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Understanding Illness Anxiety in the Post-COVID Period: Insights from State and Trait Anxiety

Abstract

COVID-19 has been affecting the globe since the very start, and apart from the threat to individuals' physical health, it has also profoundly affected their psychological health. The objectives of the study were to measure illness anxiety amongst healthy people after the COVID-19 pandemic and to examine the association between state anxiety, trait anxiety, and perceived illness anxiety. The Short Health Illness Anxiety Inventory and the State-Trait Anxiety Inventory for Adults were used to collect the data. Data was collected from 294 participants by using Google Forms. The data were analyzed using descriptive statistics, independent-samples t-test, and hierarchical regression analyses. Regression analysis showed that state anxiety was a significant predictor of illness anxiety, but trait anxiety did not significantly predict illness anxiety. The study found that COVID-19 has, directly and indirectly, been a source of anxiety among people in Pakistan. Moreover, the severity observed varied across people with different demographic factors.

***Keywords*:** Coronavirus, state anxiety, trait anxiety, health anxiety

INTRODUCTION

Pandemics have been spreading across the globe for a very long time. The first pandemic ever recorded in human history was the Athenian Plague in 430 BC (Biello, 2006). This pandemic occurred more than 2,000 years ago, and the Earth has witnessed several plagues, such as the Spanish Flu (1918-1920), Swine Flu (2009-2010), HIV/AIDS (1981 – Present), and many others. The world witnessed the emergence of a unique and distinct virus from Wuhan, in the Chinese province of Hubei (WHO, 2020). Researchers and virologists examined the strain of this virus and found it bears a stark 75-80% resemblance to a virus discovered earlier in the last decade, namely SARS Coronavirus (Perlman, 2020). Although the first human coronavirus was observed in 1960 (Tyrell & Byrone, 1965), Coronavirus has caused epidemics only three times in the last two decades. The first case of COVID-19 was reported in China in December 2019, hence its name. Later, the name for this virus was changed to SARS-CoV-2 due to its stark genetic resemblance to the SARS Coronavirus reported in 2002-2003 (Pearlman, 2020). Researchers and virologists have suggested that this

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virus may have been transmitted from a 2020). The transmission is thought to occur through the respiratory tract and was found in every initial case of each type of Coronavirus that humans have been in contact with. SARS was thought to be linked with bats (Al-Osail & Al-Wazzah, 2017), MERS was linked with camels (Al-Osail & Al-Wazzah, 2017), and COVID-19 was thought to have been linked with bats (Cohen, 2020). The earlier cases of Coronavirus, SARS, and MERS were considered epidemics, and the WHO declared a state of emergency for them (Al-Osail & Al-Wazzah, 2017). However, the impacts of the COVID-19 pandemic are considered the worst. Compared with COVID-19 and its predecessors, it is more contagious. WHO declared a public health emergency on 31st January 2020 (BBC, 2020). According to the WHO's June 30th, 2020, situation report, the total number of COVID-19 cases worldwide exceeds 10 million, including more than 200,000 in Pakistan. The resulting fatalities have crossed 500,000 globally and 4000 in Pakistan. With no vaccine present and only a slight chance of developing it in the immediate future, the human population has experienced a setback and trauma globally.

The impacts of COVID-19 are not restricted only to the health of the masses globally but also affect the socioeconomic segments of societies (Evans, 2020). Pandemics usually create severe to extreme economic gaps for the countries and their masses. The world estimated a loss of 40 billion dollars when SARS emerged (Evans, 2020). Similarly, global GDP is expected to decline by nearly 0.42% in the first quarter of 2020 (Evans, 2020). Developing countries worldwide are more prone to suffering from the pandemic. One such example is that developing countries have fewer diagnostic resources and fail to monitor the exact number of patients in their countries; delayed diagnosis leads to a more intensive course of treatment and the possibility of transmission to others (Li et al., 2020). The transmission of disease across the population is probably the most significant factor to be addressed. Many strategies are developed to contain the spread of the disease, for example, social distancing strategies (Taylor, 2019). In the case of COVID-19, virus transmission is similar to that of other flu-related viruses. The transfer is likely to occur when a normal, healthy human comes into contact with an infected human, either directly or indirectly. However, some people are more likely to spread the disease than other infected individuals only because they do not adhere to the necessary precautions (Galvani & May, 2005).

