



CORRELATION BETWEEN MEDIA SOCIAL USE INTENSITY WITH ANXIETY ON UNIVERSITY STUDENTS: PRO AND CONTRA

Teresia Putri Widia Nugraheni¹, Aulia Rana², Luh Inten Prameswari³, Agustina Marielsa Magung², Wenly Susanto⁴

¹Faculty of Medicine, Universitas Indonesia, Jl. Salemba Raya No.6, Kenari, Senen, Jakarta Pusat, Jakarta 10430, Indonesia

²Faculty of Medicine, Universitas Trisakti, Jl. Kyai Tapa No.1, RT.5/RW.9, Tomang, Grogol petamburan, Jakarta Barat, Jakarta 11440, Indonesia

³Faculty of Medicine, Universitas Kristen Indonesia, Jl. Mayor Jendral Sutoyo No.2, Cawang, Kramat Jati, Jakarta Timur, Jakarta 13630, Indonesia

⁴Faculty of Medicine, Universitas Kristen Duta Wacana, Universitas Kristen Duta Wacana, Jl. Dr. Wahidin Sudirohusodo No.5 - 25, Kotabaru, Gondokusuman, Yogyakarta 55224, Indonesia

^{*}teresiaputri10@gmail.com

ABSTRACT

Social media has become part of people's lives, especially in adolescents and young adults. The increasing use of social media is followed by adaptation problems to serious psychological problems, one of which is anxiety disorders. This disorder can be caused by ongoing social interaction problems so that adolescents experience failure to establish strong relationships with others. However, the exact role of social media use in the occurrence of anxiety is uncertain. This study aims to establish the relationship between social media use and anxiety, and provide recommendations for the use of social media to improve anxiety symptoms. This literature review involves various articles from systematic searches on four search engines. Inclusion criteria include observational or experimental research designs, full-text access, and Indonesian or English in the last 10 years. Meanwhile, exclusion criteria include conference abstracts, literature reviews, opinions, experimental protocols, case reports, and case series and literature more than 10 years. The process of anxiety is an interaction between stressors and biological factors. However, there has been no research that definitively states the role of social media in the brain mechanisms that occur in people with anxiety disorders. Existing studies show negative and positive impacts of social media on anxiety. Based on the research that has been reviewed, researchers recommend limited use of social media and focusing on active interactions, such as effective communication exercises, seeking help, or focusing on positive content. The reviewed studies have not been able to determine the causal relationship between social media use and anxiety. Therefore, further research can use strategies in the form of cohort or experimental study designs, as well as increasing the number and heterogeneity of respondents to strengthen the research. Not only that, further research can be conducted to examine the positive impact of social media and mediating factors between social media use and anxiety, such as personality and childhood.

Keywords: anxiety; social media; university student

INTRODUCTION

Social media is an online platform that people use to build social connections with others who share similar interests, activities, backgrounds, or real-life or personal relationships. Social media has become a part of people's lives (Akram & Kumar, 2017). Social media is used by 90% of young adults, with 95% of people aged 15 to 24 reported using social media platforms such as Instagram, TikTok, Twitter, and Snapchat as their primary means of getting information (Azhari et al., 2022a). However, this process is accompanied by transformation, adaptation problems, and some serious psychological problems (Azhari et al., 2022a). The rapid increase in the number of social media platforms and users has major implications for mental health, especially anxiety (Anto et al., 2023a). Anxiety can manifest itself in the form of disturbances in mood, thoughts, behavior, and physiological activity. These anxiety disorders include panic disorder (with and without a history of agoraphobia), agoraphobia (with and without a history of panic disorder), generalized anxiety disorder, specific phobia, social phobia, obsessive-compulsive disorder, acute stress disorder, and post-traumatic stress disorder. In addition, there are adjustment disorders with anxiety features, and disorders due to general medical conditions and anxiety disorders. According to research by Winstone L., et al, young adults who frequently use social media

