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Investigating the Relationship among Social Media, Anxiety, and Personal Hygiene Related to the COVID-19 Pandemic in Pregnant Women

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ABSTRACT

Aims This descriptive cross-sectional study aimed to assess the impact of social media on anxiety and personal hygiene practices related to COVID-19 in pregnant women in Gonabad, Iran.

Materials & Methods A total of 100 pregnant women participated in an online questionnaire comprising questions on demographic characteristics, personal hygiene, health anxiety, and social media use. Standard patient-reported questionnaires were used. Data were analyzed using SPSS software (version 16) with a significance level of $P < 0.05$.

Findings The mean age of the participants was 27.77 ± 5.87 years. The findings revealed a mean personal hygiene score of 15.81 ± 2.32 and a mean anxiety score of 19.59 ± 8.27, indicating moderate anxiety levels and high personal hygiene practices. The duration of social media usage significantly affected anxiety scores ($P = 0.002$), suggesting higher anxiety levels among individuals spending more time in virtual spaces. A significant association was observed between self-declared anxiety scores and those obtained from the questionnaire ($P < 0.001$, $r = 0.42$). However, no significant correlation was found between self-reported personal hygiene scores and questionnaire scores ($P = 0.48$, $r = 0.07$).

Conclusion This study demonstrates that social media usage is associated with elevated anxiety levels and impacts personal hygiene practices among pregnant women during the COVID-19 pandemic.

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Introduction

Coronavirus disease (COVID-19) is a novel disease that first emerged in December 2019 in Wuhan, China. Since then, it has rapidly spread across the globe, infecting over 600 million people worldwide and seven million in Iran [1]. This disease is caused by a specific type of virus belonging to the coronavirus-β cluster, making it the third coronavirus-related disease after severe acute respiratory syndrome and Middle East respiratory syndrome [2]. This virus has a high transmission rate from one person to another; therefore, on March 11, 2020, it was introduced as an emerging pandemic by the World Health Organization (WHO). Also, the global spread of this virus caused the WHO to introduce it as the sixth cause of public health emergencies worldwide [3]. The primary modes of transmission for this disease are inadequate hygiene practices and contact with infected individuals [4]. Common symptoms of COVID-19 include fever, cough, muscle fatigue, and, in severe cases, acute respiratory distress syndrome. Additionally, there are some less common symptoms, such as infection, hemoptysis, headache, sore throat, shock, diarrhea, and vomiting [5,6].

In addition to its physical effects, the spread of COVID-19 has also had psychological implications for various segments of society. Factors, such as decreased social interactions, prolonged absence from work environments, and exposure to news and rumors about the disease, can contribute to increased fear, anxiety, depression, complications related to the disease, and, in some cases, even lead to fatalities [7]. Recognizing the impact of this disease on mental health, the WHO has issued guidelines to prevent the spread of mental distress in society [8]. Numerous studies have confirmed the influence of the disease on anxiety and stress levels within the population, highlighting a high prevalence of anxiety in society [9–11]. For instance, one study reported that 22.6% of participants experienced anxiety during the outbreak of the disease [7].

One of the significant factors contributing to anxiety and fear during this era is the dissemination of misinformation through social media platforms, which can have detrimental effects on mental well-being [7,13]. Studies have shown that receiving incorrect information and unrealistic statistics can increase people's stress levels, exacerbating their fears of contracting the disease [13]. Moreover, approximately 90% of young individuals are engaged with two or more types of social media daily, to the extent that it is referred to as social media addiction [14,15]. Additionally, fear triggers an increase in cortisol secretion, which can suppress immune system function [16].

Furthermore, paying attention to the mental health of pregnant women is particularly crucial during this period due to the potential impacts of fear and anxiety on both maternal and fetal well-being [9,10,17]. This group requires special care and attention compared to other members of society. Therefore, given the importance of hygiene practices in preventing the spread of COVID-19, as well as the impact of stress on the health status of both the mother and fetus, this research project was conducted to investigate the effect of social media on anxiety levels and personal hygiene practices related to COVID-19 among pregnant women in Gonabad, Iran.

