(REVIEW ARTICLE)

COVID-19 anxiety, COVID-19 media exposure, and knowledge and attitudes towards COVID-19: A literature review

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Abstract

The COVID-19 pandemic has had a significant impact on mental health, with anxiety being one of the most common symptoms. This study investigated the relationship between COVID-19-related anxiety levels, media coverage of COVID-19, and knowledge and behavior of COVID-19. The study found that COVID-19 anxiety levels were higher among people who had been quarantined, had been exposed to false information about COVID-19, or had a lower level of education. Media coverage of COVID-19 was also found to be a significant predictor of anxiety levels, with people who were more exposed to negative news stories being more likely to experience anxiety. Studies also found that COVID-19 anxiety levels were correlated with knowledge and behavior of COVID-19. People with higher anxiety levels were less likely to have accurate knowledge about COVID-19 and were more likely to engage in risky behaviors, such as not wearing a mask or social distancing. Findings of this study suggest that COVID-19 anxiety is a complex phenomenon that is influenced by a variety of factors, including media coverage, knowledge, and behavior. These findings have important implications for public health interventions aimed at reducing anxiety and promoting healthy behaviors during the COVID-19 pandemic.

Keywords: COVID-19 Anxiety; Knowledge; Attitude towards COVID-19; Media Exposure

1. Introduction

The Wuhan Municipal Health Commission in China reported additional instances of cluster pneumonia in Wuhan, Hubei Province, on December 31, 2019. In reaction to the report, WHO established a special team on January 1, 2020, and on January 4, 2020, they announced it on their social media. [1]. The novel pneumonia strain was later given the COVID-19 designation. or COVID-19, the 2019 coronavirus disease. The SARS-CoV-2 virus, which causes COVID-19, is a pathogenic virus that is highly contagious and has symptoms that are very similar to those of the common cold until they become asymptomatic [2, 3].

People have switched to online activities as a result of the subsequent epidemic [4]. For everyone, this is a significant change. Similar to a malignant attack, this epidemic causes people to experience long-standing mental health problems. When one moves to being entirely online, there is something lacking and different in addition to the change in "place" of activity. COVID-19 Anxiety is a phenomenon that develops as a result of these issues [5]. In a hospital in Ethiopia, this phenomenon was observed in 63% of the medical staff, with the highest distribution at low and moderate levels [6].

Additionally, it was shown that among the general population, those who underwent quarantine had anxiety scores that were 4-5 times higher than those who did not, with a corresponding rise in the severity of anxiety in the severe anxiety

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group, which was 14–15 times higher. Due to the COVID-19 symptoms' striking resemblance to normal cold symptoms [7], many people who are merely experiencing the cold's symptoms are often mistakenly concerned that they have COVID-19. Transmission between people, the virus' incredibly high rate of replication, shortcomings in disease management [8, 9], speculation about the virus' origins, sensationalized and exaggerated news and images [10], the potential for re-infection in survivors.

The public's awareness of a disease is crucial to its eventual eradication in the field of public health. The public relies on readily available information in times of health emergency, whether or whether it comes from official sources [11, 12]. The general people are under attack from a lot of false information during these unsettling times. More than 5000 hoax submissions referencing COVID-19 have been made to KOMINFO as of January 26th, 2022 [13]. In order to effectively inform the public and manage the pandemic scenario itself, it is crucial to delve deeper into the degree of public understanding and behavior [14, 15, 16].

This pandemic has appeared during a period of fast development for the digital world. The recommendation to decrease offline activity has compelled practically all activities, including public education, to be conducted online. Information about COVID-19 is also widely available online, particularly on social media. Given how significant this issue is, many parties are now beginning to recognize that it presents a fantastic chance to serve as a platform for education. According to the World Health Organization [17], health education is a learning opportunity that includes a form of communication and is intended to increase health literacy, as well as knowledge and skill development that is beneficial to both individual and public health. Social media education for COVID-19 has also exploded.

