

Volume: 11

Issue: 02

Years: 2021

Original Article

Risk of Somatic Symptom Disorder in Social Media Users Exposed to Information COVID-19

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Editor: Js

Received: 09/06/21

Accepted: 04/07/21

Published: 9/07/21

Available Article:

10.33221/jiiki.v11i02.1215

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Conflict of interest statement: The author has no conflict of interest to declare

Funding: This study did not receive any grant from funding agencies.

Abstract

Introduction: At the end of December 2019, the world received bad news regarding a new outbreak that emerged due to a viral infection. The disease that arises due to this viral infection is named COVID 19 (Coronavirus Disease 19). The easiest access to news to get information about COVID19 is social media. Unwise use of social media can increase the risk of psychological disorders, one of which is somatic symptoms.

Objectives: The purpose of this study was to look at the risk of somatic symptoms in social media users who were exposed to information about COVID-19 during the pandemic.

Methods: The research method used a cross-sectional approach with an online survey method (391 respondents). The research tool used was a modification of the Somatic Symptom Inventory-24 item instrument and social media activity instruments.

Results: The results of the study found that 74.5% of respondents were at risk of experiencing somatic symptoms in the moderate to low category (score ≤ 48) for users with low social media activity and 25.5% of respondents on high activity. A statistical relationship was found between somatic symptoms and social media activity with a p-value of 0.000 which means ≤ 0.005 (chi-square). Social media users with high and low activity had the same risk of experiencing somatic symptoms (OR = 1,061).

Conclusion: The activities of accessing COVID-19 information through social media need to be limited to prevent the emergence of psychological disorders.

Keywords: COVID-19, somatic symptom disorder, social media

Introduction

Coronavirus is a type of virus that commonly attacks the respiratory systems of animals and humans. This type of virus was discovered decades ago in the body of an animal. Most of this Coronavirus (CoV) family settles in the bodies of bats and mice as natural hosts. In the early 21st century, this type of virus demonstrated its ability to mutate and successfully live in the human body. Transmission of the zoonic virus (animal to human) was first known to the world through an outbreak of SARS (Severe Acute Respiratory Syndrome) in 2003 based in Guangdong Province, China.¹ At the end of December 2019, the world received bad news related to a new outbreak that emerged due to a viral infection. The new virus was named Novel Coronavirus-2019 with the first location of spread was Wuhan City, in Hubei Province, China. The virus was later named SARS-CoV-2 by world taxonomists and inaugurated by the WHO. The naming is because the activity of this virus is more or less similar to its predecessor, SARS-CoV as the virus that causes SARS. Transmission of the zoonic virus (animal to human) was first known to the world through an outbreak of SARS (Severe Acute Respiratory Syndrome) in 2003 based in Guangdong Province, China.¹

At the end of December 2019, the world received bad news related to a new outbreak that emerged due to a viral infection. The new virus was named Novel Coronavirus-2019 with the first location of spread was Wuhan City, in Hubei Province, China. The virus was later named SARS-CoV-2 by world taxonomists and inaugurated by the WHO. The naming is because the activity of this virus is more or less similar to its predecessor, SARS-CoV as the virus that causes SARS. Penyakit yang muncul karena infeksi virus baru ini diberinama COVID 19 (*Coronavirus Disease 19*). As of the situation report issued by The Willometer (March 2021), 118,620,746 people were confirmed positive for COVID-19 with the highest 844,743 cases per day. While the deaths reached 2,631,249 cases.² Indonesia according to the data is at the figure of 1,398,578 cases with the addition of 14,158 cases highest per day. While the death toll touched 37,932 people.³