Participants and Methods

This cross-sectional study was conducted between March and May 2020 in Gonabad, Iran, focusing on a statistical population of 150 pregnant women. The sampling method used was census sampling, after obtaining approval from the Ethics Committee, and included all pregnant women who had filed a health record at the city's health centers. The inclusion criteria for the study comprised being in the second or third trimester of pregnancy, willingness to participate, the ability to read and comprehend the questionnaire independently (i.e., functional literacy), and absence of COVID-19 infection. Participants who did not complete the questionnaire or withdrew from the study were excluded.

To access potential participants, the researchers visited health centers and extracted information from the records of pregnant mothers. Due to the ongoing COVID-19 pandemic and adherence to health protocols, contact was made using the registered phone numbers. After explaining the research project, the participants were sent a link to an online questionnaire upon obtaining oral consent.

The data collection instrument utilized in this study was a researcher-made questionnaire consisting of 56 questions, divided into four sections: demographic characteristics (11 questions), personal hygiene (18 questions), health anxiety (18 questions), and social media usage (9 questions). In the personal hygiene section, the responses were binary, scored as 'yes' (1) or 'no' (0), resulting in a total score ranging from 0 to 18. Scores of 0-6 indicated poor personal hygiene, 6-12 indicated average personal hygiene, and scores above 12 indicated good personal hygiene.

For the health anxiety section, a model based on the cognitive model of health anxiety and self-perceived illness was used, adapted from a standard questionnaire on self-perceived illness. Each question had four options, and scores ranged from 0 to 3. The minimum score was zero, while the maximum was 54. Scores of 0-17 indicated low anxiety, 18-35 indicated moderate anxiety, and 36-54 indicated high anxiety. The questionnaire's reliability was evaluated using the test-retest method, which demonstrated stability over time. Internal consistency was assessed by calculating Cronbach's alpha coefficients, ranging from 0.70 to 0.82 in previous studies. In the present study, the questionnaire achieved a Cronbach's alpha of 0.81, indicating acceptable internal reliability.

The final section of the questionnaire consisted of five questions about the use of social media platforms, such as Telegram, Instagram, Twitter, and WhatsApp. Additionally, participants were asked to rate their personal opinions regarding the impact of social media on anxiety levels and personal hygiene on a scale of 1-10. These

questions were presented as "What score do you give from 1 to 10 on the effectiveness of social media in increasing your anxiety?" and "What score do you give from 1 to 10 on the impact of social media on increasing personal hygiene?" The Cronbach's alpha coefficient for this section was 0.89. To assess the validity of the researcher-made questionnaire, content validity was evaluated quantitatively using the content validity ratio (CVR) and content validity index (CVI) based on feedback from a panel of experts in the field. The CVR value was 0.78, indicating that the items were essential, and the CVI was 0.85, reflecting good relevance, clarity, and comprehensiveness of the questionnaire items. Regarding reliability, internal consistency was determined using Cronbach's alpha, which was 0.81 in this study, demonstrating acceptable reliability. Additionally, stability over time was assessed using a test-retest method with a two-week interval on a subset of participants. The test-retest reliability coefficient was 0.82, indicating good temporal stability of the instrument.

After completing the questionnaires, data were analyzed using SPSS (version 16). The normality of continuous variables was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were reported. The statistical tests employed in the analysis included analysis of variance (ANOVA), t-tests, and Pearson's correlation coefficient. Statistical significance was set at $P < 0.05$.

Results

Of the 150 pregnant women, 100 participated in the study until the end, and 50 individuals who either did not meet the inclusion criteria or provided incomplete questionnaire responses were excluded from the final analysis.