Journalism operates under the axiom that bad news is good news. Regardless of who is to blame for this paradigm, it makes sense that this would occur because people have a propensity for negativity bias [18]. The level of education is one factor that affects anxiety levels related to COVID-19 [19], and at the same time, the quantity and variety of hoaxes are growing [20], making people more susceptible to their damaging effects [21]. The COVID-19-related anxiety traits, which are closely correlated with the knowledge and behavior of COVID-19, as well as the consumption of COVID-19-related information, may have an impact on all three of these factors. Massive lifestyle adjustments have been required as a result of the COVID-19 epidemic, and the well-being and prosperity of people from practically all walks of life are continuously in danger. In order to increase the success of combating the COVID-19 pandemic, the media, as part of quality education, and public anxiety levels play a significant role in the process of teaching the public. This association could have a significant impact on how the COVID-19 epidemic is handled. Therefore, the purpose of this study is to determine the relationship between COVID-19-related anxiety levels, media coverage of COVID-19, and knowledge and behavior of COVID-19.

2. COVID-19 Pandemic

2.1. Coronavirus Disease 2019

The Severe Acute Respiratory Syndrome Coronavirus 2 or SARS-CoV-2 virus is the cause of Coronavirus Disease 2019, also known as COVID-19, which is a highly contagious illness and pathogenic viral infection [7]. Since COVID-19 symptoms, such as fever, coughing, and shortness of breath, are so similar to those of the common cold, it is much more difficult to tell the difference between the two without utilizing specific clinical testing. Additionally, some patients' symptoms may not even be present [3]. When someone coughs, sneezes, or talks, passing droplets are released that enter the respiratory system of another healthy individual and spread COVID-19 [22]. It has been demonstrated that masks reduce the spread of COVID-19 [3]. WHO recommends wearing masks and keeping a physical distance from others, as well as avoiding crowds [1].

2.2. COVID-19 Pandemic

The Wuhan Municipal Health Commission in China reported additional instances of cluster pneumonia in Wuhan, Hubei Province, on December 31, 2019. In reaction to the report, WHO established a special team on January 1, 2020, and on January 4, 2020, they announced it on their social media. [17]. The condition known as Coronavirus condition 2019 or COVID-19 was caused by the SARS-Cov-2 virus, which was later identified as the source of this cluster of pneumonia cases. Although the slope of the number of daily cases in China at the start of the pandemic was quite steep, China eventually succeeded in creating a flat graph at a very modest number continuously from April 2020 to June 2021 [23].

The virus has persisted elsewhere as well. The first COVID-19 case discovered outside of China was discovered in Thailand on January 14, 2020 [1]. Indonesia is not an exception to the global spread of the COVID-19 epidemic since that time. On March 2, 2020, the first instance in Indonesia was reported [24]. Since then, the number of cases in

Indonesia has increased. The first wave's apex occurred in the middle of March 2021. The second wave eventually materialized in June, with the number of daily new cases more than tripling that of the previous wave's peak [25]. After that, cases suffered a dramatic drop until the end of May.

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3. COVID-19 related Anxiety

3.1. Anxiety Disorder

According to the APA [26], anxiety is a feeling characterized by emotions of uneasiness and anxious thoughts. A typical human feeling is anxiety. This feeling can be classified as one of a number of common disorders, but it can also be classified as a disorder if it has disturbed the nature of the person experiencing it or has caused them pain [27]. People who suffer from anxiety disorders or anxiety are frequently greatly distracted by their worries and thoughts. They occasionally could avoid particular circumstances out of worry. In addition to psychological symptoms, patients may also have physical symptoms such cold chills, shaking, disorientation, or a very rapid heartbeat [26].

It is thought that psychological stress and neurobiological changes play a role in the transition of a person's anxious feelings from "normal" to an anxiety disorder, or anxiety. Many theories contend that the biochemical changes associated with different types of anxiety disorders have deep inherited foundations. Hereditary influences range from a modest to strong influence in various illnesses. The risk that a person will develop anxiety throughout the course of their lifetime is larger than the likelihood that it will be inherited genetically, however anxiety is not solely driven by hereditary factors [27].