Information related to the pathogenesis of COVID-19 disease has not been recorded because it is still in the world research stage. Generally, researchers liken this disease to SARS disease. The most basic thing known in the search for the pathogenesis of COVID-19 is the concept of individual immunology that is positive sars-cov-2. Generally, the patient's condition can improve by itself if they have a strong immune system and can paralyze viral activity. A strong immune system is the main human key to defeating this virus. One of the factors that can decrease immune system function is psychological stress. The biggest threat if humans are infected with this virus is ARDS (Acute Respiratory Distress Syndrome). This condition can trigger the appearance of cytokines storm or also known as cytokine storm in the body's defense system. These cytokine storms can initiate viral sepsis that causes inflammation of the body's organs, especially the lungs. In addition, the condition is exacerbated by the appearance of respiratory system disorders, one of which is pneumonitis that can lead to death.³ This virus will enter the body and suppress the amount of interferon (IFN) that should be produced more during inflammation. A poor psychological condition will generally suppress the amount and activity of IFN in the body. Excessive stress and anxiety will worsen the state of the immune system. Patients who are positively infected should maintain a stable psychological condition for faster and more effective recovery.³

For healthy and uninfected groups of individuals, it is advisable to follow a government program to quarantine themselves at home. However, it turns out that this situation can also lead to the appearance of psychological problems. According to Samantha K Brook and Tim's research in their rapid review, there are many differences in psychological conditions between individuals who self-quarantine and those who do not self-quarantine at home. The most notable differences are stress levels, fatigue, depression, emotional disorders, insomnia, and psychosomatic. The psychic pressure that arises during the quarantine period generally comes from the duration of quarantine, fear of being infected, frustration and boredom, as well as getting too much invalid information intake. In addition to psychological pressure during the quarantine period, there is also post-quarantine psychic pressure that can worsen a person's psychological condition. The main thing is financial problems and stigma. Especially the stigma on medical personnel and COVID-19 positive patients who have recovered.⁴ In a literature review written by Wen Li and Tim in China, mentions that the COVID-19 outbreak has caused many psychological problems in some sub-populations, especially in the sub-population of health workers. Wen Li urged countries affected by the outbreak to prepare online service facilities to address the psychological problems of their people. This is expected to reduce the risk of post-outbreak psychological trauma, as happened in the after-outbreak of SARS 17 years ago.⁵

In the study conducted by Daniel Kwasi Ahorsu and Tim at the beginning of the COVID-19 pandemic in Iran with 717 respondents obtained online, there was a significant positive relationship between people's fear of information about COVID-19 with a risk of depression, anxiety fear of infection, and compulsive behavior that was too afraid of pathogens in the environment with P-value < 0.001.⁶ In another study, conducted by Xiao and Tim in China, they found the effects of sleep quality disorders on individuals during a 14-day restriction of social activity. Sleep disorders become one of the main triggering factors of the appearance of individual stress and anxiety during quarantine. Poor sleep can trigger the secretion of the hormone cortisol in amounts that exceed the normal threshold, thus triggering an increased risk of stress and anxiety. The study also showed high anxiety in quarantined individuals.⁷

In another study by Cuiyan and Tim, 75.2% of respondents were also found to be very anxious if their family was COVID-19 positive. Meanwhile, 53.8% of respondents experienced psychological problems arising from the impact of COVID-19 coverage. Reportedly 16.5% of them experienced depressive symptoms, 28.8% experienced moderate-level anxiety, and 8.1% had moderate stress

levels. This study also said that 93.5% of their respondents get information about COVID-19 through the internet and social media.⁸ The Internet and social media are two inseparable things. The average person taking social media in the world is 10 hours per day.⁹ Ariel Shansa and Tim's research in 2018 reported that 49.8% of the respondents they examined were about 550,000 respondents, spending 60 minutes per day on social media. While 50.1% spend more than 60 minutes per day accessing social media.¹⁰