Table 1 presents the participants' demographic characteristics, including age, educational degree, employment status, pregnancy history, and abortion history. The mean ± SD age of the participants in this study was 27.77 ± 5.87 years, with a range of 16-43 years. A total of 62% of the participants had a history of pregnancy, and none of the participants had experienced an abnormal child. In total, 20% of the participants reported a history of abortion between 2011 and 2021, with the highest number of abortions reported in 2018-2019. None of the participants in this study was infected with COVID-19, and none of their relatives died due to COVID-19. Only one percent (one person) had observed coronavirus infection among their relatives. (Table 1).

Table 1. Distribution of Frequency and Percentage of Participants' Demographic Variables

Variable		No	%
Age	16-25	30	30
	25-34	52	52
	34-43	18	18
Education degree	Illiterate	2	2
	High school	6	6
	Diploma	39	39
	Bachelor's degree	44	44
	Master's degree	7	7
	Doctorate	1	1
	Higher grades	1	1
Employment status	Employed	35	35
	Housewife	65	65
Pregnancy history	Yes	62	62
	No	38	38
Abortion history	Yes	24	24
	No	76	76

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The average score for personal hygiene among the study participants was 15.81 ± 2.32, indicating a good level of hygiene compliance. Pearson's correlation coefficient analysis showed no significant relationship between age and scores on health principles (personal hygiene) ($P = 0.48$, $r = -0.07$), suggesting that age does not have a notable impact on personal hygiene practices (Table 2).

Table 2. Comparison of the Average Scores of Personal Health and Anxiety Based on Demographic Variables

The Average Scores of Personal Health				
Variables		**Mean ± SD**	**Test Results**	**P-value**
Age		27.77 ± 5.87	$r = -0.07$	0.48
Education degree	Illiterate	15 ± 4.24	F = 0.21	0.97
	High school	16 ± 1.89		
	Diploma	15.76 ± 2.62		
	Bachelor's degree	15.81 ± 2.24		
	Master's degree	15.85 ± 1.57		
	Doctorate	18		
	Higher grades	15		
Employment status	Employed	15.91 ± 1.83	t = -0.35	0.72
	Housewife	15.74 ± 2.58		
Pregnancy history	Yes	15.75 ± 2.48	t = -0.28	0.77
	No	15.89 ± 2.06		
Abortion history	Yes	15.05 ± 2.72	t = -1.64	0.10

	No	16 ± 2.19		
The Average Score of Anxiety				
Age		27.77 ± 5.87	r = -0.17	0.07
Education degree	Illiterate	27.50 ± 9.19	F = 1.86	0.09
	High school	25 ± 13.29		
	Diploma	19.84 ± 8.71		
	Bachelor's degree	19.15 ± 6.88		
	Master's degree	18 ± 5.25		
	Doctorate	5		
	Higher grades	6		
Employment status	Employed	18.37 ± 7.68	t = 1.1	0.26
	Housewife	20.30 ± 8.58		
Pregnancy history	Yes	19.43 ± 7.58	t = -0.23	0.81
	No	19.84 ± 9.39		
Abortion history	Yes	20.05 ± 7.82	t = 0.27	0.78
	No	19.47 ± 8.42		

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*Statistical analyses were performed using ANOVA, t-test, and Pearson's correlation; $P < 0.05$ was considered significant.

The comparison of average scores based on education level (measured by one-way ANOVA), employment status, pregnancy history, and abortion history (measured by one-way independent samples t-test) did not show any significant differences in personal hygiene compliance ($P > 0.05$). This implies that these factors do not substantially influence personal hygiene practices. (Table 2).

In terms of anxiety, the average score among the study participants is 19.59 ± 8.27, indicating a moderate level of anxiety. Similar to personal hygiene, no significant relationship was observed between age and anxiety levels ($P = 0.07$, $r = -0.17$), suggesting that age is not strongly associated with anxiety (Table 2).

Furthermore, no significant differences were observed in anxiety scores based on education level ($P = 0.09$), employment status ($P = 0.26$), pregnancy history ($P = 0.81$), or abortion history ($P = 0.78$). These results suggest that these factors do not significantly contribute to variations in anxiety levels among the participants (Table 2).