have the highest risk of self-harm, anxiety, and depression, thus requiring further investigation and potential intervention (Winstone et al., 2022a). According to Hurlock E.B., there are 10 stages of human age from a physiological perspective, namely: (1) Prenatal period; (2) Infants from birth to the end of the second week; (3) Infancy from the end of the second week to the end of the second year; (4) Early childhood (2–6 years); (5) Late childhood (6–10/12 years); (6) Pre-adolescence (10/12–13/14 years); (7) Adolescence (13/14–18 years); (8) Early adulthood (18–24 years); (9) Middle age (40–60 years); (10) Old age or old age (60 years to death) (Winstone et al., 2022b).

This is in line with the research of Ohannessian C.M., et al, which states that adolescents initially use social media to get emotional support. Furthermore, discussions about personal problems with peers become more frequent, which causes anxiety symptoms to appear more over time. In addition, the cognitive model of social anxiety argues that self-focused attention in anxious individuals increases negative self-evaluations that trigger more serious anxiety (Ohannessian et al., 2021; Steinsbekk et al., 2023). This is reinforced by Erikson's theory, which states that in young adulthood, it is very important to develop close relationships and commitments with others. If this is successful, the relationship strong will be established, while failure results in loneliness and alienation (Vogel-Scibilia et al., 2009). However, both studies contradict the study of Lai F., et al. This study concluded that active and passive social media users have a low relationship to social anxiety. (Lai et al., 2023a).

Previous studies have stated that there are negative and positive impacts in the use of social media on anxiety. Therefore, the use of social media in students can be focused on getting a positive impact, especially to prevent or overcome anxiety. However, until now there has been no research that explains the overall effect of social media use on anxiety and recommendations for using social media to get a positive impact on anxiety. The purpose of writing this literature is to increase awareness and knowledge about social media users regarding anxiety that occurs in students. In addition, this study aims to describe recommendations for using social media to prevent anxiety in students.

METHOD

This literature review involves various articles from systematic searches on four search engines. Inclusion criteria include observational or experimental research designs, full-text access, and Indonesian or English in the last 10 years (from 2014-2024). We take literature from several search engines such as PubMed, Google Scholar, Science Direct, and JSTOR. We found 60 literatures from many search engines and we extracted the literature according to inclusion criteria and we are used 27 literatures for this review. Meanwhile, exclusion criteria include conference abstracts, literature reviews, opinions, experimental protocols, case reports, and case series and literature more than 10 years.

RESULT AND DISCUSSION

Anxiety Mechanism

The process of anxiety can be reviewed from a genetic, neuroanatomical, neuroendocrine, and psychophysiological perspective.

Genetics

Genetic factors are estimated to contribute around 30-50% to the development of anxiety disorders (Patriquin & Mathew, 2017). The environment such as stress, trauma, and so on contribute to anxiety disorders through epigenetic mechanisms since the fetus is in the womb (for example, mothers who are diagnosed with anxiety disorders but do not take medication to reduce anxiety have shown changes in DNA methylation in the glucocorticoid receptor NR3C1, which is the promoter region in umbilical cord blood and genome) thereby increasing the risk of excessive anxiety in the fetus (Liu et al., 2021).

