SOCIAL MEDIA IMPACTS ON MENTAL HEALTH AMONG ENGINEERING STUDENTS IN PUDUCHERRY

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DECLARATION

I hereby declare that this dissertation titled - **"Social media impacts on mental health among Engineering students in Puducherry"** is a Bonafede record of my original research. It has been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published and unpublished work of others has been duly acknowledged in the text

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CERTIFICATE

Certified that the dissertation titled – **"Social media impacts on mental health among Engineering students in Puducherry"** is a record of the research work undertaken by **Mr Lenin P,** in partial fulfilment of the recruitments for the award of the degree of Master Public Health. Under my guidance and supervision.

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LIST OF ABBREVIATIONS

WHO	World Health Organization
DASS	Depression, Anxiety, Stress Scale
SCTIMST	Sree Chitra Tirunal Institute for Medical Sciences and Technology
PI	Principal Investigator
ID	Identity Document
IEC	Institutional Ethics Committee
SNS	Social Networking Sites
SM	Social media
SMP	Social Media Platforms
X	Twitter
IG	Instagram
FB	Facebook
UNICEF	United Nations Children's Fund
YLD	Years Lived with Disability
DALY	Disability-Adjusted Life Years
CI	Confidence Interval
OR	Odds Ratio
SPSS	Statistical Package for the Social Sciences
NIMHANS	National Institute of Mental Health and Neurosciences
NMHS	National Mental Health Strategy
DMHP	District Mental Health Program
MOHFW	Ministry of Health and Family Welfare
IEC	Information Education, and Communication

UG	Under Graduates
ACET	Achariya College of Engineering and Technology
CCET	Christ College of Engineering and Technology
MVIT	Manakula Vinayagar Institute of Technology
RGCET	Rajiv Gandhi college of Engineering and Technology
SMVEC	Sri Manakula Vinayagar Engineering College
SVCET	Sri Venkateswara college of Engineering and Technology
BME	Bio Medical Engineering
CSE	Computer Science Engineering
ECE	Electronics and Communication Engineering
EEE	Electricals and Electronics Engineering
IT	Information Technology

ABSTRACT

Background: Social media is an online platform that help to develop social relationship, entertains, keep up with news and current events, activities, passion and real-life situations. In modern life different social media platforms like WhatsApp, Instagram, YouTube, Facebook & X has become almost obligatory especially among young people. Long duration of daily exposure may be having effects on psychological health outcomes, including increased and in some cases, decreased risk of depression and anxiety. The advantages and disadvantages of social media use in the adults is reflected in their habit such as behavior, life style patterns and issues in their social & family life. The participants health, particularly their emotional and psychological health, has an impact on the usage of internet and social media. The present study is assessed the prevalence of depression, anxiety, stress among engineering students and the factors associated with mental health among students.

Methods: A cross sectional survey was conducted among 288 under graduate engineering students from 6 Engineering and Technology institutions in Puducherry district, Puducherry. Data was collected using a self-administered questionnaire which had background of the participants, Internet and social media usage and DASS-Y 21. The chi square test was used to test the associations and binary logistic regression was used to estimate odds ratios and 95 percent confidence intervals the data were analyzed with the aid of IBM SPSS statistics version 28 for windows.

Result: The Mean age of the participants was 19 years (19 - 23). There were 288 participants of which 56.3 percent were males and 43.8 percent are females. Among them, 29 (10.1 percent) students are extremely severe depressed, 34 (11.8 percent) students are extremely severe anxious and 14 (4.9 percent) students are extremely severe stressed.

Males 53(32.7 percent) experiencing 0.63 times lower odds of depression when compared to females 55 (43.7 percent). Among the students, social media users, 67 (25.1 percent) students are experiencing 2.01 times higher odds of stress, 103 (38.6 percent) students are experiencing 2.01 times higher odds of depression, 115 (43.1 percent) students are experiencing 1.89 times higher odds of anxiety than non-users. Mental health has shown significantly association with Gender, hours of internet usage, and students using multiple social media sites more than one year.

Conclusion: The study participants experiencing high level of social media usage and high proportions of mental health concerns, that was associated with Gender, internet usage, and social media use. High degree of Internet usage was associated with the increased risk of depression and anxiety among study participants. Women were experiencing a slightly higher risk of adverse mental health situations.

CHAPTER 1

INTRODUCTION

1. BACKGROUND

1.1 Social Media

Social media also named as social networking services, or social networking sites (SNS) are an online platform that help to interact social relationship with people based on their similar interests, activities, passion and real-life connections. In today's life, WhatsApp, Instagram, YouTube and Facebook are becoming unavoidable.(Crone and Konijn, 2018) In Worldwide, about 3.77 billion people are using the internet through their modern gadgets like smartphones, Tablets, Personal computers and Laptops, and that covers 81 percent of the population in the economically advanced country and 41 percent of the population in the emergent nations. Among them, 71 percent of the world internet users are used by young people aged from 15–24 years(Ramesh Masthi et al., 2018) (Kemp, 2017). Social media is very close to becoming an integral part of our day-to-day lives of most people. In India, active social media users were 197 million (14 percent of the population). In 2016/2017 the inventory of several free and low-cost data packages has put India on the world map for large-scale consumption of mobile data that leads to exponential usage of social media. For young people, mobile-based communication is becoming a very important way to maintain their social relationships and privacy (India will have 730 million internet users by 2020, govt says | India News - Times of India, n.d.). The use of social media websites and application has become one of their most common activities as well as most favourite activity. Excessive use of such social media result in adverse behaviours and that leads to social media addiction (Social Media Addiction Linked to Drug, Alcohol Abuse, n.d.). Social media addiction might lead to harmful effect on the physical health, psychological health, and behavioural problems and sometimes it may

cause self-harm also, even to a fatal level. In India, especially among the young adults, social media addiction is becoming an emerging health problem.(Ramesh Masthi et al., 2018)

1.2 Social Media use in the world

The social media is one of the most used online activities. This activity is constantly increasing, and more than half of the world population is possibly into it. In the recent past decade, the usage of social media among peoples has enormously increased (Ellison and Boyd, 2013). It is estimated that 3.80 billion people were using social media in January 2020, with an increase of nine percent (321 million) users since January 2019. In January 2020 it is identified that the world has more than 5.19 billion people using mobile phones, with an increase of 124 million (2.4 percent) as compared to 2019. (Chaffey, 2024) Internet connectivity is used by 4.5 billion people in the world, but social media users are 3.8 billion. Around 62.3 percent of World population are online and the latest movement shows that 5.04 billion people half of the population in the world would have been using social media. In the year 2019 Saudi Arabia recorded 99 percent of people involved in social media use, compared to the global average of 45 percent. Taiwan, South Korea and Singapore also have high social media use. In the Countries like Ghana, Kenya and Nigeria fewer social media use is noted (Chung et al., 2019) (Chaffey, 2024) The children and adolescents below 18 years has constituted one in three of internet users (UNICEF, 2017).

1.3 Social media use in India

In- India, the usage of social media shows that, it has become an unavoidable part of the lifestyle among young adults. Many research shown that, usage of social media has positive impact, but addiction to social media will affects the lifestyle, career growth and personal development (India will have 730 million internet users by 2020, govt says | India News - Times of India, n.d.). Studies have shown that the addiction to the social media have

resulted in health issues and behavioural changes, and lag in personal development. The present youth in India are the first generation, who are exposed to the smart phone, electronic gadgets and technology (Goel et al., 2013). There is enough literature that shows the impact of social media in transforming the social situation in India particularly among young adults. Among young adults, the social media plays a pivotal-role for communication. Recent researchers throw light on the destructive role of the social media among the Indian populations (Bharucha, 2018). The adolescents often maintain social relationship through phone communication, especially through the social media websites and platform, which remains as one among their most common activities.(Ramesh Masthi et al., 2018)

The social media has an important role in the development of self-esteem, self-belief, and social wellbeing by the feedbacks of other users. Parents of children and adolescents below the age of 18-years are conscious of the dissentient content of the internet, such as pornography, violence, cyber bullying, unsupervised social contact, social traps, psychosocial issues and the effect on physical activity (Subba et al., 2013). So, parents are mostly reluctant to the open options for the internet use to their children. On the contrary it is indisputable that the internet offers opportunities in learning, provision of information, knowledge, entertainment and personal growth. So, some parents consider the positive possibilities of internet use in the growth and development of their children (Tartari, 2015). Spending more time in internet, which is a private activity that is time consuming and mostly disruptive of the non-virtual social activity of the users which leads to social withdrawal (Kessler et al., 2014). The internet also shifts strong and that ties with online relationships which is leading to less real, less available and less sensitive to the situation of a person, than the face-to-face interaction.(Kearns and Whitley, 2019)

CHAPTER 2

LITERATURE REVIEW

2.1 Social Media use among Young Adults

In today's modern societies, interpersonal communication has been radically transformed by the use of social media. The aspects of social media platform that renders it fitting for web-based interactions and communication includes the ability for users to generate their individual profiles, create, share and receive content, engage with other users and display their social networks (Azhari et al., 2022).social media and its usage have been so extensively integrated with our daily lives that in certain studies nearly 90 percent of young adults reported using at least one social media platform to some degree (Azhari et al., 2022). This trend has been especially risen in younger age groups comprising adolescents and youths, where 95 percent of 15- to 24-year-olds reported using social media platforms such as WhatsApp, Instagram, Facebook, Twitter and Snapchat on a daily basis and as the primary means for social interaction (Azhari et al., 2022). Some extant literature presents a mixed body of evidence regarding the positive and negative effects of social media usage. The number of followers in one's profile in Facebook, or Instagram was associated with social adjustment in school, which indicates that social capital from online platforms may be associated with real-world relationships (Anderson, 2018). There are many literatures suggests that the usage of social media has showing positive impact on mental health (Baker and Algorta, 2016). However, more recent reviews have demonstrated only a weak correlation between social media and mental health benefits (Azhari et al., 2022). Over the years, the rapid rise of social networking sites (SNSs) such as Facebook, Twitter, Instagram, WhatsApp, snapchat, YouTube and so on has created a strong impact of several behaviour changes like the way of people communicating and interaction with others. Some of the biggest social networking website, often used to share news, uploading picture,

watching videos, etc., often requires people to engage themselves over a long period of time (Müller et al., 2016). Some social media websites have huge following at present like Facebook. Till date it has more than one billion active users, and it is estimated that in the future, this number will significantly increase, especially in developing countries (Pantic, 2014). Now-a- days, social media sites like, Facebook and Instagram are used for both business and personal communication, and its application has brought numerous advantages in terms of increasing connectivity, sharing ideas, and online learning (Pantic, 2014).