Illnesses and diseases become pandemics when people lack pre-existing immunity to them (Taylor, 2019). Pandemics cause severe socioeconomic and psychological disruption, along with the prevalent threat to health. Pandemics are associated with a lot of other stressors apart from the apparent threat to health. There is a severe disruption of daily routine, shortages of food and medications, separation from family and friends, loss of wages, etc. (Shultz, Espinel, Flynn, Hoffman & Cohen, 2008). Business ventures experience severe losses; people may develop a significant fear for their safety, families, or jobs. Psychological factors cannot be ignored in this regard, also. During a pandemic, people may develop maladaptive defence mechanisms (Taylor, 2019). The psychological impact of any pandemic is likely to be greater than its medical impact (Shultz et al., 2008). During the 2014-15 Ebola outbreak in West Africa, it was observed that the fear of the disease was more prevalent than the disease itself

(Desclaux, Diop & Doyon, 2017). The fear of Ebola arose in the United States even though it was limited to Africa only (Parmet & Sinha, 2017). In the case of the Coronavirus, during the SARS outbreak, the psychological impact was greater than the medical impact (Cheng, 2004). For some patients who had recovered from SARS, the psychological effects remained persistent even after a long time (Taylor, 2019). People's reactions to specific stimuli, such as a pandemic, are highly diverse (Honingsbaum, 2009). People may react or engage in activities that may include denying the risks and/or taking the necessary precautions (Taylor, 2019).

In contrast, some people are likely to react with an extreme level of anxiety. Taylor (2019) further suggested that a moderate anxiety level can help people act rationally. Whereas extreme fear may be devastating, for example, people may flood the hospitals when a disease outbreak is only a rumour. This, in turn, may incapacitate a nation's health sector. Furthermore, people may resort to extreme measures to remove the perceived source of contamination from themselves (Taylor, 2019). During the SARS epidemic in China, it was reported that people, out of the fear that pets may carry the SARS coronavirus, abandoned and/or killed their dogs and cats either by euthanizing or brutally killing them (Epstein, 2003). Mood disorders, anxiety disorders, and PTSD may be elicited in people due to the pandemic-related stressors (Shultz et al., 2015). People developed extreme distress due to the SARS Coronavirus because it was a novel infection for which no prior information was available, and there was an apparent fear of spreading and transmission to others (Maunder et al., 2006). Taylor (2019) suggested that these are the reasons the next pandemic may have long-term psychological impacts, as seen with COVID-19.

The anxious reaction of people towards a disease or a pandemic may be linked with the possibility or likelihood of an individual experiencing anxiety, i.e., Trait or Trait Anxiety. Spielberg (1979) suggested that people scoring high on the trait anxiety tend to experience the world as ever-threatening. Like trait anxiety, another psychological factor associated with the impact of a pandemic is “health anxiety”. Taylor (2019) points out that health anxiety can be spread across the spectrum from mild to severe, and it can either be a state or a trait. People who score high on health anxiety are most likely to overestimate the occurrence of a disease (Berman, 2010). It was also found that people with severe health anxiety are likely to suffer functional impairment (Bobevski, Clarke & Meadows, 2016). Severe levels of health anxiety may make people prone to anxiety even when the outbreak is restricted to a specific region of the world. Such people may misconstrue bodily reactions to stress (e.g., sweating, fatigue) as symptoms of an infection (Taylor, 2019).

As soon as the COVID-19 outbreak began in China, panic spread worldwide. People bought and hoarded everyday-use items that lasted for months, and, obviously, the items became scarce. Pakistan faced a shortage of facial masks, hand sanitizers, and other hygiene products. In the post-COVID era, a significant factor regarding psychological health is illness anxiety. Those individuals who were more anxious during that period about their health experienced anxiety more than less anxious people (Spielberger, 2010). During COVID-19, continuous exposure to health-related information, fear of infection, and uncertainty about the virus intensified state anxiety worldwide (Sampogna et al., 2022). Although the pandemic

environment eventually stabilized, many individuals retained heightened bodily vigilance, catastrophizing tendencies, and persistent fear of disease, which are the core indicators of illness anxiety disorder. During and particularly after COVID-19, the emerging research shows that individuals with high levels of trait anxiety were disproportionately impacted during and after COVID-19. Those who have elevated trait anxiety tend to misinterpret their typical bodily symptoms as signs of danger, etc (Taylor & Asmundson, 2020). This paper gathers information to understand the natural and environmental causes for the anxiety trends observed in Pakistan and the prediction of health anxiety in general.