In addition, there are three genes that play a role in increasing anxiety, namely SLC6A4, monoamine oxidase A (MAOA), and BDNF (Patriquin & Mathew, 2017). The SLC6A4 gene plays a role in controlling the production of the serotonin 5-HT transporter protein. This protein is involved in the development of anxiety through the influence of triggers on the area, thereby reducing the efficiency of mRNA transcription. This causes a decrease in the absorption of 5-HT by lymphoblast cells, which will ultimately lead to the production of anxiety. Meanwhile, the monoamine oxidase A (MAOA) gene is also one of the factors causing anxiety production related to the single nucleotide polymorphism T941G of the MAOA gene (Liu et al., 2021). Specifically, people with excessive anxiety have a higher frequency of the 941T allele compared to healthy people. Reif et al. conducted the Standardized Behavioral Dodge Test (BAT) on 283 patients with anxiety disorders. Most patients experienced an accelerated heart rate and showed symptoms of anxiety, which proves a correlation between the pathogenesis of the MAOA gene and decreased norepinephrine levels. The MAOA gene causes an increase in the amount of catecholamine degradation followed by decreased norepinephrine levels. In contrast, the BDNF gene plays a role in the development of anxiety through the BDNF Val66Met polymorphism. This polymorphism is related to the obstruction of the process, release, and transmission of BDNF. In fact, BDNF is a neurotrophic protein that can increase synaptic plasticity and neuron survival rates and can counteract the negative effects of stress hormones on hippocampal volume. If this happens, a person will be more susceptible to anxiety disorders. Based on race, the BDNF Val66Met polymorphism is most often found in Asians and some Caucasians (Patriquin & Mathew, 2017).

Neuroanatomy

The mechanism of anxiety occurs in the frontolimbic structure of the brain which will affect the coordination of brain activity, especially between the amygdala and the prefrontal cortex. This frontolimbic structure not only affects anxiety-related responses, but has also been shown to affect autonomic mechanisms differently in individuals. Trigger factors such as stress will be forwarded by the frontolimbic structure to activate the central nervous system (prefrontal cortex, amygdala) and autonomic (heart rate variability) (Patriquin & Mathew, 2017).

Neuroendocrine

Dysregulation of the neuroendocrine system greatly affects anxiety. When there is a stressor, corticotropin-releasing factor (CRF) will be released from the paraventricular nucleus of the hypothalamus into the primary capillary plexus of the hypothalamo-pituitary. This CRF stimulates the anterior pituitary to produce proopiomelanocortin into the blood. Furthermore, this adrenocorticotrophic hormone activates the synthesis and release of cortisol from the adrenal glands. The hypothalamic-pituitary-adrenal axis then experiences negative feedback along with the release of cortisol or corticosterone. This negative feedback also decreases hippocampal function. Therefore, ongoing stressors can suppress the amygdala and prefrontal cortex (Liu et al., 2021; Patriquin & Mathew, 2017).

Psychophysiological

Psychophysiological responses related to ongoing threats show increased activity of the autonomic nervous system related to stress triggers. Exposure to threats can cause fear which then increases cardiovascular reactivity. This will continue to occur as long as the exposure continues (Liu et al., 2021; Patriquin & Mathew, 2017).

Relationship between Social Media and Anxiety

Social media use can increase anxiety with risk factors such as addiction, emotional investment, negative affect, information overload, excessive duration of use, introverted personality, personal presentation, female gender, low income, negative childhood and social experiences, and passive use of social media (Wong et al., 2020). Social media addiction can trigger emotional problems, such as suppressing bad feelings and lack of introspection, and lead to lack of control over obsessions and problematic habits that

can increase anxiety (Alsunni & Latif, 2021b). Negative affect can be triggered by negative experiences such as rumors of a pandemic, judgment of others on shared content, or bullying, which have the potential to trigger empathic responses in the form of negative affects such as stress, disappointment, or guilt (Alsunni & Latif, 2021b; Zhao & Zhou, 2020).

Several researchers have suggested the effects of excessive social media use on human health. Longer use of social media can trigger symptoms of depression and anxiety (Alsunni & Latif, 2021a). The intensity of social media use has a direct relationship with anxiety; increasing intensity of social media use is in line with increasing symptoms of anxiety (View of The Effect of Social Media Use Intensity on Anxiety, Depression and Stress Level During Covid-19 Pandemic Outbreak, n.d.). In addition, the frequency and duration of social media use also increase stress and anxiety levels. There is a significant relationship between the intensity of social media use and the level of social anxiety in adolescents, meaning that the higher the intensity of social media use is associated with a higher level of social anxiety. Najah, et al. also concluded that there is a significant relationship between the intensity of social media use and the level of anxiety, depression and stress in adolescents during the COVID-19 pandemic. This study found that excessive use of social media has the potential to cause psychological problems such as depression, anxiety, suicide risk, and self-concept disorders (Nadila et al., 2022). On the other hand, research conducted by Xu He, et al. has not shown any significant evidence regarding the relationship between social media use and anxiety and other mental disorders (He et al., 2023).