Social media according to Berry and Tim's research (2018) can affect a person's emotions and mood. People who tend to spend a lot of time on social media have a higher risk of experiencing low mood and paranoid than those who use social media wisely and not excessively, Both of these things if not well controlled, will have an impact on serious mental disorders.¹¹ During the COVID-19 pandemic, quite a lot of Indonesians do not use social media wisely. This can be seen from the many hoax news and disinformation spread on social media. Negative news that cannot be accounted for can trigger the emergence of paranoid, psychological problems, and somatic symptoms that later trigger the emergence of psychosomatic disorders. This is because the mind has a very powerful effect affecting bodily functions. The physical symptoms that appear are generally manifestations of psychic changes. These changes can affect the work of the brain so that changes appear in the body in the form of sensations that affect the function of internal organs. Epidemiological studies in Germany show 18.6-27.7% of the population in their country experience psychosomatic. More than 50% of individuals experience digestive problems and need medical care. About 30-40% of them have problems with the nervous system, orthopedics, and other somatic symptoms that need to be taken seriously.¹²

Casper Roenberg categorizes somatic symptomatic forms into 3 main features; (1) somatic symptoms are pain that appears but is not specific, so it can not be confirmed medically, but the symptoms are very disruptive to bodily functions, (2) somatic symptoms generally interfere with the functioning of the body in the form of fibromyalgia syndrome and irritable bowel syndrome that greatly interfere with the productivity of the sufferer, and (3) somatic symptoms are generally triggered due to psychological pressure and are related to psychobehavioral of a person. This causes psychosomatic sufferers who experience somatic symptomatic syndrome to often check with various health specialists, but do not find medically specific answers.¹³

Psychological and emotional factors play an important role as factors associated with many physical diseases characterized by the presence of somatic symptoms. Emotional reactions such as anxiety to the disease can cause the body's condition to deteriorate. This is because negative emotions can affect the work of the hormonal system and decrease immune function in certain diseases. Somatic symptom disorder has a prevalence of 5-7% in the world's population with Asia as the continent that accounts for the most cases.¹⁴ This may be further heightened by the COVID-19 outbreak, which triggers anxiety and increases the stress of the world's population. Somatic symptoms are closely related to the regulation of emotions associated with the hormonal system, immune system, and pain management system in the body. The risk of somatic symptoms will increase in grumpy, anti-criticism, contentious individuals (especially on pro-cons topics), and who are easily provoked so often conflict both on social media and in the real world.¹⁵

This study was conducted to look at the risk of somatic symptoms in Indonesians who access social media during the COVID-19 pandemic. The unwise use of social media during the pandemic will certainly contribute to worsening the national situation and also increase the risk of psychological problems, one of which is somatic symptoms which are early symptoms of psychosomatic disorders.

Methods

This research uses a cross-sectional approach with an online survey method. The number of samples in this study was 409 respondents and used to analyze data as many as 391 respondents. With the criteria of respondents under the age of 17 years and over 65 years and Indonesian respondents domiciled outside Indonesia. The research tool used consists of two types of instruments; (1) modification of somatic symptom inventory-24 item¹⁶ instrument to measure the degree of somatic symptoms of respondents and (2) instruments of social media activity to measure the intensity of respondents using social media during the COVID-19 pandemic. This instrument has been conducted validity and reliability tests. The reason researchers chose this type of somatic symptom instrument is that it tends to be easier to use in society. Static analysis used is chi-square to see the relationship between the two variables. The study was conducted on April 14-20, 2020 by online survey method using a google form application that is shared with respondents on researchers' social media. The

research has passed the ethics test from the Ethics Commission of the Indonesian College of Health Sciences Maju.

Results

The study used 391 samples of respondents from 409 samples obtained over six days through an online survey method. A total of 18 samples were removed from the research data based on exclusion criteria in this research. Based on table 1 that showed socio-demographic characteristics in this study, the majority of respondents in the age range of 26-35 years (early adult) as many as 221 people (56.5%). For the late adolescent age range (17-25 years) as many as 92 people (23.4%) and late adulthood (36-45 years) of 60 people (15.3%). As for the category of early and late elderly age as many as 9 people each (2.3%). The majority of respondents were female (70.6%) with the number of respondents reached 276 people. The religion embraced by 94.6% of respondents was Islamic. Marital status dominated in socio-demographic data with 250 respondents (63.9%). As for the unmarried as many as 135 people (34.5%) and had been married as many as 6 people (1.5%). The respondent's last education generally belongs to the higher education category consisting of S1-S3 as many as 277 people (70.8%) and D1-D3 as many as 47 people (12%). As for the work, this study varies greatly. But the majority of respondents worked and earned a fixed wage. This is seen in the income data of respondents who are above the domicile UMR as many as 227 people (58.1%) and under the UMR of 28 people (7.2%). While the unconstiuncement remains as many as 136 people (34.8%).