Overall, the findings suggest that the study participants generally practiced good personal hygiene and exhibited moderate anxiety. Age, education, employment status, pregnancy history, and abortion history did not significantly affect personal hygiene compliance and anxiety levels among the participants (Table 2).

No significant relationship was found between the average scores for personal hygiene and anxiety level ($P = 0.18$), indicating no strong association between the two variables.

In terms of social media usage, Telegram was the most commonly used platform among the participants, with 61% reporting its usage. Instagram was used by 21% of participants, WhatsApp by 6%, and other social media platforms by 12% for obtaining information and increasing awareness.

The average anxiety score based on the type of social media used indicated that individuals who used Telegram and WhatsApp had slightly higher anxiety levels compared to other individuals. However, this difference between the groups was not statistically significant ($P = 0.61$). Similarly, the average personal hygiene scores by social media type showed that individuals who used Telegram and WhatsApp had slightly higher scores than those who used other platforms. However, this difference was not statistically significant ($P = 0.78$) (Table 3).

Regarding time spent on social media, approximately 24% of participants reported spending less than one hour, 60% between 1 and 5 hours, and 16% more than 5 hours per day in the virtual space. The results indicated that the average anxiety score differed significantly across groups based on time spent ($P = 0.002$). Specifically, individuals who spent more time in the virtual space to obtain information had higher average anxiety scores (Table 3).

Furthermore, the average personal hygiene scores were higher in individuals who spent more hours in virtual spaces. However, no significant difference was observed between the groups ($P = 0.10$). The findings suggest that while there may be slight associations between social media usage, anxiety levels, and personal hygiene scores, these relationships were not statistically significant. Additionally, spending more time on social media for obtaining information was associated with higher anxiety levels. However, no significant difference was found in personal hygiene scores based on the time spent. (Table 3).

Table 3. The Relationship between Anxiety and Personal Hygiene With the Type and Time of Social Media Use

The Average Score of Anxiety and Personal Hygiene According to the Type of Social Media				
Anxiety			**Personal Hygiene**	
Social media	**Mean ± SD**	**P-value**	**Mean ± SD**	**P-value**
Instagram	18.10 ± 7.21	0.61	19.40 ± 2.56	0.78
Telegram	20.39 ± 8.39		20.05 ± 2.45	
WhatsApp	21.16 ± 3.60		20.16 ± 1.72	
Other	17.81± 9.91		20 ± 3	
The Average Score of Anxiety and Personal Hygiene According to the Time of Social Media Use				
Anxiety			**Personal hygiene**	
Social Media	Mean ± SD	P-value	Mean ± SD	P-value
Less than 1 hour	19.30 ± 7.16	0.002	18.95 ± 2.26	0.10
1 to 5 hour	17.98 ± 8.11		20.22 ± 2.55	
More than 5 hour	26.33 ± 8.86		20.20 ± 2.30	

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* Statistical analyses were performed using a one-way ANOVA. $P < 0.05$ was considered significant.

The average anxiety score reported by the study participants in their self-declarations is 5.73 ± 2.45. A significant relationship was observed between the self-declared anxiety scores and the anxiety scores obtained from the questionnaire ($P < 0.001$, $r = 0.42$). This suggests that individuals can accurately assess their anxiety level.

In contrast, the participants' average score for personal hygiene is 7.66 ± 2.09. Pearson's correlation coefficient analysis showed no significant relationship between self-declaration scores for personal hygiene and questionnaire scores ($P = 0.48$, $r = 0.07$). This indicates that individuals believed that the virtual space had a positive impact on personal hygiene, but this belief did not align with the questionnaire results.

It is worth noting that scores above the average indicate that individuals perceived the virtual space as effective in improving personal hygiene and anxiety levels. However, the lack of significant correlation between self-declaration scores and questionnaire scores for personal hygiene suggests that this perception may not accurately reflect the actual impact of the virtual space on personal hygiene (Table 4).

