The Role of Social Support as a Moderator in the Relationship between Resilience and PTSD in Individuals Who are COVID-19 Survivors who Have Comorbidities

Farras Aisha Dzahabiya[1*], Roswiyani Roswiyani[1], Riana Sahrani[1]
[1] Universitas Tarumanagara, Indonesia.

Abstract
The COVID-19 pandemic has an impact on individual health conditions, especially COVID-19 survivors who have comorbidities. Therefore, to reduce PTSD experienced by COVID-19 survivors, resilience and social support are needed. This study aims to determine the role of social support as a moderator in the relationship between resilience and PTSD in COVID-19 survivors who have comorbidities. Participants in this study were 105 people aged 20-60 years, women and men with comorbid diseases who had been contaminated with the COVID-19 virus. By using quantitative research methods, this research uses the Connor-Davidson Resilience Scale (CD-RISC-25) measuring instrument to measure resilience, the Post Traumatic Stress Disorder Checklist DSM-5 (PCL-5) measuring instrument to measure PTSD, and the Multidimensional Scale Perceived of Social Support (MSPSS) to measure social support. Data analysis using MRA showed that social support did not act as a moderator in the relationship between resilience and PTSD but had a significant direct effect on PTSD.

Keywords: COVID-19 Survivors Have Comorbid Diseases; Resilience; Social Support; PTSD

Article Info
Artikel History: Submitted: 2023-10-19 | Published: 2023-12-31
DOI: http://dx.doi.org/10.24127/gdn.v13i4.8894
Vol 13, No 4 (2023) Page: 780 – 791

(*) Corresponding Author: Farras Aisha Dzahabiya, Department Psychology, Universitas Tarumanagara, Indonesia, Email: farrasfarras23@gmail.com

INTRODUCTION

At the end of 2019 an outbreak of disease of unknown origin occurred in Wuhan, China. This epidemic spread rapidly and infected thousands of individuals and hundreds of them died. The COVID-19 virus has also spread throughout the world and is a global health threat (He at al., 2020). According to the Indonesian Ministry of Health (2021), COVID-19 in Indonesia as of September 2021 had confirmed 4.206.253 cases, 141.381 individuals

died due to COVID-19, and the majority of individuals who died were due to comorbid diseases. These comorbid diseases are; hypertension, diabetes, heart, kidney, pregnancy, lung disease, autoimmune, tuberculosis, asthma and liver. Individuals who are heavily contaminated with the COVID-19 virus and have comorbid diseases are early adults and middle adults with an age range of 20-60 years (Taberneo et al., 2022; Nolasco et al., 2021). Physical symptoms in individuals who are contaminated with the COVID-19 virus and have comorbidities include fever, sore throat, shortness of breath, fatigue, headaches, loss of sense of smell and taste (Fadli, 2020). Apart from that, the COVID-19 virus not only has an impact on physical conditions but also psychological conditions for individuals who are contaminated and survivors of the COVID-19 virus (Einvik et al., 2021).

Young adults and middle adults who are survivors of COVID-19 and have comorbidities will have several impacts, namely, having feelings of fear of death, limitations in communication and feelings of loss of control (Kaseda & Levine, 2020). Then, individuals will also avoid previous COVID-19 experiences and disturbing memories (Schmidt et al., 2021). Exposure to the COVID-19 virus is considered a traumatic event because it has an impact on anxiety, stress, negative feelings such as fear and anger (Tu et al., 2021). According to Djuanto et al. (2021) based on data from PDSKJI (Indonesian Psychiatric Medicine Specialist Association 2020) states that 80% of individuals who have been contaminated with COVID-19 experience Post Traumatic Stress Disorder (PTSD).

Post Traumatic Stress Disorder (PTSD) is a psychological disorder resulting from exposure to a traumatic or stressful event (APA, 2013). According to Shalev et al. (2017) PTSD is a common, serious and complex mental disorder that occurs after traumatic exposure. It is characterized by a condition where the individual re-experiences the trauma such as flashbacks, attempts to avoid trauma-related thoughts, feelings, places or people, persistent negative cognitions, difficulty sleeping and irritability.