Nevertheless, despite these obvious benefits, recent, researchers have associated online social networking with several psychiatric disorders, including depressive symptoms, anxiety, and low self-esteem (Vannucci et al., 2017). Since social networks are a relatively new phenomenon, many questions are arising regarding their potential impact on mental health that remains unanswered. On the other side, due to the popularity of these online services in the general population, any future confirmed connection between them and psychiatric diseases would pose a serious public health concern (Pantic, 2014).

2.2 Mental Health

2.2.1 Definition:

"Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community". Mental health is a very important part of overall health and well-being. It has an important role in how individuals and groups make choices and decisions, connect with each other and make modifications to our life worlds. Mental health is a basic human right that is crucial to personal, community and socio-economic development. "Mental health is more than the absence of mental disorders". Some people are more vulnerable than others to mental health problems and this increased vulnerability may be determined by genetic

makeup, biological aspects or sometimes psychological factors such as emotional abilities, and substance use. (World mental health report: Transforming mental health for all, n.d.)

2.2.2 Mental Health and Populations:

World Health Organization (WHO) had conducted a community based epidemiological study and reported the prevalence of mental disorders among public is ranging from 12.2 percent to 48.6 percent across their lifetime and as well 8.4 percent to 29.1 percent over the period of 12 months. There was a huge disparity between the incidence of the mental disorders and availability of care. Mental illness and disease burden will not only cause major suffering to individuals themselves but it also will lead to the adverse developmental outcomes for nations. Several factors like, mental health perception, social stigma, lack of education, poverty, religious belief, overall combined with the families and individuals will leads to be more mental health burden (Dhyani et al., n.d.). Several communities based epidemiological study that has taken across India have shown that mental disease burden has strong impacts on both urban and rural areas. Several mental health basecamps, programme, healthcare education, efforts, research, diagnostics centre and prevention care are initiated from the non-government organizations (NGOs) to improve mental health among public (Dhyani et al., n.d.). During the period of COVID-19 outbreak people were forced into strict lockdown, social isolation, social distancing, tracking and isolating suspect, working-from-home, restriction travel, and gathering restrictions were implemented globally in 2020. This implementation of the lockdown had become the driver for increase in the use of the internet and social media among people. This internet and social media platform have come to act as the primary source of information for the public. The social isolation, social distancing, has spread throughout the world, with many people remaining socially isolated at home and number of studies have found that COVID-19 pandemics and social isolation can have a negative impact on the general population's

mental health. According to studies, the stress that is associated with social distancing, isolation, quarantine and false information from social media, upsetting news is associated with depression and anxiety (Phalswal, Neeraja, et al., 2023). social media offered an alternative way of maintaining social connection during this period. However, this is not a uniformly positive phenomenon. The information spreader in social media was overloaded with complete and irrelevant information, affecting both the mental health hygiene and the physical health of the human being (Phalswal, Pujari, et al., 2023).

2.2.3 Burden of Mental Health among India:

Mental disorders are one of the primary factors playing a major role in non-fatal disease burden in India. It was shown that in 2017 the mental illness and mental health disorders were the second most common cause of years lived with disability (YLDs) and the sixth common cause for the Disability Adjusted Life Years (DALYs), positioning it as a serious health care issue and with a severity adversely affecting healthcare systems particularly in the developing nations. In 2014, India adopted his first national mental health policy and revised mental healthcare act in 2017 to guarantee fair, inexpensive and universal mental health treatment because there are several social economic and demographic diversity across Indian states as well as cultural practices and following religious belief are more in urban and rural India. In order to reduce the prevalence of mental health and treatment, healthcare programs are adjusted to the specific needs of each state. According to data, it is shown that in 2017 India had 197.3 million persons (95 percent of the total population) are with mental disorders, accounting 14.3 percent of the total country population. Depressive disorders (33.8 percent) and anxiety disorders (19.0 percent) are contributing the most DALYs in India. The high socio-demographic index (SDI) state group like, Tamil Nadu, Kerala, Goa, and Telangana tend to be more prevalence of depressive disorder, and followed by Andhra Pradesh has intermediate SDI and Odisha has Low SDI. It is estimated

that 57 million Indian population (18 percent) of worldwide depressive population are lives in India (Dhyani et al., n.d.).

2.2.4 Social avoidance in depression:

Depression is a widespread condition, that is recognized as one of the primary contributors to global disability burden. It creating major impact on interpersonal activities. It is reported that individuals experiencing depression usually tend to have reduced engagement in social activities, getting less support from social circles, having challenges in interpersonal communication, struggles with assertiveness, with strained intimate relationships, feelings of low self-confidence, and have a tendency to seek excessive reassurance. Overall, they perceive social interactions as burdensome rather than enjoyable (Fernández-Theoduloz et al., 2019). Social avoidance is said to be the tendency to keep away from social situations, that plays a major role in depression. Additionally, depression is linked with traits such as low assertiveness, withdrawal from social interactions, avoidance behaviours, and shyness. While avoiding interpersonal conflict may initially shield individuals from negative outcomes, it can also lead to missed social and material opportunities, increased isolation, and preventing the person from the social skill development. Furthermore, it can prevent individuals from social skill and learning, dealing with interpersonal problems (Fernández-Theoduloz et al., 2019). Persons with high levels of depression may also tend to compare themselves excessively with others on attributes like facial structure, body parts, their skills, communication, daily activities, etc. This comparison will often lead to a further negative emotional impact on their self-esteem, interpersonal skills, communication, and their own abilities resulting in taking wrong decision in their life. In some cases, depression may be the major root cause for suicide, and the person will destroy their own life (Stice et al., 2011).

2.2.5 Social Anxiety and stress:

Social anxiety is specifically related to a lack of confidence, lack of presentation abilities that make a better impression on others. Social appearance anxiety, is a type of anxiety defined as the fear of being negatively evaluated or rejected by others because of one's physical appearance. People who experience social appearance anxiety usually hold a negative perception of their own body and appearance (Papapanou et al., 2023). The internet, a platform with options for displaying one's own images extensively, attracts more and more users every day, and it has become an integral part among many aspects of people's lives, especially becoming an essential part of their daily activities. Young adults (both men & women) their body image concerns and use of social media are two different concepts that are directly intertwined with each other (Schou Andreassen et al., 2016). The use of internet and social media contribute people to many types of social comparison, creating an ideal body image for both genders. After looking into these images, many of them are idealized and associated with negative feelings about their own body and the person desire to change their weight and body shape (Papapanou et al., 2023). In several social media platform, people take up identities like health influencer, gym influencer, diet influencer, etc. they give so many messages and tips about what the bodies of men and women should look like. For women, ideal body should be slim and curved. For, men it should be muscular. As these messages slowly conditions perceptions about own appearance, many people end up not being happy with their appearance and this becomes a potential source of stress or depression (Papapanou et al., 2023).

Another issue with internet use is the inability to have control the time spent on the internet. The term "non-chemical addiction" was emerged in 1990, at that time, the early recognition of excessive online behaviours like online sex and internet gaming, initially was termed as Internet addiction (Pantic et al., 2012). Over the years, among internet users, common

online activities include general browsing, social networking, email, chat, watching videos, and streaming films. Internet Use Disorder, a term that was coined subsequently, has been strongly associated with negative emotions on psychological development, and that can manifest in symptoms such as stress (Sha and Dong, 2021). Internet use disorder is likely to be high in age groups that are prone to high levels of internet usage.

According to a World health organization (WHO) report it is said that the prevalence of depression and anxiety was 4.4 percent and 3.6 percent respectively. This report shows that the occurrence of depression and anxiety was higher in females when compared to males. In adolescence, the occurrences were at the peak. Students who are doing their primary schooling and higher secondary schooling has facing severe mental health issues, due to their academic studies. Some studies have shown that, among adolescents, stress was showing higher association with social anxiety (Loneliness and Social Internet Use: Pathways to Reconnection in a Digital World?, n.d.). This may act as the mediator between the stress and internet use disorder. From several studies, it is clear that there is a direct correlation between the severity of internet use issues and the intensity of depression, anxiety, or stress experienced. In addition, depression, anxiety, and stress tend to be interconnected, with each other (Sha and Dong, 2021).

Researchers has explained the relationship between anxiety, depression, and smartphone use disorder. It has found that there is a strong correlation between depression and anxiety, and a positive association between anxiety and smartphone use disorder, also it is not showing any correlation, between depression and smartphone use disorder. However, all findings are not consistent. Some studies have indicated a positive impact on link between the use of social networking sites and depression, while others have found no such correlation. For instance, no significant differences in levels of depression, anxiety, and stress were observed between users and non-users of Facebook (Sha and Dong, 2021).

Research found that the online behaviours of depressed adolescents has indicated that they may be at a heightened risk of encountering online peer victimization, cyberbullying, engaging with unfamiliar individuals online, and exhibiting risky behaviours on the internet. However, some depressed youths have reported positive experiences with social media, particularly after finding social support by openly discussing their depressive symptoms with others. Adolescents themselves hold contradictory perspectives on the impact of their social media usage; those who consider themselves the "least happy" have expressed feeling more socially accepted and less timid due to social media, yet also experiencing lack of self-confidence, negative self-perception, and increased depression as a result of their online interactions (Radovic et al., 2017).

2.2.6 Existing mental health infrastructure in India:

In India, the government and other non-government urbanisation has started to provide community based mental health services, like National Mental Health Programme (NMHP), was introduced in 1981. The major aim of the NMHP is to provide the basic psychological health care at the ground level, as well as to ensure that service need to access by the most vulnerable and low socio-economic people. In Bangalore, the National Institute of Mental Health and Neurosciences (NIMHANS) has started the pilot research that integrating both the mental health care and community development through district mental health training programs in Bellary, Karnataka and the same was followed in Goa, West Bengal, and Rajasthan. The National Mental Health Strategy (NMHS) is expected to bring about positive changes in mental health services all over the nation. It is found that, more than 15 percent of adults in India require active treatment for various mental health conditions, and mental health challenges among teenagers and the elderly are significant issues. People living in metropolitan cities like Mumbai, Bangalore, Chennai, Delhi, Pune, Hyderabad, Surat, Kolkata etc. are witnessing an increasing burden of mental health

problems, particularly among middle-aged individuals in the workforce. In upcoming years, the employment, family life, salaries, and social interaction, social behaviours will be big question mark among people (Dhyani et al., n.d.).