Rationale

Coronavirus has caused epidemics in the human population three times in the past two decades. In such circumstances, people become more careful than they were under normal conditions. In Pakistan, a disease has never shut down everyday life functioning nationwide. Pakistan witnessed a significant decline in its economic growth. The lens of anxiety, either a state or a trait, automatically helps people to understand the psychological vulnerabilities that the pandemic can cause. The COVID-19 era should be recognized as a global health crisis. It is imperative to study why some people returned to everyday life after facing illness anxiety, while others remained hypervigilant, anxious, and fearful regarding new illnesses.

Objectives of the Study

Objectives of the present study are to study:

- The association between state anxiety, trait anxiety, and perceived illness anxiety in people.
- The predictability of perceived illness anxiety with reference to demographic variables or anxiety variables
- To explore how demographic differences in perceived illness anxiety, state, and trait anxiety among people after the pandemic.

RESEARCH METHODOLOGY

It is a descriptive study that employs a quantitative research approach.

Participants

The objectives of the present study were to measure illness anxiety amongst healthy people after the COVID-19 pandemic and to examine the association between state anxiety, trait anxiety, and perceived illness anxiety. For the study, 380 respondents were approached via e-mail for data collection, of which 294 responded to the online survey. The overall response rate was 77.37%. So, the study's final sample included 294 individuals who experienced this pandemic but did not suffer directly (male: 128, female: 166). The participants' age ranged from 17 to 57 years (M=27.86, SD=7.60). Among 294 participants, 173 were married, and 121 were single. Detailed demographic characteristics of the participants are presented in Table 1 below.

Table 1

Descriptive Statistics of Demographic Characteristics of Study Sample (N=294).

Characteristics	*f* (%)	*M*	*SD*
Gender			
Male	128 (43.53)		
Female	166 (56.42)		
Age		27.86	7.60
Marital Status			
Unmarried	121(41.15)		
Married	173(58.84)		
Staying in Quarantine			
Yes	199(67.68)		
No	95(32.31)		

Note. f = Frequency, M = Mean, SD = Standard deviation, % = Percentage

Instruments & Procedure

In the present study, two measures were used for data collection. The Short Health Illness Anxiety Inventory (Salkovskis et al., 2002) measured health anxiety from mild concerns to hypochondriasis. It is a self-reported measure differentiating people suffering from health anxiety from those who have actual physical illness but are not excessively concerned about their health. It comprises 18 items, each consisting of a group of four statements. Participants were asked to read each group of statements carefully and then select the one that best describes their feelings over the past six months. Cronbach's Alpha of the scale was .82. The State-Trait Anxiety Inventory for Adults (Spielberger et al, 1983) was used to measure trait and state anxiety. It consists of 40 items, of which 20 assess state anxiety and 20 assess trait anxiety. Respondents responded on a 4-point Likert scale (i.e., Not at all = all=1, Somewhat, Moderately, so=3, Very much so=4). Cronbach's Alpha of the State Anxiety Scale was .91, and the Trait Anxiety Scale was .88. Descriptive and inferential statistics were used to analyze the data.

Ethical Consideration

Informed consent was obtained from the students before administering the scales. It was ensured that the data would only be used for academic research. The confidentiality of the information was ensured.

Hypotheses of the Study

- There is likely a significant relationship between state anxiety, trait anxiety, and perceived illness anxiety in people after COVID-19.
- Perceived illness anxiety is likely predicted by state and trait anxiety in people after COVID-19.
- Males and females would differ in terms of state anxiety, trait anxiety, and perceived illness anxiety.
- There would likely be demographic differences in study variables.