Table 4. Access to Information in Social Media

Questions	Yes (%)	No (%)
Do you follow news about the coronavirus on social media?	67	33
Have you learned the correct way to observe personal hygiene from social media?	82	18
Has social media increased your anxiety regarding the coronavirus disease?	56	44
Has social media increased your awareness of personal health in relation to coronavirus disease?	92	8
Do you believe the news on social media?	55	49

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Discussion

The present study was conducted to investigate the impact of social media on anxiety levels and personal hygiene during the COVID-19 pandemic among pregnant women in Gonabad, Iran. The main results of this study showed a moderate level of anxiety and a high level of personal hygiene among pregnant women. However, a significant relationship was observed between the level of anxiety and the time spent using virtual space, which indicated the negative impact of social media on anxiety.

Social media is a double-edged sword that can have disadvantages in addition to its benefits. It can be a source of stress and strengthen negative self-evaluation [18]. It has been shown that people who use social media experience higher social anxiety. They limit their social relationships for fear of being evaluated and judged negatively by others [19,20]. In addition, they are involved in comparing their lives with the virtual lives of others, and in this situation, they perceive themselves more negatively compared to others, which increases their anxiety [20,21] and causes them to feel lonely. As negative feedback, socially anxious people are more inclined to use social media to manage and compensate for their social fears and loneliness, and to establish online and social interactions with others [22,23]. Other reasons that may cause anxiety include negative feedback from others, social comparisons such as others being happier and enjoying a better life, getting more likes and confirming their worth, amplifying social support, dealing with unbearable feelings, receiving stressful news, and keeping social media updates [15]. The side effects of social anxiety caused by social media are rumination and worrying about negative self-presentation on social media [20].

Our results showed a generally moderate level of anxiety among pregnant women. In addition to the current study's results, several studies have reported that social media use is not associated with anxiety, stress, or fear of social evaluation [24,25]. Also, in some studies, it has been emphasized that using the internet in a beneficial, managed manner strengthens young people and reduces their anxiety [26,27]. On the other hand, contrary to our findings, some studies found a positive association between social media use and anxiety [15,28,29]. Vannucci et al. 2017 indicated that high daily social media use in emerging adults (18–22 years old) was notably correlated with a greater anxiety score, indicating a probable anxiety disorder [15]. Morin-Major et al. 2016 evaluated Facebook behaviors associated with diurnal cortisol in adolescents (12-17 years old). The results revealed that the relation depends on Facebook attributes. For example, no correlation was observed between use frequency and cortisol, while a positive association was observed between network size and cortisol, and a negative association between Facebook peer interaction behaviors and cortisol [29]. These differences can be attributed to variations in the types of social media used, motivations for using social media, content provided by social media, and the volume, gender, age, nationality, and ethnicity of the samples. Personal characteristics, cultural and environmental factors, self-esteem, inactivity, and cyberbullying should also be considered.

One of the reasons for low anxiety in pregnant women in our study can be related to the fact that this segment of society searches for or is a member of sites and groups that are related to their fetus and baby, which gives them a sense of peace and reduces their anxiety. In addition, pregnant women avoided face-to-face communication to prevent coronavirus infection and protect their fetuses and communicated through social media, which made them feel safe.

Regarding the type of social media used in this study, participants who used Telegram and WhatsApp reported higher anxiety and poorer personal hygiene than those who used other platforms, although this difference was not significant. This indicates that there should be more precise control over the content presented in these popular media, and the educational and motivational content should increase. In pregnant women, anxiety should be reduced

through the social support they receive from family and friends, so that they tend towards the real world and not the virtual world.

The results showed that people who spent more time in virtual spaces to obtain information have a higher average anxiety score. Consistent with our study, in a systematic review, Keles et al. 2020 expressed that a significant relationship between anxiety and time spent on social media, frequent checking of messages, personal finance, and addictive use [30]. Furthermore, Lee et al. investigated the relationship between anxiety and time spent using social media. They concluded that time spent using social media is directly associated with anxiety levels [31]. In another study by Bailey et al. (2020), the relationship between cyberspace use and anxiety among young people (16-25 years old) during the COVID-19 pandemic was investigated. The results showed that 96% of the participants used the virtual space in different ways, and 40% of them had severe levels of anxiety. They found that the amount of anxiety increased with the time spent using social media [32]. In addition, Fathi et al. (2020) showed that excessive use of virtual space (> 4 hours/day) can increase students' anxiety [33].

