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Research Paper

Association Between Social Media and Self-Esteem Among University Students

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ABSTRACT

Social media is one of the major platforms that is influencing youngsters in the present generation. Previously there were many research studies on social media that focused on apps like Facebook and WhatsApp. However, this study will assess the current trending apps like Instagram and Snapchat. This research has attempted to establish the relationship between two variables namely social media exposure and self-esteem. It is a correlational research where the variables were tested in a natural setting. The sample for the research focused on undergraduate and postgraduate students in Bangalore who are of 18-25 years. This study follows a quantitative research design and adopts a correlational method to check association between the two variables. The demographic details of the participants and self-esteem scores were collected through Rosenberg self-esteem scale. Firstly t-tests were conducted to measure the difference in scores of social media exposure and self-esteem among male and female. t-tests were also conducted on undergraduate and postgraduate students to check differences among them. In addition to this, the Pearson correlation test was included in the analysis to check the association between social media exposure and self-esteem among the participants. Hence this study will aid the understanding of the impact of social media on the self-esteem of young adults in the current generation.

Keywords: *Self-Esteem, Social Media Exposure*

The research will be focusing on two concepts of significance in the contemporary world– firstly, self-esteem, and the second being social media usage. Self - esteem is the beliefs one has about oneself; how the individual perceives his/her own worth. It can be positive or negative.

Self-esteem is inextricably connected to the feeling of confidence, and in turn, to the general psychological well-being of the individual. It not only affects the mental health of a person

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but also influences other aspects of our life - like the quality of our relationships, job performance, our reactions to success and failure, the way we perceive life in general, etc. Self-esteem as a concept is precarious in nature. It needs to be moderate – too little or too much (bordering on narcissistic) of self-esteem, both are detrimental. A healthy level of self-esteem is especially important as esteem needs are constituent of the fourth and final stage of Maslow's hierarchy of needs (after physiological, safety and belongingness needs) before attaining self-actualization. Research suggests a pattern in the development of self-esteem which is high in childhood, drops during adolescence which is then regained gradually through adulthood and again drops in old age. Studies also predict that males report higher levels of self-esteem than females especially since adolescence (although the cultural background of a person influences his/her self-esteem, the pattern is generally similar across cultures) (Bleidorn et al., 2016). This particular research attempts to study these gender differences in self-esteem levels.

The second area of study that the research will focus on is social media usage. In recent years, social media usage has increased manifold. Individuals of all age groups, from a 2-year-old infant to an 80-year-old elderly, are found browsing through the various social media platforms like WhatsApp, Facebook, Instagram, Snapchat, YouTube, etc. Social media improves our knowledge regarding world affairs or recent trends, increases global connectivity and facilitates interpersonal relationships, creates awareness on important issues, etc. However, it could also have negative effects on individuals. The content that is consumed can create a fake replication of reality. People are heavily influenced by the content that they try to mold their life around it. This gives an advantage to certain people to incite the users against other people or organizations. The pull towards social media is because the content individuals view leads to release of dopamine and oxytocin in the body, the pleasure or happiness hormones of the human body. Therefore, these platforms are a welcome change from the grueling daily routine and moderate time spent on social media can be beneficial. However, the excessive attachment or addiction towards social media is harmful for the physical as well as mental health of individuals. For example, excessive screen time, following diet fads or being influenced by 'trends', etc. negatively affect the individual. Popular opinion and the majority of research point to the assumption that time spent on social media affects the overall mental health of the individual. However, there is contradictory research that supports the opposite argument that time spent on social media does not affect the mental health of the individual (Coyne et al., 2019). Therefore, this research aims to study whether the time spent on social media has any effect on one's self-esteem. Keeping in mind this increasing addiction to social media and the significance of self-esteem in an individual's life, the two concepts were brought together, and the research problem was generated.

This paper aims to understand if an association exists between social media and self-esteem among university students. The rapid deployment of digital technologies and their uptake by society has modified our relationships to ourselves, each other, and our environment. As a result, our individual and social well-being is now intimately connected with the state of our information environment and the digital technologies that mediate our interaction with it, which poses pressing ethical questions concerning the impact of digital technologies on our well-being that need to be addressed (Floridi, 2014). We know how self-esteem of an individual can affect their psychological well-being as well as other areas of lives. The idea of an ideal self-portrayed results in the pressure to attain this expected standards of beauty resulting in many problems such as eating disorders, depression, anxiety as well as low self-esteem. The reviews have been divided into domains such as: psychological well-being, social

media addiction, adolescent well-being and social media, body dissatisfaction, comparison of selves and others, gender differences and social networks and their effects.

Social Media Addiction

Many studies test how social media has an effect on our self-esteem and self-perception has focused on Facebook. Kircaburun and Griffin (2018) have done a study aiming to understand the relationship between personality, self-liking, daily internet use and addiction to Instagram. For this purpose, 725 university students were chosen as a sample. Convenience sampling method was used for this process. A self-report survey was carried out which also included the Instagram Addiction Scale, Big Five Inventory and the Self-Liking Scale. The results showed that Instagram addiction was weakly correlated with agreeableness, self-liking, conscientiousness and neuroticism. Daily internet use was positively correlated with Instagram. The results also showed that self-liking partially mediated the relationship of Instagram addiction with agreeableness and fully mediated the relationship between Instagram addiction with conscientiousness (Kircaburun & Griffin, 2018). The limitations that the study poses are with respect to self-report methods as it suffers from biases and also the cross-sectional and self-selecting nature of the sample. The cross-sectional nature of the study does not allow the drawing of a causal relationship. However, despite the limitations, the study was first to contribute to understanding the relationship between the five-factor model of personality and Instagram addiction. The findings of this study indicate that some individuals use Instagram problematically and different personality constructs are associated with this problematic use (Kircaburun & Griffin, 2018).