RESULT & DISCUSSION

Table 4.1

Descriptive Statistics and Psychometric Properties of Study Variables (N=294)

				Range		
Variables	*k*	*M*	*SD*	Potential	Actual	*α*
Illness Anxiety	18	14.25	7.45	0-54	0-39	.82
State Anxiety	20	43.51	11.24	20-80	20-79	.91
Trait Anxiety	20	44.18	9.73	20-80	20-79	.88

Note. k= Number of Items, M= Mean, SD= Standard Deviation.

Table 4.1 presents the mean and standard deviation for the current research variables. It also shows internal consistency for all scales used in this research (Cronbach's Alpha). The findings showed that all scales used in this research are internally consistent.

Table 4.2

Pearson Product-Moment Correlation among Demographics and Study Variables (N=294)

		1	2	3	4	5	6	7
1	Age	-	-.29***	-.62***	.25***	-.21***	-.24***	-.08
2	Gender		-	.20**	-.29***	.19**	.16**	.13*
3	Marital Status			-	-.17**	.13*	.20**	.12*
4	Stay in Quarantine				-	-.08	-.05	.01
5	State Anxiety					-	.75***	.47***
6	Trait Anxiety						-	.44***
7	Illness Anxiety							-

*Note. *p < .05, **p< .01, *** p<.001, Gender (Male=1, Female=2), Marital Status (Unmarried=1, married =2), Are you in Quarantine (Yes=1, No=2).*

Table 4.2 shows the results of the Pearson product-moment correlation analysis used to investigate the connection between demographics and study alternatives. The results presented that age has a significant negative relationship with state and trait anxiety, indicating that older people have less state and trait anxiety than young people. At the same time, gender has a significant positive relationship with state, trait, and illness anxiety, which indicates that females have more anxiety than males. Furthermore, marital status has a significant positive relationship with state, trait, and illness anxiety, indicating that married people have more anxiety than unmarried people. On the other hand, those in quarantine have no significant relationship with any of the study variables. In addition, state and trait anxiety have a significant positive relationship with illness anxiety, indicating that those suffering from either state or trait anxiety may have high scores on illness anxiety.

Table 4.3

Hierarchical Regression Analysis Predicting Illness Anxiety from State and Trait Anxiety (N=294)

	Illness Anxiety	
Variables	ΔR^2	B
Step 1	.03	
Age		.01
Gender		.13**
Marital Status		.10
Staying in Quarantine		.07
Step 2	.22***	
State Anxiety		.34***
Trait Anxiety		.18
Total R^2	.25	

*Note: *p<.05; **p<.01; ***p<.001; β = Standardized Co efficient; ΔR2= R Square change; R2= R Squar*

In Table 4.3, Multiple Hierarchical Regression analysis was performed to estimate the extent to which Demographics, state, and trait anxiety predicted illness anxiety in people during COVID-19. The result showed that step 1 explained a 4% variance in illness anxiety, F (4, 288) =2.30, p<.05. In step 1, only gender significantly predicted illness anxiety. On the other hand, Step 2 explained 21% the variance in illness anxiety, F (6, 286) = 16.47, p<.001, which indicated that only state anxiety was a significant predictor of illness anxiety, but trait anxiety did not significantly predict illness anxiety. The total variance explained by both steps in illness anxiety was 25%.

Table 4.4

Results of the Independent Sample t-test for Illness Anxiety and State-Trait Anxiety Independent Samples t-test working area of nurses and study variables (N=100).

*Note: *p< .05, **p< .01, ***p < .001*

Variables	Male (128)		Female (165)				95% CI		Cohen`s d
	M	SD	M	SD	t	P	UL	LL	
State Anxiety	40.98	11.22	45.43	10.94	-3.41	.001	-7.01	-1.88	.40
Trait Anxiety	42.33	10.09	45.58	9.27	-2.86	.004	-5.48	-1.01	.33
Illness Anxiety	13.46	7.02	15.44	7.51	-2.30	.022	-3.67	-.28	.27

