

Covid-19 Pandemic, Instagram use, and Women's Mental Health

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Abstract

Objective: While previous research studies primarily focused on younger populations, this study compared the relationship between Instagram use and the mental health of both young and older women who were quarantined because of the COVID-19 pandemic.

Method: Data were collected using Google Form from March 1 to May 5, 2020. A total of 389 women from Mashhad City in Iran participated in the study and completed a questionnaire regarding their daily Instagram usage and a General Health Questionnaire (GHQ-28).

Results: Older users' daily Instagram use was not significantly different from that of younger users [$t(382) = 0.98, p = 0.33$]. Furthermore, results indicated that there was a significant positive correlation between daily Instagram use and young users' mental health levels [$r(352) = 0.23, p=0.00$]. Finally, there was no significant correlation between daily Instagram use and old users' mental health levels [$r(28) = -0.20, p = 0.28$].

Conclusion: The findings advance an understanding of Instagram use among younger and older adults and highlight the correlation between Instagram use and mental health. The results can inform future technological interventions that are designed to help younger and older adults who may have better access to social benefits via SNS platforms, particularly in specific circumstances, such as those brought about by the COVID-19 pandemic.

Keywords: COVID-19; Instagram use; mental health.

Introduction

Covid-19 is a viral disease that causes pulmonary inflammation (Eisazadeh, Aliakbari Dehkordi, & Aghajanbigloo 2020). It has now spread across the world. The disease was first identified in Wuhan, Hubei province, China, in December 2019. People of different ages, genders, and physical abilities are vulnerable to be affected by this disease (Mamun & Griffiths, 2020). Iran is one of the countries in the world that have been affected by COVID-19, which spread quickly due to the country's close

relationship with China, endangering people's mental and physical health (Alipour, Ghadami, Alipour, & Abdollahzadeh, 2020).

The quarantine measures were in place in Iran for almost two months, and in this situational context, women experienced additional stress because the entire family was at home and it was their responsibility to take care of family members, especially children. In this situational framework, women are vulnerable to the psychological impact of COVID-19.

The rise of the digital age has made mobile and social media a lasting trend and an essential part of everyday life for people all over the world. At the time of our writing, more than 2.9 billion people, use the social network. Social media users spend an average of 136 minutes a day on one of the many

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social media platforms in the world. The latest trends suggest that as of January 2019, 70% of East Asian and North American populations were using social media and by the middle of the year 2020 half of the world's total population will use social media. As of June 2018, there were 1 billion worldwide monthly Instagram users and as of April 2020, 51 percent of Instagram users were female (Statista, 2020). Instagram is a mobile image-centric application that started as mobile and later advanced into web-based platforms as 2016.

Instagram users can create a profile, share photos and videos, and engage with people in their social networks. People can "like", "share" and "write comments" underneath their posts. In Iran, Instagram is the most widely used social media networking site. Previously, Telegram was the most popular service, but at present, Instagram is the most widely used social networking application. With the increase in life expectancy, the number of recorded deaths and births in the world is declining; the population of older people is increasing, from 419 million in 2000 to an estimated 973 million people by the year 2030, according to the World Health Organization. The elderly population will reach approximately two billion people by 2050, and about 80% of such persons will reside in less developed countries (Paltasingh, & Tyagi, 2012).

In Iran, according to statistical and demographic indicators and tools, the process of the aging population has started, and there has been an increasing trend in the growth of the elderly population. In 1996, Iran's elderly population accounted for 6.6% of the country's total population, and this rose to 7.3% in 2006. According to the 2011 census, the elderly population, which included people over 60 years of age, had increased to 8.2% (Mirzai & Shams, 2007).

It seems that, in Iran, due to the rapid growth of the elderly population and job conflict in younger families, the number of social media users among the elderly is increasing every day. Therefore, there

is a need to pay attention to the impact of social network use on the mental health of young people and the elderly, particularly during the quarantine period.

Overall usage of social network sites and mental health

Few research studies compared the use of social network sites (SNS) among adults from different age groups. A study carried out by Bosak and Park (2018) which involved 730 adults aged 18-65 years old and above investigated the time spent on Facebook by adults of various ages. The results indicated that the probability that middle-aged and older adults would spend the same amount of time on Facebook overtime was high compared to the other age groups. Additionally, according to their results, the probability that young adults, especially women aged 18-29 years old, would decrease their time spent on Facebook overtime was high. Another study by Chandiramani and Sharma (2018) revealed age differences with regard to the intensity of Facebook use. The study found a significant difference between younger and older users regarding the intensity of Facebook use, and young adults were more prone to using Facebook.