Andreassen et al. (2017) have identified that social media addiction is becoming an increasing concern as so many people spend a lot of time on social media, that it impairs other aspects of their life. Andreassen et al. (2017) conducted a study to assess the associations between addictive use of social media, narcissism, and self-esteem. This study used a cross-sectional design with convenient sampling of 23,532 Norwegians ranging from 16-88 years (Andreassen et al., 2017). Narcissism was assessed using the Narcissistic Personality Inventory-16, social media addiction was assessed using the Bergen Social Media Addiction Scale and self-esteem was examined using the Rosenberg Self-esteem Scale, which were all conducted on a survey online (Andreassen et al., 2017). Based on the results, they found that social media addiction is related to boosting one's ego and suppressing their low self-esteem (Andreassen et al., 2017). Moreover, based on the demographics, young, single, female students who were less educated had a tendency to report higher scores on the social media addiction scale as a means for social interaction whereas the males tend to adhere to solitary activities such as playing video games (Andreassen et al., 2017). In addition to this, it was understood that single people were more likely to be addicted to social media as a means to have a sense of belongingness and use it to find potential partners (Andreassen et al., 2017). Emotional attachment also plays a part here. Rahma and Setiasih study aims to determine the relationship between the intensity of using Instagram and self–esteem in emerging adulthood (Rahma & Setiasih, 2021). The sample size for the study was 259 students, males, and females between the age groups of 18-25. According to the results obtained by Rahma & Setiasih (2021), there is a significant correlation between the intensity of using Instagram and self–esteem in emerging adulthood, there is also a correlation between emotional attachment to Instagram and self–esteem in emerging adulthood. It was found that the higher the emotional attachment or intense use of Instagram, the self–esteem – esteem of emerging adulthood. In another study, Hawi and Samaha (2017) focused on 3 variables. This study has used social media addiction questionnaire, Rosenberg self-esteem scale and satisfaction with life scale for data collection. The analysis includes Pearson correlation, Regression and structural equation

modeling. The results show that there is a negative association between social media addiction and self-esteem and positive association between social media and addiction and life satisfaction. (Hawi & Samaha, 2017)

Social Networking Sites and Self Esteem
Saiphoo et al. (2020), investigated social networking sites (SNS) and its relationship to self-esteem. This study is a meta-analytic review conducted using four databases. Based on 121 samples they found a small negative relationship between SNS and self which also means that increased use of SNS is related to a decrease in self-esteem (Saiphoo et al., 2020). In this study Saiphoo et al. (2020) explains that from their findings, those with low self-esteem have a tendency to form more online relationships and are more likely to seek approval from other people. Their explanation for this is due to the possibility of face-to-face interactions being more awkward than online interactions (Saiphoo et al., 2020). Moreover, they found that those who have low self-esteem are more likely to use SNS in problematic ways such as addiction and comparisons (Saiphoo et al., 2020). Lim et al. (2021) conducted research on university students in Australia. The results of the study concluded that greater social media usage results in loss of self-esteem but only when the social network size is small, i.e., less than 150 (known as evolutionarily familiar – the number of people close to us enabling social comparison). When the social network is large (more than 150), it does not influence self-esteem as social comparison is not possible.

Lin et al. (2020) studied active social network sites (SNS) and loneliness as well as the mediating roles of social support and self-esteem. The sample of this study are 390 male undergraduates aged 17-22 years old in China (Lin et al., 2020). They used a sequential mediation model to assess the mediating roles (Lin et al., 2020). According to their findings, Lin et al, (2020) argue that there is an association between active SNS usage and reduced loneliness when there are higher levels of social support and self-esteem. Maria Luiza Scapim investigated the relationship between high social media consumption and life satisfaction and whether a person's level of self-esteem moderates this relationship (Scapim, 2022). The sample size used for the study included 88 participants between the age groups of 18 to 54. According to the results obtained by Scapim (2022), those who devote a considerable amount of time to social networks appeared to be less satisfied with their life, even though self-esteem is closely associated; it did not moderate this relationship.

Influence of Social Media on Psychological Well-Being of Adolescents
The research article by Brunborg and Andreas (2019) describes how increase in time spent on social media increases symptoms of depression, conduct problems and drinking in an individual. The sample for this study is 763 Norwegian adolescents. The study used first-differencing models to analyze and arrive at this conclusion. (Brunborg & Andreas, 2019) Research has also been done on psychological well-being depending on the usage of social media. Ostic et al. (2021) studied 940 social media users from Mexico by also considering a set of mediators like social capital types, social isolation and smartphone addiction. The paper used structural equation modeling to test the hypothesis. The researchers had used a convenience random sampling approach due to the covid-19 and budget constraints. Out of the 1500 contacted, a sample size of 940 was achieved. Additionally, the study also used quantitative empirical study using online survey methods. The questionnaire was close ended and confidentiality and consent were taken. The results from all the 940 participants pointed towards all the hypotheses being accepted (p<0.05). The findings say that there exists an overall positive indirect impact of social media on psychological well-being and this is shown to be a result of bonding and bridging social capital. It also indicates a positive and negative

effect of social media on psychological well-being. This research by Ostic et al. (2021) helps in focusing on how social media can facilitate both positive as well as negative effects on psychological aspects. The study poses its own limitations as it has less generalizability because the sample size was focused to a particular region. The distribution of sample is also a limitation as it mostly consisted of well educated and females.

Eating disorder is a result of low self-esteem that is seen to be caused due to social media exposure. Santarossa and Woodruff (2017) had conducted a quantitative research on young adults (18-29 years) at a Canadian university wherein a possible correlation was explored between social media usage and body image, self-esteem and eating disorders. Particularly, the effect of problematic social media usage (i.e., degree of dependency on social media sites), daily time spent browsing, type of social media activity and number of followers and following on the given variables was measured. The results indicated that increased dependency on social media sites and increased time spent daily online (especially in activities such as visiting and commenting on others' profiles or on own profiles) lead to body image issues, low self-esteem and increase in symptoms of eating disorder. Further, the research by Berry et al. (2018) looks into how social media impacts people with psychosis. The sample for the study is 44 participants with and without psychosis. 1084 assessments were conducted within 6 days on factors like social media use, self-esteem, mood, perceived social rank and paranoia. It is basically a correlational study. The results show that people with psychosis are less likely to use social media. Posting about feelings and perceptions of low social rank on social media reported lower self-esteem and mood and higher paranoia. On the other hand, posting on daily activities reported an increase in self-esteem. Viewing news feeds also resulted in reduced paranoia.