The current study showed that the level of personal hygiene among pregnant women is high. One reason for this could be the greater sensitivity of expectant mothers to infection and the fear of harming the fetus. It has been proven that social media has a significant influence on people and can shape awareness and behavior [34,35]. Yousuf et al. (2020) concluded that broadcasting a program on Dutch national social media, using a public health campaign strategy, can improve personal hygiene and physical distancing during *COVID-19*. The researchers emphasized that this strategy may be able to intervene in health conditions and future epidemics [35].

Conclusion

Briefly, these results suggest that we should make optimal use of social media's potential to raise awareness among pregnant women, reduce their anxiety, and improve their personal hygiene. Researchers recommend that the dissemination of distressing news on social media be carefully managed, considering the conditions of certain people, especially pregnant women. Much of this news is not only ineffective at raising awareness and improving health but is also destructive. Also, the amount of social media usage among pregnant women should be paid more attention to avoid many complications in this category of people. This study only investigated anxiety in response to news and educational content published on social media during the COVID-19 pandemic. However, there is a possibility of many other physical and psychological side effects that require further studies.

Limitations of the Study

The main limitation of this study is its cross-sectional design, which does not allow for the determination of causal relationships between social media use, anxiety, and personal hygiene. Additionally, the census sampling is limited to a specific geographic area, potentially reducing the generalizability of the findings to other pregnant populations. Data collection via an online questionnaire and a researcher-made instrument, although content- and reliability-validated, remains prone to self-report bias and has lower validity compared to internationally standardized tools.

Considering these limitations, future studies should use longitudinal designs to explore causal and long-term effects and to employ broader random sampling across different geographic regions to enhance the generalizability of results. Furthermore, using standardized instruments and complementary qualitative studies is suggested to gain a deeper understanding of pregnant women's experiences, which can help design more effective educational and psychosocial interventions tailored to future pandemic conditions.

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Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Gonabad University of Medical Sciences, Gonabad, Iran (approval no. IR.GMU.REC.1399.015). All participants provided informed consent before participating in the study. This study was conducted in accordance with the ethical standards of the Declaration of Helsinki and relevant national guidelines for human subject research.

Authors' contributions

AS.M, R.A, T.A, and F.Z.B conceived and designed the study, conducted research, provided research materials, and collected and organized data. A.A analyzed and interpreted data. F.P and M.N wrote the initial and final drafts of the article and provided logistical support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflicts of interest

The authors declared no conflicts of interest.

