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Social Media and Psychology: An Analytical Study of Social Media Usage and its Association to Depression among Under Graduate Students

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The dynamically interactive Indian society is challenged by the new methods of communication and the well-being of the adolescents is negatively affected by the use of social media primarily depression which is associated somewhat with increased morbidity and mortality. Therefore, the objective of this study was to compare and analyse the association of social media usage and depression among under graduate students. A total of 98 under graduate students of Manipal University Jaipur, aged between 16 to 21 years were randomly selected for this cross-sectional study. The data of age, gender, source of accessing social media, most used social media platform, average length of each visit to social media and usage of social media in a day were used as independent variables. Depression among subjects had been considered as dependent variable which was further classified into depressed and not-depressed category. Kruskal-Wallis Test was applied and the result shows significant difference in the depression score between the different social media usage group and average length of each visit to social media. However, chi-square results revealed that depression was significantly associated with age, daily usage of social media and average length of each visit of the subjects.

Keywords: Social Media, Psychology, Depression, Chi Square, Kruskal-Wallis Test.

Indian society is a dynamically interactive society, with people communicating with each other on different social forums like tea stalls, corner gathering, festivals, marriages, fairs and many other venues, but the gen next of India is shying away from these venues and is more engaged with the modern technological methods of communication viz. Social Media. It is interesting to study the rise of depression among Indian youth as India accounts for most number of suicide cases [Ignatius Pereira, 2016]. The current study tries to explore the association of social media with the phenomena of Depression among Indian undergraduate students.

Social Media: "Social media is a collection of online platforms and tools that people use to share content, profiles, opinions, insights, experiences, perspectives and media itself, facilitating conversations and interactions online between groups of people." The term new media and Social Media have been used interchangeably during the research (Boyd D. & Ellison N., 2007).

Undergraduate Students: In this study the students pursuing undergraduate studies in the age group of 17-24 years is considered for sample.

Depression: "Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that one normally enjoys, accompanied by an inability to carry out daily activities, for at least two weeks".

Depression is the leading cause for suicides globally and important contributor of total disability worldwide and nearly 270 million suffer from depression, "an increase of more than 18% between 2005 and 2015" [WHO, 2017] and for United States, current estimates suggested the frequency of major depressive disorders between "13.3% and 17.1% and a yearly cross-sectional prevalence ranging from 2.3%-4.9%" [Fava and Cassano, 2008]. According to National Mental Health Survey 2015-16 of India, "nearly 15% Indian adults need active intervention for one or more mental health issues and one in 20 Indians suffers from depression". "It is estimated that in 2012, India

had over 258,000 suicides, with the age-group of 15-49 years being most affected" [WHO, 2017]. Social media are web-based sites like Facebook, Instagram, Twitter, Snapchat, WhatsApp etc. that allow people to interact with each other and are very popular among adolescents [Rideout et. al., 2010]. Some studies highlight that among these social media sites, Facebook was used by more than 70% of adolescents [Lenhart, 2010]. Several research studies were conducted to evaluate the association between online social networking and depression, out of which some researches revealed that depression and social media usage is closely associated.

Miller [2019] in his study reported that higher rate of depression was reported in teenage and young adult users who spend more time on Instagram, Facebook and other platforms in comparison to those who spent less time [Miller, 2019], Selfhout et. al. (2009) conducted research to find out whether the communicating (i.e., IM-ing) and non-communicating (i.e. surfing) internet activities have any longitudinal association with depression and anxiety. The study also explored the friendship quality among these associations and their findings supported "social compensation effects of IM-ing on depression and poor-get-poorer effects of surfing on depression and social anxiety, respectively".

Hunt et. al. (2018) in their study with controlled use of social media discovered well-being development among the subjects. The usage of social media was restricted to 30 minutes per day for limited period. The study concluded that there is relation among use of social media and well-being. In other studies it was proved that depression was caused directly or indirectly with the usage of Facebook and Instagram (Rosen et. al. (2013), Tandoc, Ferrucci, & Duffy (2015), Lup, Trub, and Rosenthal (2015), Donnelly & Kuss (2016)).

While on the other hand there are studies that found no association among the said variables. The research undertaken by Jelenchick et. al. (2013) concluded that there is no relationship between SNS use and clinical depression when tested using experience sample method (ESM) approach among older adolescents. Similarly Ohannessian (2009) concluded that depression or anxiety was not associated with any of the media type, when media use and psychological adjustment were examined for association.

Therefore, the objective of the present study is to compare and analyse the association of social media usage and depression among under graduate students. The study tests the hypothesis that there is a significant difference among the usage of social media in a day, average length of each visit to social media in context to depression, study also tested another hypothesis that there is a significant association among usage of social media, average length of each visit to social media and depression.