However, the impact of social media did not differ much between people with and without psychosis (Berry, 2018). With most researchers predominantly focusing on Facebook, a study by Sherlock & Wagstaff (2019) has its focus on the effects of Instagram on psychological well-being. The study is divided into two parts. In the first part, the participants had to complete a questionnaire related to self-perceptions and mental health outcomes. For the second part, they were exposed to a range of Instagram images portraying beauty, fitness, travel. This test has been conducted on 129 women aged between 18 and 35. The study has adopted a correlation method to analyze the study done. In the first part, the results showed that the frequency of use of Instagram has correlation with depressive symptoms, self-esteem, general and physical appearance anxiety (Mary & Danielle, 2019). The results from the second part of the study yielded decreased self-rated attractiveness after viewing the pictures and this further correlated with anxiety, depressive symptoms, self-esteem and body dissatisfaction. Therefore, excessive use of Instagram is shown to contribute to negative psychological and appearance related self-perception. The study was conducted largely on women and therefore can be said to have low generalizability. This is a drawback as men are also facing similar issues of body dissatisfaction and low self-esteem, due to exposure to social media and proves relevance in today's world. The answers in the questionnaire can also lead to biased results as responses from the participants are susceptible to errors.

Kelly et al. (2018) found through research that children going through adolescence are at a higher risk of having mental health issues. Kelly et al. (2018) decided to study social media use and how it affects the mental health of a cohort of students in the UK as well as the potential mediators involved. The population consists of 10,904 14 -year-olds and multivariate regression and path models were used to examine the relationship between social media use and depressive symptoms that one may exhibit (Kelly et al., 2018). This study examined that

girl had a stronger association between social media use and depressive symptoms, when compared to boys (Kelly et al., 2018). Kelly et al. (2018) also argued that self-esteem, lack of sleep, body image issues and online harassment are mediators in the relationship between social media use and mental health. From these mediators they also found that poor sleep and online harassment were major contributors to the strength of the relationship (Kelly et al., 2018).

Adolescents are frequent users of social media and are exposed to it for longer periods. However, the self presented on social media many times contradicts with our real selves. Ann Berrios (2020) conducted a study by interviewing high school female students in the U.S. on their social media presence and how they connect what they view on their feeds with their feeling of self-worth. The results of the study highlighted the importance of social acceptance among the participants, i.e. they used those social media platforms that were most popular among adolescents, the content they posted were those that they thought that their peers wanted to see or what they wanted others to see and the comments or likes of their peers decided their self-worth.

The study conducted by Mann et al. (2022) to understand the effects of social media use, self-presentation, social comparison and self-esteem on adolescents' reflection of their own possible selves. The study also has focused on age as a factor. The study was conducted on 152 adolescents between the ages 11 to 18 among which 55.9% were female. An exploratory analysis was also carried out on the gender differences within the context. The mean and standard deviation was calculated and Pearson's correlation coefficient was obtained to assess the correlation between the variables. The results of a sequential regression analysis, regressing the balance of possible selves on social media use, self-esteem, self-presentation and social comparison, yielded no significant differences. A chi square analysis, however, revealed differences among males and females in the content of feared selves as female participants reported more feared selves involving interpersonal relationships than males (Mann et al., 2022). The study also found a strong correlation existing between those who presented their true selves online and higher self-esteem. The limitations of the study were that the data obtained was primarily self-report and this can be susceptible to human error. The sample size also poses a limitation. The study is also restricted to the western population and lacks generalizability. A study by Perkovich (2020) aims to explore the associations between increased social media activity (greater than 2 hours daily) and self-esteem in adolescents (aged 13-19) females in comparison to those teens participating less than 2 hours of social media daily viewing. (Perkovich, 2020). According to the results obtained by Perkovich (2020), Social media use, such as Facebook, TikTok, Snapchat, and Instagram, is associated with poorer self-esteem in female adolescents. Furthermore, the more hours a teenage female spends on social media, the poorer her self-esteem, spending less time on social networking sites increases self-esteem and decreases depressive and anxious symptoms. However, this might differ from individuals. A research article by Valkenburg et al. (2021) focuses on how the effect of social media addiction differs from one person to the other. The sample size was 387 adolescents from whom data was collected for 3 weeks. The response was collected six times a day from each participant on social media addiction and self-esteem. Dynamic structural equation modeling was used for the analysis. The results show that 88% experienced very few effects of social media on self-esteem, 4% had positive effects and 8% had negative effects. (Valkenburg et al., 2021)

Another study by Gallagher (2017) is a quantitative research dissertation conducted on high school students in the U.S. (as at adolescence the individuals are at the most impressionable

age) to assess the relationship between self-esteem and social media use. This study was somewhat different from previous studies as it measured how self-esteem of an individual affected how they operated or were influenced by social media whereas in other studies it was the other way around (i.e. how social media usage affects self-esteem). The conclusion was that those with high self-esteem were not influenced much by the likes or comments they got on social media whereas those with low self-esteem were influenced by the reactions to their posts on social media.

Social Media Exposure and Body Dissatisfaction
Many studies have been conducted to assess the effects of social media exposure on body dissatisfaction and negative effects. Bennett et al. 2017 had conducted a similar study to analyze the relationship between these variables using ecological momentary assessment which studies the participants in their naturalistic environment. The sample size was 30 and included women college students from a large public university. The participants were contacted via their smartphones five times every day for five days. They were asked to perform a battery of measures that aid in assessing social media use, body dissatisfaction and negative affect.

Contrary to prior research conducted on this, the results demonstrated that time spent on social media was not a significant predictor of body dissatisfaction rather the number of social media sites visited8 was. However, the time spent as well as the number of sites visited were significant predictors of general negative affect, sadness and guilt. This shows how social media can have a negative toll on our psychological well-being and how we perceive ourselves. However, the study cannot be generalized as it has focused its sample from the western population and may not be applicable to women from other universities.

Similar to the research stated above regarding adolescents and how they present themselves in social media, a study has been conducted by Martinez et al. (2019) on whether ideals and standards of beauty portrayed in social media result in body dissatisfaction and eating disorders in females. College women in the age group of 18-25 years were selected as participants and a cross-sectional study was carried out. They had to participate in an in-person survey from April to May 2018. The sample was selected using a non-probability convenience sampling. The sample size was 168 students from different departments. Questionnaires were used to obtain data. Further, it was analyzed using chi-square, Student's t-test, correlation test and logistic regression tests. The study identified that women had moderate levels of body dissatisfaction and body concerns which strongly associated with disordered eating attitudes.