2.2.7 Initiatives on Mental health in India:

2.2.7.1 National Mental Health Program:

The initiation of the National Mental Health Programme (NMHP) by the Government of India in August 1982 marked a significant turning point in the country's psychiatric landscape. The 30th anniversary of this milestone event was occurred in 2012. Furthermore, in 2014, India they took more stance in mental health by introducing the amendment of National Mental Health Policy and the draft National Health Policy of 2015. The primary objectives of this program to ensure that everyone need to access their basic mental health treatment, and to promote the utilizing mental health data in primary care and community welfare settings, and promoting community involvement in the establishment of mental health centres and self-help programs, are key objectives. The District Mental Health Program (DMHP) facilitates the delivery of community mental health services by integrating primary care-level mental health treatment with oversight and support from district-level mental health units. This program was primarily focused on suicide prevention, workplace stress management, and teenage counselling and creating the mental health care awareness among public (Dhyani et al., n.d.).

2.2.7.2 Existing Government Policy and Programs on Mental Health in India

The National Mental Health Care Act (2013) requires the government to ensure the universal access to mental health care, funded by government resources. It requires the government to meet international standards for workforce capacity within a decade and guarantees various rights for individuals with mental illness. The National Mental Health Policy (2014) aims to promote mental health care facilities, prevent mental disorders and

suicides, provide universal access to mental health services, enhance the availability of mental health professionals, encourages community involvement, support research, also ensure effective governance and accountability, monitoring and evaluation (Dhyani et al., n.d.).

2.2.7.3 Twelfth Five-Year Plan (2012-2017) and Mental Health

In 2012, the Ministry of Health and Family Welfare (MOHFW) established a Mental Health Policy Group to formulate a District Mental Health Program (DMHP) for the 12th Five-Year Plan (2012-2017). The group reviewed previous program evaluations and compiled outcomes to develop a draft DMHP and aimed at enhancing mental health outcomes and social welfare. The primary objectives included reducing distress, disability, and premature mortality that are associated with mental illness during the 12th plan period. This was to be achieved by ensuring universal availability and accessibility of psychiatric care for all individuals, thereby facilitating improved rehabilitation from mental health conditions. Other objectives like, reducing social stigma, encourage more community engagement and increasing the availability of health care at high-risk group (Dhyani et al., n.d.).

2.2.7.4 National Mental Health Policy (2014)

The National Mental Health Policy outlines a strategic plan to extend fundamental mental health care to all segments of the population throughout the country by 2020. The revamped National Mental Health Programme (NMHP), initiated in 1982 and structured around five key focus areas, will serve as the operational framework for executing this strategy. Under this policy, the District Mental Health Programme (DMHP) has been restructured to emphasize a central institution, typically the zonal medical college. The objectives of the NMHP include enhancing secondary-level mental health services, reinforcing psychiatric training in medical colleges, promoting the establishment of psychiatric units within general hospitals, optimizing and modernizing psychiatric institutions, strengthening

mental health authorities at both central and state levels, prioritizing local and state-level initiatives, and advancing mental health research, education, and outreach efforts. Key components of this policy strategy include compiling epidemiological data on mental disorders, addressing community therapeutic needs, fostering transdisciplinary research, and promoting stakeholder collaboration. Integral to achieving these goals are focused information, education, and communication (IEC) efforts, led by specialized organizations such as the National Institute of Mass Communication, aimed at enhancing community awareness and understanding of mental health issues (Dhyani et al., n.d.).

2.2.7.5 SDGs and Mental Health

In September 2015, the United Nations (UN) marked a historic moment by including mental health as one of the Sustainable Development Goals (SDGs), recognizing the global burden of mental illness, its impact on community development, and prioritizing it for the next 15 years within international development efforts. The SDGs emphasize the promotion of psychological health and well-being, achieving universal health coverage, and ensuring high-quality healthcare services. Mental health is explicitly mentioned three times in Goal 3 (the "health goal"), emphasizing the importance of preventing and treating non-communicable diseases and improving mental well-being. The UN's adoption of World Health Organization (WHO) recommendations signifies a significant step forward in global efforts to address mental health issues. The SDGs aim to be achieved by 2030, with nations urged to mobilize their efforts to fulfil their objectives. Goal 3 specifically targets reducing non-communicable disease mortality by one-third by 2030 through the promotion of mental health and substance misuse prevention and treatment programs. Additionally, the SDGs prioritize eliminating all forms of violence against women and girls, including sexual exploitation, sexual abuse, both in public and private spheres. (Dhyani et al., n.d.)

2.3 Rationale

In India, approximately 197.3 million individuals, which is 95 percent of the total population, were affected by mental disorders, representing 14.3 percent of the country's overall population. In 2017, mental illnesses accounted for 4.7 percent of the total Disability-Adjusted Life Years (DALYs) in India, a notable increase from 2.5 percent in 1990. During the same year, mental illnesses were the primary cause of Years Lived with Disability (YLDs) in India, constituting 14.5 percent of all YLDs. Depressive disorders 33.8 percent and anxiety disorders 19.0 percent emerged as the leading contributors to DALYs in India.(Dhyani et al., n.d.) Depression and anxiety was reported to have a bidirectional relationship with the social individual that stimulates the onset and maintenance of illness (Weinstein et al., 2015). The social characteristics were affected by mental health conditions are completely relevant to their sense of well-being. Depression and anxiety have high levels of comorbidity and may alter the size and composition of an individual social network potentially leading to increased feelings of isolation. (Barman et al., 2018) In-Bengaluru urban colleges, 36.9 percent of social media users were found to be addicted. About 38.4 percent students facing strain on eyes, 25.5 percent had sleep disturbances and 25.5 percent students facing anger issues. Consumption of alcohol. (Ramesh Masthi et al., 2018)

2.4 Objectives

1. To examine the relationship between social media usage and mental health among engineering students.

2. To identify the specific social media activities (e.g., passive scrolling, active engagement, content creation) that are associated with mental health outcomes among engineering students

CHAPTER 3

METHODOLOGY

3.1 Study design

This was a quantitative cross-sectional survey to assess Social Media impacts on Mental Health among Engineering students in Puducherry.

3.2 Study setting

The study was conducted in Puducherry district. The number of Engineering and technology institutions providing four or more than four Undergraduate (UG) programs in Puducherry were identified to be 10, namely PTU (Puducherry Technological University), Kalapet; MIT (Manakula Vinayagar Institute of Technology), Kalitheerthalkuppam; SVCET (Sri Venkateshwaraa College of Engineering & Technology), Ariyur; SKCET (Shri Krishnaa College of Engineering & Technology), Mannadipet; SGCET (Sri Ganesh College of Enginering & Technology), Kanniyakoil; RGCET (Rajiv Gandhi College of Engineering and Technology), Kirumampakkam; ACET (Achariya College of Engineering & Technology), Villianoor; ACE (Alpha College of Engineering & Technology), Bahour; CET (Christ College of Engineering & Technology), Moolakulam; SMVEC (Sri Manakula Vinayagar Engineering College), Madagadipet. The request for permission to perform the study was denied by two institutions, while two institutions did not respond. As a result, I approached the remaining six institutions and data from 300 participants were aimed for.

3.3 Study Population

UG students Studying in Puducherry district are the target population and the sampled population is the 10 Engineering and technology institutions, later reduced to six based on institutional consent.

Inclusion criteria: Full time UG students pursing in third year and above are consent for the study.

Exclusion criteria: Students below the age of 18 are not included in this study, as were students pursuing other than undergraduate program and students unwilling to give consent.

3.4 Sample size estimation

Based on literature review (Asibong et al., 2020), anticipated difference is 17 percent in the proportion of participants with distress between none/mildly internet addicted (36 percent) and moderate/severely addicted (19 percent). To achieve 80 percent power, with alpha error of 5 percent, minimum sample size required as calculated using Epi Info was 63 in each group. i.e. a total of 126. A design effect of 2 was applied and the sample size required is 252. Expecting that fifty percent of the participants will be with none or mild internet addiction, the sample size for this cross-sectional survey is rounded to 300.

3.5 Sampling procedure

The number of Engineering and technology institutions providing four or more than four UG programs in Puducherry were identified to be 10. The recruitment was done by the principal investigator. The request for permission to perform the study was denied by two institutions, while two institutions did not respond. The study participants were selected from the remaining six engineering colleges. The PI communicated directly to respective college Principal for getting permission to collect data. After getting permission, datasheet hardcopy (in few colleges) and link was shared to access google form was provided to students and data was collected in front of respective staffs.

3.6 Data collection process

The PI has given a short introduction about the study to students, in front of respective faculty, and datasheet, hardcopy was provided to the students. In few colleges, data is

collected through online mode, a link is sent through WhatsApp to access the google form questionnaire tools for accessing usage of social media and the 21-item Depression, Anxiety, and Stress Scale – Youth version (DASS-Y 21). In both cases, the PI communicated with the participants, and the initial consenting process took place before answering the questionnaire by clicking 'Yes' option. The link was activated for one entry by one person, to avoid duplicate responses. No compulsion was made, and data were collected from students by students determining their own willingness to fill the form.

3.7 Data collection instruments

A structured questionnaire schedule was developed in English. The information sheet was explained in detail to each of the participants by the principal investigator. After clarification of their concerns and queries they were asked to sign the consent form. In few colleges the PI shared the link of the questionnaire survey in google form to the participant and their responses were recorded in the excel. The different section of the questionnaire schedule is as follows:

Section 1: Socio-Demographic characteristics of the participant - This section covers the details regarding Name (optional), Student ID, Age, Gender, Place of Residence, College name, year of pursuing, family type and relationship status.

Section 2: Pattern of Internet Use- This section covers about how long participant using internet, purpose of using internet, social media platform, most using platform, primary purpose of using social media and their favourite online activity.

Section 3: Depression, Anxiety and Stress (DASS Y- 21) - This section captures depression, anxiety, stress questionaries, each section has 7 questions, with 4 Likert scale (0, 1, 2, 3). The questionnaire was translated into Tamil for better understanding. A validated Tamil

version of the DASSY-21 was available and kept handy for ease of understanding of participants (Alagarsamy et al., 2022).

3.8 Data entry and analysis

The information was received by the participants in the softcopy using the data entry platform prepared in google form, and later converted to Microsoft Excel. The data were analyzed with the aid of IBM SPSS Statistics-25 for Windows. The outcomes of engineering students with depression, anxiety, stress, were estimated. Data were summarized as means and standard deviations of proportions. Further analysis was carried out to determine how the characteristics of respondent age, gender, usage of social media, and most frequently using social media are associated with depression, anxiety, stress, Chi-square test or Fischer's exact test, was used to test the associations. Binary logistic regression was used for estimating odds ratios for each outcome based on exposure category of each independent variable of interest. Variables that had a p value of less than 0.1 in the bivariate analysis were carried forward for a multivariate analysis using Enter method of binary logistic regression.

3.9 Ethical concerns

The Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Thiruvananthapuram, Kerala had reviewed the study and gave clearance to conduct the study (SCT/IEC/2174/DECEMBER/2023). Before moving to each institution, permission was obtained from dean/principal of respective institution. Participation in the study was completely voluntary. The data was conducted only after obtaining informed consent from the participants. The participant's identity and personal information were kept confidential.