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References

[1]. World Health Organization. WHO coronavirus disease (COVID-19) dashboard. Geneva: WHO; 2022. [Link]
[2]. Ji W, Wang W, Zhao X, Zai J, Li X. Cross-species transmission of the newly identified coronavirus 2019-nCoV. J Med Virol. 2020;92(4):433–40. [DOI: 10.1002/jmv.25682] [PMID] [PMCID]
[3]. Li J, Huang DQ, Zou B, Yang H, Hui WZ, Rui F, et al. Epidemiology of COVID-19: a systematic review and meta-analysis of clinical characteristics, risk factors, and outcomes. J Med Virol. 2021;93(3):1449–58. [DOI: 10.1002/jmv.26424] [PMID] [PMCID]
[4]. Keshavarz AT, Katayon V, Mohsen M. Novel coronavirus disease 2019 (COVID-19): an emerging infectious disease in the 21st century. Iran South Med J. 2020;22(6):432–50. [DOI: 10.29252/ismj.22.6.432]
[5]. Sun P, Qie S, Liu Z, Ren J, Xi J. Clinical characteristics of 50,466 patients with 2019-nCoV infection. medRxiv. 2020. [DOI: 10.1101/2020.02.18.20024539]
[6]. Farnoosh G, Alishiri G, Zijoud SRH, Dorostkar R, Farahani AJ. Understanding SARS-CoV-2 and COVID-19 based on available evidence: a narrative review. J Mil Med. 2020;22(1):1–11. [DOI: 10.30491/JMM.22.1.1]
[7]. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, et al. Mental health problems and social media exposure during COVID-19 outbreak. PLoS One. 2020;15(4):e0231924. [DOI: 10.1371/journal.pone.0231924] [PMID] [PMCID]
[8]. Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, et al. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. Lancet Psychiatry. 2020;7(3):e14. [DOI: 10.1016/s2215-0366(20)30047-x] [PMID] [PMCID]
[9]. Mehdizadehkashi A, Chaichian S, Haghighi L, Eshraghi N, Bordbar A, Hashemi N, et al. The impact of COVID-19 pandemic on stress and anxiety of non-infected pregnant mothers. J Reprod Infertil. 2021;22(2):125–32. [DOI: 10.18502/jri.v22i2.5801] [PMID] [PMCID]
[10]. Nowacka U, Kozlowski S, Januszewski M, Sierdzinski J, Jakimiuk A, Issat T. COVID-19 pandemic-related anxiety in pregnant women. Int J Environ Res Public Health. 2021;18(14):7221. [DOI: 10.3390/ijerph18147221] [PMID] [PMCID]
[11]. Vindegaard N, Benros ME. COVID-19 pandemic and mental health consequences: systematic review of the current evidence. Brain Behav Immun. 2020;89:531–42. [DOI: 10.1016/j.bbi.2020.05.048] [PMID] [PMCID]
[12]. Bontcheva K, Gorrell G, Wessels B. Social media and information overload: survey results. 2013. [DOI: 10.48550/arXiv.1306.0813]
[13]. Liu K, Chen Y, Wu D, Lin R, Wang Z, Pan L. Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. Complement Ther Clin Pract. 2020;39:101132. [DOI: 10.1016/j.ctcp.2020.101132] [PMID] [PMCID]
[14]. Perrin A. Social media usage. Washington (DC): Pew Research Center; 2015. [Link]
[15]. Vannucci A, Flannery KM, Ohannessian CMC. Social media use and anxiety in emerging adults. J Affect Disord. 2017;207:163–6. [DOI: 10.1016/j.jad.2016.08.040] [PMID]
[16]. Abdi R, Chalbianloo GR, Pak R. Role of BIS/BAS, stressful life events, and disease duration in predicting symptom severity in multiple sclerosis. J Rafsanjan Univ Med Sci. 2018;17(3):213–24. [Link]
[17]. Pouladkhay F, Bagheri FZ, Abjar R, Azarmehr T, Mahmoudian A, Baradaran R. Uterine rupture due to delayed hospitalization caused by anxiety and fear of COVID-19: a case report. Zanko J Med Sci. 2020;21(70):63–8. [Link]
[18]. Nesi J, Prinstein MJ. Using social media for social comparison and feedback-seeking: gender and popularity moderate associations with depressive symptoms. J Abnorm Child Psychol. 2015;43(8):1427–38. [DOI: 10.1007/s10802-015-0020-0] [PMID] [PMCID]