Method

The survey was sent to randomly selected 150 undergraduate students of Manipal University Jaipur, out of which only 107 participants (71%) completed the survey. Among the 107 participants who completed the survey a meagre 8% of students denied using social media. These subjects were excluded from the investigation since they did not qualify for the hypothesis testing. Hence this cross-sectional study was conducted on 98 undergraduate students aged between 16 to 21 years. The data of age, gender, source of accessing social media, most used social media platform, average length of each visit to social media and usage of social media in a day were used as independent variables. Depression among subjects had been considered as dependent variable which was further classified into depressed and not-depressed category.

The Depression among subjects was diagnosed through the Beck's Depression inventory made by Aaron T. Beck (1961) through online survey form. The independent variables for the study were age, gender, source of accessing social media, social media platform most used, average length of each visit to social media and usage of social media in a day. Depression among subjects considered as dependent variable which was further classified into dichotomous variable i.e., depressed and not-depressed category. A score of seventeen or higher was accepted as presence of depression, while rest of the subjects who scored less than seventeen fell under the non-depression

category. The subject's demographic information were determined by frequency and percentage, the Kruskal-Wallis Test was employed to compare usage of social media in a day groups, average length of each visit groups in context to depression, whereas, chi-square test was used to find out the association between usage of social media in a day, average length of each visit and depression. For analysing the data Statistical Package for Social Sciences (SPSS) version 20.0 was used.

Results

Demographic information of 98 subjects (male=52 and female=46) are described in Table-1 with the help of frequency and percentage. Subject's percentage of age among 16-18 yrs. and 19-21 yrs. were 42.9% and 57.1% respectively; depressed male and female were 42.9% and 57.1% respectively on the other side not-depressed male and female were 57.1% and 42.9% respectively. The percentage of access of social media only by computer, only by mobile phone and by both computer and mobile phone were 02%, 12.2% and 85.7% respectively; the social media platform most used among Facebook, Instagram, WhatsApp, Snapchat or any other were 14.3%, 16.3%, 51.0% and 18.4% respectively;

Table- 1. Demographic Information

Demographics		N (%)
Age	16-18 Yrs	42 (42.9)
	19-21 Yrs	56 (57.1)
Gender	Male	52 (53.1)
	Female	46 (46.9)
Access of Social Media	Only by Computer	02 (02.0)
	Only by Mobile Phone	12 (12.2)
	By both Computer and Mobile Phone	84 (85.7)
Social Media Platform Most Used	Facebook	14 (14.3)
	Instagram	16 (16.3)
	Whats App	50 (51.0)
	Snapchat or Any other	18 (18.4)
Depression	Depressed (Male)	12 (42.9)
	Depressed (Female)	16 (57.1)
	Not-Depressed (Male)	40 (57.1)
	Not-Depressed (Female)	30 (42.9)

Table-2. Mean Rank of Social Media Usage and Average Length per Visit to Depression Score

	Social Media Usage	N	Mean Rank
Depression Score	1 to 3 times	22	38.59
	4 to 6 times	46	43.89
	7 to 9 times	18	49.39
	10 times or more	12	91.17
	Total	98	
	Average Length per Visit	N	Mean Rank
	less than 15 minutes	38	41.76
	16 to 30 minutes	30	39.63
	31 to 60 minutes	16	51.63
	1 to 2 hours	8	84.50
	more than 2 hours	6	95.50
	Total	98	

Table-3. Kruskal-Wallis Test for Depression, Social Media Usage, Average Length per Visit

		Depression Score
Social Media Usage	Chi-Square	30.973*
	Df	3
	Asymp. Sig.	0.000
Average Length per Visit	Chi-Square	34.537*
	Df	4
	Asymp. Sig.	0.000

*significant at 0.05 level

Table 2 and 3 shows the Kruskal Wallis Test which revealed that there was a statistically significant difference in the Depression score between the different social media usage group, χ^2 (3) = 30.973, p = 0.000 with a mean rank

depression score of 38.59 for 1 to 3 times, 43.89 for 4 to 6 times, 49.39 for 7 to 9 times and 91.17 for 10 times or more, on the other side there was also a statistically significant difference in the Depression score between the average length per visit, $\chi 2$ (4) = 34.537, p=0.000 with a mean rank depression score of 41.76 for less than 15 minutes, 39.63 for 16 to 30 minutes, 51.63 for 31 to 60 minutes, 84.50 for 1 to 2 hours and 95.50 for more than 2 hours.