The literature is contradictory in terms of linking overall social network usage (OSN) with users' mental health and life satisfaction.

Some cross-sectional studies suggest that Facebook (Basilisco & Cha, 2015; Ellison et al., 2007; Gonzales & Hancock, 2011; Verduyn et al., 2017) Instagram (Trifiro, 2018), and Cyworld.com, which is the dominant SNS in South Korea (Lee et al., 2011) showed a positive relationship with respect to users' subjective well-being, thus offering support for these associations. The results of a cross-sectional study conducted by Grieve et al. (2013) which involved a sample of 274 Australian adults highlighted the connection between social connectedness and greater life satisfaction, as well as lower levels of depression and anxiety. Indian and Grieve (2014) conducted a research study on socially anxious and

non-socially anxious individuals and examined the relationship between Facebook social support and subjective well-being. The results revealed that, for participants with high levels of social anxiety, Facebook improved subjective well-being, whereas, among those in the low-social-anxiety group, Facebook was not positively correlated with subjective well-being.

The study by Valkenburg et al. (2006) proposed an indirect relationship between social network usage and subjective well-being, indicating that the main variable was the feedback that users receive from their social connections. Positive feedback resulted in higher levels of subjective well-being, whereas negative feedback resulted in lower levels of subjective well-being. Another study carried out by Apaolaza et al. (2013) revealed that the intensity of OSN usage was indirectly associated with higher levels of life satisfaction. OSN usage was identified as a moderating factor with respect to life satisfaction, and it was associated with lower feelings of loneliness and higher self-esteem.

Few studies examined the association between SNS usage and well-being among older populations, although they found that SNS usage had a positive impact on well-being and led to lower levels of social isolation and loneliness (Chang, 2015), better social well-being (Yu, 2016) and greater social benefits (Yu, 2018). Moreover, a systematic review by Morris et al. (2014) examined articles published between 2000 and 2013 on older adults who live at home. Among 18 articles, 14 publications reported that smart technologies are associated with positive outcomes, particularly in terms of social connectedness, such as social support, isolation, and loneliness. Furthermore, two studies carried out by Pinquart and Sörensen (2000) and Huxhold et al. (2013) emphasized the powerful role of SNS usage in determining the subjective well-being (SWB) of older people.

Other studies suggested that OSN usage had a negative relationship with users' well-being (de Lenne et al., 2020; Farahani et al., 2011; Labrague,

2014; Lin et al., 2016; Pantic et al., 2012; Sampasakanyinga & Lewis, 2015; Stieger, 2019). Previous studies also argued that OSN usage was related to lower life satisfaction at a baseline in adolescents and adults (Keresteš & Štulhofer, 2020; Krasnova et al., 2013; Kross et al., 2013; Twenge et al., 2018). A considerable number of research studies carried out with different cultures highlighted the negative impact of Instagram use on adolescents in the US (Mackson et al., 2019), Belgium (Frison & Eggermont, 2017), Italy (Longobardi et al., 2020; Marengo et al., 2018), and Turkey (Yurdag黓黓 et al., 2019), as well as cross-cultural samples (Lup, Trub, et al., 2015). Additionally, in the study carried out by the Royal Society of Public Health in 2017 on adolescent mental health, Instagram use was positively correlated with poorer mental health, sleep disorders, reports of physical abuse, and exposure to cyberbullying. Indeed, many studies of older adults showed that social networks have a positive impact on well-being. Two studies by Binstock (2011) and Wiggins (2004) concluded that social networks can have a negative impact on older people when, for example, other users bother them or they are maltreated by one or more contacts within their social networks. A recent study by Kim and Shen (2020) compared young and older SNS users in terms of their life satisfaction, and the findings revealed that older users benefited less compared to younger users on SNS.

The enormous amount of time that women have spent on Instagram during the COVID-19 pandemic raises the question of the need to determine the application's influence on the mental health of its users. The number of older adults who use SNS is still less than that associated with the younger generation, and few studies have explored the impact of SNS usage among adults aged 50 years old and above. To address these research gaps, the current study aimed to examine the difference between younger and older people with respect to the intensity of Instagram use during the COVID-19 quarantine

period. Second, this study examined the relationship between Instagram use and women's mental health, and compared older and younger users, while also identifying some challenges and concerns that have arisen as a result of the COVID-19 pandemic.