Therefore, we can establish that there exists a high level of body dissatisfaction and link with desire to achieve a thinner body image and this appears to be universal among college women (Martinez et al., 2019). The study poses certain limitations in terms of biases and possibly incorrect data as well as lack of inclusion of further cultural factors like mother-child relationship and anthropometric data. The study is also done among students in a Spanish college and may not apply to university women from other countries. However, it gives an insight into the relationship between eating disorders and body dissatisfaction and social media exposure.

Gender Difference in Effects of Social Media
The study by Shao and Ni (2021) was conducted on students below the age of 25 years (as they make up the highest percentage of internet users) in Shaanxi province in China. The study aimed to measure how social media usage and family environment influences self-esteem.

The results portrayed a gender difference in social media usage wherein males operated social media sites as a habit whereas females viewed it as a medium for seeking support. Therefore, due to these gender differences, it was found that higher habitual social media use in males led to less intimate family relations which in turn results in low self-esteem. On the other hand, in females, higher supportive social media use, paired with intimate family relations leads to higher self-esteem.

Köse and Doğan, (2019) attempted to study the psychological dimensions of social media addiction in young adults and to point out a negative correlation is seen to be existing between social media addiction and self-esteem levels (Köse & Doğan, 2019). The sample used in the study was from three universities in the province of Istanbul. According to Köse and Doğan, (2019), there is no evident gender difference in the overall social media addiction score.

However, women score significantly higher than men for using social media as a mood modifier and occupation tool (Köse & Doğan, 2019). Moreover, a correlation was seen to be existing between social media addiction and self–esteem levels. Groups with lower self-esteem were seen to be more addicted to social media than those with higher self-esteem (Köse & Doğan, 2019).

Theoretical Framework
Social comparison theory focuses on reasons and processes regarding how people evaluate their values, opinions and achievements with comparison to others. The effect of self–comparison in social media on self – esteem by Moningka and Ratih Eminiar (2020) aims to determine how self-comparison during social media use affects self-esteem. The sample size for the study included 221 males and females between the age groups of 13 to 18 years old.

According to the results obtained by Moningka and Eminiar (2020), a negative correlation exists between self – comparison in social media on self – esteem, the more frequently a person compares their behavior on social media, the more likely they are to suffer from low self-esteem. Trieu et al. (2021) did a quantitative laboratory study conducted in 2018 in the U.S., on participants in the 26-75 years age range who use Facebook. The researchers aimed to study how the content that is viewed on Facebook (type of content viewed, how long a particular content is viewed, etc. lead to social comparison) affects the self-esteem of the individual. The research found that the more the content viewed on social media feeds, the lower is the self-esteem. This is because, the more content we view, more negative social comparison takes place – we feel inadequate and question our lifestyle, leading to low self-esteem. In a similar study Dibb (2019) tried to assess the way that people use Facebook interpret the information in terms of comparisons and whether or not it is related to one's perspectives of physical health. Research was conducted on 165 participants of different races from the age of 18-70 years old, who are from the general public, using a cross-sectional design (Dibb, 2019). Based on Dibb's (2019) findings, the participants were comparing using Facebook content and based on the social comparison theory, first positive upward then positive downward are recorded followed by negative upward and negative downward comparison. An interesting finding was that those who compared positively, also recorded more physical symptoms as per one's own perception (Dibb, 2019).

A study by Jiang and Ngien (2020) aims to investigate how people's social anxiety is affected by using Instagram. The findings showed that using Instagram did not directly raise social anxiety. Instead, self-esteem, an intermediate outcome, and social comparison, a proximal outcome, played mediating roles, supporting the full mediation effects. (Jiang & Ngien, 2020).

The sample consisted of 388 participants, the convenience sampling method was used. According to the results obtained by Jiang and Ngien (2020), Instagram use on a regular basis was linked to more social comparison, social comparison increased one's social anxiety, self-esteem was significantly lowered by Social comparison, Instagram did not have a direct effect on social anxiety. Its effect was entirely mediated by social comparison and self-esteem. The research study by Silje Steinsbekk et al (Steinsbekk et al., 2021) looks into two different ways of social media usage. Firstly, posting pictures (self-oriented) and secondly responding to the posts (other oriented). The data was collected from children aged 10, 12 and 14. The study applied a random intercept cross lagged model to analyze the data. The results reveal that other oriented usage of social media has an impact on one's appearance self-esteem from childhood to adolescence. (Steinsbekk et al., 2021). The research article by Chen et al. (2019) looks into how use of social media and photo editing applications is associated with self-esteem and perceptions towards cosmetic surgery. The sample for the study was 252 participants. A web-based survey was conducted through online platforms. Rosenberg self-esteem scale and contingencies of self-worth scale was used to measure self-esteem and cosmetic surgery scale was used to measure attitude towards cosmetic surgery. Unpaired, two tailed t-tests and structural equation modeling were used for the analysis. The results show that people who use social media apps like WhatsApp and Snapchat had lower esteem scores compared to people who don't use social media. It also concluded that use of social media and photo editing applications may be associated with increased acceptance of cosmetic surgery. (Chen et al., 2019)

Rationale

The modern world, with its technologies, has opened to us the world of social media.
Various studies indicate a strong correlation between social media and how we perceive ourselves. It has been shown that increased usage on social media leads to signs of depression, and anxiety. Previous studies conducted indicate such a relationship exists between the time spent on social media and self-esteem. One of the research studies conducted in Pakistan showed that "increase in social media usage causes the self-esteem of individuals to decrease. One hour spent on Facebook daily results in a 5.574 decrease in the self-esteem score of an individual." (Jan et al., 2017). However, the study is only limited to students of IoBM and Facebook is taken as the representative of social media since it was a popular platform at the time. Similarly, research on "The Relations Among Social Media Addiction, Self-Esteem, and Life Satisfaction in University Students" also showed that addictive use of social media had a negative association with self-esteem, and the latter had a positive association with satisfaction with life. Furthermore, path analysis showed that self-esteem mediated the effect of social media addiction on satisfaction with life."(Hawi et al., 2016). These studies have their focus narrowed down to the time spent on social media and its implications. Certain constraints have also limited the previous studies to a particular group of population and the research has not been carried out in the Indian context till date. The studies have been conducted on Facebook users only.