According to APA (2013), the prevalence of PTSD in the United States at the age of 75 years is 8.7%, in adults it is 3.5%. On the continents of Europe, Asia, Africa and Latin America, individuals who experience PTSD amount to .5-1.0%. According to Antivic et al. (2021) the population of individuals who experienced PTSD during the pandemic was 12.8%. According to Yuan et al. (2020) the prevalence of PTSD during the pandemic in individuals who were self-isolating was 15% and individuals who were not self-isolating was 5%.

Individuals with PTSD will experience the following: having obstacles in their social functioning, difficulty sleeping, decreased health conditions due to decreased immunity, trigger stress due to memories of traumatic events (DeViva et al., 2004; Neigh, 2016; Gill et al., 2017; Kirkpatrick , 2014). PTSD can also result in helplessness or threats due to intense fear (Nawangsih, 2014). The impact of individuals with PTSD can be disruptive and hinder long-term life (Xiao et al., 2020).

There are some individuals who have experienced traumatic events but do not experience PTSD (Alim et al., 2008). A condition in which individuals can adapt positively even though they have experienced significant difficulties or trauma is called resilience (Luthar et al., 2000). Factors that can influence PTSD are resilience (Rutter, 1985; Alim et., 2008; Antivic et al., 2021). According to Bonanno (2005), individuals who are resilient have lower PTSD symptoms. Resilience is needed when individuals are faced with events that have the potential to give rise to trauma. Resilience describes a phenomenon in which individuals show positive adaptation and development despite having been exposed to traumatic experiences (Diener, 2009).

Resilience is defined as an ability possessed by individuals when they can adapt when conditions are difficult (Ungar, 2004). Resilience is a positive adaptation or ability to maintain mental health despite experiencing difficulties (Wald in Herman et al., 2011).

In research conducted by Thompson et al. (2018) by taking samples from patients in hospitals who had been exposed to traumatic events, the results showed that resilience had a significant relationship. It can be concluded that even though they are exposed to severe conditions, individuals who have high resilience correlate with low PTSD. Resilience is considered a process or mechanism for good results, even though faced with difficult situations, resilience has been proven to reduce PTSD (Hjemdal et al., 2006). Individuals who have resilience will be able to control negative thoughts and replace them with more positive ones (Foa et al., 1997; Foa et al., 2000; Horn et al., 2016). According to Rutter (1993) resilience will not make individuals avoid a traumatic experience, but resilience allows individuals to control exposure to pain, through resilience individuals can successfully overcome the dangerous challenges they face.

Resilience is influenced by two factors, namely risk factors and protective factors. Protective factors function as modifiers of negative influences resulting from difficult conditions so that they will strengthen resilience. These protective factors include individual characteristics as well as family and social support (Masteen & Reed, 2002). According to Sandra et al. (2021) social support has a significant effect on resilience. Bonanno et al. (2007) stated that social support is the strongest external factor in resilience after a traumatic event. This is because individuals who have social support will seek help from those around them so that they can strengthen resilience (Bonanno et al., 2008).

Social support is a help and psychological resource that a person obtains from his interactions with other people which enables the individual to overcome stress (Cohen, 2004). Social support focuses on an individual's interactions with their environment such as having a partner, children, friends or neighbors (Buszman et al., 2017). Social support will help individuals overcome difficult conditions, understand the crisis and adapt to the changes that occur (Sippel et al., 2015). This is also in accordance with Cai et al. (2020) which states that social support will help individuals reduce emotional stress that occurs as a result of traumatic events. Meta-analytic research shows that social support is the strongest predictor in reducing the development of PTSD (Brewin et al., 2020; Ozer et al., 2003).

Social support has a relationship with positive social, psychological and behavioral outcomes in individuals with PTSD (Davis, 2014). In subsequent research, Kaniasty and Norris (2008) stated that individuals who have low social support, such as being hostile to their environment, are a significant risk factor for PTSD. Furthermore, in Lee's (2019) research, social support as a moderator in PTSD produces social support that can weaken PTSD symptoms. According to Panagioti et al (2014) Social support has a significant influence on reducing PTSD so that it can improve health conditions. This is because social support will help individuals tell problems to those closest to them so that individuals feel accepted and facilitate the individual's needs (Cox et al., 2017).

