RESEARCH ARTICLE

THE CORRELATION BETWEEN SOCIAL MEDIA USAGE AND DEPRESSION

*Eshita Kalidindi

Department of Psychology, University of San Francisco

ARTICLE INFO	ABSTRACT
	Social media usage is at its prime and evidence that it causes/exacerbates depression has been increasing. An increase in social media usage leads to spending less time on daily tasks such as real-life interactions and self-reflection, which are essential for individuals, potentially causing depressive symptoms. Primarily negative interactions, problematic social media use and social comparisons have been the cause of these negative associations. However, novel studies have shown no negative associations between social media and depression. Certain social media platforms are also considered to be beneficial and have shown to improve overall user well-being. The association between social media usage and depression includes several factors, and no single factor can solely determine the causality or exacerbation of depressive symptoms. This review focuses on the associations between social media usage and depression among young adults and adolescents. In particular, it illustrates the different types of social media uses and their negative impacts. It also illuminates how baseline depression levels have been exacerbated due to increased social media usage, and how actively using social media can cause depression.

INTRODUCTION

Social media has been gaining increased usage and popularity in the world. Millions of individuals have reported using social media platforms such as Instagram, Twitter, Facebook, and Snapchat, among others, daily. Living life through social media platforms has become more than a mere habit for millions. An increase in the use of social media platforms has shown to have associations with increased levels of depression, especially among young adults. The American Psychiatric Association (2021) defines clinical depression as, "A common and serious medical illness that negatively affects how you feel, the way you think and how you act. Depression causes feelings of sadness and/or a loss of interest in activities. It can lead to a variety of emotional and physical problems and can decrease one's ability to function at work and at home" (pp. 1–3). The negative associations and harmful effects of social media on adolescent mental health have been a growing topic of interest. While this has been an ongoing topic of discussion for several years, the findings in this subject matter have been rather miscellaneous. Social media has been infamously known to cause psychological distress and impact well-being, but

novel research suggests that the correlations may be weak in actuality. Understanding the adverse effects and causality between depression and social media can help come up with interventions to reduce the negativities caused by social media usage (SMU). The review is organized into two major categories. The first group of studies provide evidence of the negative consequences of social media use related to frequency of use and different types of SMU. They show that social media has adverse effects on psychological well-being, and increased usage amplifies depressive symptoms in young adults. These will be followed by a group of studies that have found neutral and even positive correlations between social media use and mental health. The reviews are primarily focused on young adults and university students. Additionally, they also include studies about adolescents. Social media has been used for multiple reasons ranging from professional to personal use. The most commonly used social media platforms among young adults are Facebook, Twitter, LinkedIn, Instagram, Snapchat, Tumblr, WhatsApp, YouTube, Reddit and Pinterest (Primack *et al.*, 2021). The following literature review shows evidence that social media, explicitly used for personal reasons, positively correlates to depression.

They present evidence that the valence of SMU for specific purposes is linked with presenting depressive symptoms.