Therefore, further we would like to extend the study to a more diverse population of university students in Bangalore and also to the two social media platforms relevant today: Instagram and Snapchat. The research also aims to understand if a difference exists in the self-esteem level between male and female and UG and PG students. The aim of this study is to eventually provide a better understanding of the present scenario and implications of these social media platforms on the youth of India.

Problem statement

To study the association between social media and self-esteem among undergraduate and postgraduate students of Bangalore.

Research Questions

1. How social media exposure and self-esteem scores of college students differ based on their demographic characteristics?
2. How is social media exposure and self-esteem of individuals related?

Objectives

RQ1

- O1: To examine gender-based differences in self-esteem scores among college students.
- O2: To examine gender-based differences in social media exposure among college students.
- O3: To examine the differences in self-esteem scores between undergraduate and postgraduate students.
- O4: To examine the differences in social media exposure between undergraduate and postgraduate students.

RQ2

- O5: To analyze the relationship between self-esteem scores and social media exposure.

Research Hypothesis

RQ1

- O1: H0 - There is no significant gender-based differences in self-esteem scores.
- O2: H0 - There is no significant gender - based differences in social media exposure.
- O3: H0 - There is no significant difference between Undergraduate and Postgraduate students in self- esteem scores.
- O4: H0 - There is no significant difference between Undergraduate and Postgraduate students in social media exposure.

RQ2

- O5: H0 - There is no significant relationship between self-esteem scores and social media exposure.

METHOD

Research Design

The study will examine the association between two variables: social media exposure, which acts as the independent variable and the self-esteem of university students in the age group 18-25, which is the dependent variable of the study. This research employs a quantitative research design. Quantitative research focuses on collecting and analyzing numerical data. This aids in finding patterns, analyzing causal relationships, establishing predictions and generalizing the finding to a wider array of population. In non-experimental research, the variables are held constant and not manipulated, they are measured in the natural setting. For this study, to understand if the variables are related, it is necessary to study them in their natural setting as the aim is to understand the experience of the participants. The researcher in this study follows a correlation non-experimental design which means the study investigates relationships between the variables without manipulating them.

Correlational methods help in establishing this relationship between the variables. Correlational studies result either in positive correlation, negative relation or zero correlation. The study has adopted this research design as the main purpose is to understand how social media exposure is related to the self-esteem in university students and how it differs based on gender as well as between students in undergraduate and postgraduate. The processes underlying how social media may influence young people's body image appear to be no different from underlying other forms of mass media. Research is needed to more fully evaluate youth's experiences of online appearance culture and how this may foster both negative and positive peer interactions (Williams & Ricciardelli, 2014).

Sample

The sampling frame for this research is universities in Bangalore. There are 16 universities in Bangalore (S.L.U, 2022) The study has considered 30% out of the 16 universities. Mugenda, O. M., & Mugenda, A. G, highlights that according to rule of thumb a sample size of 30% from the total population is considered to be sufficient for statistical analysis by many research studies (Mugenda, O. M., & Mugenda, A. G, 2003). Therefore, the study aims to collect data from 4 universities. The expected sample size is 400 participants. The sampling strategy is non probabilistic sampling. Under that the study used a snowball sampling method. Here the researcher chose his first participant who gave the lead to other participants. Hence each participant led the researcher to another participant and the procedure continued till the study got the required responses. Hence this is the sampling strategy used in the study.

Inclusion Criteria

The criteria that were used during the sample selection is that the study collected data from undergraduate and postgraduate students between the age group of 18-25. The participants were specifically users of Snapchat and Instagram.

Exclusion criteria

The study excluded students outside Bangalore and non-binary participants.

Procedure

Students who are pursuing their undergraduate or postgraduate degrees in universities based in Bangalore were assessed. Initially the sample was selected, each researcher randomly approached individuals who are undergraduate and postgraduate students of the associated university. Each researcher-built rapport, debriefed the potential participant on the study and asked for their informed consent. They were also asked if they used Instagram and Snapchat, further these subjects were asked to recruit other people. Once this was established, the participants were sent a google form questionnaire via online platforms such as email or WhatsApp or given a printed questionnaire. The google form or printed questionnaire contained a complete debrief of the study as well as the informed consent form. After the consent has been taken, the data collection for the study began by asking for the required demographic information, user information as well as an assessment using the Rosenberg Self-Esteem Scale. Once the entire form has been filled out, the participant submitted the form which was directly sent to the researcher's email.

Ethical Concerns

The most important component in conducting research in the field of psychology is to follow the ethical principles governing the interaction with a participant. This research has also been conducted keeping in mind the guidelines.

First and foremost, informed consent was taken from the participants of the study by explaining to them the details of the study and providing a form for the same. The participants were not coerced in any way and only those were included who voluntarily agreed to be a part of the research. The participants were also assured that they were free to withdraw their participation at any point during the study. The rights and dignity of the participants were ensured at every step wherein the data was collected anonymously and it was not shared with anyone apart from the research team. Furthermore, the participants were protected from any physical or psychological harm during the course of the research. The feelings and opinions of the participants were respected and not violated in any way. The structure of the study was examined before implementation for its risks and benefits as a result of which, the research team could not find any potential risk to the participants and had a benefit that through the course of the study, the participants would get an insight into how their social media usage influences their self-worth and esteem. Under no circumstances were the participants deceived or misled in any way, all details of the research were revealed to them prior to their participation. Additionally, the participants were debriefed post collection of the data and the results of the study was also shared with them.

