

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

Pradeep Singh Chahar

Banaras Hindu University, Varanas

Tanveer Ahemad Hundekari

MGM University Aurangabad

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 purpose 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 of the subjects, usage of social media in a day and average length of each visit.

Keywords: Social Media Usage, 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.

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 ranked as the single largest contributor to global disability (7.5% of all years lived with disability in 2015) with more than 300 million people now living with depression, an increase of more than 18% between 2005 and 2015

[WHO, 2017] and in the United States, current estimates suggested a lifetime incidence 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 there is an association between social media and depression.

In several recent studies, teenage and young adult users who spend more time on Instagram, Facebook and other platforms had substantial (from 13 to 66 percent) higher rate of reported depression than those who spent less time [Miller, 2019], Selfhout et. al. (2009) examined the longitudinal associations of time spent on Internet activities for communication purposes (i.e., IM-ing) versus time spent on Internet activities for non-communication purposes (i.e., surfing) with depression and social anxiety, as well as the moderating role of perceived friendship quality in these associations and their results 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) undertook an experimental study to investigate the potential causal role that social media plays in the relationship between social media use to worse well-being and came to a conclusion that limiting social media use to approximately 30 minutes per day may lead to significant improvement in well-being. Self-reported Facebook and Instagram usage have been found to correlate positively with symptoms of depression, both directly and indirectly (Donnelly & Kuss (2016), Lup, Trub, and Rosenthal (2015), Rosen et. al. (2013), Tandoc, Ferrucci, & Duffy (2015)).

While on the other hand there are studies that found no association among the said variables like Jelenchick et. al. (2013), evaluated the association between social networking site (SNS) use and depression in older adolescents using an experience sample method (ESM) approach and found no evidence supporting a relationship between SNS use and clinical depression, Ohannessian (2009) examined media use and psychological adjustment (as indicated by depression and anxiety symptomatology) and concluded that none of the types of media examined was associated with depression or anxiety.

Therefore, the purpose of the present study is to compare and analyse the association of social media usage and depression among undergraduate 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 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 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, $\chi^2 (3) = 30.973$, $p = 0.000$ 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

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

Social Media Usage		Depression Score
Social Media Usage	Chi-Square	30.973*
	df	3
	Asymp. Sig.	.000
Average Length per Visit	Chi-Square	34.537*
	df	4
	Asymp. Sig.	.000

*significant at 0.05 level

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.

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.

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

Discussion and Conclusion

The contemporary lifestyle of people has led to depression even in the young generation and is increasing with each coming day. According to World Health Organisation (WHO), Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. The report of WHO and other organisations reflects that the consequences are worse that even lead to suicide. Almost 1 million lives are lost annually due to suicide, which counts to 3000 suicide deaths every day. When every person who commits a suicide, 20 or more may attempt to end his or her life as per the WHO report (2012), Marcus et. al. (2012) and 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 in the category which is supported by the study done by WHO (2008), which highlights that the burden of depression is 50% higher for females than males. In fact, depression is the leading cause of disease burden for women in both high-income and low-and middle-income countries. 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 sleep quality, and levels of anxiety 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 reflects the mood of the user which can be used to analyse the mental state of the users and predicting depression. 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 social media use was significantly associated with increased depression. The study compared those in the lowest quartile with individuals in the highest quartile of social media site visits per week 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 (MDD). 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) also found that social comparisons on social media were associated with an increase in depressive symptoms. Steers et al. (2014) have suggested that the amount of time spent on social media is related to the likelihood of making social comparisons, which is associated with an increase in depressive symptoms. Likewise, Grieve et al. (2013), Mota (2014), Wright et al. (2013) in their respective studies have shown that individuals who use Facebook as a means to enable perceived social support and connection also reported some depressive symptoms.

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 current study is strengthened by both the rigor of the data collection design and the established validity of the measurement tool used. However, as a single study cannot prove or disprove an association, replication of our findings across diverse demographic groups is necessary. The current study is limited to undergraduate students in a single university setting and a moderate sample size. It is also important to note that we assessed the association between social media use and depression symptoms 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 monitored usage, and successful prevention in childhood

and adolescence can reduce the occurrence of depression in future.

References

- Aldarwish, M. M. and Ahmad, H. F. (2017). Predicting depression levels using social media posts. In 2017 IEEE 13th international Symposium on Autonomous decentralized system (ISADS) (pp. 277-280). IEEE.
- Beck, A.T., Ward, C., Mendelson, M. (1961). Beck Depression Inventory (BDI). *Arch Gen Psychiatry*, 4 (6), 561–571.
- De Choudhury, M., Counts, S., and Horvitz, E. (2013). Social media as a measurement tool of depression in populations. In Proceedings of the 5th Annual ACM Web Science Conference (pp. 47-56). ACM.
- Donnelly, E. and Kuss, D. J. (2016). Depression among users of social networking sites (SNSs): The role of SNS addiction and increased usage. *Journal of Addiction and Preventive Medicine*, 1(2), 107.
- Fava, M. and Cassano, P. (2008). Major depressive disorder and dysthymic disorder. In: Stern, T., Rosenbaum, J., Biederman, J., Fava, M. and Rauch, S. (eds). *The MGH Textbook of Comprehensive Clinical Psychiatry*. Mosby-Elsevier: Philadelphia.
- Feinstein, B. A., Hershengerb, R., Bhatia, V., Latack, J. A., Meuwly, N., and Davila, J. (2013). Negative social comparison on Facebook and depressive symptoms: Rumination as a mechanism. *Psychology of Popular Media Culture*, 2, 161–170. <https://doi.org/10.1037/a0033111>
- Grieve, R., Indian, M., Witteveen, K., Tolan, G. A., & Marrington, J. (2013). Face-to-face or Facebook: Can social connect-edness be derived online? *Computers in Human Behavior*, 29(3), 604–609. <https://doi.org/10.1016/j.chb.2012.11.017>
- Hu, Q., Li, A., Heng, F., Li, J., & Zhu, T. (2015). Predicting depression of social media user on different observation windows. In 2015 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT), Vol. 1 (pp. 361-364). IEEE.
- Hunt, M. G., Marx, R., Lipson, C., and Young, J. (2018). No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology*, 37(10), 751-768.
- Jelenchick, L. A., Eickhoff, J. C. and Moreno, M. A. (2013). "Facebook depression?" *Social*