Negative Impact of Social Media Usage on Depression: It is essential to understand that social media has been used for varying purposes, and each of these has different impacts on psychological well-being. The specific platform being used also impacts the differing levels of depressive symptoms. One such study, conducted by Alsunni and Latif (2021), investigated associations of social media use with anxiety and depression in a cross-sectional study, while examining overall SMU, emotional investment in social media platforms, and night-time specific SMU. Data was collected through a google forms questionnaire from 893 university students, with the mean age being 23.91 years. Alsunni and Latif (2021) collected data on the volume and frequency of social media use across WhatsApp, Twitter, Snapchat, Facebook and Instagram to examine overall SMU. Night-time related social media use was measured using a questionnaire created by Woods & Scott(Woods & Scott, 2016, cited in Alsunni & Latif, 2021)and emotional investment was measured through a Social Media Use Integration Scale(Jenkins-Guarnieri *et al*., 2013, cited in Alsunni & Latif, 2021). They measured anxiety and depression with Zigmond and Snaith's Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983, cited in Alsunni & Latif, 2021). The results indicated a positive correlation between emotional investment and depression. An increase in emotional investment in social media led to an increase in the likelihood of developing depression. On the other hand, they identified a negative association between night-specific social media use, overall social media usage and depression. A general increase in the time spent on social media had no significant effect on developing depression. Similarly, using social media at night had no significant impact on the probability of developing depression. The purpose of SMU proved to play a vital role in determining psychological distress. Users with a social media obsession were unable to extricate themselves from the situation and were more inclined to experience distress. Contrarily, individuals who were able to disengage as they pleased were likely to experience less distress. In conclusion, Alsunni and Latif (2021) found that the quality of interactions online is vital in predicting depressive symptoms. Their study established that emotional investment in social media is more critical than mere exposure while measuring depression. To minimize the negative consequences of social media, this study recommends educational organizations to limit SMU for only educational purposes on campus, and not for general purposes.Although this could be implemented in Eastern parts of the world, it is difficult to impose and follow through with such restrictions in Western nations, in particular, the U.S. This can prove to be a difficulty because of the cultural and social expectations in these countries.

Another similarly natured cross-sectional study was conducted by Primack *et al*. (2018). They examined the use of social media experiences and its association with depressive symptoms among young adults in a university setting. The findings of this study support the conclusions of Alsunni and Latif's (2021) study. Data was collected via surveys from 1,179 full-time university students aged between 18-30 years. Depressive symptoms were calculated using the PROMIS depression scale, and scored on a 5-point Likert scale. By conducting focused group discussions, the researchers assessed the positive and negative experiences of social media.

Chi-square tests and T-tests were used for analyses, along with logistic regressions and sensitivity analyses to examine the variable associations. Primack *et al*. (2018) discovered that 30% of the sample presented low depressive symptoms, and 34% presented severe depressive symptoms. The researchers found that a 10% increase in negative social media experiences resulted in a 20% increase in depressive symptoms. Moreover, a 19% increase in depressive symptoms resulted from a 10% increase in negative social media experiences. The commonality of covariates indicating depressive symptoms were individuals who held identities as a female, other, non-White and attended only some college. According to this study, females were subjected to the most significant risk of experiencing depressive symptoms. Primack *et al*. (2018) found that the type of social media experience is essential in identifying the consequences. Their research found that positive experiences on social media were only poorly correlated with lower symptoms of depression, but negative interactions on social media were significantly associated with increased levels of depressive symptoms. This research provides essential information about how educating the public and increasing awareness about social media's detrimental consequences is a successful intervention. Their recommendations are similar to those of Alsunni and Latif (2021). The ideas provide information that can help reduce the chances of experiencing depressive symptoms due to SMU. Both studies conclude that restricting time spent on social media and promoting positive experiences on the platforms is beneficial for psychological well-being. This can be done through positive commenting on posts, introducing more affirmation pages and introducing an algorithm to automatically filter out negative comments/symbols. Further adding to the growing body of literature and supporting Primack *et al*.'s (2018) findings, Jeri-Yabar *et al*.'s (2018) study investigated how social media usage leads to the development of depressive symptoms. Jeri-Yabar *et al*. (2018) examined the relationship between social media, social media dependence, and depressive symptoms among university-level students in a transversal-analytic study. The findings of this study provide the information required to help introduce the screening of depressive symptoms in educational settings to improve mental health.A stratified random sample of 212 students (required to be at least 18 years of age and use at least one social media platform) pursuing careers in Psychology, Architecture, and Civil Engineering from a private university were selected. This study took into account baseline clinical depression levels and then studied its relationship with SMU, allowing to detect any direct associations. The selected participants were required to have never been clinically diagnosed with depression in the past. The researchers used a modified version of the Addiction of Internet Test adapted by Enrique Echeburúa(Melipillán *et al*. 2008, cited in Jeri-Yabar *et al*. 2018), along with Beck's Inventory of Depression corroborated by Jesús Sanz and Caramelo Vázquez (Sanz *et al*.2005, cited in Jeri-Yabar *et al*. 2018) to assess social media dependence and the presence of depressive symptoms. The data wereanalyzed using statistical tests such as the chi-square test, Shapiro-Wilk test and multiple regressions of Poisson. Upon reviewing the data, Jeri-Yabar *et al*. (2018) found that Twitter was the most used and preferred social media platform by participants with depressive symptoms, followed by Instagram, and then Facebook. However, they also noted that Instagram users were at greater risk of suffering from depressive symptoms. The study identified that 41% of students displayed depressive symptoms. The symptoms