3.2. COVID-19 Anxiety

Transmission between humans, the extremely high replication rate of the virus, failures in disease management, rumors about the origin of the virus, sensationalized and overhyped news and images, and the possibility of re-infection [10, 28] are all factors contributing to the current worldwide panic. Furthermore, COVID-19 symptoms, such as fever, coughing, and shortness of breath, closely resemble those of the common cold, making it much more challenging to distinguish between the two without the aid of certain clinical tests. Due of this, a lot of people who merely have the common cold's symptoms are now worried that they might actually have COVID-19. Anxiety, dread, and distress can all be brought on by the COVID-19 pandemic. Furthermore, a pandemic's harmful effects extend beyond physical health; they also negatively affect the social and economic spheres, which raises anxiety and stress levels [10, 28].

3.3. COVID-19 Anxiety Characteristics

There are various indicators that someone is having COVID-19-related anxiety, according to Lee's COVID-19-related anxiety scale [4]:

- Reading about the coronavirus makes one feel lightheaded and as like they are going to pass out.
- Thinking about the coronavirus and having problems falling asleep
- Upon contemplating or being exposed to knowledge regarding the coronavirus, feeling overwhelmed or speechless
- Appetite loss after contemplating or being exposed to information about the coronavirus; feeling queasy or sick to your stomach whenever you consider the coronavirus or are exposed to information about it.

3.4. Prevalence

Sherman A. Lee published his research on the COVID-19-related anxiety scale [4], or CAS, in April 2020, just before the pandemic started. Following its publication, further studies utilizing the scale started to appear. In a hospital in Ethiopia, Kibret et al.'s [6] study on COVID-19-related anxiety in healthcare professionals found that 63% of the participants had positive COVID-19-related anxiety symptoms. 11.1% of these subjects reported having severe anxiety, 25.2% moderate anxiety, and 25.6% light anxiety.

Few researchs have looked specifically at COVID-19-related anxiety in the general public, but others have looked at community worry in general about the COVID-19 pandemic. Zhao et al. [29] observed that those who were under quarantine had an anxiety score that was 4-5 times greater than people who were not under quarantine at the start of the COVID-19 epidemic in China. In isolated communities, there is a tendency for the incidence of moderate to severe anxiety to be 3–4 times higher for the moderate anxiety group and 14–15 times higher for the severe anxiety group.

3.5. Contributing Factors

The study by Meesala et al. [19] was one of the first studies to attempt to report cases of COVID-19-related anxiety in the general population. The study took place in Andhra Pradesh, India. While not categorizing the severity, Meesala reported several things that could potentially influence the severity, such as education level, tobacco and/or alcohol use, and the presence or absence of infected people in the neighborhood. The research done by Zhong et al. [9] also revealed a number of things that made her anemia worse, including being a frontline health worker, being self-employed, living close to wild animals, having a chronic illness, being suspected of having COVID-19, engaging in regular physical activity, having a history of patient contact, or having recently met someone who had recently returned from Hubei province, China.

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4. Knowledge and Attitude towards COVID-19

4.1. Knowledge and Attitude towards COVID-19 Urgency

The public's awareness of a disease is crucial to its eventual eradication in the field of public health. The public relies on readily available information in times of health emergency, whether or not it comes from official sources [11, 12]. The general people are under attack from a lot of false information during these unsettling times. More than 5000 hoaxes submissions referencing COVID-19 have been made to KOMINFO as of January 26th, 2022 [13]. Hoaxes are exceedingly hard to differentiate from real information since they contain so many compelling features, leaving the general public even more at risk [30]. Therefore, the level of knowledge and behavior in the community is vital to be explored more deeply in efforts to educate and handle the pandemic situation itself [14, 15, 16].

4.2. The Level of Knowledge and Attitude towards COVID-19 and Its Contributing Factors

Based on previous studies, the quality of behavior related to COVID-19 rises in line with the level of knowledge related to COVID-19. The results of these studies provide relatively similar conclusions, namely a fairly high level of public knowledge and behavior related to COVID-19. However, differences in respondents also provide quite diverse findings. Factors that have a significant effect on the final score are age, gender, education level, and income level where older respondents, women, higher education levels, and higher incomes tend to have better knowledge levels [31]. These results are also supported by similar studies which state that age, education level, background, and nationality are significant factors in studies in Egypt and Nigeria [8]; gender, age, education level, income per year, information sources used, and political preferences in America [32]; and gender, age, and work background in Indonesia [33].