CHAPTER 4

RESULTS

The study subjects were obtained from the six selected Engineering and Technology institutions in Puducherry, after obtaining permission from the respective institutions data was collected Infront of respective faculty. From a sampling frame of around 300 full time undergraduate engineering students, a total of 288 participants chose to respond. The background details of the study participants, information on use of internet, social media site usage and, depression, anxiety, stress, and the characteristics associated with mental health are described in this chapter.

4.1 Background details of the study participants

The sociodemographic characteristics of the study participants, details regarding their fulltime undergraduate engineering departments and the list of institutions are described in this section (Tables 4.1 to 4.3). The highest proportion of the study participants was 94 (32.6 percent), were from Sri Venkateswara college of Engineering and technology (SVCET) Puducherry.

Table 4.1. List of institutions and sample size

Name of the Engineering and technology institution	Frequency (n =288)
Achariya college of Engineering and technology (ACET)	45 (15.6)
Christ College of Engineering and technology (CCET)	29 (10.1)
Manakula Vinayagar Institute of technology (MVIT)	32 (11.1)
Rajiv Gandhi college of Engineering and technology (RGCET)	33 (11.5)
Sri Manakula Vinayagar Engineering College (SMVEC)	55 (19.1)
Sri Venkateswara college of Engineering and technology (SVCET)	94 (32.6)

Table 4.2. Socio-demographic characteristics of the population.

Socio-demographic characteristics of subjects (n=288)		
Category	**Variable**	**Frequency (%)**
Age (in years)	19	101 (35.1)
	20	123 (42.7)
	21	55 (19.1)
	22	8 (2.8)
	23	1 (0.3)
Gender	Male	162 (56.3)
	Female	126 (43.8)
Place	Urban	116 (40.3)
	Rural	172(59.7)
Marital Status	Single	288 (100)
No. of Siblings	One/single child	208 (72.2)
	Two	56 (19.4)
	Three	23 (8.0)
	>3	1 (0.3)
Siblings position	Elder / Single child	98 (34.0)
	Middle	23 (8.0)
	Young	167 (58.0)
Residence	Day scholar	274 (95.1)
	Hosteller	14 (4.9)
Family type	Joint	35 (12.2)
	Nuclear	239 (83.0)

Hostel room	Single	1 (0.3)
	Double	2 (0.7)
	More than 2	2 (0.7)
	More than 3	9 (3.1)

Table 4.3. Details regarding full time Engineering departments

Name of the Departments	Frequency (n =288)
Bio Medical Engineering (BME)	33 (11.5)
Computer Science Engineering (CSE)	127 (44.1)
Electronics & Communication Engineering (ECE)	44 (15.3)
Electricals & Electronics Engineering (EEE)	55 (19.1)
Information Technology (IT)	29 (10.1)

The total number of participants in the study were 288. The mean age of the participants was 19 years, with a standard deviation of 0.82 (range 19 – 23 years). Male constituted 162 (56.3 percent) and Female constituted 126 (43.8 percent) in this study. Majority of the participants 172 (59.7 percent) are from Rural area whereas urban area constitutes 116 (40.3 percent). Everyone who participated in this study were single 288 (100 percent). Being a young sibling was more frequent, 167 (58.0 percent), in this study than were elder / single child constitutes 98 (34.0 percent). Most, 274 (95.1 percent) participants were from day scholar category and 239 (83.0 percent) of study participant were from nuclear family. Hostellers contributed 14 (4.9 percent) and most of them are living in arrangements having more than three 9 (3.1 percent) persons in a room. Half of the study participants 127 (44.1 percent) were from Computer Science Engineering (CSE) department and 55 (19.1 percent) were from Electricals & Electronics Engineering (EEE) department.

Table 4.4. Internet and Social media usage of the participants

Social Media Usage Characteristics (n=288)		
Category	**Variable**	**Frequency (%)**
Years of using internet	00-05 years	130 (45.1)
	05-10 years	107 (37.2)
	10-15 years	13 (4.5)
	15-20 years	38 (13.2)
Internet usage in a day (hrs)	0-2 hrs	40 (13.9)
	2-4 hrs	161 (55.9)
	4-6 hrs	87 (30.2)
Gadgets used to access internet	Mobile	257 (89.2)
	Laptop	5 (1.7)
	All the above	26 (9.0)
Social Media users	Yes	267 (92.7)
	No	21 (7.3)
Social Media Platform	WhatsApp	265 (92.0)
	Facebook	93 (32.3)
	Instagram	249 (86.5)
	Twitter	72 (25.0)
	Snapchat	192 (66.7)
	YouTube	256 (88.9)
	Telegram	202 (70.1)
	Threads	48 (16.7)
	Name	260 (90.3)

Information included on the social media account	Date of Birth	209 (72.6)
	Relationship status	86 (29.9)
	Gender	214 (74.3)
	Photos	139 (48.3)
	Mobile Number	155 (53.8)
	Educational Details	78 (27.1)
	College	99 (34.4)
Primary usage of social media sites	Connecting with friends/family	239 (83.0)
	Sharing photos/videos	176 (61.1)
	Keeping up with news/current events	165 (57.3)
	Networking/professional purposes	130 (45.1)
	Entertainment (memes, videos, etc.)	248 (86.1)
	Academic/work-related purposes	144 (50.0)
Devices used to access social media	Mobile device	264 (91.7)
	Laptop	90 (31.3)
	Tablet	22 (7.6)
Using social media accounts for more than 1-2 years	WhatsApp	229 (79.5)
	Facebook	67 (23.3)
	Instagram	186 (64.6)

	Twitter	33 (11.5)
	Snapchat	94 (32.6)
	YouTube	220 (76.4)
	Telegram	97 (33.7)
	Threads	8 (2.8)
Very Frequently used social media platform (on an average in a Day) (more than 6 hrs)	WhatsApp	94 (32.6)
	Facebook	11 (3.8)
	Instagram	116 (40.3)
	Twitter	7 (2.4)
	Snapchat	30 (10.4)
	YouTube	87 (30.2)
	Telegram	20 (6.9)
	Threads	7 (2.4)
Gadgets used for internet activities (Mobile)	Chatting (WhatsApp. messenger, Skype, Facebook messenger, snap chat, Instagram chat etc.)	209 (72.6)
	Emails	187 (64.9)
	Shopping	202 (70.1)
	Downloading Video/Movie	204 (70.8)
	Downloading Music/Songs	215 (74.7)
	Playing Games	190 (66.0)
	Surfing on Social Networking Sites	194 (67.4)

	(Facebook, Instagram, Snap chat, etc.)	
	Sharing Files	205 (71.2)
	Browsing Websites	173 (60.1)
	Viewing adult content	115 (39.9)
	College Work (download study material)	187 (64.9)
	Online Banking	168 (58.3)
	Forums/Blogs	92 (31.9)
Preferred way of interaction with friends staying in same city	Chatting on social media sites (WhatsApp, Facebook etc.)	212 (73.6)
	Meeting them in person	166 (57.6)
	Calling them over the phone	185 (64.2)
Favourite online activity (Very Frequently in a day) (More than 6 hrs)	Chatting (WhatsApp. messenger, Skype, Facebook messenger, snap chat, Instagram chat etc.)	97 (33.7)
	Emails	9 (3.1)
	Shopping	11 (3.8)
	Downloading Video/Movie	20 (6.9)
	Downloading Music/Songs	27 (9.4)
	Playing Games	53 (18.4)

	Surfing on Social Networking Sites (Facebook, Instagram, Snap chat, etc.)	73 (25.3)
	Sharing Files	19 (6.6)
	Browsing Websites	20 (6.9)
	Viewing adult content	7 (2.4)
	College Work (download study material)	25 (8.7)
	Online Banking	17 (5.9)
	Forums/Blogs	13 (4.5)
Alerts notification for social media in mobile phone	Yes	179 (62.2)
	No	88 (30.6)

The internet and social media usage of the study participants are described in this section. Tables 4.4 shows that students using internet 00-05 years were 130 (45.1 percent), 161 (55.9 percent) students were using internet 02-04 hours in a day. One third of the students 257 (89.2 percent) using mobile device to access internet. 26 (9.0 percent) students were using all the gadgets (Mobile, Tablet, laptop) to access internet. Of the total participants, 267 (92.7 percent) students were using social media. Among them 265 (92.0 percent) students are in WhatsApp, 256 (88.9 percent) using YouTube, 249 (86.5 percent) were using Instagram, 202 (70.1 percent) students were in Telegram. About 260 (90.3 percent) students were included their name in their social media account, 214 (74.3 percent) students mentioned gender in their social media account. Out of 288 students, 248 (86.1 percent)

students were using social media for entertainment (memes, videos, etc.) and 239 (83.0 percent) were using social media to connecting with friends/ family as their primary usage. 264 (91.7 percent) students were using mobile device to access social media. Out of total students, 229 (79.5 percent) were using WhatsApp, 220 (76.4 percent) were using YouTube, and 186 (64.6 percent) were using Instagram accounts for more than 1-2 years. Additionally, 116 (40.3 percent) students were mentioned Instagram as very frequently used social media platform, using average of more than 6 hours in a day. A total of 209 (72.6 percent) students were using mobile gadgets for various internet activities, particularly chatting on various social media platforms such as WhatsApp, Facebook Messenger, Snapchat, and Instagram and 215 (74.7 percent) were using mobile device for downloading music/ songs. Out of total students, 212 (73.6 percent) were responded, chatting on social media sites like WhatsApp and Facebook, Additionally,185 (64.2 percent) respondents calling them over the phone as their preferred way of interaction with friends who reside in the same city. About 97 (33.7 percent) students were responded chatting, and 73 (25.3 percent) responded surfing on social networking sites as their favourite online activity that they engage very frequently for more than 6 hours a day. Out of total participants, 179 (62.2 percent) students were kept their alert notification on for social media in mobile phone.