resulted from social media platforms promoting unrealistic body standards and setting expectations, which lead to not only depressive symptoms, but also lowered self-esteem and self-acceptance. Participants who chose Civil Engineering as their career choice showed higher levels of depressive symptoms, in contrast to those who chose Psychology and Architecture.Their study highlights that social media dependence and career choice were key factors indicating the development of depressive symptoms, as opposed to age and gender. Their study illuminates that limiting time spent on social media can lead to healthier mental states and prevent the onset of depression. The researchers determined that being a Facebook user can act as a protective factor from depressive symptoms, primarily since it is based more on real-life friendships than other social media platforms. The findings also support arguments that state that engineering majors are more strenuous than other majors.

It is evident that the valence and type of SMU have negative associations with mental health. Studies such as Primack *et al*.'s (2017) have been conducted to further prove this idea and flesh out the damaging impacts of social media on young adults. Primack *et al*. (2017) conducted a nationally representative study and examined how social media usage across several platforms was associated with depressive symptoms. The sample consisted of 1,787 participants aged between 19-32 years. The data was collected through surveys and scored on a 5-point Likert scale to assess dimensions of mild, moderate, and severe extremities of depressive manifestations. Since the only requirement to be included was the age of the participants, factors such as history of depressionor pre-existing depressive symptoms were not accounted for. Several statistical measures such as chi-square tests, logistic regression, survey weights, regression analyses and sensitivity analyses were conducted to study the data.Primack *et al*. (2017) found that 41% of participants showed mild levels of depression, 30% reported moderate levels, and 29% reported severe levels of depression. As predicted, the use of multiple social media platforms indicated higher levels of depression among participants, about three times the probability of leading to more significant levels of depression. Supplementarily, increasing time spent on social media was also an indication of increased depressive symptoms. Similar to the findings of Alsunni and Latif (2021), participants who were women were at a greater risk of having higher levels of depression in a fully-adjusted multivariable model. Participants who were less educated, held a multiracial identity, single, and had lower income levels while using social media were also subjected to this risk. This study provides information about the symptoms of depression being more closely related to the number of social media platforms used and less related to the time spent on them. An essential point about embarrassments and misinterpretations being amplified on social media, and how it can possibly lead to significant distresswas elucidated in this study. Since this study is of a nationally-representative nature, the information and findings can be generalized to the population. It is crucial to understand that although it may be challenging to reduce the number of social media platforms used, the overall curtailment of SMU could potentially lead to a decrease in depressive symptoms among young adults. A longitudinal study conducted by Primack *et al*. (2021) further studied the associations between SMU and depression. This study was more in-depth in nature, as it examined the temporal and directional associations between the two variables.