- networking site use and depression in older adolescents. *Journal of Adolescent Health, 52*(1), 128-130.
- Khan, A., Husain, M. S., and Khan, A. (2018). Analysis of Mental State of Users using Social Media to predict Depression! A Survey. *International Journal of Advanced Research in Computer Science, 9* (Special Issue 2), 100.
- Lenhart, A., Purcell, K., Smith, A., and Zickuhr, K. (2010). Social media & mobile internet use among teens and young adults. Millennials. Pew internet & American life project.
- Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., Hoffman, B. L., Giles, L. M. and Primack, B. A. (2016). Association between social media use and depression among US young adults. *Depression and anxiety, 33*(4), 323-331.
- Lup, K., Trub, L., and Rosenthal, L. (2015). Instagram# instasad?: exploring associations among instagram use, depressive symptoms, negative social comparison, and strangers followed. *Cyberpsychology, Behavior, and Social Networking, 18*(5), 247-252.
- Marcus, M., Yasamy, M. T., Ommeren, M. V., Chisholm, D. and Saxena, S. (2012). DEPRESSION-A Global Public Health Concern Developed. WHO Department of Mental Health and Substance Abuse. Retrieved on March 2019 from https://www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf
- Miller, C. (2019). Does Social Media Cause Depression? How heavy Instagram and Facebook use may be affecting kids negatively. Retrieved on March 28, 2019 from <https://childmind.org/article/is-social-media-use-causing-depression/>
- Mota Pereira, J. (2014). Facebook enhances antidepressant pharmacotherapy effects. *The Scientific World Journal, 892048*. <https://doi.org/10.1155/2014/892048>
- Ohannessian, C. M. (2009). Media use and adolescent psychological adjustment: An examination of gender differences. *Journal of child and family studies, 18*(5), 582-593.
- Pereira, I. (2016). India Saw 1,35,445 Suicides Last Year. *The Hindu*. Retrieved from <http://www.thehindu.com/news/national/india-saw-135445-suicides-last-year/article4849710.ece>
- Rideout, V. J., Foehr, U. G., and Roberts, D. F. (2010). Generation M 2: Media in the lives of 8-to 18-year-olds. Henry J. Kaiser Family Foundation.
- Robinson, A., Bonnette, A., Howard, K., Ceballos, N., Dailey, S., Lu, Y., and Grimes, T. (2019). Social comparisons, social media addiction, and social interaction: An examination of specific social media behaviors related to major depressive disorder in a millennial population. *Journal of Applied Biobehavioral Research, 24*(1), e12158.
- Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M. and Cheever, N. A. (2013). Is Facebook creating "iDisorders"? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior, 29*(3), 1243-1254.
- Saravia, E., Chang, C.H., De Lorenzo, R.J., and Chen, Y.S. (2016). MIDAS: Mental illness detection and analysis via social media. In 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) (pp. 1418-1421). IEEE.
- Selfhout, M.H., Branje, S.J., Delsing, M., ter Bogt, T.F., and Meeus, W.H. (2009). Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality. *Journal of adolescence, 32*(4), 819-833.
- Steers, M.N., Wickham, R.E., & Acitelli, L.K. (2014). Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social & Clinical Psychology, 33*(8), 701-731. <https://doi.org/10.1521/jscp.2014.33.8.701>
- Tandoc, E.C., Jr., Ferrucci, P., and Duffy, M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior, 43*, 139-146. <https://doi.org/10.1016/j.chb.2014.10.053>
- Van Orden, K.A., Witte, T.K., Cukrowicz, K.C., Braithwaite, S.R., Selby, E.A., and Joiner Jr, T. E. (2010). The interpersonal theory of suicide. *Psychological review, 117*(2), 575.
- WHO (2017). Depression. Retrieved on March 25, 2019 from http://www.searo.who.int/india/topics/depression/about_depression/en/
- WHO (2017). Mental Health, Depression: Let's Talk. Retrieved on April 02, 2019 from https://www.who.int/mental_health/management/depression/en/
- Woods, H.C., and Scott, H. (2016). Sleepy teens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of adolescence, 51*, 41-49.

- World Health Organization (2008). The Global Burden of Disease 2004 update. Retrieved on April 2019 from http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf
- World Health Organization (2012). World suicide prevention day 2012. Retrieved on April 2019 from http://www.who.int/mediacentre/events/annual/world_suicide_prevention_day/en/
- Wright, K. B., Rosenberg, J., Egbert, N., Ploeger, N. A., Bernard, D. R., & King, S. (2013). Communication competence, social support, and depression among college students: A model of Facebook and face-to-face support network influence. *Journal of Health Communication, 18*(1), 41–57. <https://doi.org/10.1080/10810730.2012.688250>

Pradeep Singh Chahar, Ph.D., Assistant Professor, Department of Physical Education, Faculty of Arts, Banaras Hindu University, Varanasi, India, 221005. Email ID: pradeepchahar84@gmail.com

Tanveer Ahemad Hundekari, Assistant Professor Journalism and Mass Communication, MGM University Aurangabad, India, 431003. Email ID: media.tanveerh@gmail.com