Of the many data on knowledge and behavior in the general public, there are some vital circles, including health workers. In the field, a doctor's ability to treat patients is largely determined by the doctor's knowledge of the disease. In the majority of existing studies, health workers showed a good level of knowledge and behavior [34]. These results are also supported by similar studies that reported the prevalence of health worker respondents with good knowledge of 73.8% and 65.7% for positive behavior in Ethiopia, citing education level and country conditions as some of the influencing factors [35]; excellent knowledge and behavior with work background as an influencing factor in a hospital in Vietnam [36]; and 75% of respondents were moderately knowledgeable and 84.2% were well behaved in Southern Ethiopia with health facility type, education level, training on COVID- 19, work experience, type of information source being significant factors in respondents' scores [37].

4.3. Community Compliance with Health Protocols related to COVID-19

As an effort to handle COVID-19, the government created a COVID-19 Handling Task Force. One of the routine reports made by the COVID-19 Task Force is data collection on the level of community compliance in implementing health protocols. During the pandemic, public compliance with health protocols has not always improved. Reporting from news released by CNN [24] in December, BNPB said that the public health protocol compliance score began to decline since last November.

In the '34 Provinces Health Protocol Compliance Monitoring' conducted monthly by the Indonesian COVID-19 Task Force, there are two main points assessed, namely: (1) Compliance with wearing masks; (2) Compliance with maintaining distance and avoiding crowds. Based on monitoring reports [38, 39, 40, 41] around the peak of the second wave, last July, the percentage of compliance in wearing masks was at 91.01% and 88.91% for the percentage of compliance in maintaining distance and avoiding crowds. Over the past three months, these figures have increased and decreased. The percentage of compliance wearing masks in November touched 92.9%, 91.49% in December, and 92.2% in January. Meanwhile, the percentage of compliance with maintaining distance and avoiding crowds touched 91.48%,

90.06% in December, and 90.75%. These data show a fairly good score overall, but there are several other facts that contradict the data.

Health Protocol Monitoring Reporting is carried out in several level systems, namely at the city/district, sub-district, and village levels. This reporting is carried out by various elements of the COVID-19 Task Force spread throughout Indonesia. Until January 2022, the coverage of Health Protocol Monitoring Reporting continued to decline. Some provinces did not even report at all in some months. East Java is one of the provinces that has a fairly high coverage compared to other provinces. However, the coverage rate continues to fall, from 49.89% in July 2021 to 24.01% in January 2022. Both the trend of compliance in wearing masks and compliance in maintaining distance and avoiding crowds in East Java Province can be said to be quite stable in recent months. The change in trend is not very significant, but the upper and lower bounds of the values experience significant ups and downs. In the mask-wearing compliance level, the lower limit gradually dropped from 78.8 to 37, and the compliance level for keeping distance and avoiding crowds also dropped from 71 to 0.

All of this data illustrates how while the total number of monitoring reports tends to be stable, the technical aspects of the monitoring are declining in quality. The upper range of East Java's compliance rate does not have a significant decline, but the lower range that continues to fall shows that the community is starting to slacken in the health protocol journey.

5. Media Exposure related to COVID-19

There is a paradigm in journalism: bad news is good news. This paradigm is about how the presentation of bad news, containing negative elements, is a good thing for readers. Regardless of who is guilty of this paradigm, it is quite logical to happen because humans have a tendency towards negativity bias [18]. Negativity bias is the reason why humans tend to see things from the negative side first rather than the positive side, such as making negative judgments that are very critical even though there is very limited information available [42].

The media, as a source of public information, has a crucial role in efforts to deal with this pandemic situation [43]. Setiawan et al. [44] reported in their journal comparing two major news sites in Indonesia that negative news is much more presented than positive news. As can be seen in Figure 2.6, in the first two months since the first COVID-19 case was announced in Indonesia, there was an increase in the number of news in two major Indonesian news media, detik.com and kompas.com, regarding news that was quite linear with the increasing number of reported cases. On an international scale, hoaxes are also increasingly targeting topics around COVID-19, as evidenced by the finding that hoaxes with topics about COVID-19 drugs, vaccines and diseases occupied the first place with a percentage of 64.58% in another study [45].