They also precisely studied baseline depression levels and assessed themafter six months to gain a more comprehensive understanding of the association present. For this study, Primack *et al*. (2021) selected 1,289 participants aged between 18-30 years using Qualtrics sampling services. They used the 9-Item Patient Health Questionnaire at baseline, and after six months to measure depression. Data was gathered about the average time spent on multiple commonly used social media platforms, namely Facebook, Twitter, LinkedIn, Instagram, Snapchat, Tumblr, WhatsApp, YouTube, Reddit and Pinterest. To link this information with baseline depressive symptoms, the researchers conducted multivariable regression analyses. Following this, they measured associations between baseline depression and preceding changes in social media use and conducted sensitivity analyses to measure the hypothesis's potency. Primack *et al*. (2021) noted that 299 participants showed depressive symptoms at baseline, and 91 participants developed depressive symptoms at follow-up. Participants in the upper quartile were 3.41 times more likely to develop depression as a result of SMU. This finding presented a solid linear pattern between baseline SMU and depression. It highlights the association between SMU at baseline and its positive correlation with developing depressive symptoms. The researchers also observed a strong relationship between baseline depressive symptoms and an increase in depression during follow up. Concurrently, there was no relationship between baseline depression and an increase in SMU during the six months.

Primack *et al*. (2021) highlighted three fundamental reasons that SMU could lead to depression. First, they observed that SMU is time-consuming (noting that a typical young adult spends 3 hours a day on average), which predictably leaves an individual with less time to focus on meaningful daily activities such as self-reflection, interacting with loved ones, and forming meaningful relationships. Second, social media is a platform that causes social comparisons and juxtapositions because of the portrayal of unrealistic social and beauty standards, which leads to psychological distress. Finally, the researchers elucidated the biological aspect of SMU interfering with the brain's neurophysiological aspects. Since the results for this study were obtained through self-report measures, Primack *et al*. (2021) suggest that future studies focus on more ingenious measurement methods. This information is crucial to understand that SMU could be a probable factor leading to the development and intensification of depressive symptoms. While commonly documented literature suggests that SMU causes depressive symptoms among young adults, Shensa *et al*. (2017) studied a specific type of SMU and conducted a cross-sectional study to examine the association between problematic social media use and depressive symptoms among young-adults from a nationally representative sample. 1,796 individuals aged between 18-30 years were selected using random digit dialing and address based sampling for the study, which was carried out over a period of 18 months. A large majority of the sample were in a committed relationship, had a yearly household income of $30,000 or above, attended some college and identified as White non-Hispanic. The researchers measured depression using the PROMIS depression scale (Patient-Reported Outcomes Measurement Information System) and scored the responses on a five-point Likert scale. To assess problematic social media use (PSMU) the Bergen Facebook Addiction Scale (BFAS) (Andreassen *et al*., 2012, cited in Shensa *et al*. 2017) was administered. Social media use in time spent for personal use and regularity of usage was

obtained initially. This data was analyzed using appropriate statistical methods ranging from factor analysis to regression models, while controlling a wide range of covariates. Shensa *et al*. (2017) found that 40.9% of the sample reported no depressive symptoms, 40.7% displayed mild symptoms and 18.4% presented moderate symptoms. They found that problematic social media use (PSMU) was significantly and independently associated with an increase in depressive symptoms in this nationally-representative sample. Similarly, frequency of SMU was also linked to an increase in depressive symptoms. In contrast, time spent on social media was not associated with depressive symptoms. Holding a multiracial identity increased the odds of developing depressive symptoms, and contrarily, having moderate to low levels of income and holding a Bachelor's degree or higher was associated with decreased probability of depression. Shensa *et al*. (2017) concluded that problematic social media use results in the negligence of other vital aspects of life such as face-to-face interactions, due exercise and loss of sleep which can exacerbate depressive symptoms. The researchers also found that individuals are susceptible to internalizing the negative happenings of social media which can lead to additional distress. They pointed out an inverse relationship; experiencing depressive symptoms makes individuals more susceptible to engaging in problematic social media use. By concluding that each one of these (PSMU and depression) influence the other, the bidirectionality was established. Finally, Shensa *et al*. (2017) discovered that spending copious amounts of time on social media while presenting depressive symptoms could be a result of other factors as well. These other elements could include problematic social media use and addictive behaviors. Moreover, the nature of the study makes it nationally representative to the young adults of the U.S.