Table 1. Respondent's Socio-demographic Characteristics

Socio-demographic characteristics	Number of Respondents (N) = 391 people		Somatic Symptoms Low ≤ Score 48		Somatic Symptoms High > Score 48		Social Media Activity Low score ≤ 8		Social Media Activity High score > 48	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Usia										
Late Teens (17-25 years old)	92	23.5	92	23.9	0	0	64	22.3	28	26.9
Early Adult (26-35 years old)	221	56.5	215	55.8	6	100	160	55.7	61	58.7
Late Adult (36-45 years old)	60	15.3	60	15.6	0	0	51	17.8	9	8.7
Early Senior (46-55 years old)	9	2.3	9	2.3	0	0	6	2.1	3	2.9
Late Elderly (56-65 years old)	9	2.3	9	2.3	0	0	6	2.1	3	2.9
Gender										
Male	115	29.4	113	29.4	2	33.3	88	30.7	27	26
Female	276	70.6	272	70.6	4	66.7	199	69.3	77	74
religion										
Islam	370	94.6	365	94.8	5	83.3	271	94.4	99	95.2
Christian	12	3.1	11	2.9	1	16.7	10	3.5	2	1.9
Catholic	6	1.5	6	1.6	0	0	3	1	3	2.9
Hindu	2	0.5	2	0.5	0	0	2	0.7	0	0
Buddhist	1	0.3	1	0.3	0	0	1	0.3	0	0
Domicile										
Javanese	284	72.6	278	72.2	6	100	202	70.4	82	78.8
Outside Java	107	27.4	107	27.8	0	0	85	29.6	22	21.2
Marital Status										
Single	135	34.5	135	35.1	0	0	94	32.8	41	39.4
Marriage	250	63.9	244	63.4	6	100	188	65.5	62	59.6
Married	6	1.5	6	1.6	0	0	5	1.7	1	1
Last Education										
Bachelor (S1-S3)	277	70.8	272	70.6	5	83.3	206	71.8	71	68.3

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Diploma (D1-D3)	47	12.0	47	12.2	0	0	35	12.2	12	11.5
High School	66	16.9	65	16.9	1	16.7	45	15.7	21	20.2
Junior School	1	0.3	1	0.3	0	0	1	0.3	0	0
Work										
Civil Servants	85	21.7	83	21.6	2	33	62	21.6	23	22.1
SOE Employees	17	4.3	16	4.2	1	16.7	15	5.2	2	1.9
Private Employees	82	21	82	21.3	0	0	58	20.2	24	23.1
Entrepreneurial	32	8.2	32	8.3	0	0	23	8	9	8.7
Housewife	74	18.9	71	18.4	3	50	56	19.5	18	17.3
Students	65	16.6	65	16.9	0	0	43	15	22	21.2
Honoror	5	1.3	5	1.3	0	0	4	1.4	1	1
Other	31	7.9	31	8.1	0	0	26	9.1	5	4.8
Income										
Above UMR Domicile	227	58.1	22	58.2	3	50	173	60.3	54	51.9
			4							
Under Domicile UMR	28	7.2	28	7.3	0	0	21	7.3	7	6.7
Not earning	136	34.8	13	34.5	3	50	93	32.4	43	41.3
			3							

Based on statistical tests conducted to see the relationship between variables, in table 2, statistically closely related variables are only variables of somatic symptoms and social media activity. Other variables such as age, gender, recent education, and income were not statistically related marked with a P-value of > 0.005. This study also found the risk of somatic symptoms with an odds ratio (OR) value of 1,061, which means the high social media activity group has the same risk of experiencing somatic symptoms as a low social media activity group.