According to Cohen and Wills (1995) social support will inhibit the development of psychopathology due to traumatic events. This is because social support has four main functions, namely; (a) as emotional support; (b) tangible assistance such as materials or services; (c) information support; (d) as an assessor, individuals will evaluate themselves to manage stress (Heaney & Israel, 2008). Individuals who have high social support are expected to function as protectors from mental and physical illness (Southwick, et al, 2005). And social support is thought to encourage trauma recovery over time (Koenen et al, 2003).

Social support is very important during the COVID-19 pandemic, social support has a positive effect on self-confidence, reduces stress, increases resilience and quality of life (Santoso, 2020). Social support is needed during the pandemic because it can strengthen resilience, especially for individuals who have been contaminated with the COVID-19 virus, so it can reduce PTSD (Chen & Bonanno, 2020; Chen et al., 2021). Thus, this research will further examine the relationship between resilience and PTSD in COVID-19 survivors who have comorbidities by involving social support as a potential moderator variable.

METHOD

Design

This type of research uses non-experimental quantitative, namely research that identifies variables, quantitative data in the form of numbers obtained for analysis of information. In the research there are three variables, namely resilience as the independent variable, PTSD as the dependent variable and social support as the moderator variable. This research uses a correlational test to determine the relationship between the variables studied.

Participants

This research uses the purposive sampling method described by Sugiyono (2004), a sampling technique by determining certain criteria. In this research, G*Power was used to determine the sample. By using a two-way hypothesis, an effect size of r = .40, a tolerable significance level of .050 and a statistical power of .95, the total sample results were 71. In this study, a sample of 181 was obtained but 105 people matched the research criteria.

RESULT AND DISCUSSION

Result

Linearity Test Results

The linearity test in research functions to determine whether the data obtained is linear data or whether the relationship between research variables forms a straight line. In the linearity test, the Deviation from Linearity value obtained was .537 ($p > .05$). Furthermore, the relationship between PTSD and social support was obtained at .571 ($p > .05$). In the test of the relationship between social support and resilience, it was found to be .656 ($p > .05$).

Multicollinearity Test

The multicollinearity test aims to ascertain whether a regression model has intercorrelation or collinearity between independent variables. The multicollinearity test can be seen from the Tolerance value > .10, so there is no collinearity relationship or VIF (Variance Infantion Factor) <10, meaning the level of collinearity can be tolerated. The results of the Tolerance value for the resilience and social support variable are Tolerance value > .748, for the resilience and social support variable (Tolerance > .10) and for the VIF value 1.337 (VIF < 10). It can be concluded that there is no multicollinearity among the dependent variables.

Heteroscedacticity Test

The aim of carrying out the heteroscedasticity test is to find out whether the variances of the variables are the same or not the same. There is some similarity in the residual variance of the data so that heteroscedasticity does not occur. The technique in this research uses a scatterplot to show that (1) Data is spread above and below or around the number 0. (2) Data does not collect only above or below. (3) The distribution of data does not form a wavy pattern that widens then narrows and widens again. (4) Means the absence of symptoms of heteroscedasticity. Based on the dependent variable, namely PTSD and the independent variables, namely resilience and social support, a scatter plot was obtained that met criteria (1) to (4).

Hypothesis Analysis

First Hypothesis

In this study, the first hypothesis is that there is a relationship between resilience and PTSD in COVID-19 survivors who have comorbidities, so the researchers tested this hypothesis using a correlational test. The resilience and PTSD variables have normal distribution so they use Pearson correlation. Based on the results of data analysis, r = -.234 and p = .016. It is significant that p is below .05. Therefore, it can be concluded that resilience has an influence on PTSD. With H0 rejected and H1 accepted. So there is a significant negative relationship between resilience and PTSD. This means that the higher the level of resilience, the lower the PTSD will be. Clearer results can be seen in Appendix 29.