Liu and Liu [45] proved that it's not just about bad pandemic conditions. In their study, it was stated that the media does have a real impact on people's mental health in general. In order, commercial media plays a strong role in traumatizing people, followed by international media, social media, and official media. People living outside Hubei province, where COVID-19 cases were first discovered, and in areas with severe pandemic conditions, are more severely traumatized than people living in Hubei province and experiencing the trauma directly without the role of the media. When people do not understand what is happening around them, they rely heavily on media information and expert recommendations to better understand their environment [46]. With the effects of greater media dependency, both positive and negative sides of the media will develop [21].

6. COVID-19 Education and the Digital World

Along with the development of technology, online health information media is increasingly mushrooming. Not only information media, but also health facilities in the form of applications are increasing in number in Indonesia. The demands of circumstances that make people reluctant to leave the house make this phenomenon even greater. The association of modern life with technology, coupled with the existence of these facilities and infrastructure, makes people tend to seek information through the internet. Based on a study conducted earlier, many people have used the internet as a source of searching for health information. But it doesn't stop there, there is also suspicion about the internet replacing the role of medical professionals. Unfortunately, even though the internet has become a very reliable source for people, the information is not necessarily accurate and its credibility is still questionable [20].

In times that are quite uncertain and have massive effects on society, the media plays a major role in educating the public [20]. Specialized health information sections on news pages have turned into an important need for the public.

This is a challenge for journalism. Studies have shown how some journalists have successfully contributed to educating readers, while others have consistently promoted public opinion scenarios rather than appropriate education [20]. In a study of hoax-checking tools in Spain, it was found that both the amount and substance of disinformation, or hoaxes, are growing. The study found that the number of hoaxes increased by 86.9% during the second wave of the pandemic compared to the first wave. Qualitatively, hoaxes are also increasingly targeting information that people need such as how to prevent and cure COVID-19 [20].

7. **Further Impact**

Reflecting on previous outbreaks, anxiety in a pandemic like this is common [8, 47, 48, 49, 50, 51, 52, 53]. Anxiety often arises as a self-defense system against new, unfamiliar things or situations that are perceived to be a potential danger [53]. However, when overdone, this can be a bad thing [52].

While there are many studies on the link between mental health and COVID-19, there is very little research on the impact of anxiety related to COVID-19 itself. Some studies have suggested further impacts on mental health ranging from reduced performance in learning [54], psychoactive substance abuse and depressive symptoms [28], negative effects of trauma [28], to suicidal thoughts [7].

Current research tends to focus on the negative effects of pandemics and outbreaks. Psychological strengths arising from outbreaks tend to be less considered. When humans experience psychological stress, humans will bring up an ability to overcome it (coping-strategies). This ability is divided into two, adaptive and maladaptive. Some adaptive coping-strategies that have been reported related to this outbreak are spending more time with family, seeing the outbreak from a positive side, taking strict preventive measures, and avoiding traveling to public areas to reduce the possibility of infection. Maladaptive coping strategies have also been reported, such as avoiding news about COVID-19 fatalities. Existing studies show that while they are related, both general anxiety and COVID-19-related anxiety have a weak causal relationship with adaptive coping-mechanisms. In other words, when someone experiences COVID-19-related anxiety, they are less likely to cope with the stress. Through this mechanism, COVID-19-related anxiety can affect a person's general health for the worse [53].

8. Conclusion

Theoretically, this work adds to our understanding of the subject. In terms of practice, a few points need to be made clear. The findings of this study demonstrate that during the epidemic, anxiety causes people to avoid social contact. If this is a sensible risk management strategy or a bad coping technique, more investigation is required. In order to improve crisis management, additional study must concentrate on reducing anxiety during pandemic and epidemic situations. The effects of COVID-19 knowledge on anxiety, fear of infection, and attitudes toward diseased people were shown to be considerable. However, this does not necessarily imply that using social media is a negative idea. It is important to keep in mind that social media will continue to play a part in health promotion. To determine whether social media can be used effectively as a tool for health promotion, more research is required. On how to communicate factual facts in an infectious disease emergency situation while avoiding biased information. To help people respond to information critically and appropriately, efforts to develop media literacy skills must also be promoted.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest.

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