Methods

Participants and procedure

In this study, we carried out a quantitative survey to obtain data from Iranian social media users. Females (aged 20 years old and above) from Mashhad City were invited to participate in this cross-sectional study via social networks, such as Instagram, WhatsApp, and Telegram. Data were collected using Google Form from March 1 to May 5, 2020. Participants were initially asked if they were members of Instagram: Those who confirmed that they were members were requested to rate their daily use of Instagram during the quarantine period.

Basic demographic information, including the participant's age and education level, were requested. Participants were then asked to complete the GHQ questionnaire. The inclusion criteria of eligible participants included the following: a) Women aged 20 years old and above who currently live in Iran, Mashhad City; b) used Instagram and wished to participate in study; and c) completed the questionnaire. Participants were excluded on the basis of the following criteria: a) Below 20 years of age; and b) failed to complete the questionnaire and were unwilling to complete the questionnaire. Following this process, a total of 392 questionnaires were completed by the end of the collection period, and 389 valid questionnaires were retrieved.

Ethical statement

For ethical considerations, participants provided their written informed consent. Although the female participants were informed that their participation was voluntary and that their anonymity would be safeguarded, all of the participants were assured that their information would remain confidential

and that the data collected would only be used for scientific purposes. Participants who were unwilling to cooperate were excluded. The researchers then explained the general aim of the study and advised participants of their role in the research.

Instruments

The researcher designed a demographic questionnaire to assess the rate of Instagram usage among younger and older people. First, the participants were asked if they were a member of Instagram. If they answered "yes," they were asked to rate the following question: "On average, how many hours per day do you spend on Instagram during the quarantine period?" Answers ranged from 1 point (1 hour of Instagram use), 2 points (2 hours of Instagram use), and so on, with a maximum of 7 points (7 hours or more).

General Health Questionnaire (GHQ)

A Persian version of the General Health Questionnaire-28 (GHQ-28) was used to evaluate the psychological health status of participants. The GHQ-28 evaluates psychological well-being and consists of four subscales, i.e., somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression. Each subscale consists of seven questions and each item has four optional responses with scores ranging from 0 for "not at all", 1 for "no more than usual", 2 for "rather more than usual", or 3 for "much more than usual". The individual item scores were summed to produce a total score ranging from 0 to 21. The total score of the GHQ-28 ranges from 0 to 84 and a higher score indicates severe morbidity. In each subscale, a score >6 is considered to indicate poor mental health (Yazdi et al., 2020). The reliability of the Persian version of the GHQ-28 was previously assessed and verified (Nazifi et al., 2014). Cronbach's alpha and content validity were 0.88.

Analysis Strategy

Analyses were performed using IBM SPSS version 23. The first step of the analysis involved computing the descriptive statistics related to the study measures.

For this purpose, the frequency distribution table was used for age and daily Instagram use. Independent-samples t-tests were then conducted to compare the intensity of Instagram use among young and older participants. Next, the relationship between daily Instagram use and the mental health of young and older users during the quarantine period was explored by performing Pearson's product-moment (PPM) correlation tests. The relationship between daily Instagram use and the mental health of older users during the quarantine period was then calculated by determining the PPM correlation coefficients.

Results

With respect to participants' age ($M = 33.27$, $MD = 9.99$), 180 participants (46.3%) were under 30 years of age, 138 participants (35.5%) were 31-40, 40 participants (10.3%) were 41-50, 20 participants (5.1%) were 51-60, and 11 participants (2.8%) were over 60 years of age.

In regard to Instagram use ($M = 2.68$, $MD = 1.95$), 145 (3.37%), participants reported that they used Instagram for 1 hour per day, 92 (23.7%) participants reported that they used Instagram for 2 hours per

day, 44 (11.3%) participants reported that they used Instagram for 3 hours per day, 47 (12.1%) participants reported that they used Instagram for 4 hours per day, 14 (3.6%) participants reported that they used Instagram for 5 hours per day, 15 (3.9%) participants reported that they used Instagram for 6 hours per day, and 21 (5.4%) participants reported that they used Instagram for 7 hours per day. Finally, 11 (2.8%) participants reported that they used Instagram for 8 hours or more on a daily basis.