Measures

Rosenberg Self Esteem Scale is a 10-item instrument that assesses a person's overall evaluation of worthiness as a human being (Rosenberg, 1965; Köse & Doğan, 2019). The scale is believed to be unidimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. The scale was developed by Dr. Morris Rosenberg in 1965 who was a social psychologist. The Rosenberg –self-esteem scale is designed similarly to that of social survey questionnaires. The RSES is used as a self- report instrument to evaluate an individual's self – esteem, which was investigated using the item response theory. It contains five positively (e.g., ''On the whole, I am satisfied with myself.'') and five negatively (e.g., ''I feel I do not have much to be proud of.'') worded items (Jiang & Ngien, 2020). The scoring is done by assigning values to each of the 10 items in the scale. The negative items were reverse coded, responses were added, and the results were used to calculate each respondent's score. The scale ranges from 10-40, with 40 indicating the highest score possible and 10 being the lowest (Scapim, 2022). Since the present study focuses on the relationship between social media and self – esteem, this tool is used to measure the self-esteem of the participants. The internal consistency for RSES ranges from 0.77 to 0.88. Test – retest reliability ranges from 0.82 to 0.85. Validity for the scale is 0.55. The reliability and validity for the scale had been established initially with a sample which consisted of 5,024 high – school juniors and seniors from 10 schools in New York State that were randomly selected.

Operational Definitions

Self-esteem- it can be defined as the individual's personal opinion on his/her own worth in relation to others, i.e., what an individual thinks of himself/herself in general and when compared to other people. This will be measured using the Rosenberg self-esteem scale which will generate a score.

Social media usage - it is defined in terms of the number of hours per day an individual spends on the social media platforms of Instagram and Snapchat, in terms of less than 5 hours or more than 5 hours.

Analysis
RQ1
O1: A statistical t-test was applied to compare the self-esteem scores of males and females. The t-test was conducted using the software Jamovi. More specifically an independent t-test was applied for the data since the comparison was made on the same variable which is self-esteem, however, two different groups were targeted which are male and female. The outcome of this analysis is to understand the difference in self-esteem scores of males and females.

O2: A statistical t-test was applied to understand the difference in social media exposure of male and females. The t-test was conducted using the software Jamovi. More specifically an independent t-test was applied for the data since the comparison was made on the same variable which is social media exposure, however, two different groups were targeted which are male and female. The outcome of this analysis is to understand the difference in social media exposure of male and females.

O3: A statistical t-test was applied to compare the self-esteem scores of undergraduate and postgraduate students. The t-test was conducted using the software Jamovi. The research used an independent t-test as it aims to measure the data on the same variables by dividing them into undergraduate and postgraduate students. The outcome of this analysis is to understand the difference in self-esteem scores of undergraduate and postgraduate.

O4: A statistical t-test was applied to understand the difference in social media exposure of undergraduate and postgraduate students. The t-test was conducted using the software Jamovi.The research used an independent t-test as it aims to measure the data on the same variables by dividing them into undergraduate and postgraduate students. The outcome of this analysis is to understand the difference in social media exposure of male and females.

RQ2
O1: The Pearson correlation (parametric) test was conducted to assess the association between the two variables - self-esteem and social media exposure. The data of the two variables was tested for the entire sample and a relationship between the same was established.

RESULTS
The study follows a Pearson correlational method to assess the association between Social media exposure and self- esteem. Independent Sample T- tests are used to assess differences in self- esteem and social media exposure among Males and females and Undergraduate and postgraduate students. The total responses collected for the study after cleaning and coding was 451 which consisted of 227 Undergraduate, 224 postgraduate students, 307 females and 144 males. The age group of 18- 20 years consisted of 178 responses, 21-22 years consisted of 203 responses and 23- 25 years consisted of 70 responses. The students using social media for less than 4 hours consisted of 284 responses and more than 4 hours consisted of 167 responses. Data has been analyzed using Jamovi Software. The sociodemographic details mentioned above were analyzed in Jamovi to determine the normality of the population.

Table 1 Demographics

Demographics	Category	N	Percentage
Gender	Male	129	32.1%
	Female	273	67.9%
Education	Undergraduate	198	49.3%
	Postgraduate	204	50.7%

Table 1 represents the demographic details of the participants. The study focuses on two categories namely gender and education. Firstly, the population is divided based on gender, that is there are 129 male participants and 273 female participants. Further population is divided based on education which shows that there are 198 undergraduate and 204 postgraduate participants.

Table 2 Descriptives

	self esteem
N	420
Missing	30
Mean	24.3
Median	24.0
Standard deviation	2.12
Skewness	0.202
Kurtosis	0.236
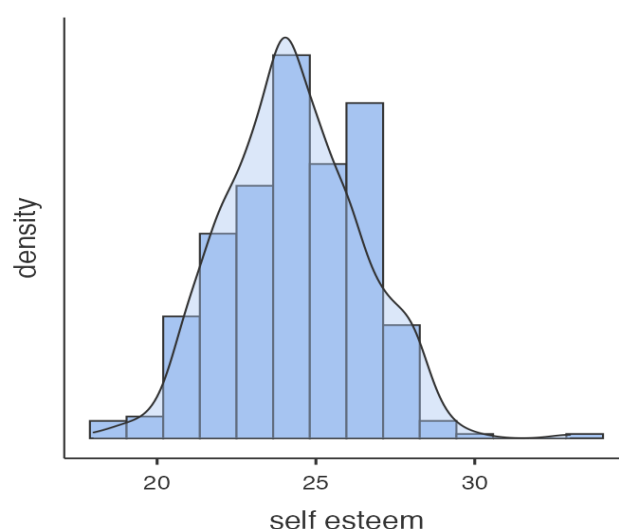
Graph 1: Normal Probability Curve

Table 2 represents the descriptive statistics for Self-esteem scores. N stands for total number of responses which is 402. The table highlights the central tendency values. Mean is the arithmetic average of the data which is 24.3. The standard deviation is seen to be 2.12. It represents how data is distributed or spread out around the mean. Finally, the skewness and kurtosis is tested to see if the data is normally distributed. Skewness helps to understand the asymmetry of given data. Whereas kurtosis measures the heaviness of the given data. It helps researchers to know if the distribution of data is normal, positive or negative (Singh, 2021). The data is said to be normally distributed if skewness and kurtosis are between the range of +2 and -2. In the above table the skewness is 0.202 and kurtosis is 0.236. Therefore, the data is normally distributed. Graph 1, also represents the normal distribution of data. Hence the research would be using parametric tests namely Independent t-test and Pearson correlation.