A study conducted by Brunborg and Burdzovic (2019), examined the associations between social media use and symptoms of depression among young Norwegian adolescents, while also additionallyassessing the relationship between social media use and conduct problems, along with episodic heavy drinking. They collected information from 763 high-school students using the first-differencing method over six months. This data was derived from a subset of a more extensive study, the Monitoring Young Lifestyles Project (MyLife). Time spent using social media actively (such as commenting and liking pictures), and the frequency of this use was measured. Participants were asked to indicate the number of hours they spend on social media per day. Brunborg and Burdzovic (2019) re-encoded this information to the average number of days in a month spent on social media. They measured depressive symptoms using the 9-Item Patient Health Questionnaire and scored them on a 4-point Likert scale. Multiple regression models were used to analyze this data. After reviewing the study, Brunborg and Burdzovic (2019) found that the average time spent on social media increased by twenty-three minutes from 2.5 hours per day over six months. They found that time spent on social media was associated with depressive symptoms. Increasing time spent on these platforms led to an increase in the likelihood of developing depressive symptoms. Along with depression, the probability of developing conduct disorders and engaging in heavy drinking was also positively correlated to increased social media use. Despite these findings, the effect sizes were relatively small. A one-hour increase in social media use per day led to a 0.13 increase in depression levels.

The researchers found that increasing social media use also led to increased conduct problems and amplified drinking problems. In conclusion, Brunborg and Burdzovic (2019) found that adolescents who engage in active SMU are more likely to develop depressive symptoms because of social comparisons and decreased real-life interactions. They highlight that depression due to social media use is possibly a result of negative engagement on the platforms. In particular, they found that social comparisons put individuals at significant risk of developing depression. While a majority of adolescents negatively engage in social media, several others use social media for propitious purposes, and these individuals are not at risk for developing depression. In particular, the researchers discern that having positive social media experiences can have positive impacts on individuals. Brunborg and Burdzovic (2019) suggest that future studies focus on the specific platforms and sub-groups of adolescents inclined to develop depression due to social media use. They also recommend that future studies be conducted comprehensively and factor in other potential risk factors for developing depression, such as adverse life events.

Neutral Associations Between Social Media Usage and Depression: Although several studies have observed a primarily negative relationship between SMU and depression, more novel studies have pointed out that the correlation could indeed be neutral. These studies identify social media as a positive outlet, emphasizing its weak links with depression. The findings contradict the common notion, which suggests that social media usage is associated with depressive symptoms. It is important to note that the circumstances under which the studies have been conducted vary, possibly why they present contradictory findings. One such study that provides information about the neutrality of SMU and its association with depression is an analytical review of a nationally representative study of American high school students (grades 8-10) conducted by Kreski *et al*. (2021). They collected data through a multistage random sampling design method of 74,472 participants from a previously conducted survey. It is important to note that the study was not carried out for the sole purpose of measuring depression and its association with SMU. Hence, a subsection from the self-questionnaire, that studied the association was selected. The researchers included data from the years 2009 – 2017. Social media usage was classified into daily use and non-daily use to identify specific trends and corresponding depressive patterns. The Bentler Medical and Psychological Functioning Inventory's depression scale (Bentler *et al*., 1981, cited in Kreski *et al*. 2021) was used to evaluate depression. Initial statistical methods showed that depressive symptoms were right-skewed, and so the data was log-transformed. An outcome prediction model based on covariate balancing methods was created to estimate the participants' likelihood of displaying depressive symptoms. Kreski *et al*. (2021) found that the amount of everyday social media use increased significantly from 2009-2017 in both boys and girls. While they identified a positive association between increased social media use and depressive symptoms in girls, the overall cut off scores did not support the correlation. Researchers found that daily social media usage was considered a risk factor for depressive symptoms only for girls in the lowest estimated risk category. There was no association between social media use and depressive symptoms among boys when assessed continually. They noted that boys considered social media to be a protective layer.