Table 4. Chi-Square Test

	Chi-Square Value	df	Asymp. Sig. (2-sided)
Age*Depression	7.350	1	0.007*
Gender*Depression	2.261	1	0.133
Access of Social Media*Depression	1.635	2	0.442
Usage of Social Media*Depression	43.254	3	0.000*
Average Length per Visit*Depression	57.813	4	0.000*
Social Media Platform Most Used*Depression	4.193	3	0.241

*significant at 0.05 level

In Table 4 chi-square results were reflected for association of subject's depression with age, gender, access of social media, usage of social media, average length per visit, social media platform most used, among these variables subject's depression was significantly associated with age ($\chi 2$ (1) = 7.350), usage of social media in a day ($\chi 2$ (3) = 43.254), average length per visit ($\chi 2$ (4) = 57.813) as the p-value is less than 0.05 ($p<0.05$), while insignificant in rest of the variables.

Discussion and Conclusion

The contemporary lifestyle of people has led to depression even in the young generation and is increasing with each coming day. WHO has stated that depression affects all communities across the world and is one of the important contributor to the burden of global disease. The report of WHO and other organisations reflects that the depression even leads to fatal consequences like suicide. According to WHO, suicide takes nearly 1 million lives every year i.e. almost 3000 lives per day whereas 20 attempts to suicide are made at the same time when an individual ends his life with suicide [WHO, 2012]. Marcus et. al. (2012) concluded that both male and female are equally affected by the depression.

The present study was undertaken to compare and analyse the association of social media usage and depression among undergraduate students. The results of the study revealed that, female are more depressed as compared to male which is in confirmation with the WHO (2008) study done on both high-income and low-and middle-income countries that highlighted a 50% higher burden of depression on women as compared to men. Also, Orden et.al. (2010) study recommended that women might probably experience many risks that highlights the presence of thwarted belongingness and perceived burdensomeness.

Hypothesis taken earlier that there is a significant difference among the usage of social media in a day, average length of each visit to social media in context to depression was accepted and their results revealed that those who have spent more time on social media are susceptible to depression in their later life. These results are in partial consonant of the study done by Woods et.al. (2016), as mentioned in their study that using night-time social media and emotional investment can affect the sleep quality and levels of depression in adolescents. Their findings also concluded that the use of social media is a major factor that affects adolescence quality of sleep, and anxiety levels which results in poor sleep quality and increased depression.

Another hypothesis of the study taken earlier that there is a significant association among usage of social media, average length of each visit and depression among the undergraduate students was accepted and conforms to results from previous studies done by Khan et. al. (2018) which concluded that the usage pattern of social media users indicate the mood of the user which can be used to analyse the user's mental state and depression prediction. These results are also supported by the studies conducted by

Aldarwish and Ahmad (2017), De Choudhury et. al. (2013) and Saravia et. al. (2016). Likewise there was also a significant association between average length of social media at each visit and depression, these results are also in a partial consonant of the study done by Lin (2016) which concluded that usage of social media was significantly connected with depression. The study compared the individuals in the highest quartile of social media site visits per week with those who categorized in lowest quartile, which revealed that there is significantly increased chances of depression among highest quartile of social media visit per week. Robinson et. al. (2019) concluded in their research that higher participation in social media usage behaviour is associated with a higher likelihood of having Major Depressive Disorder. Hu et al. (2015) in their study concluded that it is practical to predict whether a user is depressed or not with respect to Social media. Feinstein et al. (2013) study found that the increase of depressive symptoms was associated with social comparisons on social media and it was further collaborated by Steers et. al. (2014) study that linked the social comparisons with the time spent on social media and consequently escalating the depressive symptoms. Likewise, Grieve et. al. (2013), Mota (2014), Wright et al. (2013) in their respective studies suggested that some depressive symptoms were reported in individuals that perceived Facebook to be a social support and tool for social connection.

The overall findings of this study highlights the strong association between social media usage and depression among the undergraduate students. In the present study WhatsApp was the most preferred social media platform followed by Instagram and Facebook. The increased average length at every visit to social media is the important contributing factor leading to depression. The female participants were found to be more prone to depression in comparison to male counterparts using social media. As the individuals usage time and average length per visit increased during their visit to social media platforms have more susceptibility towards depression.

The present study is build up by the thoroughness of the data collection process. However, single study cannot confirm or disapprove an association, repetition of our findings across varied demographic clusters is necessary. The present study is restricted to undergraduate students from single university setup with moderate sample size. It is further worth noting that we examined the association between depression symptoms and social media use measured with the data collected at a single time point, due to time and resource considerations. Longitudinal studies are necessary to elucidate more clearly the association of social media and depression that would be useful in formulating policies to improve depression risk factors among undergraduate students. Nonetheless, our findings have important implications for youth counsellors. Hopefully, with early intervention by parents, counsellors and doctors through monitored usage, and successful prevention in childhood and adolescence can reduce the occurrence of depression in future.

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