Table 4.5 DASS-Y 21 individual variable frequency

Variable	Not True (0)	A Little True (1)	Fairly True (2)	Very True (3)
I got upset about little things	97 (33.7)	107 (37.2)	52 (18.1)	32 (11.1)
I felt dizzy, like I was about to faint	140 (48.6)	104 (36.1)	30 (10.4)	14 (4.9)

I did not enjoy anything	132 (45.8)	89 (30.9)	35 (12.2)	32 (11.1)
I had trouble breathing (e.g., fast breathing), even though I wasn't exercising and I was not sick.	186 (64.6)	69 (24.0)	16 (5.6)	17 (5.9)
I hated my life	149 (51.7)	73 (25.3)	31 (10.8)	35 (12.2)
I found myself over-reacting to situations	118 (41.0)	106 (36.8)	42 (14.6)	22 (7.6)
My hands felt shaky	153 (53.1)	88 (30.6)	29 (10.1)	18 (6.3)
I was stressing about lots of things	84 (29.2)	105 (36.5)	49 (17.0)	50 (17.4)
I felt terrified	142 (49.3)	100 (34.7)	28 (9.7)	18 (6.3)
There was nothing nice I could look forward to	133 (46.2)	90 (31.3)	41 (14.2)	24 (8.3)
I was easily irritated	114 (39.6)	110 (38.2)	41 (14.2)	23 (8.0)
I found it difficult to relax	131 (45.5)	89 (30.9)	42 (14.6)	26 (9.0)
I could not stop feeling sad	115 (39.9)	98 (34.0)	48 (16.7)	27 (9.4)
I got annoyed when people interrupted me	140 (48.6)	86 (29.9)	46 (16.0)	16 (5.6)
I felt like I was about to panic	163 (56.6)	81 (28.1)	29 (10.1)	15 (5.2)
I hated myself	152 (52.8)	81 (28.1)	29 (10.1)	26 (9.0)

I felt like I was no good	145 (50.3)	90 (31.3)	34 (11.8)	19 (6.6)
I was easily annoyed	133 (46.2)	103 (35.8)	33 (11.5)	19 (6.6)
I could feel my heart beating really fast, even though I hadn't done any hard exercise	164 (56.9)	81 (28.1)	25 (8.7)	18 (6.3)
I felt scared for no good reason	154 (53.5)	86 (29.9)	31 (10.8)	17 (5.9)
I felt that life was terrible	128 (44.4)	91 (31.6)	43 (14.9)	26 (9.0)

Table 4.6 DASS-Y 21 score distribution

DASS-Y 21 score distribution in Frequency (%) (n=288)			
Category	**Depression**	**Anxiety**	**Stress**
Normal	134(46.5)	132 (45.8)	179 (62.2)
Mild	46 (16.0)	35 (12.2)	39 (13.5)
Moderate	59 (20.5)	69 (24.0)	34 (11.8)
Severe	20 (6.9)	18 (6.3)	22 (7.6)
Extremely Severe	29 (10.1)	34 (11.8)	14 (4.9)

The Depression, Anxiety and Stress Scale - 21 Items (DASS-Y 21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Table 4.5 shows individual variable frequency and Table 4.6 shows the total score, the prevalence of depression, anxiety, and stress was assessed across different severity levels categorized as Normal, Mild, Moderate, Severe, and Extremely Severe. Out of total participants, 20 (6.9 percent) students were severely depressed. Additionally, 29 (10.1

percent) students were extremely severe depressed. About, 18 (6.3 percent) students were severely anxious and 34 (11.8 percent) were extremely severe anxious. Nearly, 22 (7.6 percent) students were severely stressed, and 14 (4.9 percent) were extremely severe stressed.

Table 4.7 DASS-Y 21 Total score distribution

DASS Total Score		
Variable	**Category**	**Frequency % (n=288)**
DASS Total Score	No Mental health Concern	18 (6.3)
	Mental Health	270 (93.8)

Table 4.7 states, DASS (Depression Anxiety Stress Scale) total score. Out of total students, 270 (93.8 percent) students, showed signs of mental health concerns, while 18 (6.3 percent) students, did not exhibit mental health concerns. This score distribution was calculated by combining A little true (1), Fairly true (2) and very true (3) as Mental Health, and Not true (0) as No Mental health concern.

Table 4.8 Bivariate Analysis for socio-demographic characteristics and Stress

Bivariate Analysis: socio-demographic characteristics and Stress					
Variable	**Category**	**Participant (N)**	**Stress n (%)**	**p-value**	**Crude OR [CI (95%)]**
Age	<=20	224	58 (25.9)	0.24	Reference
	21 & above	64	12 (18.8)		0.66 [0.33,1.32]
Place	Urban	172	44 (25.6)	0.54	Reference

	Rural	116	26 (22.4)		0.84 [0.48,1.46]
Gender	Female	126	37 (29.4)	**0.08**	**Reference**
	Male	162	33 (20.4)		0.61 [0.36,1.06]
Family type	Joint Family	42	10 (23.8)	0.93	Reference
	Nuclear Family	246	60 (24.4)		1.03 [0.48, 2.22]

Table 4.8 states, bivariate analysis for socio-demographic characteristics and Stress. Among the variables, Gender (p-value=0.08) shows possible association with stress, although not statistically significant at p=0.05 level. The odds ratio for this characteristic in males compared to females is 0.61, with a 95 percent confidence interval of [0.36, 1.06]. As compared to female 37 (29.4 percent), males 33 (20.4 percent) are experiencing 0.61 times less stress.

Table 4.9 Bivariate Analysis for social media usage and Stress

Bivariate Analysis: social Media usage and Stress					
Variable	**Category**	**Participant (N)**	**Stress n (%)**	**p-value**	**Crude OR [CI (95%)]**
Social media	No	21	3 (14.3)	0.27	Reference
	Yes	267	67 (25.1)		2.01 [0.57,7.04]

Internet usage in a day	0-2 hrs/ 2-4 hrs	201	40 (19.9)	**0.01**	**Reference**
	4-6 hrs	87	30 (34.5)		2.12 [1.21,3.71]
Primary SMS use (to connect friends)	No	49	13 (26.5)	0.70	Reference
	Yes	239	57 (23.8)		0.87 [0.43,1.75]
Primary SMS use (entertain)	No	40	8 (20.0)	0.49	Reference
	Yes	248	62 (25.0)		1.33 [0.58,3.05]
Information shared (4 & above)	No	94	21 (22.3)	0.59	Reference
	Yes	194	49 (25.3)		1.17 [0.65,2.10]
Multiple SNS user more than 1 year	No	154	36 (23.4)	0.69	Reference
	Yes	134	34 (25.4)		1.11 [0.65,1.91]

Table 4.9 states, bivariate analysis for social media usage and Stress. Among the variables, higher Internet usage in a day (p-value=0.01) was significantly associated with having stress. The odds ratio for this characteristic is 2.12, with a 95 percent confidence interval of [1.21, 3.71]. As compared to (0-2/2-4 hours) internet users 40 (19.9 percent), 4-6 hours internet users 30 (34.5 percent) are experiencing 2.12 times more stress.

Table 4.10 Bivariate Analysis for socio-demographic characteristics and Depression

Bivariate analysis: Socio-demographic characteristics and Depression					
Variable	**Category**	**Participant (N)**	**Depression n (%)**	**p-value**	**Crude OR [CI (95%)]**
Age	<=20	224	83 (37.1)	0.77	Reference
	21 & above	64	25 (39.1)		1.09 [0.61,1.92]
Place	Urban	172	68 (39.5)	0.38	Reference
	Rural	116	40 (34.5)		0.80 [0.49,1.31]
Gender	Female	126	55 (43.7)	**0.06**	**Reference**
	Male	162	53 (32.7)		0.63 [0.39,1.02]
Family type	Joint Family	42	16 (38.1)	0.93	Reference
	Nuclear Family	246	92 (37.4)		0.97 [0.49,1.90]

Table 4.10 states, bivariate analysis for socio-demographic characteristics and Depression. Among the variables, Gender (p-value=0.06) was possibly associated with Depression, although not statistically significant at p=0.05 level. The odds ratio for this characteristic in males compared to females is 0.63, with a 95 percent confidence interval of [0.39, 1.02]. As compared to females 55 (43.7 percent), males are experiencing 53 (32.7 percent) 0.63 times less Depressed.

Table 4.11 Bivariate Analysis for Social media usage and Depression

Bivariate Analysis: social Media usage and Depression					
Variable	**Category**	**Participant (N)**	**Depression n (%)**	**p-value**	**Crude OR [CI (95%)]**
Social media	No	21	5 (23.8)	0.18	Reference
	Yes	267	103 (38.6)		2.01 [0.71,5.65]
Internet usage in a day	0-2 hrs/ 2-4 hrs	201	69 (34.3)	**0.09**	**Reference**
	4-6 hrs	87	39 (44.8)		1.55 [0.93,2.56]
Primary SMS use (to connect friends)	No	49	19 (38.8)	0.84	Reference
	Yes	239	89 (37.2)		0.94 [0.49,1.76]
Primary SMS use (entertain)	No	40	13 (32.5)	0.48	Reference
	Yes	248	95 (38.3)		1.29 [0.63,2.62]
Information shared (4 & above)	No	94	33 (35.1)	0.56	Reference
	Yes	194	75 (38.7)		1.16 [0.70,1.94]
Multiple SMS user more than 1 year	No	154	57 (37.0)	0.85	Reference
	Yes	134	51 (38.1)		1.05 [0.65,1.69]

Table 4.11 states, bivariate analysis for social media usage and Depression. Among the variables, Internet usage in a day (p-value=0.09) shows significantly associated with Depression. The odds ratio for this characteristic is 1.55, with a 95 percent confidence interval of [0.93, 2.56]. As compared to (0-2/2-4 hours) internet users 69 (34.3 percent), 4-6 hours internet users 39 (44.8 percent) are experiencing 1.55 times more Depression.

Table 4.12 Bivariate Analysis for social demographic characteristics and Anxiety

Bivariate Analysis: social demographic characteristics and Anxiety					
Variable	**Category**	**Participant (N)**	**Anxiety n (%)**	**p-value**	**Crude OR [CI (95%)]**
Age	<=20	224	92 (41.1)	0.54	Reference
	21 & above	64	29 (45.3)		1.19 [0.68,2.01]
Place	Urban	172	74 (43.0)	0.67	Reference
	Rural	116	47 (40.5)		0.90 [0.56,1.45]
Gender	Female	126	56 (44.4)	0.46	Reference
	Male	162	65 (40.1)		0.84 [0.52,1.34]
Family type	Joint family	42	18 (42.9)	0.91	Reference
	Nuclear family	246	103 (41.9)		0.96 [0.50,1.86]

Table 4.12 states, bivariate analysis for social demographic characteristics and Anxiety. No variables, shows significantly associated with Depression.