The first question focused specifically on comparing young and older participants in terms of the intensity of their daily Instagram use during the COVID-19 quarantine period. An independent-samples t-test was conducted to compare the intensity of daily Instagram use among young and older participants. Given a violation of Levene's test for the homogeneity of variances [$F(1,382) = 0.73$, $p = 0.40$], we carried out a t-test that did not assume the equality of variances. The results of the independent-samples t-test showed that there was no significant difference between younger ($M = 20.48$, $SD = 10.17$) and older ($M = 18.60$, $SD = 9.67$) participants' daily Instagram use [$t(382) = 0.98$, $p = 0.33$]. The results regarding

Table 1. Descriptive Statistics for Age

Age	Frequency	Percent	Cumulative Percent	MD	SD
20-30	180	46.3	46.3		
30-40	138	35.5	81.7		
40-50	40	10.3	92.0	33.27	9.99
50-60	20	5.1	97.2		
60-70	11	2.8	100.0		
Total	389	100.0			

Table 2. Descriptive Statistics for Instagram Use and Hours Spent at Home (N = 389)

Instagram	<1	1	2	3	4	5	6	7	8
Frequency		145	92	44	47	14	15	21	11
Percent		37.3	23.7	11.3	12.1	3.6	3.9	5.4	2.8
Cumulative Percent		37.3	60.9	72.2	84.3	87.9	91.8	97.2	100.0
MD		2.68							
SD		1.95							

Table 3. T-Test for Equality of Means (Daily Instagram Use)

		Levene's Test for Equality of Variances				t-test for Equality of Means
		F	sig	t	df	Sig sisig. (2 tailed)
Instagram	Equal variances assumed	.725	.395	.980	.826	.328
	Equal variances not assumed			1.022	34.667	.314

Table 4. Correlation between Young User's Instagram use and Mental Health (N = 358)

Mental Health	Pearson Correlation	.225**
	Sig. (2-tailed)	.000
	N	354
Somatic Symptoms	Pearson Correlation	.071
	Sig. (2-tailed)	.178
	N	358
Insomnia Anxiety	Pearson Correlation	.211**
	Sig. (2-tailed)	.000
	N	358
Social Dysfunction	Pearson Correlation	.079
	Sig. (2-tailed)	.135
	N	356
Depression	Pearson Correlation	.264**
	Sig. (2-tailed)	.000
	N	356

** . Correlation is significant at the 0.01 level

daily Instagram use and the comparison between younger and older participants are reported in Table 4. The second research question focused specifically on the relationship between daily Instagram use and the mental health of young adults. To test this relationship, a PPM correlation was conducted to determine the relationship between daily Instagram use and young adult users' mental health. The results of the correlation analysis, which are presented in Table 4, indicated that there was a significant positive correlation between daily Instagram use and young users' mental health levels [$r(352) = 0.23, p=0.00$],

Furthermore, there was a significant positive correlation between young users' daily Instagram use and two subscales of the GHQ, i.e., insomnia anxiety [$r(356) = 0.21, p=0.00$] and depression [$r(354) = 0.26, p = 0.00$], while no significant correlation was found between daily Instagram use and somatic symptoms [$r(356) = 0.07, p = 0.18$] and social dysfunction [$r(354) = 0.08, p = 0.14$].

The third question focused on the relationship between daily Instagram use and old users' mental health. As presented in Table 5, no significant correlation was found between daily Instagram use

and old users' mental health levels [$r(28) = -0.20$, $p = 0.28$], in addition to all four subscales of the GHQ, including somatic symptoms [$r(29) = -0.05$, $p = 0.80$], [insomnia anxiety $r(29) = -0.23$, $p = 0.21$], [social dysfunction $r(28) = -0.08$, $p = 0.69$] and depression [$r(29) = -0.23$, $p = 0.22$].

use among young people and mental health. The findings revealed a significant positive correlation between daily Instagram use and the mental health levels of young users. Moreover, there was a significant positive correlation between young user's daily Instagram use and two subscales of the

Table 5. Correlation between Old User's Instagram use and Mental Health (N = 31)

Variables		Instagram
Mental Health	Pearson Correlation	-.202
	Sig. (2-tailed)	.284
	N	30
Somatic Symptoms	Pearson Correlation	.047
	Sig. (2-tailed)	.802
	N	31
Insomnia Anxiety	Pearson Correlation	-.234
	Sig. (2-tailed)	.205
	N	31
Social Dysfunction	Pearson Correlation	-.076
	Sig. (2-tailed)	.690
	N	30
Depression	Pearson Correlation	-.226
	Sig. (2-tailed)	.221
	N	31

** . Correlation is significant at the 0.01 level

Discussion

Previous studies on the effects of SNS on users' well-being mainly focused on young people. Therefore, to address these gaps, this study focused on the older generation. In addition, as far as we are aware, this is the first study among existing literature that focused on comparing younger and older women in terms of the relationship between daily Instagram use and mental health. We found "no significant difference" between the intensity of younger and older females' daily Instagram use during the COVID-19 pandemic. This conflicted with the results of previous studies which found a significant difference between younger and older people with respect to the intensity of Facebook use (Bosak & Park 2018; Chandiramani & Sharma, 2018).