This study found that daily social media usage and being at risk for depressive symptoms were largely insignificant among boys. Kreski *et al.* (2021) observed no consistent and compelling association between social media usage and risk of developing depressive symptoms among the nationally representative sample of 8th–10th grade students in the United States. Kreski *et al.*'s (2021) findings were contrary to other studies about social media causing psychological distress. They identified that social media usage is not a risk factor for developing depressive symptoms among adolescents. The role of gender in developing depressive symptoms due to social media was highlighted. Since it was found that girls associate social media with negative emotions, they were potentially at a greater risk of developing depressive symptoms. The study identified an inverse relationship between social media usage and depression among boys. Given the study's nationally representative nature, the results can essentially be generalized to the population of 8th – 10th graders in the United States. It is crucial to note that the study sample was different from the above documented studies, which is possibly why the results were contrary. This study is indicative that development through high school is an essential factor that impacts SMU and depressive symptoms. It is also possible that daily SMU and the purposes for which it is used changes through the years, resulting in opposing findings. A study conducted by Wright *et al.* (2020) reported both similar and contradictory findings to Kreski *et al.*'s (2021) study. However, a crucial difference between the studies is the sample type and nature of the study. Wright *et al.* (2020) conducted a cross-sectional study to examine the relationship between image-based, video-based and professional social networking sites usage and psychological well-being. The researchers collected data through a questionnaire from a convenience sample of 630 participants aged between 18 to 23 years, with a large majority being White (82.8%), single (56.6%) and women (63%). The primary social networking sources used were Facebook, LinkedIn, Instagram, Snapchat and Marco Polo. The researchers assessed participants' overall time spent on social media, time spent per day on each platform, attitudes towards social media and scored these on a 7-point Likert scale. They also measured overall health using the EuroQol Fifth Dimension (Kind, Brooks & Rabin, 2005, cited in Wright *et al.* 2020) and acute depressive symptoms using the CES-D scale (Bohannon, Maljanian & Goethe, 2005, cited in Wright *et al.* 2020). Satisfaction with life and social support measurement was measured through the satisfaction with life scale (Diener, Emmons, Larsen & Griffin, 1985, cited in Wright *et al.* 2020). The researchers analyzed the data through T-tests and noted effect sizes. Wright *et al.* (2020) discovered that most participants used more than one platform and spent 2.2 hours per day on average using social networking sites. Facebook was the most preferred platform, followed by Instagram, Snapchat and Marco Polo. The researchers noted that Marco Polo users displayed fewer depressive symptoms and had increased life satisfaction than Snapchat users. LinkedIn users were older than most of the other participants by two years. They reported a strong sense of social standing among their peers and colleagues using Snapchat, Instagram and Facebook. They determined that although Snapchat users were at a greater risk of having adverse outcomes, Marco Polo users had positive health outcomes. Similarly, greater LinkedIn usage led to increased well-being. Wright *et al.*'s (2020) findings were contradictory to Primack *et al.* (2017) since they found that an increase in the number of platforms used was associated with positive outcomes since it provides multiple avenues to receive peer support. The results of this study indicate that despite SMU's general harmful associations, users across all platforms believed that social media plays a positive role in their lives. In conclusion, Wright *et al.* (2020) noticed that specific social media platforms had unique associations with well-being. They noted that video-based and professional platforms were associated with positive well-being, while primarily text and image-based social networking sites were not associated with increased well-being. They elucidate that video-based platforms provide more authentic experiences, which leads to positive health outcomes. Additionally, the researchers identified that limiting unhealthy social habits like comparisons led to increased cognition, thinking and overall mood. Wright *et al.* (2020) also illuminate that gender factors in while assessing depressive symptoms with SMU since women are more likely to engage in social comparisons. While users did not experience any positive outcomes resulting from Snapchat usage, the researchers note that this could be because Snapchat users were younger than other platform users, and younger individuals are likely to be more skeptical about their future, resulting in no positive outcomes. Finally, the researchers note that this study limits generalization and that future research must focus on factoring in additional and predisposed health outcomes to gain deeper insights into the direct association between social media usage and depressive symptoms.