Table 4.4, an independent-sample t-test compared state, trait, and illness anxiety in males and females during COVID-19. There was a significant difference in state anxiety scores between males (M=40.98, SD=11.22) and females (M=42.33, SD=10.09); t (292) = -3.41, p = .001, with a medium effect size. These results suggested that females are likely to have more state anxiety than males. Furthermore, there was a significant difference in trait anxiety scores between males (M=42.33, SD=10.09) and females (M=45.58, SD=9.27); t (292) = -2.86, p = .004, d = .36, a medium-sized effect. These results suggested that females are likely to have

more trait anxiety than males. In addition, there was a significant difference in illness anxiety scores between males (M=13.46, SD=7.02) and females (M=15.44, SD=7.51); t (292) = -2.30, p = .022, small effect size. These results suggested that females are likely to have more illness anxiety than males.

This study focuses on the trends of illness anxiety amid COVID-19, indicated by state and trait anxiety levels. Illness anxiety is defined as misinterpreting bodily symptoms, which can easily produce fear of serious illness (Gee, Nowakowski, & Antony, 2015). In this study, researchers emphasize COVID-19 illness and related fear-causing issues. In 2007, Eysenck, Derakshan, Santos, and Calvo defined state anxiety as a distinctive approach to opt for emotional and motivational cues while in threatening situations. In this state, an individual subjectively evaluates circumstances that may harm self-esteem, putting oneself at physical risk, experiencing diffidence, or experiencing self-doubt (Schwenkmezger & Steffgen, 1989). In contrast to state anxiety, trait anxiety is usually considered a stabilized proneness to anxiety in different individuals or a general propensity to deal with coercions that are perceived to be threatening (Spielberger, Gorsuch & Lushene, 1970). If an individual scores high on trait anxiety, they feel more threats and rate high on the state anxiety scale. This higher level of trait anxiety also increases the anticipated fear of self-esteem, physiological threats, and perceived failures irrespective of objective danger (Spielberger, Gorsuch & Lushene 1970). Both trait and state anxiety seemed to have a strong and significant relationship with illness anxiety, as manifested in the results (Table 4.2).

The results of the present study depicted that women are more prone to anxiety, whether it is a trait, state, or illness anxiety (Table 4.1). The prevalence rates of anxiety disorders are higher in females than in males (Mclean, Asnaani, Litz, & Hofmann, 2011). On the other hand, it is also found from the present study that married couples show relatively higher levels of symptoms of anxiety (Table 4.1). Marital life may bring stressful dysfunctions that can be sexual or emotional, leading towards marital dissatisfaction and ultimately resulting in depression and anxiety (Trudel & Goldfarb, 2010), which is probably not the case among single individuals. Similarly, anxiety levels seem to be lower in older people (Table 4.1), thus predicting that as the person ages, state-trait anxiety levels decrease, ultimately decreasing the prediction of illness anxiety. From a Pakistani perspective, this study has shown no significant difference in the impact of anxiety, whether state, trait, or illness, among individuals who are in quarantine and those who are not staying in quarantine (Table 4.2).

Amid COVID-19, when everyone is struggling to avoid contracting the Coronavirus, they are facing other issues such as financial problems, educational hurdles, limited medical resources, and a lack of awareness of the implications of the law and the system. These factors may increase anxiety levels among people going through the pandemic. However, other factors may prove to control emotional and behavioural responses towards stressful situations caused by COVID-19. During the pandemic, quarantine can help keep people in isolation so they might not catch an infection, such as the Coronavirus. Studies show longer quarantine, and there is a greater chance of getting frustrated and poorer psychological health. People who are in quarantine for longer cannot withstand smaller extensions (Rona et al., 2007). However, in Pakistan, a smart lockdown strategy may have proved beneficial in some ways. This strategy

has helped people manage their frustration and daily life activities amid COVID-19. People in quarantine often have higher anxiety levels due to fear of getting infected or infecting others. This type of awareness is either induced by the media or social media, which can adversely impact mental health through exposure to worrying (Rubin et al., 2016). Thus, knowledge plays an important role in managing stressful conditions. In Pakistan, it is observed that PM Imran Khan has reported "not to worry" and is dealing with situations more balanced.