The second question that this study aimed to explore was the relationship between daily Instagram

GHQ, i.e., insomnia anxiety and depression. Our study confirms the trend in literature publications which indicates a positive association between OSN use and well-being (Basilisco & Cha, 2015; Ellison et al., 2007; Gonzales & Hancock, 2011; Lee et al., 2011; Pittman & Reich, 2016; Valenzuela et al., 2009; Verduyn et al., 2017). Comparable to the current study, Trifiro (2018) found a positive relationship between the intensity of Instagram use and well-being. This contradicted the findings of a number of researchers (de Lenne et al., 2020; Farahani et al., 2011; Keresteš & Štulhofer, 2020; Krasnova et al., 2013; Kross et al., 2013; Labrague, 2014; Lin et al., 2016; Pantic et al., 2012; Sampasakanyinga & Lewis, 2015; Twenge et al., 2018). In addition, the findings of a study carried out by Ozgul Orsal et al. (2013) on university students showed that higher levels of Internet addiction were related

to higher levels of depression. Similarly, many research studies on young adults (Kuss & Griffiths, 2017; Labrague 2014; Murrieta et al. 2018; Wright et al. 2013) found a positive correlation between social media use and both depression and anxiety.

As far as we are aware, the present study, which examined the relationship between daily Instagram use and the mental health of older women during the COVID-19 quarantine period, is the first study of its kind among existing literature. We found no significant correlation between daily Instagram use and the mental health of older women during the COVID-19 quarantine period. This was not found by a number of researchers whose results suggested a link between SNS use and well-being among older populations (Chang, 2015; de Lenne, et al., 2020; Farahani et al., 2011; Labrague, 2014; Lin et al., 2016; Pantic et al., 2012; Sampasa-kanyinga & Lewis, 2015; Yu, 2016; Yu, 2018).

The findings advance an understanding of Instagram use among younger and older adults and highlight the correlation between Instagram use and mental health. The results can inform future technological interventions that are designed to help younger and older adults who may have better access to social benefits via SNS platforms, particularly in specific circumstances, such as those of the COVID-19 pandemic.

Conclusion

This study examined differences in the relationship between Instagram use and mental health among younger and older age groups, and revealed unique Instagram usage patterns among young adults. One possible explanation for this finding is that before the COVID-19 pandemic, young people were able to spend more time outdoors. However, throughout the COVID-19 pandemic, young people were more likely to use Instagram, which may have made them more anxious and depressed, especially if they viewed negative news about the 2019 novel coronavirus. Older people have acquired greater life

experience and they may have previous experience of a pandemic. Therefore, they are less affected by positive and negative news on Instagram and they are more mentally prepared than younger people. Another possibility is that the presence of young people in the home may have given older people a greater sense of contentment and entertainment, and this increase in interaction between young and older people may help older people and make them less likely to be influenced by Instagram and its news. However, the mental health of younger people may be adversely affected by the quarantine measures, and positive and negative news on Instagram has a greater impact on them.

Our study has several limitations that should be acknowledged. First, the present study involved a cross-sectional design and the directionality of the observed relationships is unclear, which precludes definitive conclusions regarding causality or developmental changes with age. Therefore, future longitudinal studies are needed to tease out the processes that may be responsible for the relationships identified in this study. Second, a potential limitation is that our study focused on the intensity of daily Instagram use, rather than on the quality of interactions. Thus, greater attention should be paid to other factors, such as active and passive use, which should be analyzed in more detail. Third, it should be noted that the current research only assessed Instagram use. As such, the findings should not be assumed to apply to other forms of SNS without specific investigation. Fourth, our sample was skewed as this study only included female participants. Therefore, caution should be exercised when generalizing the results to the overall population. Finally, future research should carry out qualitative studies, such as interviews with older people, to better describe how and why older adults differ from younger people in terms of the relationship between Instagram use and mental health status.

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