To date, there has been no research explaining the brain mechanisms in social media platform users that cause anxiety. This is evidenced by a study conducted by Atiqoh Azhari, et al. However, several existing studies show that there are negative and positive impacts that can be obtained from the use of social media. The amount of excess information when using social media can increase stress and anxiety, while excessive duration of use is associated with increased stress and anxiety (Anto et al., 2023b). Gender, income, and experience can also affect anxiety levels, with women, low income, and poor social experiences tending to experience higher levels of anxiety (Jia et al., 2022). Passive use of social media, such as viewing other people's content without active participation, can also exacerbate self-comparison and envy, which can then increase anxiety symptoms (Ojha et al., 2021).

Social media during a pandemic is often a means of disseminating information that provides negative experiences. In addition, social media often makes individuals ignore their social relationships and escape from real-world responsibilities (Psychology Study & Agil Permadi, 2022). The intensity of social media use greatly influences the level of anxiety for students. Teenage research respondents are more interested in interacting through social media than directly, resulting in high intensity of use (Triandini & Kurniasari, 2021). This high intensity will reduce interpersonal communication skills. Conversely, low intensity of social media use is related to high interpersonal communication skills. Based on this study, respondents used social media with high intensity, as evidenced by 76% of subjects opening social media more than 4 times per day, followed by 68% spending more than 3 hours per day using social media (Triandini & Kurniasari, 2021).

According to McQuail, et al., social anxiety can affect a person in their use of social media. Students with high levels of social anxiety will be encouraged to use their social media excessively and engage in in-depth online communication. They feel safe by entering and interacting in cyberspace. Meanwhile, students with low social anxiety have a low level of social media dependence, because they have good social support. This will also have a good impact on their social interactions in the real world.

Research by Silvia, et al. also states that the higher the social anxiety experienced by a person, the level of dependence on social media will also increase (Nadila et al., 2022). Adolescents with social anxiety use social media as a tool to meet the need for information, social interaction or even just for

entertainment. This behavior then triggers criticism and bad judgments from others towards themselves, so that the teenager will increase the duration and frequency of social media use, which will further increase social anxiety (Psychological Study & Agil Permadi, 2022).

The results of the study also showed that there was a positive correlation between social media use and anxiety; the more often someone uses social media, the higher the risk of experiencing anxiety. Other studies have shown that increased social media consumption can lead to negative online experiences, low direct social interactions, and decreased ability to maintain attention. The length of time spent on social media can be a satisfaction for users to the point of forgetting time. If this is allowed, the use of social media can cause dependence. Not only that, inappropriate use of social media is related to increased anxiety and depression. In addition, anxiety caused by social media comes from the Fear Of Missing Out (FOMO) phenomenon. This occurs when someone feels they have missed an interesting event or content if they do not access social media for a certain period of time. This condition is what makes users tempted to monitor social media, either on their own pages or their friends. Other studies state that when someone spends time on social media, they will automatically start comparing what is happening in their life with what is happening in other people's lives, including their achievements with their own achievements. This phenomenon is commonly known as "Compare and Despair", which can quickly develop into social anxiety.