Second Hypothesis

The second hypothesis is that social support has a role as a moderator in the relationship between resilience and PTSD. Moderation test using Moderated Regression Analysis (MRA).

Regression Test I

Based on the results of the first regression test which tested resilience as an independent variable and PTSD as a dependent variable, the R2 value obtained in the first regression equation was .055 or 5.5% and the significance was p = .016. Based on these results, it can be said that the resilience variable influences the PTSD variable by 5.5%, while 94.5% is explained by other variables or factors. More clear results can be seen in Table 1 below.

Table 1. Results of Regression Model 1

Variable	R^2	t	*F*	*p*	Description
Resilience	.055	-2.439	5.950	.016	Significant

Regression Test II

Results of the second regression test with PTSD as the dependent variable, resilience as the independent variable and social support as the moderator variable (interaction). The results obtained were that there was a moderator variable in the second regression equation, the R2 value increased from regression model one to regression model two. In the first regression model R2 is 5.5%, then the R2 figure in regression two shows .202 or 20.2%.

Apart from that, the F value is 8.517 with a significance of .000, it can be concluded that resilience and social support together have a significant influence on PTSD. The results of the second regression analysis on the moderating variable value t = .51. with p = .959 (not significant). The resilience variable t = -.76 and p = .940 (not significant). The social support variable has t = -1.042 and p = .300 (not significant). It can be concluded that H0 is accepted and H1 is rejected. This means that the social support variable is not a

moderator in the relationship between resilience and PTSD. More clear results can be seen in table 2 below.

Table 2. Results of Regression Model 2

Variable	R^2	t	*F*	*p*	Description
Interaction	.202	.051	8.517	.959	Not Significant
Resilience		-.76		.940	Not Significant
Social Support		-1.042		.300	Not Significant

Regression Test III

Results of triple regression testing with PTSD as the dependent variable and social support as the independent variable. Based on R2, it produces .202 or 20.2% of the social support variable which has an influence on PTSD.

Next, through the values F = 26.038 and p = .000. It can be concluded that social support has an influence on PTSD. The results of regression analysis III show that social support is an independent variable (moderator predictor) in its relationship with PTSD. The results of the analysis show that the social support variable t = -5.103 and p = .000 and has a significance of .000. This means that there is a significant relationship between social support and PTSD. Clearer results can be seen in table 3 below.

Table 3. Regression Test Results III

Variable	R^2	t	*F*	*p*	Description
Social Support	.202	-5.103	26.038	.000	Significant

Table 4. Factors that influence PTSD

Test	*F*	*p*
PTSD in terms of Age	5.79	0.18
PTSD in terms of status	6.418	.002
PTSD reviewed from children	7.652	.007
PTSD in terms of the recovery range	4.973	.028
PTSD is viewed from comorbid diseases	2.167	023

Table 5. PTSD with comorbid illnesses

Comorbid Diseases	*Mean*	*F*	*p*
Hypertension	1.71	2.167	.023
Diabetes	1.90		
Heart disease	1.92		
Hypertension and Diabetes	0.74		
Hypertension, Diabetes and Heart Disease	1.85		
Kidney	1,03		
Pregnant	1.38		
Lung disease	1.26		
Autoimmune	.000		
TBC	.58		
Asthma	2.27		
Liver	2.09		

Discussion

This study aims to determine the effect of social support on the relationship between resilience and PTSD in COVID-19 survivors who have comorbidities. The COVID-19 pandemic which enforces social isolation has an impact on individuals' mental health conditions, however providing social support can be one way to overcome the impact of

social isolation. Providing social support does not always involve direct social interaction, but social support can take the form of feeling like there is someone to lean on when sad, someone who can be trusted and someone who is willing to provide something that is needed (Evans & Fisher, 2021).

This research found several results, namely; 1) social support does not act as a moderator in the relationship between resilience and PTSD; 2) social support has a correlation with PTSD; 3) resilience correlates with PTSD; 4) The results of different tests for PTSD variables found that there were differences in age, status, children, time span for recovery from COVID-19 and comorbid diseases.