Table 4.13 Bivariate Analysis for social Media usage and Anxiety

Bivariate Analysis: social Media usage and Anxiety					
Variable	**Category**	**Participant (N)**	**Anxiety n (%)**	**p-value**	**Crude OR [CI (95%)]**
Social media	No	21	6 (28.6)	0.19	Reference
	Yes	267	115 (43.1)		1.89 [0.71,5.02]
Internet usage in a day	0-2 hrs/ 2-4 hrs	201	77 (38.3)	**0.05**	**Reference**
	4-6 hrs	87	44 (50.6)		1.64 [0.99,2.74]
Primary SMS use (to connect friends)	No	49	17 (34.7)	0.25	Reference
	Yes	239	104 (43.5)		1.45 [0.76,2.75]
Primary SMS use (entertain)	No	40	13 (32.5)	0.19	Reference
	Yes	248	108 (43.5)		1.60 [0.79,3.25]
Information shared (4 & above)	No	94	41 (43.6)	0.70	Reference
	Yes	194	80 (41.2)		0.91 [0.55,1.49]
Multiple SMS user more than 1 year	No	154	56 (36.4)	**0.04**	**Reference**
	Yes	134	65 (48.5)		1.65 [1.03,2.64]

Table 4.13 states, bivariate analysis for social Media usage and Anxiety. Among the variables, Internet usage in a day (p-value=0.05) shows significantly associated with Anxiety. The odds ratio for this characteristic is 1.64, with a 95 percent confidence interval of [0.99, 2.74]. As compared to (0-2/2-4 hours) internet users 77 (38.3 percent), 4-6 hours internet users 44 (50.6 percent) are experiencing 1.64 times more anxious. Additionally, Multiple SMS user more than 1 year (p-value=0.04) shows significantly associated with Anxiety. The odds ratio for this characteristic is 1.65, with a 95 percent confidence interval of [1.03, 2.64]. As compared to students not using multiple SMS more than one year 56 (36.4 percent), students using multiple SMS more than one year 65 (48.5 percent) are experiencing 1.65 times more anxious

Table 4.14 Multivariate Analysis for Stress

Multivariate Analysis Stress					
Variable	**Category**	**p-value**	**Crude OR [CI (95%)]**	**Adjusted OR [CI (95%)]**	**P (Wald test)**
Gender	Female	**0.08**	**Reference**		2.89
	Male		0.61 [0.36,1.06]	0.62 [0.36, 1.07]	
Internet usage in a day	0-2 hrs/ 2-4 hrs	**0.01**	**Reference**		6.66
	4-6 hrs		2.12 [1.21,3.71]	2.10 [1.20, 3.70]	

Table 4.14 shows the results of the multivariate analysis on stress, Gender did not show a statistically significant relationship with stress, males having an odds ratio of 0.61 with a 95 % confidence interval of [0.36 to 1.06], that remained non-significant after adjustment (adjusted OR = 0.62, 95 percent CI: 0.36 to 1.07, p = 0.61). Additionally, internet usage

per day was strongly associated with stress levels. Participants who used the internet for 4-6 hours daily had a significantly higher odds of experiencing stress compared to those who used it for 0-2 hours or 2-4 hours (adjusted OR = 2.10, 95 percent CI: 1.20 to 3.70, p = 0.01). This suggests that increased internet usage in the range of 4-6 hours daily is independently associated with higher odds of experiencing stress.

Table 4.15 Multivariate Analysis for Depression

Multivariate Analysis Depression					
Variable	**Category**	**p-value**	**Crude OR [CI (95%)]**	**Adjusted OR [CI (95%)]**	**P (Wald test)**
Gender	Female	**0.06**	**Reference**		3.45
	Male		0.63 [0.39,1.02]	0.63 [0.39, 1.03]	
Internet usage in a day	0-2 hrs/ 2-4 hrs	**0.09**	**Reference**		2.69
	4-6 hrs		1.55 [0.93,2.56]	1.54 [0.92, 2.58]	

Table 4.15 shows the multivariate analysis on depression. Gender showed a borderline significant relationship with depression, where males had a crude odds ratio (OR) of 0.63 (95 percent CI: 0.39 to 1.02), which remained non-significant after adjustment (adjusted OR = 0.63, 95 percent CI: 0.39 to 1.03, p = 0.63). In terms of internet usage per day, although there was no statistically significant association overall (p = 0.09), participants who used the internet for 4-6 hours daily had a slightly elevated odds of experiencing depression compared to those who used it for 0-2 hours or 2-4 hours (adjusted OR = 1.54, 95 percent CI: 0.92 to 2.58). This suggests a trend towards higher odds of depression with

increased internet usage in the range of 4-6 hours daily, although this finding did not reach statistical significance in this analysis.

Table 4.16 Multivariate Analysis for Anxiety

Multivariate Analysis Anxiety					
Variable	**Category**	**p-value**	**Crude OR [CI (95%)]**	**Adjusted OR [CI (95%)]**	**P (Wald test)**
Internet usage in a day	0-2 hrs/ 2-4 hrs	**0.05**	**Reference**		3.04
	4-6 hrs		1.64 [0.99,2.74]	1.58 [0.94, 2.63]	
Multiple SNS user more than 1 year	Yes	**0.04**	1.65 [1.03,2.64]	1.59 [0.99, 2.56]	3.64
	No		**Reference**		

Table 4.16 shows the multivariate analysis on anxiety. Participants who used the internet for 4-6 hours daily showed a trend towards increased odds of anxiety compared to those who used it for 0-2 hours or 2-4 hours, with a crude odds ratio (OR) of 1.64 (95 percent CI: 0.99 to 2.74). After adjustment, this association remained, with an adjusted OR of 1.58 (95 percent CI: 0.94 to 2.63, p = 0.05), indicating a potential link between moderate internet usage (4-6 hours per day) and higher anxiety levels. Additionally, participants who reported using multiple SMS for more than one year had significantly higher odds of anxiety compared to those who did not use multiple SMS services (adjusted OR = 1.59, 95 percent CI: 0.99 to 2.56, p = 0.04). This association became even more pronounced after adjustment, with a Wald test p-value of 0.03 (adjusted OR = 3.64). Therefore, using multiple SMS for more than one year appears to be independently associated with increased odds of anxiety.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Discussion

The major purpose of the study was to examine the relationship between social media usage and prevalence of mental health (Depression, Anxiety, Stress) among engineering students in Puducherry district, Puducherry. The study used a cross-sectional design and involved 288 undergraduate engineering students from various institutions in Puducherry district, Puducherry. This chapter discusses the interpretations of key results of the study as well as strengths and limitations of the study. The participants' sociodemographic details, internet and social media usage patterns, and mental health characteristics (depression, anxiety, stress) were assessed. The highest proportion of students age were 19 years, 101 (35.1 percent). Male constituted more 162 (56.3 percent) in this study. Most of the socio-demographic characteristics of the participants did not show associations with mental health outcomes, except of gender. Gender, shows almost significant association with depression, males 53(32.7 percent) experiencing 0.63 times lower odds of depression when compared to females 55 (43.7 percent)(Radwan et al., 2020). This finding is consistent with previous research indicating higher rates of depression among females when compared to males. (Phalswal, Neeraja, et al., 2023)

The use of social media and digital screens and its association with mental health was analysed. Almost all participants in the present study were using social media or digital screens. In this study, 264 (91.7 percent) students were responded mobile device to spend time on internet and social media followed by laptop 90 (31.3 percent) (Liu and Liu, 2020). Males were spending more time on internet and social media, which is similar to that reported earlier among the male students (Lampert et al., 2007). The highest use of social

media was for chatting 97 (33.7 percent), surfing on social media 73 (25.3 percent) and 53 (18.4 percent) playing games. Use of social media for chatting 54 (33.3 percent), surfing on social media 39 (24.1 percent) and playing games 38 (23.5 percent) was found higher among males when compared to females (Lampert et al., 2007).

In this study, among social media users, 67 (25.1 percent) students are experiencing 2.01 times higher odds of stress, 103 (38.6 percent) students are experiencing 2.01 times higher odds of depression, 115 (43.1 percent) students are experiencing 1.89 times higher odds of anxiety than non-users (Azhari et al., 2022). Among the participants who responded, 39 (44.8 percent) who were using the internet for 4-6 hours daily had experiencing 1.55 times higher odds of depression when compared to the participants those using it for 0-2 /2-4 hours (69 (34.3 percent)), although this finding of association did not emerge as statistically significant in the multivariate analysis (World mental health report: Transforming mental health for all, n.d.). Nevertheless, this suggests that there was a potential link between extended internet use and depressive symptoms among engineering students (Park et al., 2013). Like depression, students using extended internet in a day, also experiencing higher odds of stress (2.12 times) and anxiety (1.64 times) when compared to the 0-2/2-4 hours internet users (Moreno et al., 2011). Several studies revealed that students using social media for extended hours are experiencing more mental disturbances. (Solmi et al., 2022) (Phalswal, Neeraja, et al., 2023)

Among social media platform and users most commonly used social media was WhatsApp 265 (92.0 percent), YouTube 256 (88.9 percent) and Instagram 249 (86.5 percent). Students using social media for 248 (86.1 percent) entertainment (memes, videos) as their primary purpose indicating students were experiencing higher odds of (1.33 times) stress, (1.29 times) depression and (1.60 times) anxiety when compared to non-users (Ramesh Masthi et al., 2018). About, 116 (40.3 percent) students responded Instagram as very frequently

used social media platform, and 97 (33.7 percent) students mentioned chatting as their most favourite online activity, after chatting, students bring up 73 (25.3 percent) surfing on social media as their favourite online activity (Pittman and Reich, 2016). The bivariate analysis of the respondent in chatting shows, increased level of anxiety whereas students were experiencing 1.69 times higher odds of anxiety(Woods and Scott, 2016). Favourite online activity, surfing (scrolling social media sites) shows, increased level of anxiety whereas students were experiencing 2.00 times higher odds of anxiety, whereas students were experiencing lower odds of stress and depression in chatting as well as surfing (Phalswal, Neeraja, et al., 2023).

There was very little change in the odds ratios of the independent variables when adjusted for other variables in the multivariate analysis, suggesting that any possible relationship between gender or hours of internet usage with mental health outcomes may be independent of individual effects of the other variable.

5.2 Limitations and strength

The study does have certain limitations. First, the findings of the study may not be possible to generalize to a large population, as the participants were recruited through a sampling of convenience procedure. It is thus limited only to 18–23-year-old college students in the selected colleges in Puducherry. The study initially planned to recruit participants from 10 selected Engineering and technology institutions in Puducherry district, Puducherry. but two institutions refused to grant permission and two institutions did not respond. Hence sample frame was not in a truly random manner. Nevertheless, this bias is unlikely to have a major impact on estimation of social media use of Engineering college students.

The information gathered on mental health comes from a student's viewpoint on how they felt over the past week. Also, the DASS-Y is a screening tool and not a diagnostic one.

Therefore, it is only possible to consider participants as having screened positive for a mental health state and not as actually having the condition.

Still, mental health remains a relatively neglected are in public health in India, the high proportion of students screening positive for at least one of the conditions studied is a matter of immense concern as these participants represent the productive workforce of the coming decades. Also, there are only limited number of studies available with regard to social media impacts on mental health among engineering students and the factors associated with it. Hence, this study helps to add knowledge to shorten this gap. However, the findings can be taken to be broadly indicative.