[19]. Hofmann SG. Cognitive factors that maintain social anxiety disorder: a comprehensive model and its treatment implications. Cogn Behav Ther. 2007;36(4):193–209. [DOI: 10.1080/16506070701421313] [PMID] [PMCID]
[20]. O'Day EB, Heimberg RG. Social media use, social anxiety, and loneliness: a systematic review. Comput Hum Behav Rep. 2021;3:100070. [DOI: 10.1016/j.chbr.2021.100070]
[21]. Antony MM, Rowa K, Liss A, Swallow SR, Swinson RP. Social comparison processes in social phobia. Behav Ther. 2005;36(1):65–75. [DOI: 10.1016/S0005-7894(05)80055-3]
[22]. Erwin BA, Turk CL, Heimberg RG, Fresco DM, Hantula DA. The Internet: home to a severe population of individuals with social anxiety disorder? J Anxiety Disord. 2004;18(5):629–46. [DOI: 10.1016/j.janxdis.2003.08.002] [PMID]
[23]. Käll A, Shafran R, Lindegaard T, Bennett S, Cooper Z, Coughtrey A, et al. A common elements approach to the development of a modular cognitive behavioral theory for chronic loneliness. J Consult Clin Psychol. 2020;88(3):269–82. [DOI: 10.1037/ccp0000454] [PMID]
[24]. Kross E, Verduyn P, Demiralp E, Park J, Lee DS, Lin N, et al. Facebook use predicts declines in subjective well-being in young adults. PLoS One. 2013;8(8):e69841. [DOI: 10.1371/journal.pone.0069841] [PMID] [PMCID]
[25]. Hampton K, Rainie L, Lu W, Shin I, Purcell K. Social media and the cost of caring. Washington (DC): Pew Research Center; 2015. [Link]
[26]. Alipour A, Ghadami A, Alipour Z, Abdollahzadeh H. Preliminary validation of the corona disease anxiety scale (CDAS) in the Iranian sample. Q J Health Psychol. 2020;8(32):163–75. [DOI: 10.30473/hpj.2020.52023.4756]
[27]. Joseph-Shehu EM, Ncama BP, Mooi N, Mashamba-Thompson TP. Use of information and communication technologies to promote healthy lifestyle behaviour: a systematic scoping review. BMJ Open. 2019;9(10):e029872. [DOI: 10.1136/bmjopen-2019-029872] [PMID] [PMCID]
[28]. Andreassen CS, Billieux J, Griffiths MD, Kuss DJ, Demetrovics Z, Mazzoni E, et al. Relationship between addictive use of social media and video games and symptoms of psychiatric disorders. Psychol Addict Behav. 2016;30(2):252–62. [DOI: 10.1037/adb0000160] [PMID]
[29]. Morin-Major JK, Marin MF, Durand N, Wan N, Juster RP, Lupien SJ. Facebook behaviors associated with diurnal cortisol in adolescents. Psychoneuroendocrinology. 2016;63:238–46. [DOI: 10.1016/j.psyneuen.2015.10.005] [PMID]
[30]. Keles B, McCrae N, Grealish A. Influence of social media on depression, anxiety and psychological distress in adolescents: a systematic review. Int J Adolesc Youth. 2020;25(1):79–93. [DOI: 10.1080/02673843.2019.1590851]
[31]. Lee Y, Jeon YJ, Kang S, Shin JI, Jung YC, Jung SJ. Social media use and mental health during the COVID-19 pandemic in young adults: a meta-analysis. BMC Public Health. 2022;22(1):995. [DOI: 10.1186/s12889-022-13409-0] [PMID] [PMCID]
[32]. Bailey E, Boland A, Bell I, Nicholas J, Robinson L, et al. Mental health and social media use of young Australians during the COVID-19 pandemic. Int J Environ Res Public Health. 2022;19(3):1077. [DOI: 10.3390/ijerph19031077] [PMID] [PMCID]
[33]. Fathi A, Sadeghi S, Rad AAM, Rahnmo SS, Rostami H, Abdolmohammadi K. Role of cyberspace use on health-promoting lifestyle and coronary anxiety in young people. Iran J Psychiatry Clin Psychol. 2020;26(3):332–47. [DOI: 10.32598/ijpcp.26.3415.1]
[34]. Merchant RM, Lurie N. Social media and emergency preparedness in response to novel coronavirus. JAMA. 2020;323(20):2011–2. [DOI: 10.1001/jama.2020.4469] [PMID]
[35]. Yousuf H, Narula J, Zwetsloot PP, Hofstra M, de Levita A, Scherder E, et al. Using entertainment to improve lifestyles and health. Lancet. 2019;394(10193):119–20. [DOI: 10.1016/s0140-6736(19)30250-8]