While the studies in the previous subsection find that social media has negative associations with depressive symptoms and overall mental-health, a study conducted by Coyne *et al.* (2020) challenges all of the findings. Coyne *et al.* (2020) carried out a longitudinal study and examined the impact of social media on mental health over an eight year period. They assessed within-subject association between SMU and depression, along with the role of gender. A total of five-hundred participants were selected from the on-going Flourishing Families Project. Participants aged between 13-20 years were involved in the study. The researchers collected information regarding time spent using social media, depression and anxiety, via interviews and questionnaires. Depression among adolescents was measured using the Center for Epidemiological Studies Depression Scale for Children (Weissman, Orvaschel, & Padian,& 1980, cited in Coyne *et al.* 2020) and anxiety was quantified through the Spence Child Anxiety Inventory (Spence, 1998, cited in Coyne *et al.*2020). In order to measure the individual changes of participants' mental health as a result SMU, the researchers used an autoregressive latent trajectory model. They also assessed longitudinal and bi-directional associations between SMU and depression through the transition stage of adolescence to adulthood. Coyne *et al.* (2020) noticed that adolescents reported spending 31-60 minutes per day at age 13 on social media, and as young adults this increased to over two hours per day. They found low average levels of depressive symptoms, but this steadily increased through adolescence. While girls reported spending more time on social media than boys, they also reported higher depressive and anxiety symptoms. Researchers identified low baseline levels of SMU and depression association, but this increased through adolescence, peaked at 18 years and then gradually declined in the between-subject model. The same was the case with symptoms of anxiety. Participants with increased SMU habits displayed higher levels of anxiety at 13 years in the between-person level. Across the within-subject level, SMU was not associated with future depression or anxiety. Similarly, depressive

symptoms and anxiety could not be identified as markers for predicting social networking habits. Coyne *et al.*'s (2020) study establishes that time spent on social media was marginally related depression and anxiety in the between-person model. However, they conclude that this association was absent in the within-person study, clarifying that there was no individual association between SMU and mental health across eight years (ranging from adolescence to adulthood). Similar to how an increase in SMU did not increase depression or anxiety, a decrease in SMU also did not lead to reduced depression and anxiety levels. The researchers suppose that the results of the between-person model could be a result of extrinsic factors which have not been included. Finally, Coyne *et al.* (2020) conclude that no single factor is responsible for causing depressive symptoms, but rather a multitude of factors are responsible.Through this study, it can be inferred that the associations between social media and depression are rather amplified and overemphasized. These findings are crucial in understanding the complexity of the causes of depressive symptoms. A number of external variables and predicaments must also be assessed in order to gain a holistic understanding of the relationship between SMU and depression.

Conclusion

It is evident from the first subsection of this review that social media usage has negative impacts on depressive symptoms in young adults (Jeri-Yabar *et al.* 2018; Primack *et al.*, 2017; Shensa *et al.*, 2017). Along with this, it is clear that active social media usage causes depressive symptoms and can also aggravate baseline depressive levels. This is a result of an increase in social media usage leading to spending less time on important and meaningful daily tasks such as real-life interactions and self-reflection, which are essential for individuals. Nevertheless, it is not any form of social media use that has harmful associations, but rather primarily negative interactions on these platforms related to depression (Alsunni& Latif, 2021; Primack *et al.*, 2021; Brunborg&Burdzovic, 2019). Problematic social media use and social comparisons have been the cause of these negative associations. Gender is also an essential factor while examining depressive symptoms. Since women are more likely to engage in social comparisons, they are at a higher risk of experiencing depressive symptoms due to social media usage (Jeri-Yabar *et al.*, 2018; Kreski *et al.*, 2021; Wright *et al.*, 2020). However, novel studies have shown no negative associations between depression and social media use (Coyne *et al.*, 2020; Kreski *et al.*, 2021; Wright *et al.*, 2020). They also suggest no long-term relationship between the two since authentic and positive experiences result in neutral associations. Specific social media platforms are also considered to be beneficial. They have shown to improve overall user well-being and act as a protective layer. Limiting negative interactions has a positive impact and has shown to improve mood. In summary, the association between social media usage and depression includes several factors, and no single factor can solely determine the causality or exacerbation of depressive symptoms.