Analysis and Interpretation
Objective 1: To examine gender-based differences in self-esteem scores among college students.

H0 - There is no significant gender-based difference in self-esteem scores.

Table 3 Independent t test on self scores of male and female

	Male		Female		Statistic	df	p		Effect Size	f	df2
					Student's t			Cohen's d			
	M	SD	M	SD							
Self-esteem scores	24.3	2.30	24.2	2.04	0.235	400	0.815		0.0251		
Levene's statistic						1	0.143			2.15	400

The hypothesis H0 of objective 1, which states that there is no significant gender-based differences in self-esteem scores, is tested using an independent sample t-test. From table 3, it can be observed that there is no significant difference in the self-esteem scores of male and female participants as the p-value is 0.815 (p>0.05 means no significance), (Francis,2016).

Therefore, the null hypothesis for objective 1 is accepted. There is homogeneity of variances as assessed by the Levene's test for equality of variances as the p-value is 0.143 (p>0.05 means there is a homogeneity of variances), (Walker et al., 2021). The effect size according to Cohen's d is 0.0251 which means that there is no practical significance as the range between 0.00-0.20 is considered to be negligible and is ignored (Juandi et al., 2021).

Objective 2: To examine gender-based differences in social media exposure among college students.

H0 - There is no significant gender - based difference in social media exposure.

Table 4 Independent t test on social media exposure of male and female

	Male		Female		Statistic	df	p		Effect Size	f	df2
					Student's t			Cohen's d			
	M	SD	M	SD							
Social Media Exposure	1.36	0.483	1.40	0.491	-0.670	400	0.504	-0.0715			
Levene's statistic						1	0.162			1.97	400

The hypothesis H0 for O2 stating there is no significant difference in social media exposure between male and female sample population was assessed using an independent sample t-test.

Table 4 shows that the p-value obtained from the analysis is 0.483 for social media exposure, indicating no significant difference between the scores of male and female participants (Francis,2016). The effect size is presented as "f=0.504" for social media exposure, and "-0.0715" for Cohen's d, which represents a small effect size. Additionally, Levene's statistic was used to test the homogeneity of variances, and the p-value obtained was 0.162, indicating no significant difference between the variances of male and female participants (Walker et al., 2021). Overall, the results suggest that there are no significant gender differences in social media exposure scores between male and female participants and the null hypothesis is accepted.

Objective 3: To examine the differences in self-esteem scores between Undergraduate and Postgraduate students.

O3: H0 - There is no significant difference between Undergraduate and Postgraduate students in self- esteem scores.

Table 5 Independent t test on self-esteem scores of undergraduate and postgraduate students

	Under-graduate		Post-graduate		Statistic	df	p	Effect size	f	df2
					Student's t			Cohen's d		
	M	SD	M	SD						
Self-esteem score	24.4	2.24	24.1	2.00	1.43	400	0.154	0.142		
Levene's statistic						1	0.084		3.01	400

The hypothesis H0 for O3 stating that there is no significant difference in self-esteem scores between undergraduate students and postgraduate students was assessed using the independent sample t- test. From table 5, it can be observed that there is no significant difference in self-esteem scores between undergraduate and postgraduate students since p=0.154, which is greater than the significance value 0.05 (p>0.05) (Francis,2016). Therefore, the null hypothesis for objective 3 is accepted. There is homogeneity of variances as assessed by the Levene's test for equality of variances, for competence p>0.05 (p= 0.084), (Walker et al., 2021). According to Juandi et al. (2021), an effect size between 0.00 - 0.20, can be considered as ignored and having no effect, hence it has no practical significance.

Objective 4: To examine the differences in social media exposure between Undergraduate and Postgraduate students.

H0 - There is no significant difference between Undergraduate and Postgraduate students in social media exposure.

Table 6 Independent t test on social media exposure of undergraduates and postgraduate students

	Under-graduate		Post-gra duate		Student's t			Statistic	df	p	Effect Size	f	df2
	M	SD	M	SD				Cohen's d					
Social Media Exposure	1.39	0.489	1.39	0.488	0.0335	400	0.973				0.00334		
Levene's statistic									1	0.947		0.0045	400

The hypothesis H04 stating that there is no significant difference in social media exposure between Undergraduates and postgraduate students was tested using the independent sample T- test. In table 6, it can be observed that there are no significant differences in social media exposure between Undergraduate and postgraduate students (p=0.973), (p>0.05) (Francis,2016). Hence the null hypothesis is accepted. There was homogeneity of variances as assessed by the Levene's test for equality of variances, for competence p>0.05. (p= 0.947). (Walker et al., 2021) The effect size according to Cohen's d is 0.00334 which means that there is no practical significance as the range between 0.00-0.20 is considered to be negligible and is ignored (Juandi et al., 2021).

Objective 5: To analyze the relationship between self-esteem scores and social media exposure.

H0 - There is no significant relationship between self-esteem scores and social media exposure.

Table 7 Correlation between social media exposure and self - esteem among university students

		Time spent	Scores
Social media Exposure	Pearson Correlation	—	
	Sig. (2-tailed)	—	
Self-esteem	Pearson Correlation	0.114*	—
	Sig. (2-tailed)	0.022	—

*Correlation is significant at the 0.05 level (2 tailed)

The fifth objective aims to see if there is a relationship between the variables social media exposure and self-esteem. Since the data is normally distributed Pearson correlation is conducted. The result table 7 shows that the R value is 0.114. It's a positive correlation which tells that as one value increases the other also increases. It falls between the ranges 0.0 to 0.2

which shows that the degree of association is very weak. Therefore, there is no association between social media exposure and self-esteem. The p value is 0.022 (P< 0.05). Hence, the null hypothesis "H0 - There is no significant relationship between self-esteem scores and social media exposure" is accepted. Thus, there is no relationship between social media exposure and time spent.