First, this study found that there was no influence of social support as a moderator on the relationship between resilience and PTSD. This could be because the COVID-19 pandemic conditions which enforce social isolation make the role of social support not optimal (Manec et al., 2020). COVID-19 survivors who have comorbidities while in social isolation will receive fewer good things from their social support, which will affect their resilience (Gable et al., 2022). However, social support is directly correlated with PTSD. This means that the higher the social support, the lower the PTSD experienced. This is in line with research by Chen et al. (2021) which states that social support is correlated with PTSD, because during the COVID-19 pandemic external resources played a very important role. Social support can not only influence individuals directly by improving their health but can also influence individuals indirectly by providing resources to individuals (Coyne and Downey, 1991).

Second, this research found a significant relationship between resilience and PTSD. It can be concluded that the higher the resilience, the lower the potential for PTSD. This is because resilience is the ability to adapt so that individuals who have resilience can change negative thoughts and replace them with more positive ones (Foa & Meadows, 1997; Foa et al., 2000; Horn et al., 2016).

Third, this study found that there were differences between PTSD in age categories. Early adults were found to have higher PTSD scores than middle adults. This research is in accordance with Konnort et al. (2015) who said that middle adult individuals tend to have lower PTSD symptoms than early adults. The reason is that as older age there will be a decline in cognitive function which will affect judgment and memory. As time passes, negative events are remembered less specifically and thus are less likely to evoke negative emotions (Williams et al., 2007; Pietrzak et al., 2012; Konnort et al., 2015).

Fourth, this study found that individuals who were married and had children had lower PTSD scores than individuals who were unmarried and had no children. This is in line with research conducted by Brivio et al. (2021) which states that individuals who are married and have children will have lower PTSD symptoms than individuals who are unmarried and have no children. This is because individuals who are married and have children will focus on efficient care for their children so that they will not be able to focus on their own negative feelings.

Fifth, this study found that there were differences between individuals who had recovered from COVID-19 in a period of less than six months and more than six months. Individuals who are still in the period of less than six months have a higher PTSD score than individuals who have recovered for more than six months. It can be concluded that individuals who have recovered from COVID-19 for less than six months have the potential to experience PTSD compared to individuals who have recovered more than six months. According to Santigo et al. (2013) stated that there was a decrease in PTSD symptoms over time in individuals who had been exposed to traumatic events. This is because trauma

recovery can be supported through resource, genetic, socio-economic and environmental factors.

Sixth, this study found that there were differences between individuals with types of comorbid illnesses regarding PTSD. Individuals with comorbid asthma had the highest mean score of 2.27. This means that individuals with comorbid asthma have the highest potential to experience PTSD compared to individuals with other comorbid diseases. Asthma is a risk factor for the severity of COVID-19, individuals who have asthma will experience a disorder that inhibits antiviral production, resulting in a decrease in immunity and can cause severity in sufferers when contaminated with the COVID-19 virus (Wardana & Rosyid, 2021). In addition, individuals who have a high level of asthma severity are associated with the use of emotion-focused coping strategies such as avoidance (Chung et al., 2012; Nazarian et al., 2006). Individuals who practice avoidance will be better able to remember episodes of asthma so that it correlates with PTSD symptoms (Arcaya et al., 2014).

CONCLUSION

From the results of the data analysis that has been described, this study concludes that social support does not play a role as a moderator in the relationship between resilience and PTSD. This study found that social support was directly correlated with PTSD. The higher the social support for individual COVID-19 survivors, the lower the PTSD experienced. Furthermore, this research found that resilience is correlated with PTSD, where the higher the resilience of individual COVID-19 survivors who have comorbidities, the lower the PTSD. This research also found that there are several factors that can influence PTSD in individual COVID-19 survivors who have comorbidities, namely; age, marital status, children, recovery period from COVID-19 and type of comorbid disease.