This type of information might be another factor in the results of no significant relationship between anxiety (trait, state, or illness) and quarantine status. Providing more supplies to people in quarantine can help them manage their pandemic-related stress. Similar struggles are being observed at the individual, group, societal, community, and national levels in Pakistan, which may be another factor of no significant correlation between "stay in quarantine" and trait, state, and illness anxiety levels. Reducing boredom by allowing people to connect with their loved ones through online systems and providing them with entertainment (Pan, Chang, & Yu, 2005); for example, the availability of online content on Netflix and the increased use of media accounts might decrease the stressful environment. Thus, this can be another factor leading to a weak relationship between being in quarantine and anxiety levels. Another study shows that individuals with a repressive coping style, i.e., having a low score on trait anxiety and rating high in defensiveness, have cognitive biases that result in minimizing or lessening the threateningness of situations (Eysenck, 2000).

This argument supports that being in quarantine but adapting to a repressive coping style may result in decreased levels of illness anxiety. Results of the analysis of Multiple Hierarchical Regression (Table 4.3) manifested that 21% of the variance predicted illness anxiety, indicating that state anxiety is a strong predictor of illness anxiety. State anxiety is concerned with the symptoms of anxiety being indicated during threats or stressful situations, as in the case of COVID-19. When people are hospitalized, the rate of anxiety seems to increase, and patients start to indicate fear of being victims of the disease due to misinterpretation of the severity of the disease (McCaffrey & Taylor, 2005). This increase in anxiety also threatens the overall health of patients. Similarly, people facing the consequences of COVID-19, such as increased rates of death, the severity of pain during symptoms, or an increased number of patients at hospitals due to COVID-19, show higher rates of state anxiety. This higher level of state anxiety starts predicting the symptoms of illness anxiety (Table 4.3), where people may misperceive that they might get infected with the Coronavirus, ultimately leading to a cause of fear.

CONCLUSION

This study followed a unique pathway of exploring the possible link between state/trait anxiety and health anxiety among people in Pakistan. COVID-19, due to its high transmission rate, unique genetic structure, and economic impacts, has, in one way or another, generated anxiety in people. It was found that females were higher on all types of anxieties (State, trait, and perceived illness) than males. Older people were less anxious than younger people, and the same was true for married people, who were more anxious than unmarried people. The demographic variable that did not predict illness anxiety among the people was a

distinct result of the present study. This was further supported when it was found that state anxiety has proven to be a significant predictor of illness anxiety for COVID-19 in people, contrary to trait anxiety.

Limitations and Future Directions

These are the few limitations of the study:

- Only Quantitative data analysis was computed, but for more effective and in-depth findings, qualitative data collection and analysis should be conducted in the future.
- The scales were in English, and future translated versions must be used.
- The sample was based on a convenience sampling strategy, but in the future, different people from those professions should also be included who worked in this pandemic on the front line, like nurses, doctors, paramedical staff, police officers, etc.
- One of the significant limitations was the online data collection because it lacked the motivation to respond and fill out the questionnaires, affecting the response rate.
- Data collected during the pandemic's peak time to cross-verify the results would be better for a longitudinal study.

REFERENCES

Al-Osail, A. M., & Al-Wazzah, M. J. (2017). The history and epidemiology of Middle East respiratory syndrome coronavirus. *Multidisciplinary Respiratory Medicine*, *12*(1), 20.

BBC News. (2020, January 31). Coronavirus declared a global health emergency by the WHO. https://www.bbc.com/news/world-51318246

Epstein, G. A (2003). Amid SARS epidemic, China panics over pets. Baltimore Sun, https://www.baltimoresun.com/bal-te.china06may 06-story. htrnl, accessed March 26, 2019.

Estola, T. (1970). Coronaviruses, a new group of animal RNA viruses. *Avian diseases*, 330–336.

Evans, O. (2020). Socio-economic impacts of novel Coronavirus: The policy solutions. *BizEcons Quarterly*, *7*, 3–12.

Eysenck, M. W. (2000). A cognitive approach to trait anxiety. *European Journal of Personality, 14*(5), 463-476. doi:10.1002/1099-0984(200009/10)14:53.0.co;2-3

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion, 7*, 336–353. doi:10.1037/1528-3542.7.2.336

Kahn, J. S., & McIntosh, K. (2005). History and recent advances in coronavirus discovery. *The Pediatric Infectious Disease Journal*, *24*(11), S223-S227.