On the other hand, social media has been shown to offer great opportunities to increase social interaction in someone with social anxiety. Lin, et al. stated that social media is more beneficial for individuals with High Social Anxiety (HSA), namely someone who sometimes feels very isolated. In these individuals, social media can help them build more social bonds by reducing the sense of threat they experience. The social compensation hypothesis proposed by Anca Dobrean, et al. also supports this. According to him, individuals use social networking sites to compensate for deficiencies in social skills or discomfort in face-to-face situations. In addition, people with certain mental disorders can actually use social media to accept each other and get virtual support. Negative interactions and social comparisons in social media use are associated with higher levels of anxiety. However, on the other hand, social media can help people with social anxiety to initiate and maintain social relationships. A person may have less anxiety when interacting online, making it easier for them to practice social skills in an environment that feels safer (Nadila et al., 2022)

Based on a survey submitted by APJII, high-intensity social media use is mostly carried out by individuals with high levels of education. (Relationship Between Social Media And Anxiety In Fk Uisu Students, n.d.). Of all the studies we reviewed, there were two studies that stated that social media use has a neutral effect on anxiety. This happens because social media can reduce (negatively affect) anxiety. Factors that reduce anxiety in social media use can be active social media use, medium duration, positive content, social connectivity, and escapism (Aluh et al., 2019; Azhari et al., 2022b). Active use of social media, such as communicating with others, can increase communication capacity and self-confidence in interacting, which then reduces social anxiety. The duration of social media use that is not too long, especially with low passive use, is considered more beneficial for mental health according to the Goldilocks digital hypothesis (Aluh et al., 2019; Lai et al., 2023b; Winstone et al., 2022c). Positive content on social media, such as entertainment, praise, or solutions to problems, can also reduce anxiety by providing motivation and hope. In addition, social media use can increase social connectivity by maintaining relationships and joining web communities, as well as providing opportunities for escapism from everyday problems through light entertainment and social interaction (Anto et al., 2023b; Asibong et al., 2020).

Recommendations for Social Media Use

Based on the research we reviewed, recommendations for social media use are limited use of social media, active use of social media to communicate with others, and use for positive content. In fact, social media can also be used to seek help if someone experiences anxiety (Wang et al., 2022). Restrictions on the use of social media can be done to prevent anxiety. This restriction aims to reduce the amount of information received by a person, so that there is no information overload. This restriction can be done individually or by institutions, such as universities. Universities can limit the use of social media in general and only allow the use of social media for educational purposes within the university environment (Alsunni & Latif, 2021c).

In addition, the use of social media can be focused on active use. Active use of social media such as exchanging messages can increase communication capacity. When interacting socially with others, this can be a good experience that reduces anxiety (Wong et al., 2020).

The use of social media can also be focused on positive content. This content can be spiritual, creative, informative, activist content to increase solidarity, and religious content to increase motivation and hope. In addition, use can be focused on positive interactions such as giving and receiving positive validation and praise (Anto et al., 2023b). Social media can also be used to seek help if someone is experiencing anxiety, for example by telling someone close to them and getting support through "likes" and comments. In addition, on most social media, there is no pressure to respond quickly (Vornholt & de Choudhury, 2021).

If social media is to be focused on seeking help, the ideal social media is semi-anonymous, has small support groups, has private spaces for sensitive conversations, and has specific content for mental health interventions. Semi-anonymous spaces can make it easier for someone to connect with people with similar problems in the same environment while preventing the leakage of personal information. The existence of small support groups can be used by someone to seek help from a small group of people who are more committed to helping. Private spaces for sensitive conversations are needed to make someone more free to convey their problems without disrupting their lives. Specific content for mental health interventions can include public service announcements, content that improves emotions, and important information for help seekers. Not only that, mental health interventions can also connect people who are having problems with others who have solved similar problems (Vornholt & de Choudhury, 2021).