REFERENCES

Alim, T. N., Feder, A., Graves, R. E., Wang, Y., Weaver, J., Westphal, M., Alonso, A., Aigbogun, N. U., Smith, B. W., Doucette, J. T., Mellman, T. A., Lawson, W. B., & Charney, D. S. (2008). Trauma, resilience, and recovery in a high-risk African-American population. *The American Journal of Psychiatry*, 165(12), 1566–1575. https://doi.org/10.1176/appi.ajp.2008.07121939

Antičević, V., Bubić, A., & Britvić, D. (2021). Peritraumatic distress and posttraumatic stress symptoms during the covid-19 pandemic: The contributions of psychosocial factors and pandemic-related stressors. *Journal of Traumatic Stress*, 34(4), 691–700. https://doi.org/10.1002/jts.22701

Arcaya, M. C., Lowe, S. R., Rhodes, J. E., Waters, M. C., & Subramanian, S. V. (2014). Association of PTSD symptoms with asthma attacks among hurricane Katrina survivors. *Journal of Traumatic Stress*, 27(6), 725–729. https://doi.org/10.1002/jts.21976

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *The American Psychologist*, 59(1), 20–28. https://doi.org/10.1037/0003-066X.59.1.20

Bonanno, G. A. (2005). Resilience in the Face of Potential Trauma. *Current Directions in Psychological Science*, 14(3), 135–138. https://doi.org/10.1111/j.0963-7214.2005.00347.x

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, 75(5), 671–682. https://doi.org/10.1037/0022-006X.75.5.671

Bonanno, G. A., Ho, S. M. Y., Chan, J. C. K., Kwong, R. S. Y., Cheung, C. K. Y., Wong, C. P. Y., & Wong, V. C. W. (2008). Psychological resilience and dysfunction among hospitalized survivors of the SARS epidemic in Hong Kong: A latent class approach. *Health Psychology*, 27(5), 659–667. https://doi.org/10.1037/0278-6133.27.5.659

Brivio, E., Oliveri, S., Guiddi, P., & Pravettoni, G. (2021). Incidence of PTSD and generalized anxiety symptoms during the first wave of COVID-19 outbreak: An exploratory study of a large sample of the Italian population. *BMC Public Health*, 21(1), 1158. https://doi.org/10.1186/s12889-021-11168-y

Cai, X., Hu, X., Ekumi, I. O., Wang, J., An, Y., Li, Z., & Yuan, B. (2020). Psychological distress and its correlates among covid-19 survivors during early convalescence across age groups. *The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry*, 28(10), 1030–1039. https://doi.org/10.1016/j.jagp.2020.07.003

Chen, S., & Bonanno, G. A. (2020). Psychological adjustment during the global outbreak of COVID-19: A resilience perspective. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S51–S54. https://doi.org/10.1037/tra0000685

Chen, Y., Huang, X., Zhang, C., An, Y., Liang, Y., Yang, Y., & Liu, Z. (2021). Prevalence and predictors of posttraumatic stress disorder, depression and anxiety among hospitalized patients with coronavirus disease 2019 in China. *BMC Psychiatry*, 21(1), 80. https://doi.org/10.1186/s12888-021-03076-7

Chung, M. C., Rudd, H., & Wall, N. (2012). Posttraumatic stress disorder following asthma attack (Post-asthma attack ptsd) and psychiatric co-morbidity: The impact of alexithymia and coping. *Psychiatry Research*, 197(3), 246–252. https://doi.org/10.1016/j.psychres.2012.01.008

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Coyne, J. C., & Downey, G. (1991). Social factors and psychopathology: Stress, social support, and coping processes. *Annual Review of Psychology*, 42, 401–425. https://doi.org/10.1146/annurev.ps.42.020191.002153

Cox, D. W., Owen, J. J., & Ogrodniczuk, J. S. (2017). Group psychotherapeutic factors and perceived social support among veterans with PTSD symptoms. *Journal of Nervous and Mental Disease*, 205(2), 127–132. https://doi.org/10.1097/NMD.0000000000000635

DeViva, J. C., Zayfert, C., & Mellman, T. A. (2004). Factors associated with insomnia among civilians seeking treatment for PTSD: An exploratory study. *Behavioral Sleep Medicine*, 2(3), 162–176. https://doi.org/10.1207/s15402010bsm0203_5

Diener, E. (2009). Positive Psychology: Past, Present, and Future. In C.R. Snyder & Shane J. (Eds.), *Oxford Handbook of Positive Psychology*. Oxford: Oxford University Press.