Kelland, K. (2017). Proliferation of bird flu outbreaks raises risk of human pandemic.

Scientific American, https:/ /www.scientificamerican.com/article /proliferation -of-birdflu-outbreaks-raises-risk -of-human-pandemic lj, accessed September 14, 2018.

Kilbourne, E. D. (1977). Influenza pandemics in perspective. *Journal of the American Medical Association, 237*, 1 2 2 5-1228.

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., & Xing, X. (2020). Early transmission dynamics in Wuhan, China, of novel Coronavirus–infected pneumonia. *New England Journal of Medicine*.

Mahase, E. (2020). Covid-19: First coronavirus was described in The BMJ in 1965.

Mclean, C. P., Asnaani, A., Litz, B. T., & Hofmann, S. G. (2011). Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research, 45*(8), 1027-1035. doi:10.1016/j.jpsychires.2011.03.006

Pan, P. J., Chang, S., & Yu, Y. (2005). A Support Group for Home-Quarantined College Students Exposed to SARS: Learning from Practice. *The Journal for Specialists in Group Work, 30*(4), 363-374. doi:10.1080/01933920500186951

Perlman, S. (2020). Another decade, another coronavirus.

Rodela, T. T., Tasnim, S., Mazumder, H., Faizah, F., Sultana, A., & Hossain, M. M. (2020). Economic Impacts of Coronavirus Disease (COVID-19) in Developing Countries.

Rona, R. J., Fear, N. T., Hull, L., Greenberg, N., Earnshaw, M., Hotopf, M., & Wessely, S. (2007). Mental health consequences of overstretch in the UK armed forces: First phase of a cohort study. *Bmj, 335*(7620), 603. doi:10.1136/bmj.39274.585752.be

Rubin, G. J., Harper, S., Williams, P. D., Öström, S., Bredbere, S., Amlôt, R., & Greenberg, N. (2016). How to support staff deploying on overseas humanitarian work: A qualitative analysis of responder views about the 2014/15 West African Ebola outbreak. *European Journal of Psychotraumatology, 7*(1), 30933. doi:10.3402/ejpt.v7.30933

Salkovskis, P. M., Rimes, K. A., Warwick, H. M. C., & Clark, D. M. (2002). The Health Anxiety Inventory: Development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine, 32*(5), 843-853.

Schwenkmezger, P., & Steffgen, G. (1989). *Anxiety and motor performance. In B. Kirkcaldy (Ed.), Normalities and abnormalities in human movement*. Basel, Switzerland: Karger.

Shikatani (née Gee), B., Nowakowski, M.E. and Antony, M.M. (2015). *Illness Anxiety Disorder/Hypochondriasis.* In The Encyclopedia of Clinical Psychology (eds R.L.

Cautin and S.O. Lilienfeld). doi:10.1002/9781118625392.wbecp295

Shultz, j. M., Espinel, Z., Flynn, 8. W., Hoffmann, Y., & Cohen, R. E. (2008). DEEP PREP: All-hazards disaster behavioral health training. Miami, FL: DEEP Center.

Spielberger CD, Gorsuch R, Lushene R. 1970. *The State-Trait Anxiety Inventory (STAI) Test Manual Form X*. Consulting Psychologists Press: Palo Alto, CA.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press

Taxonomy, V., & Murphy, F. A. (2012). Ninth report of the international committee on taxonomy of viruses (pages 806 – 828). *Virus Taxonomy. San Diego, CA: Elsevier*, 1281-325.

Taylor, S. (2019). *The psychology of pandemics: Preparing for the next global outbreak of infectious disease*. Cambridge Scholars Publishing.

Trudel, G., & Goldfarb, M. (2010). Marital and sexual functioning and dysfunctioning, depression and anxiety. *Sexologies, 19*(3), 137-142. doi:10.1016/j.sexol.2009.12.009

World Health Organization. (2020). Coronavirus disease 2019 (COVID-19): situation report, 162