Discussion of Future Directions: There are many other factors such as personality traits, individual characteristics and environmental conditions that need to be taken into consideration in order to establish a concrete conclusion about social media usage and depression. It is recommended that future studies take into account such variables while carrying out research.

Additionally, resorting to other methods such as direct interviews will likely be more beneficial since individuals tend to give socially desirable responses during self-report questionnaire. Furthermore, taking into consideration baseline depressive levels will help in determining the direct association between social media and depression.

Acknowledgements

REFERENCES

Alsunni, A. A., & Latif, R. (2021). Higher emotional investment in social media is related to anxiety and depression in university students. *Journal of Taibah University Medical Sciences*, *16*(2), 247–252. https://doi.org/10.1016/j.jtumed.2020.11.004

American Psychiatric Association. (2021). *DSM-5: Diagnostic and statistical manual of mental disorders, 5th edition*.

Brunborg, G. S., & Burdzovic Andreas, J. (2019). Increase in time spent on social media is associated with modest increase in depression, conduct problems, and episodic heavy drinking. *Journal of Adolescence*, *74*, 201–209. https://doi.org/10.1016/j.adolescence.2019.06.013

Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in Human Behavior*, *104*, 106160. https://doi.org/10.1016/j.chb.2019.106160

Jeri-Yabar, A., Sanchez-Carbonel, A., Tito, K., Ramirez-delCastillo, J., Torres-Alcantara, A., Denegri, D., &Carreazo, Y. (2018). Association between social media use (Twitter, Instagram, Facebook) and depressive symptoms: Are Twitter users at higher risk? *International Journal of Social Psychiatry*, *65*(1), 14–19. https://doi.org/10.1177/0020764018814270

Kreski, N., Platt, J., Rutherford, C., Olfson, M., Odgers, C., Schulenberg, J., & Keyes, K. M. (2021b). Social media use and depressive symptoms among United States adolescents. *Journal of Adolescent Health*, *68*(3), 572–579. https://doi.org/10.1016/j.jadohealth.2020.07.006

Primack, B. A., Bisbey, M. A., Shensa, A., Bowman, N. D., Karim, S. A., Knight, J. M., &Sidani, J. E. (2018). The association between valence of social media experiences and depressive symptoms. *Depression and Anxiety*, *35*(8), 784–794. https://doi.org/10.1002/da.22779

Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & James, A. E. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. *Computers in Human Behavior*, *69*, 1–9. https://doi.org/10.1016 /j.chb.20 16.11 .013

Primack, B. A., Shensa, A., Sidani, J. E., Escobar-Viera, C. G., & Fine, M. J. (2021). Temporal associations between social media use and depression. *American Journal of Preventive Medicine*, *60*(2), 179–188. https://doi.org/10.1016/j.amepre.2020.09.014

Shensa, A., Escobar-Viera, C. G., Sidani, J. E., Bowman, N. D., Marshal, M. P., & Primack, B. A. (2017). Problematic

social media use and depressive symptoms among U.S. young adults: A nationally-representative study. *Social Science & Medicine, 182*, 150–157. https://doi.org/1 0.1 016/j.socscimed.2017.03.061

Wright, R. R., Schaeffer, C., Mullins, R., Evans, A., & Cast, L. (2020). Comparison of student health and well-being profiles and social media use. *Psi Chi Journal of Psychological Research, 25*(1), 14–21. https://doi.org/10.24839/2325-7342.jn25.1.14

****