5.3 Recommendations

The study findings suggest the possible harm of unlimited or excessive social network use. Based on the findings of the study on the prevalence of mental health among engineering students, the following recommendations can be made to address and mitigate this issue:

1. There are many beneficial as well as harmful aspects of social media. The age of the user has importance in the use of social media. More use of social media by the adults has to be seriously considered, it can lead to many issues in their life. These includes physical, psychological and social effect on the development of adults which may lead to stress and depression. So, some attention to social media usage of individuals is needed. This could be by student peer groups, or parents or college staff, although the acceptability or feasibility of this was not explored in this study.
2. Given the extent of information participants were sharing on the internet, good, communication and social relationship practices need to be established. There are studies focused on social networking sites that indulge the adolescent in the

dangerous content of the social media and this would remain risks for at least some of the studied participants.

3. Set clear boundaries for internet and social media use. There may be a need to promote better physical activity and outdoor time among the younger populations to provide alternatives to them from continuous internet usage
4. Regular exercise has positive effects on mental health. Engaging in physical activities to boost mood and reduce stress is likely to be helpful given the high levels of mental health concerns seen. Spending time outdoors, preferably in natural settings could be beneficial. Healthy alternatives need to be identified for people who may not have access to such settings.
5. Connect with others offline activity like meeting friends, playing games, spending time with pet animals, etc. Practice self-care, including adequate sleep, healthy eating, and relaxation techniques.

5.4 Conclusion

This cross-sectional study on social media usage and prevalence of stress, anxiety or depression in Engineering college students in Puducherry revealed a high level of social media usage and high proportions of participants screening positive for mental health concerns. Social media usage was not a strong predictor of mental health concerns, but high duration of internet usage was associated with screening positive for moderate levels of stress or depression. Women were also at a slightly higher risk of adverse mental health situations.

The social circle of today's young population is changing from real-time connections to virtual social interactions. In modern life different social media platforms like WhatsApp, Instagram, YouTube, Facebook and X has become almost obligatory especially among

young people. The internet is now turning in to a huge playground which is dangerous and unmonitored. Given the high extent and patterns of internet usage in the studied participants, it would not be wrong to say that much of the young population today are completely dependent on the internet for most of their needs, be it for entertainment, college work, or socializing and communication. This study provides valuable information and key findings into the relationships between internet/social media usage, socio-demographic characteristics, and mental health outcomes among undergraduate engineering students in Puducherry district, Puducherry. Social media usage remains an emerging behaviour, with multiple platforms and usage patterns. Although this study did not give strong conclusive findings related to social media usage and mental health, the levels and general nature of the behaviour in the young adult age group with their specific mental health risks remains concerning. Further research is needed to explain the underlying mechanisms and develop targeted interventions to promote mental well-being in this population.

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Participant Information Sheet

Hello. I am Mr. Lenin P, currently enrolled in the Master of Public Health programme at the Achutha Menon Centre for Health Sciences Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. As part of my academic research, I am now conducting a survey entitled examining "**Social Media Impacts on Mental Health Among Engineering Students in Puducherry.**"

The aim of the study is to examine the relationship between social media usage and mental health among young adults. Therefore, the participants are college students in selected engineering colleges of Puducherry. While there is no direct benefit for you individually by this survey, if you are found to have severe Mental Health illness you will be referred to a counsellor/psychiatrist/psychologist or where-ever you are willing to go. If you have need for any health-related information then I will be glad to provide it. The information given by you will not be disclosed to anyone under any circumstances anywhere in the public at any time. All information obtained from this survey will remain confidential and will be used for research purpose only. You can choose to answer or not to answer any of the questions and you are free to quit the survey at any stage. The findings of this study will enhance scientific knowledge which may be used to improve the understanding of Social Media usage and its mental health outcomes of an individual. With this information better policies and programmes can be implemented to ensure safety on online social media platforms. However, you may yourself not experience any specific benefits. The approximate time it will take to answer the questions in the survey is about 15-20 minutes.

Your participation in this study is purely voluntary. You are free to choose to take part or not. Your decision will not affect your work or reporting in any way. Even though you gave your consent previously, you are free to withdraw later if you change your mind. Whether you choose to participate or not, no one will be able to identify you and your participation will be anonymous. There will not be any rewards or incentives for participating in the study.

Risks

There is no risk anticipated in the study. There is a possibility that you may feel discomfort if you realise that a procedure you performed in an emergency was improper. It will have no effect on the way you live. You may kindly stop me from the interview for some time if you feel so. If you are experiencing intense anxiety due to feelings of guilt or unease, I may suggest that you consult a counsellor.

Benefits

There will be no immediate direct benefit to you, but your participation is likely to help me inform public health professionals about the current usage of Social Media platforms and its Mental Health outcomes among adults, which will pave the way for future research to find a solution to improve the current situation and save lives.

Confidentiality

I will not be sharing information about you to anyone else. The information that I collect from this research survey work will be kept private. Any information about you will have a number on it instead of your name. For any clarification regarding the study, you can contact me and for any queries on the authentication and ethics of this study you can contact Dr. Srinivas G, Member Secretary, Institutional Ethics Committee (IEC).

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Thiruvananthapuram-11

Social Media Impacts on Mental Health Among Engineering Students in Puducherry

Informed Consent Form

I have read / been read out the information in the information sheet. The nature of the study and my involvement has been explained and all my questions have been answered satisfactorily. By signing this consent form, I indicate that I understand what will be expected from me and that I am willing to participate in this study. I know that I can withdraw at any time. I have been informed who should be contacted if the need arises.

Respondent's Name:

Respondent's Signature:

Date:

Interviewer's Name:

Interviewer's Signature:

Date:

Social Media Impacts on Mental Health Among Engineering Students in Puducherry

Socio- Demographic Characteristic of the Respondent

1. Name (optional):
2. Student ID:
3. Age:
4. Gender

   1) Male 2) Female 3) Transgender 4) Not Specified

5. Where are you from?

   1) Urban 2) Rural

6. Name of the College:
7. Which department are you currently pursuing in this college?

   Please specify the department…….

8. Please mention year of Pursuing?

   1) I year 2) II year 3) III year 4) IV year

9. Where are you Staying? (*Note: Staying in Rental/PG are termed as Day scholar*)

   1) Day scholar 2) Hosteller

10. If you are Day scholar what type of family do you stay in?

    1) Nuclear Family 2) Joint Family

11. If you are Hosteller the room you are staying in?

    1) Single 2) Double 3) More than 2 4) More than 3

12. Marital Status

    1) Single 2) Married 3) Divorced 4) Widow/Widower

13. How many siblings do you have?

    1) One 2) Two 3) Three 4) More than 3

14. If you have more than one sibling are you the?

    1) Youngest 2) Middle 3) Oldest

Pattern of Internet Use

1. On an average, how many years have you been using the internet for?

1) 00-05 yrs. 2) 05-10 yrs. 3) 10-15 yrs. 4) 15-20 yrs.

2. On an average, how many hours do you use the internet in a day?

1) 0-2 hours 2) 2-4 hours 3) 4-6 hours

3. Please mention the gadgets you use to access Internet?

1) Mobile 2) Laptop 3) Tablet 4) All the Above

4. Are you in social media?

1) Yes 2) No

(Note: If YES, proceed to next question, If NO skip the Questions)

5. If Yes, Please Specify the Social Media Platform

1) WhatsApp 2) Facebook 3) Instagram 4) Twitter

5) Snapchat 6) YouTube 7) Telegram 8) Threads

6. Most, Frequently Using Social Media Platform

1) WhatsApp 2) Facebook 3) Instagram 4) Twitter

5) Snapchat 6) YouTube 7) Telegram 8) Threads

7. On average, how many hours per day do you spend on social media?

- Less than 1 hour
- 1-2 hours
- 2-4 hours
- More than 4 hours

8. What do you primarily use social media for? (Select all that apply)

- Connecting with friends/family
- Sharing photos/videos

- Keeping up with news/current events
- Networking/professional purposes
- Entertainment (memes, videos, etc.)
- Academic/work-related purposes
- Other (please specify: _____)

9. Do you prefer to use social media on your mobile device or computer/laptop?
    - Mobile device
    - Laptop
    - Tablet
    - All the gadgets
10. How long have you been using these accounts for?

Social Media Website	Few weeks (1-2 weeks)	Months (1-2 months)	Year (1-2 years)	More than (1-2 years)
WhatsApp				
Facebook				
Instagram				
Twitter				
Snapchat				
You Tube				
Telegram				
Threads				
Any Other (specify)				

11. How often do you use the following social media platforms in a day (on an average)

1) Rarely 2) Sometimes 3) Frequently 4) Very Frequently

Social Media Website	Rarely (1-2 times a day/ 0-2 hours a day)	Sometimes (3-4 times a day/ 2-4 hours a day)	Frequently (4-6 times a day/ 4-6 hours)	Very Frequently (More than 6 times a day/ morethan 6 hours a day
WhatsApp				
Facebook				
Instagram				
Twitter				
Snapchat				
You Tube				
Telegram				
Threads				
Any Other (specify)				

12. Please tick the gadgets you would use for your internet activities

Internet activity	Desktop	Laptop	Tablet	Mobile
Chatting (WhatsApp. Instant messenger, Skype, Facebook messenger, snap chat, Instagram chat etc.)				
Emails				
Shopping				
Downloading Video/Movie				
Downloading Music/Songs				
Playing Games				
Surfing on Social Networking Sites (Facebook, Instagram, Snap chat, etc.)				
Sharing Files				
Browsing Websites				
Viewing adult content				
College Work (download study material)				
Online Banking				
Forums/Blogs				
Others_(Specify)				

13. Preferred way of interaction with friends who stay in the same city as yours

- Chatting on social media sites (WhatsApp or Facebook, etc.)
- Meeting them in person
- Calling them over the phone

14. Indicate your favourite online activity

Internet activity	Rarely (1-2 times a day/0-2 hours a day)	Sometimes (3-4 times a day/ 2-4 hours a day)	Frequently (4-6 times a day/ 4-6 hours)	Very Frequently (More than 6 times a day/ morethan 6 hours a day
Chatting (WhatsApp. messenger, Skype, Facebook messenger, snap chat, Instagram chat etc.)				
Emails				
Shopping				
Downloading Video/Movie				
Downloading Music/Songs				
Playing Games				
Surfing on Social Networking Sites (Facebook, Instagram, Snap chat, etc.)				
Sharing Files				
Browsing Websites				
Viewing adult content				
College Work (download study material)				
Online Banking				
Forums/Blogs				
Others_(Specify)				