Challenges for Researchers to Collect Data

1. The most important limitation of this study is that the hypothesis was not tested by a control group consisting of individuals who did not use social media and the duration of social media use was not compared to the duration when social media was not used. Therefore, this study cannot achieve a causal relationship in its findings (Aydogan & Buyukyilmaz, n.d.).
2. This study is only limited to public universities, there are some differences in the use of social media by students in various types of schools. To increase the generalizability of the results, perhaps further research can apply this study to other educational institutions (eg private or international schools) (Lai et al., 2023b).
3. A priori-based mediation model, derived from previous research. However, this is only one of several plausible and possible models to test how different variables are related to each other (Lai et al., 2023b).
4. Research on this issue is rare in low- and middle-income countries, and this study is the first to be conducted in an African country (Aluh et al., 2019).

5. The cross-sectional design limits conclusions about causality. The exact number of hours spent on social media platforms and the possible influence of anxiety disorders on the students sampled were not covered in the current study (Aluh et al., 2019).
6. Convenient sampling, small sample size, and awareness to collect research instruments are other limitations that may affect the study (Aluh et al., 2019).

Potential for AI Development

1. Future studies can use the same method, but to increase the generalizability of the results, it is recommended that future studies use this study in other educational institutions (e.g. private or international schools) (Vornholt & de Choudhury, 2021).
2. Future studies can consider the mediating role of other variables not examined in this study, and verify whether the results can be reused at other levels of education (Vornholt & de Choudhury, 2021).
3. Although the findings of this study support the hypothesized relationships already described in the literature, additional prospective research may be needed to confirm the results of existing studies (Vornholt & de Choudhury, 2021).
4. Longitudinal studies are needed to investigate whether social media use is a risk factor for anxiety symptoms (Aluh et al., 2019).
5. Investigating the influence of personality and childhood influences as risk factors for anxiety in using social media, as a possible area for future research (Aluh et al., 2019).
6. Research on more reliable methods to measure social media use and its impact on other social anxiety disorders such as relationships and academic performance may be conducted (Aluh et al., 2019).
7. The regression model obtained from this study can be retested on samples with similar characteristics. <https://files.eric.ed.gov/fulltext/EJ1224299.pdf>
8. Qualitative studies can be designed by conducting in-depth interviews with individuals who have social media addiction (Aluh et al., 2019).

CONCLUSION

From the research we reviewed, it can be concluded that social media use is associated with increased levels of anxiety, especially in young adults. Various factors such as genetic predisposition, neuroanatomy, neuroendocrine, and psychophysiological mechanisms play a role in the development of anxiety disorders. The intensity and duration of social media use are also associated with increased stress and anxiety. In addition, passive use of social media, comparing with others, FOMO, and negative experiences on social media can worsen anxiety symptoms. On the other hand, active and controlled use of social media, use of positive content, good social interactions, and seeking help for anxiety problems on social media can have a positive impact on reducing anxiety levels.

The challenges faced by researchers in studying the relationship between social media use and anxiety include the need for control groups, cross-cultural studies, and longitudinal studies to establish causal relationships. Future research directions may include exploring the role of other mediating variables, investigating the impact of personality factors and childhood experiences on anxiety related to social media, and using more effective methods to measure social media use and its impact on mental health. Overall, although social media has both negative and positive impacts on anxiety, it is also important to encourage responsible and wise use of social media in order to reduce anxiety symptoms and improve mental health, especially among students and young adults. There has been no research that explains the overall effect of social media use on anxiety and recommendations for using social media to get a positive impact on anxiety. Thus, the author hopes that in the future there will be research that discusses the positive impact of social media on anxiety, so that later it can be studied further, whether social media has a more positive or negative effect on individual mental health. In addition, more massive research needs to be conducted on the impact of social media on anxiety, considering that social media is

something that is common and often accessed every day, especially by medical students. Research also needs to be conducted to compare whether there is a relationship between the duration of time when using social media and the anxiety that occurs.