Djuanto Aurelia, S. (2021). Yoga sebagai terapi alternatif terhadap PTSD pada penyintas COVID-19: Tinjauan literatur. *Jurnal Muara Ilmu Sosial Humaniora dan Seni*, 510–520. https://doi.org/10.24912/jmishumsen.v5i2.12548.2021

Einvik, G., Dammen, T., Ghanima, W., Heir, T., & Stavem, K. (2021). Prevalence and risk factors for post-traumatic stress in hospitalized and non-hospitalized covid-19

patients. *International Journal of Environmental Research and Public Health*, 18(4), 2079. https://doi.org/10.3390/ijerph18042079

Evans, M., & Fisher, E. B. (2022). Social isolation and mental health: The role of nondirective and directive social support. *Community Mental Health Journal*, 58(1), 20–40. https://doi.org/10.1007/s10597-021-00787-9

Fadli, R. (2020). Coronavirus.

Foa, E. B., & Meadows, E. A. (1997). Psychosocial treatments for posttraumatic stress disorder: A critical review. *Annual Review of Psychology*, 48, 449–480. https://doi.org/10.1146/annurev.psych.48.1.449.

Gable, S. L., & Bedrov, A. (2022). Social isolation and social support in good times and bad times. *Current Opinion in Psychology*, 44, 89–93. https://doi.org/10.1016/j.copsyc.2021.08.027

Gill, J. M., Saligan, L., Woods, S., & Page, G. (2009). PTSD is associated with an excess of inflammatory immune activities. *Perspectives in Psychiatric Care*, 45(4), 262–277. https://doi.org/10.1111/j.1744-6163.2009.00229.x

Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed., pp. 189–210). Jossey-Bass.

He, F., Deng, Y., & Li, W. (2020). Coronavirus disease 2019: what we know?. *Journal Medical Virology*, 92.719-725. https://doi.org/10.1002/jmv.25766

Herrmann, D., Scherg, H., Verres, R., von Hagens, C., Strowitzki, T., & Wischmann, T. (2011). Resilience in infertile couples acts as a protective factor against infertility-specific distress and impaired quality of life. *Journal of Assisted Reproduction and Genetics*, 28(11), 1111–1117. https://doi.org/10.1007/s10815-011-9637-2

Hjemdal, O., Friborg, O., Stiles, T. C., Martinussen, M., & Rosenvinge, J. H. (2006). A new scale for adolescent resilience: Grasping the central protective resources behind healthy development. *Measurement and Evaluation in Counseling and Development*, 39(2), 84–96. https://doi.org/10.1080/07481756.2006.11909791

Horn, S. R., Charney, D. S., & Feder, A. (2016). Understanding resilience: New approaches for preventing and treating PTSD. *Experimental Neurology*, 284(Pt B), 119–132. https://doi.org/10.1016/j.expneurol.2016.07.002

Kaseda, E. T., & Levine, A. J. (2020). Post-traumatic stress disorder: A differential diagnostic consideration for COVID-19 survivors. *The Clinical Neuropsychologist*, 34(7–8), 1498–1514. https://doi.org/10.1080/13854046.2020.1811894

KEMENKES RI. (2021). Peta Sebaran COVID-19 di Indonesia.

