stands out as distinct is self-harm. It appears that online imagery plays an important role in self-harm rituals and this group may seek such harmful content intentionally (Jacob et al., 2017), while other groups may stumble upon it when seeking positive content (Radovic et al., 2017). Due to the small number of studies, this is a tentative finding that needs further investigation.

Second, we were not able to answer the question of whether digital experiences are different for adolescents with anxiety, depression, eating disorders or non-suicidal self-injury. The literature is too limited to identify robust themes that describe experiences unique to each disorder. There is a particularly striking lack of studies including samples with clinically diagnosed eating problems. Our searches identified only one such study (Hadwiger et al., 2019). Moreover, there have been too few direct comparisons between the conditions and indirect comparisons are not possible because of the heterogeneity in the concepts and measures used in the studies of different clinical groups. Finally, many studies included adolescents with multiple mental health disorders diagnoses which leads to procrastinate behavior and psychological vulnerabilities, which substantially reduced the opportunity to identify life

satisfaction. Therefore, future research should include groups with clearly distinct mental health conditions to ensure results of clinical benefit. Moreover, future research should use designs that include both risk and opportunity outcomes so that we can weigh the relative risk and opportunity outcomes within a single study rather than trying to draw conclusions across studies.

Third, adolescents with clinical-level mental health difficulties may be more psychological vulnerable to digitally mediated harm compared with peers, who do not have mental health difficulties. A large proportion of the included studies focused on 'problematic use', an umbrella term for a variety of maladaptive digital practices including loss of control over use and internet/smartphone addiction. One consistent finding is that young people diagnosed with depression, anxiety report more problematic use and difficulties in regulating their digital engagement. (Alpaslan et al., 2016; Onat et al., 2019; Ucar et al., 2020). The studies that focused on problematic use are an important first step in developing a better understanding of what kind of effects the digital world may have on adolescent mental health. However, problematic use, whether it relates to the internet, social media or smartphones, should not be treated as undifferentiated activity and only through research using robust and nuanced measures of digital engagement, we can advance our understanding.

Fourth, the reviewed literature suggests that digital media may provide adolescents who have mental health difficulties with positive social experiences, instant support from peers and mental health professionals and social acceptance (Nesi et al., 2019; Radovic et al., 2017; van Rensburg et al., 2016; Weinstein et al., 2021). However, male sex and greater severity of depression symptoms may reduce opportunities for benefiting from these positive digital practices (Akkin Gurbuz et al., 2017; Nesi et al., 2019). Some social connections could also exacerbate psychological difficulties and lead to the normalization of pathological behaviour. In addition to interacting socially online, solitary digital practices (e.g., viewing content without engaging with others) may help some adolescents to find distraction and temporary relief from their psychological difficulties. However, such a way of coping may be maladaptive and could be linked to difficulties in regulating use.

Digital technology is now integrated into the daily lives of adults and adolescents a like, a reflection of recent socioeconomic-cultural changes. However, the prevalence and patterns of use reported here, among adolescents with serious mental health problems, is concerning. Externalizing disorders, combined with low self-esteem, become a fertile ground for problematic use. Adolescents with externalizing disorders have cognitive risks (poor executive functional abilities and socio emotional skills) that make them, particularly vulnerable to the detrimental impact of digital technology use. This is reflected in a higher prevalence of problematic use in our inpatient sample than has previously been reported among adolescents in the general population. Digitally, there have been unprecedented and rapid changes in how adolescents spend their time, connect to the world, and communicate with each other. Mobile device ownership and social media use have reached unprecedented levels among adolescents. Perhaps this is not surprising as digital devices, and the affordances that they provide, are especially strong attractors for young people given their heighted need for affiliation, social approval, and novelty seeking.

As adolescents spend an increasing amount of time interacting with digital technologies, there is an urgent need to both understand effects of this usage and leverage new technologies in ways that support versus harm their mental health and well-being. Unfortunately, most of the attention given to adolescents' digital technology usage and mental health has focused on negative effects and has been based on weak correlational data. Over the past decade the rapid uptake of social media has fueled fears that social media platforms are causing serious mental health problems. Research since that time has been mostly correlational, tends to focus on adults versus adolescents and has generated a mix of small positive, negative, and null associations.

Moreover, vulnerable adolescents (due to age and mental morbidity) could be prone to behavioral and emotional dysregulation with the stresses and demands of digital technology use. A more nuanced exploration of the nature, pattern of use, maintaining factors, and perceived positive and negative impacts would further elucidate the mechanistic underpinnings of the bidirectional relationship between digital technology use and mental morbidity. It is important to understand that the bidirectional relationship can have both positive and negative connotations. On the one hand, continued access to family and friends through online social networks could secure a sense of social support and enhance emotional regulation, while on the other, constant engagement with a group of friends, who may themselves have socio-emotional difficulties, could limit access to and use of activities and social interactions potentially more conducive to mental health. In addition, there is commonly a parent-adolescent conflict over generationally acceptable/normative digital technology use that changes with the increasingly digital world we live in.

- **CONCLUSIONS:**

This review provides evidence that many online experiences (both positive and negative) are shared by adolescents with different mental health difficulties. The digital world provides adolescents with opportunities for social connection, and support and allows distraction from their psychological problems. At the same time, some young people may find it difficult to self-regulate how they engage with the digital world and their digital experiences can exacerbate mental health difficulties or lead to the normalization of pathological behaviour. Future research should directly compare the digital experiences of adolescent with different pre-existing mental health conditions and be designed in a way to better understand emotional wellbeing and the more nuanced impact of digital experiences on the mental health of adolescent.

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