15. Do you have alerts notifications from social media apps on your mobile phone?

1) Yes 2) No

16. What all information have you included on your social media account

1) Name 2) Date of Birth 3) Relationship Status 4) Gender
2) 5) Photos 6) Mobile Number 7) Educational Details 8) College

DASS-Y

DASS-Y	**Name:**	**Age:**	**Date:**		
We would like to find out how you have been feeling in THE PAST WEEK. There are some sentences below. Please circle the number which best shows how TRUE each sentence was of you during the past week. There are no right or wrong answers.					
If the statement was NOT TRUE of you (in the past week), circle 0. If the statement was A LITTLE TRUE of you, circle 1. If the statement was FAIRLY TRUE of you, circle 2. If the statement was VERY TRUE of you, circle 3.					
1	I got upset about little things	0	1	2	3
2	I felt dizzy, like I was about to faint	0	1	2	3
3	I did not enjoy anything	0	1	2	3
4	I had trouble breathing (e.g., fast breathing), even though I wasn't exercising and I was not sick.	0	1	2	3
5	I hated my life	0	1	2	3
6	I found myself over-reacting to situations	0	1	2	3
7	My hands felt shaky	0	1	2	3
8	I was stressing about lots of things	0	1	2	3
9	I felt terrified	0	1	2	3
10	There was nothing nice I could look forward to	0	1	2	3
11	I was easily irritated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I could not stop feeling sad	0	1	2	3
14	I got annoyed when people interrupted me	0	1	2	3
15	I felt like I was about to panic	0	1	2	3
16	I hated myself	0	1	2	3
17	I felt like I was no good	0	1	2	3
18	I was easily annoyed	0	1	2	3
19	I could feel my heart beating really fast, even though I hadn'tdone any hard exercise	0	1	2	3
20	I felt scared for no good reason	0	1	2	3
21	I felt that life was terrible	0	1	2	3

டாஸ்-21(*மனச்சோர்வு, புதகளிப்பு, நெருக்கீடு என்பவற்றை மதிப்பிடும் அளவீடு*)

பெயர்: …….. திகதி: ……..

தயவுசெய்து கீழே தரப்பட்டுள்ள ஒவ்வொரு வாக்கியத்தையும் வாசித்து **கடந்த வாரத்தில்** அது எவ்வளவு தூரம் உங்களுக்கு பெருத்தமாய் இருந்தது என்பதை காட்டும் வகையில் 0, 1, 2, 3 ஆகிய இலக்கங்களில் பொருத்தமானதைச் சுற்றி வட்டமிடவும். இவற்றில் சரி அல்லது பிழையான பதில் என்று எதுவுமில்லை. எந்த ஒரு வாக்கியத்திலும் மிக அதிகளவு நேரத்தை செலவிட வேண்டாம்.

மதிப்பிடும் அளவீடு பின்வருமாறு அமையும்: -

0 - ஒரு போதுமே எனக்கு பொருத்தமாக அமையவில்லை - **ஒருபோதும் இல்லை**
1 - ஓரளவிற்கு அல்லது சில சமயங்களில் எனக்கு பொருத்தமாக இருந்தது -**சில வேளை**
2 - குறிபிடத்தக்க அளவுக்கு அல்லது அதிகமான வேளைகளில் பொருத்தமாக இருந்தது - **அடிக்கடி**
3 - எனக்கு அநேகமான வேளைகளில் அல்லது முற்றிலும் பொருத்தமாக இருந்தது - **அநேகமாக எப்போதும்**

1	எனக்கு சாதாரண நிலைக்கு மீளுவது கடினமாக இருந்தது	**0**	**1**	**2**	**3**
2	எனது வாய் உலர்ந்திருந்ததை உணரக்கூடியதாக இருந்தது	**0**	**1**	**2**	**3**
3	எனக்கு நல்ல உணர்வு எதனையும் அனுபவிக்க முடியவில்லை	**0**	**1**	**2**	**3**
4	சுவாசிப்பதில் சிரமம் இருப்பதை உணர்ந்தேன். (உ-ம் மிக வேகமான சுவாசம், உடல் களைப்பற்ற நிலையிலும் சுவாசிப்பதற்கு சிரமப்படுதல், அடிக்கடி பெருமூச்சு விடுதல்)	**0**	**1**	**2**	**3**
5	எந்த ஒரு விடயத்தையும் தொடங்கிச் செய்வதற்கு உரிய ஊக்கம் இல்லாமலிருந்தது	**0**	**1**	**2**	**3**
6	சில சூழ்நிலைகளில் நான் அளவுக்கு அதிகமாக எதிர் தாக்கம் காட்ட முனைந்தேன்.	**0**	**1**	**2**	**3**
7	நடுக்கம் ஏற்படுவதாக உணர்ந்தேன். (உ- ம்-: கைகளில்)	**0**	**1**	**2**	**3**
8	நான் அதிகளவில் நரம்புச் சக்தியை உபயோகிக்க வேண்டியிருப்பதாக உணர்ந்தேன்	**0**	**1**	**2**	**3**
9	நான் அதிக பீதியடைந்து என்னை நானே ஒரு முட்டாளாக்கிக் கொள்ளக் கூடிய சந்தர்ப்பங்கள் பற்றி கவலைப் பட்டேன்	**0**	**1**	**2**	**3**
10	எனக்கு வாழ்க்கையில் எந்த எதிர்பார்ப்பும் இல்லை என்பது போல உணர்ந்தேன்	**0**	**1**	**2**	**3**
11	நான் கலவரமடைவதாக உணர்ந்தேன்	**0**	**1**	**2**	**3**
12	என்னை தளர்ச்சியடையச் செய்வது கடினமாக இருந்தது.	**0**	**1**	**2**	**3**
13	நான் கவலையாகவும் மனமுடைந்து இருப்பதாகவும் உணர்ந்தேன்	**0**	**1**	**2**	**3**
14	நான் செய்கின்ற விடயத்தில் வரும் எந்த ஒரு சிறிய தடையையும் என்னால் பொறுத்துக் கொள்ள முடியாமல் இருந்தது	**0**	**1**	**2**	**3**
15	நான் பீதி நிலையை அண்மித்து விட்டதாக உணர்ந்தேன்	**0**	**1**	**2**	**3**
16	எந்தவொரு விடயத்திலும் எனக்கு ஆர்வமாக ஈடுபட இயலாதிருந்தது	**0**	**1**	**2**	**3**
17	நான் ஒன்றுக்கும் பெறுமதி இல்லாத மனிதனாக உணர்ந்தேன்	**0**	**1**	**2**	**3**
18	நான் இலகுவில் மனதளவில் காயப்படுவதாக உணர்ந்தேன்	**0**	**1**	**2**	**3**
19	உடல் பிரயத்தனமின்றியே என் இதயத்துடிப்பினை உணர்ந்தேன். (உ-ம்: இதயத்துடிப்பு வேகம் அதிகரிப்பது, ஒரு இதயம் ஒரு துடிப்பை தவற விடுவது போலிருப்பது),	**0**	**1**	**2**	**3**
20	பொருத்தமான காரணமெதுவுமின்றி எனக்கு பயம் ஏற்பட்டது.	**0**	**1**	**2**	**3**
21	வாழ்க்கை அர்த்தமற்றது என்று உணர்ந்தேன்.	**0**	**1**	**2**	**3**

श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
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Institutional Ethics Committee

CDSCO Registration No: ECR/189/Inst/KL/2013/RR-21
DHR Registration No:EC/NEW/INST/2022/2775

SCT/IEC/2174/DECEMBER/2023 12.01.2024

Mr. Lenin P
MPH Student, AMCHSS
SCTIMST, Thiruvananathapuram

Dear Mr. Lenin,

The Institutional Ethics Committee held on 30th December, 2023, reviewed and discussed your application to conduct the study titled **"SOCIAL MEDIA IMPACTS ON MENTAL HEALTH AMONG ENGINEERING STUDENTS IN PUDUCHERRY" (IEC /2174).**

Principal Investigator	Mr. Lenin P, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr Ravi Prasad Varma (Guide), Additional Professor, AMCHSS, SCTIMST Dr Sankara Sarma P (Co-Guide), Professor Senior Grade, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2023

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
2.	Dr. Kala Kesavan P	MBBS,MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. P. Manickam	BSMS, MSc (Epid).,PhD	Male	Health Science Expert/ Social Scientist	No
5.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
6.	Dr. Narayanan Namboodiri. K K	MBBS,MD,DM	Male	Clinician	Yes
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes

The following documents were reviewed:

Original submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2023
3. Copy of SRC Comments
4. Responses /amendments made based on the Reviewer's comments
5. IEC Application Form
6. Declaration Form
7. Research Proposal
8. Research Tool
9. Participant Information Sheet
10. Informed Consent Form
11. Demographic Characteristic of the Respondent
12. Research Questionnaire in English and Tamil
13. CV of Principal Investigator and Co-PIs
14. SRC Recommendation Letter

Revised submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 11.01.2024
3. Copy of IEC Recommendation letter dated 09.01.2024
4. Responses /amendments made based on the Reviewer's comments
5. Declaration Form
6. Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2023
7. Copy of SRC Comments
8. Responses /amendments made based on the Reviewer's comments
9. IEC Application Form
10. Declaration Form
11. Research Proposal
12. Research Tool
13. Participant Information Sheet
14. Informed Consent Form
15. Demographic Characteristic of the Respondent
16. Research Questionnaire in English and Tamil
17. CV of Principal Investigator and Co-PIs

IEC Decision
The IEC approved the conduct of the study in the present form.

Remarks:
The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,

Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST
THIRUVANANTHAPURAM

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Submission Information

Author Name	Lenin P
Title	Social Media impacts on Mental Health among Engineering students in Puducherry
Paper/Submission ID	1702259
Submitted by	rpvarma@sctimst.ac.in
Submission Date	2024-04-26 18:39:04
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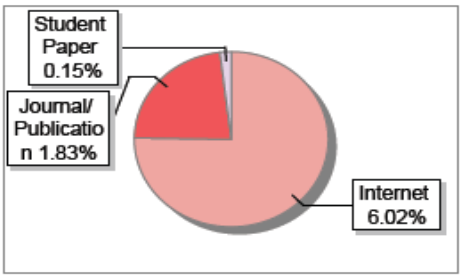

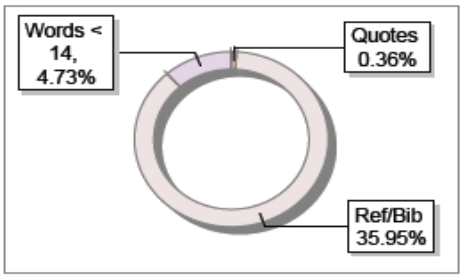

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