REFERENCES

- Akram, W., & Kumar, R. (2017). A Study on Positive and Negative Effects of Social Media on Society. *International Journal of Computer Sciences and Engineering*, 5(10), 351–354. <https://doi.org/10.26438/IJCSE/V5I10.351354>
- Alsunni, A. A., & Latif, R. (2021a). Higher emotional investment in social media is related to anxiety and depression in university students. *Journal of Taibah University Medical Sciences*, 16(2), 247. <https://doi.org/10.1016/J.JTUMED.2020.11.004>
- Aluh, D., Chukwuobasi, T., & Mosanya, A. (2019). A cross-sectional survey of social media anxiety among students of university of Nigeria. *Journal of Mental Health and Human Behaviour*, 24(1), 51. https://doi.org/10.4103/JMHBB.JMHBB_64_19
- <https://Formative.Jmir.Org/2023/1/E43037>, 7(1), e43037. <https://doi.org/10.2196/43037>
- Anto, A., Asif, R. O., Basu, A., Kanapathipillai, D., Salam, H., Selim, R., Zaman, J., & Eisingerich, A. B. (2023b). Exploring the Impact of Social Media on Anxiety Among University Students in the United Kingdom: Qualitative Study. *JMIR Formative Research*, 7. <https://doi.org/10.2196/43037>
- Asibong, U., Okafor, C. J., Asibong, I., Ayi, E., Omoronyia, O., & Owoidoho, U. (2020). Psychological Distress and Social Media Usage: A Survey among Undergraduates of a University in Calabar, Nigeria. *Nigerian Postgraduate Medical Journal*, 27(2), 115–121. https://doi.org/10.4103/NPMJ.NPMJ_169_19
- Aydogan, D., & Buyukyilmaz, O. (n.d.). The Effect Of Social Media Usage on Students' Stress And Anxiety: A Research in Karabuk University Faculty of Business. *International Journal of Multidisciplinary Thought*.
- Azhari, A., Toms, Z., Pavlopoulou, G., Esposito, G., & Dimitriou, D. (2022a). Social media use in female adolescents: Associations with anxiety, loneliness, and sleep disturbances. *Acta Psychologica*, 229, 103706. <https://doi.org/10.1016/J.ACTPSY.2022.103706>
- He, X., Hu, J., Yin, M., Zhang, W., & Qiu, B. (2023). Screen Media Use Affects Subcortical Structures, Resting-State Functional Connectivity, and Mental Health Problems in Early Adolescence. *Brain Sciences* 2023, Vol. 13, Page 1452, 13(10), 1452. <https://doi.org/10.3390/BRAINSCI13101452>
- Jia, G., Dai, H., Chu, Y., Wang, X., Hao, Y., & Wang, S. (2022). Psychometric evaluation of the Chinese version of social anxiety scale for social media users and cross-sectional investigation into this disorder among college students. *Comprehensive Psychiatry*, 116, 152328. <https://doi.org/10.1016/J.COMPPSYCH.2022.152328>
- Lai, F., Wang, L., Zhang, J., Shan, S., Chen, J., & Tian, L. (2023b). Relationship between Social Media Use and Social Anxiety in College Students: Mediation Effect of Communication Capacity. *International Journal of Environmental Research and Public Health* 2023, Vol. 20, Page 3657, 20(4), 3657. <https://doi.org/10.3390/IJERPH20043657>
- Liu, Z., Li, Z., & Zhao, T. (2021). Mechanism and Treatment of Anxiety Disorders. *E3S Web of Conferences*, 292, 03082. <https://doi.org/10.1051/E3SCONF/202129203082>