Table 2. Relationship of Somatic Symptoms with Social Media Activity Exposed to Information About COVID-19, age, gender, last education, and respondent's income.

Research Variables	Moderate-Low Somatic Symptoms ≤ Score 48			Moderate-High Somatic Symptoms score > 48		
	N	%	P-value	N	%	P-value
Social Media Activity						
Low Score ≤ 8	287	74.5	0.00	0	0	0.000*
High Score >8	98	25.5	0*	6	100	
Respondent's Age						
Adult (26-45 years old)	275	93.9	1.00	6	100	1.000
Elderly (45-65 years old)	18	6.1	0	0	0	
Gender						
Male	113	29.4	1.00	2	33.3	1.000
Female	272	70.6	0	4	66.7	
Last Education						
Intermediate (junior-high)	66	17.1	1.00	1	16.7	1.000
Tinggi (D1-S3)	319	82.9	0	5	83.3	
Income						
Low (< Domicile UMR)	160	41.6	0.69	3	50	0.697
Medium (> Domicile UMR)	225	58.4	7	3	50	

* Statistically related if P-value ≤ 0.005

Discussion

Based on statistical tests conducted in this study, it is known that somatic symptoms are closely related to the activity of respondents on social media (P-value = 0.000). Group of respondents with high social media activity (25.5%) during the COVID-19 pandemic had the same risk of experiencing somatic symptoms as groups with low social media activity (74.5%). In contrast to what ariel shensa and the team presented in the journal entitled Social Media Use and Depression and Anxiety Symptoms, which examined 1730 respondents and got 49.9% of respondents low social media activity (< 60 minutes per day) and 50.1% of respondents high social media activity (> 60 minutes). The study concluded that social media users with high activity were 3x more at risk of depression and 4x more at risk of anxiety disorders.¹⁰

Social media can have a bad impact if it's not managed properly. In Berry and Tim's 2019 study, it was suggested that paranoid behavior can increase due to unwise social media use factors, especially about overtime usage time. This study suggests that social media users who have psychic and physical disorders should stay away from and distance social media activity for some time. This is to avoid negative things, debates, and even conflicts that can worsen a person's psychiatric condition.¹⁷

Social media is very closely related to one's self-esteem. In reviews written by Igor Pantic, generally, people who access social media excessively due to a great desire to create the life they expect so comes an artificial character that some of them exemplify a hyperpersonal model. This model encourages people to optimize themselves personally in cyberspace. This high desire is generally driven by jealousy with the lives of others, so to cover up their shortcomings, they often do activities on narcissistic social media. Self-esteem greatly affects a person's mental health. Feeling low self-esteem is often associated with the appearance of some symptoms of mental disorders and of course, this feeling can also decrease the quality of one's sleep.¹⁸

In this study, 74.5% of respondents had moderate to low somatic symptom scores with a score of ≤ 48 on low social media activity (score ≤ 8). Meanwhile, those who have a somatic symptom score are heading high (Score > 48) with high social media activity only 6 respondents. This indicates that social media activity is one of the factors that cause somatic symptoms to appear during the COVID-19 pandemic. Somatic symptoms generally appear beginning with the presence of uncontrolled anxiety behavior. During this pandemic, hoax news and disinformation are very free to fill people's social media, especially in Indonesia. Anxiety, panic, and paranoid are the psychological effects that arise from the news that mostly comes from social media. In a review written by Ravi Philip linking COVID-19 to mental health, out of 1210 respondents in Wang's China study obtained through an online survey, 28.8% of respondents experienced symptoms of moderate to severe anxiety. In addition, 16.5% of respondents experienced depressive symptoms and 8.1% of respondents experienced moderate to severe psychological stress.^{8,19} While in research conducted by Xiao and the team in China, they concluded that there is a statistically positive relationship between anxiety, psychic stress, and negative feelings with sleep disorders in respondents during the COVID-19 pandemic that certainly decreases the quality of life.^{7,19} Therefore, people affected by this pandemic should start to care about their mental health, and the government is also expected to provide services that can facilitate this phenomenon during the pandemic and post-pandemic.¹⁹