DISCUSSION

The results of the study suggest that there is no significant gender-based difference in self-esteem scores among university students which supports hypothesis 1. In this study, the self-esteem scores of males and females were measured using the same standardized self-esteem questionnaire (Rosenberg's Self-Esteem Scale). However, men and women evaluate themselves using different parameters and thus their self-esteem stems from different factors. While women evaluate themselves in terms of reflected appraisal (define themselves as what they believe others see them as), the men place more importance on social comparison (Shwalbe & Staples, 1991). Thus, it will be difficult to measure the gender-based differences in self-esteem using a common parameter. Research suggests that males usually score higher in standard self-esteem tests globally, however, the difference is so small that it is negligible (Kling et al., 1999) which can be another possible reason for the acceptance of the null hypothesis. The results of this study have important implications for the understanding of self–esteem and gender-based differences among university students. It suggests that both male and female students may have similar levels of self-esteem and that gender may not be a significant factor when it comes to self–esteem. This also suggests that interventions aimed at improving self-esteem should be equally applicable to both male and female students.

There are also no significant gender-based differences in social media exposure among university students, which supports Hypothesis 2. Although the mean social media exposure score for female students (1.38) was slightly higher than that of male students (1.35), this difference was not statistically significant. A study conducted in Turkey states that men and women use social media for completely different purposes. While men use social media as a means of forming new relations, women use it to maintain existing relations or for academic purposes or other goals (Mazman et al., 2011). Another study supported these findings and also claimed that the pattern of social media usage is heavily dependent on the personality of the individual, i.e. individual differences in online behavior can be found (Muscanell & Guadagno, 2012). Since this research does not study the variables such as personality or pattern of social media behavior, it is difficult to find the gender-based differences in social media exposure as it is subjective in nature and requires more in-depth study.

There is also no significant difference in self-esteem between undergraduate and postgraduate students, which supports Hypothesis 3. The mean self-esteem scores for undergraduate students were found to be higher than those of postgraduate students, although the difference was not statistically significant. This finding may be attributed to the fact that undergraduate students are in the initial phase of their academic journey and are generally more optimistic about their future prospects, while postgraduate students may be facing more pressure and challenges in their academic and professional lives. However, the results of the study conducted by Ross & Broh (2017), contradict the findings of the present study. This may be due to differences in the sample size, cultural background, and academic settings of the two studies.

There is no significant difference in social media exposure between undergraduate and postgraduate students, which supports Hypothesis 4. Studies prove that there are differences

in the way that social media is used, e.g., the time spent on social media, the number of platforms used, etc. However, this difference is seen in different generations, rather than individuals (Fietkiewicz et al., 2016). Since the participants of this research belong to the same generation, there is not much difference in the time they spend on social media between the undergraduate and postgraduate students. Furthermore, a study conducted in the United States concluded that as education level and household income increases, social media use increases. On the other hand, as age increases, social media use decreases (Hruska & Maresova, 2020).

However, these factors are not applicable in this research as both the undergraduate and postgraduate students belong to the same cohort/generation and a similar education level. Therefore, no significant difference is found in their social media exposure.

Another result that was concluded from the study was that there is no significant relationship between social media exposure and self-esteem among university students, which supports Hypothesis 5. This finding is supported by the study conducted by Senthilnathan (2019) who reported a very weak correlation between social media exposure and self–esteem among university students. However, it should be noted that other studies have reported contradictory findings. Saiphoo et al., (2020) found a negative relationship between social networking site use and self–esteem, while Lin et al., (2020) reported that social media use was associated with lower life satisfaction, but self–esteem did not moderate this relationship. These inconsistent findings highlight the complexity of the relationship between social media exposure and self–esteem, and the need for further research in this area.

The reason for the acceptance of the null hypothesis is because the relationship between self-esteem and social media exposure is too broad an aspect to be measured. It needs to take into account factors such as personality of the individual, the kind of sites used, the type of content viewed, etc. Social comparison theory suggests that individuals engage in comparisons with others to evaluate their own abilities, opinions, and social status. Social media therefore can serve as a source of social comparison. However, research has shown that there is no correlation between social media use and self–esteem. This means that despite the prevalence of social media use and the potential for social comparison, social media use does not have a significant impact on an individual's self-esteem. Additionally, individuals may use social media for various purposes beyond social comparisons, such as social connection or entertainment, which may also explain the zero correlation between social media and self–esteem.

CONCLUSION, LIMITATIONS & IMPLICATIONS

This study examined the association between two variables: social media exposure, which acts as the independent variable and the self-esteem of university students in the age group 18-25, which is the dependent variable of the study. It used a non-probabilistic sampling approach. In this case, a snowball sampling strategy was adopted. Here, the researcher chose the first person who served as an example for the others. Each participant then directed the researcher to a different participant, and so on, until the study had all the necessary responses.

Overall, there was no significant difference found in the time spent or self-esteem scores when comparing males and females as well as undergraduate students and postgraduate students. The overall correlation coefficient also suggests that there is no association between self-esteem and social media exposure. An interesting finding is that the average self-esteem scores suggest that participants have low self-esteem. It may not be associated with social media exposure.

However, this means that it can be tested or associated with other variables that can be studied in the future.

The study has several limitations. The process itself is one of the drawbacks. There may have been social desirability bias because the participants had to fill out a self-report survey.

Furthermore, because the questions were so straightforward and there was room for the participants to grasp what the exam was assessing, they might feel pressured to lie in order to present a positive image of themselves. The researchers may have included filler items in place of just showing questions from the Rosenberg scale in order to prevent participants from realising the purpose of the questionnaire as they filled it out.

Another drawback is snowball sampling as it produces biased samples because the sample is not representative of the community. It is not representative because many people they do not know were excluded from the study because the researchers only chose one participant to invite other participants. Systematic sampling can be employed to assist in obtaining a more representative population in order to get over this obstacle.

The age restriction, which is between the range of 18 and 25, is also fairly specific. This study did not cater to non-binary individuals Moreover, because only Bangalore-based university students who use Instagram and Snapchat were included in the study, the findings cannot be generalized to a larger population in terms of culture, age and gender orientation.

Recommendations for future research include replicating these findings across multiple universities and diverse populations to confirm the generalizability of results. Studies can also focus on investigating gender differences in social media use across specific platforms and activities to provide a more comprehensive understanding of gender differences in social media use. Longitudinal studies could be conducted to track the changes in self–esteem among students as they progress through their academic journey. Such studies could provide valuable insights into the factors that influence self – esteem and the ways in which it evolves over time.

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