- nadila, adlin, wilson, wilson, & Hermawati, E. H. (2022). Hubungan durasi penggunaan media sosial dengan tingkat kecemasan pada mahasiswa program sarjana kedokteran Universitas Tanjungpura. *Jurnal Cerebellum*, 8(2), 16–22. <https://doi.org/10.26418/jc.v%vi%i.54184>
- Ohannessian, C. M. C., Fagle, T., & Salafia, C. (2021). Social media use and internalizing symptoms during early adolescence: The role of co-rumination. *Journal of Affective Disorders*, 280(Pt A), 85–88. <https://doi.org/10.1016/J.JAD.2020.10.079>
- Ojha, K., Soohinda, G., Sampath, H., & Dutta, S. (2021). Social networking sites and its relation to social comparison and psychological well-being among medical university students. *Indian Journal of Psychiatry*, 63(6), 593. https://doi.org/10.4103/INDIANJPSYCHIATRY.INDIANJPSYCHIATRY_1344_20
- Patriquin, M. A., & Mathew, S. J. (2017). The Neurobiological Mechanisms of Generalized Anxiety Disorder and Chronic Stress. *Chronic Stress*, 1. <https://doi.org/10.1177/2470547017703993>
- Steinsbekk, S., Nesi, J., & Wichstrøm, L. (2023). Social media behaviors and symptoms of anxiety and depression. A four-wave cohort study from age 10–16 years. *Computers in Human Behavior*, 147, 107859. <https://doi.org/10.1016/J.CHB.2023.107859>
- Studi Psikologi, P., & Agil Permadi, D. (2022). Kecemasan sosial dan intensitas penggunaan media sosial pada remaja. *PSYCOMEDIA : Jurnal Psikologi*, 2(1), 7–13. <https://doi.org/10.35316/PSYCOMEDIA.2022.V2I1.7-13>
- Trikandini, A., & Kurniasari, L. (2021). Hubungan Intensitas Penggunaan Media Sosial Dengan Tingkat Kecemasan Pada Mahasiswa UMKT. *Borneo Studies and Research*, 3(1), 614–619. <https://journals.umkt.ac.id/index.php/bsr/article/view/2492>
- View of HUBUNGAN MEDIA SOSIAL DAN KECEMASAN PADA MAHASISWA FK UISU. (n.d.). Retrieved August 10, 2024, from <https://jurnal.fk.uisu.ac.id/index.php/stm/article/view/347/314>
- View of The Effect of Social Media Use Intensity on Anxiety, Depression and Stress Level During Covid-19 Pandemic Outbreak. (n.d.). Retrieved August 10, 2024, from <https://ijnhs.net/index.php/ijnhs/article/view/508/319>
- Vogel-Scibilia, S. E., McNulty, K. C., Baxter, B., Miller, S., Dine, M., & Frese, F. J. (2009). The recovery process utilizing Erikson's stages of human development. *Community Mental Health Journal*, 45(6), 405–414. <https://doi.org/10.1007/S10597-009-9189-4>
- Vornholt, P., & de Choudhury, M. (2021). Understanding the Role of Social Media–Based Mental Health Support Among College Students: Survey and Semistructured Interviews. *JMIR Mental Health*, 8(7). <https://doi.org/10.2196/24512>
- Wang, Y., Xu, J., & Xie, T. (2022). Social Media Overload and Anxiety Among University Students During the COVID-19 Omicron Wave Lockdown: A Cross-Sectional Study in Shanghai, China, 2022. *International Journal of Public Health*, 67. <https://doi.org/10.3389/IJPH.2022.1605363>
- Winstone, L., Mars, B., Haworth, C. M. A., Heron, J., & Kidger, J. (2022a). Adolescent social media user types and their mental health and well-being: Results from a longitudinal survey of 13–14-year-olds in the United Kingdom. *JCPP Advances*, 2(2), e12071. <https://doi.org/10.1002/JCV2.12071>

- Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., Pakpour, A. H., & Lin, C. Y. (2020). Relationships between Severity of Internet Gaming Disorder, Severity of Problematic Social Media Use, Sleep Quality and Psychological Distress. *International Journal of Environmental Research and Public Health*, 17(6). <https://doi.org/10.3390/IJERPH17061879>
- Zhao, N., & Zhou, G. (2020). Social Media Use and Mental Health during the COVID-19 Pandemic: Moderator Role of Disaster Stressor and Mediator Role of Negative Affect. *Applied Psychology: Health and Well-Being*, 12(4), 1019. <https://doi.org/10.1111/APHW.12226>