Psychological stress generally arises due to pressure, both from yourself, family, and social environment. One of the main impacts of psychic stress is the dysregulation of the immune system. The immune system that is disrupted due to psychic stress can lower the level of cytokines that become one of the small protein molecules controlling the immune system. Stress that affects the immune system can also lead to premature aging, it is due to excessive secretion of the hormone cortisol that makes the body resistant to these hormones. Uncontrollable amounts of hormones can cause other stress hormones to accumulate and can disrupt the immune system. In old age this hormone can not be managed properly, this is what causes the early and late elderly are more susceptible to psychological disorders. Stress is also strongly associated with lifestyle, psychosocial factors, relationships with spouses and families, as well as social interactions. People who tend to interact negatively in social environments, such as competitive souls and jealousy of other people's lives, are generally at greater risk of experiencing psychic stress. But in contrast, people who feel lonely are also at risk of experiencing psychic stress that pressure comes from within themselves.²⁰

In this study sociodemographic characteristics such as age, gender, recent education, and income (table 2), were not statistically related to somatic symptoms. Although the age of respondents was not related to somatic symptoms in this study, some studies have found that the elderly are more susceptible to somatic symptoms. This is because as you get older, the body's ability is physiologically reduced, and a little pressure will adversely affect the psychic. The study conducted by Habib Yaribergi and the team said that psychic stress that causes somatic symptoms can suppress the work of the immune system by decreasing the activity of T lymphocytes in the pathogenic. In addition, it also decreases the number of Natural Killer or NK cells circulating in human blood vessels as the vanguard of the immune system in humans.²¹ Gender is also not statistically related, this means that both men and women have the same chance of experiencing somatic symptoms during the COVID-19 pandemic. Last education and income also do not have a strong association with the risk of somatic symptoms. Generally, the social media user community has the same chance of experiencing a psychic disorder. This is because social media does not restrict its users to express and argue so that uncontrolled

behavior can be seen on social media. In a study conducted in India by Deblina Roy and the team, during the COVID-19 pandemic, 72% of respondents experienced anxiety disorders and chose to quarantine themselves at home. A total of 82% of respondents chose not to make physical social contact and 80% of respondents had intense discussions regarding the development of COVID-19 on social media.²²

The COVID-19 pandemic is a bad reality that we have to deal with together. Mental health is one of the survival factors that must be considered. Our bodies will generally adapt quickly to environments and situations, even the worst. The anxiety and panic that arise are natural. The immune system affected by psychic disorders will be able to adapt and return to its normal functioning influenced by several things. Robert Dantzer in his review said that good personal control will decrease the appearance of negative behavior in a person. It will also lower the risk of emotional disorders and perceptions. So it will feel more positive when the pressure arises from the environment. Poor personal control will trigger the emergence of negative behaviors that increase the risk of depression. This will certainly have an impact on the decrease in the activity of pro-inflammatory immune cells in the body. In addition to personal control, a positive mindset is a factor that can accelerate people to adapt to a stressful environment. A positive-minded person will help his body to manage pain and mood. They tend to be easily happy and it will accelerate improvements in their body, so it can improve immune system function. Social support also affects the sooner or later people adapt to the problem. People who tend to be conflict-prone are more at risk of infection than people who avoid conflict. The last thing Robert said in his review was optimism. The immune system will be well controlled if the psychic is trained to remain optimistic in all conditions.²³

Conclusion

In this pandemic period in addition to maintaining physical health, people are expected to also pay attention to their mental health. In this study, it was concluded that psychic disorders in the form of somatic symptoms can appear if the public does not limit the activity of accessing social media during the COVID-19 pandemic. The close relationship between these two variables is seen with a P-value = 0.000 which means statistically related.

Conflict of Interest Declaration

This study has no interest in any agency.

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