Kirkpatrick, H. A., & Heller, G. M. (2014). Post-traumatic stress disorder: Theory and treatment update. *International Journal of Psychiatry in Medicine*, 47(4), 337–346. https://doi.org/10.2190/PM.47.4.h

Koenen, K. C., Stellman, J. M., Stellman, S. D., & Sommer, J. F. (2003). Risk factors for course of posttraumatic stress disorder among Vietnam veterans: A 14-year follow-up of American Legionnaires. *Journal of Consulting and Clinical Psychology*, 71(6), 980–986. https://doi.org/10.1037/0022-006X.71.6.980

Konnert, C., & Wong, M. (2015). Age differences in PTSD among Canadian veterans: Age and health as predictors of PTSD severity. *International Psychogeriatrics*, 27(2), 297–304. https://doi.org/10.1017/S1041610214001884

Krystyna, B., & Hanna, P.-B. (2017). Polska adaptacja wielowymiarowej skali spostrzeganego wsparcia społecznego. *Polskie Forum Psychologiczne*, 22. https://doi.org/10.14656/PFP20170404

Lee, J.-S. (2019). Perceived social support functions as a resilience in buffering the impact of trauma exposure on PTSD symptoms via intrusive rumination and entrapment in firefighters. *PloS One*, 14(8), e0220454. https://doi.org/10.1371/journal.pone.0220454

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. https://doi.org/10.1111/1467-8624.00164

Masten, A. S., & Reed, M. G. (2002). Resilience in development. Dalam C. R. Snyder & S. J. Lopez (Ed.), *Handbook of positive psychology* (hlm. 74–88). Oxford University Press.

Menec, V. H., Newall, N. E., Mackenzie, C. S., Shooshtari, S., & Nowicki, S. (2020). Examining social isolation and loneliness in combination in relation to social support and psychological distress using Canadian Longitudinal Study of Aging (Clsa) data. *PloS One*, 15(3), e0230673. https://doi.org/10.1371/journal.pone.0230673

Nawangsih, E. (2016). Play therapy untuk anak-anak korban bencana alam yang mengalami trauma(Post traumatic stress disorder/ptsd). *Psympathic : Jurnal Ilmiah Psikologi*, 1(2), 164–178. https://doi.org/10.15575/psy.v1i2.475

Nazarian, D., Smyth, J. M.., & Sliwinski, M. J. (2006). A naturalistic study of ambulatory asthma severity and reported avoidant coping styles. *Chronic Illness*, 2(1), 51–58. https://doi.org/10.1179/174592006X93879

Neigh, G. N., & Ali, F. F. (2016). Co-morbidity of PTSD and immune system dysfunction: Opportunities for treatment. *Current Opinion in Pharmacology*, 29, 104–110. https://doi.org/10.1016/j.coph.2016.07.011

Nolasco-Jáuregui, O., Quezada-Téllez, L. A., Rodriguez-Torres, E. E., & Fernández-Anaya, G. (2021). COVID-19 Patients analysis using superheat map and bayesian network to identify comorbidities correlations under different scenarios..

Panagioti, M., Gooding, P. A., Taylor, P. J., & Tarrier, N. (2014). Perceived social support buffers the impact of PTSD symptoms on suicidal behavior: Implications into suicide resilience research. *Comprehensive Psychiatry*, 55(1), 104–112. https://doi.org/10.1016/j.comppsych.2013.06.004

Pettus-Davis, C. (2014). Social support among releasing men prisoners with lifetime trauma experiences. *International Journal of Law and Psychiatry*, 37(5), 512–523. https://doi.org/10.1016/j.ijlp.2014.02.024

Sandra, L., Dewi, F. I. R., & Sahrani, R. (2021). Uji model kesejahteraan psikologis remaja dalam masa pandemi covid-19. *Jurnal Ilmiah Psikologi MIND SET*, 1(01), 1–10. https://doi.org/10.35814/mindset.v1i01.2584

Santiago, P. N., Ursano, R. J., Gray, C. L., Pynoos, R. S., Spiegel, D., Lewis-Fernandez, R., Friedman, M. J., & Fullerton, C. S. (2013). A systematic review of ptsd prevalence and trajectories in dsm-5 defined trauma exposed populations: Intentional and non-intentional traumatic events. *PLoS ONE*, 8(4), e59236. https://doi.org/10.1371/journal.pone.0059236

Santoso, M. D. Y. (2020). Review article: Dukungan sosial dalam situasi pandemi covid 19. *Jurnal Litbang Sukowati : Media Penelitian dan Pengembangan*, 5(1), 11–26. https://doi.org/10.32630/sukowati.v5i1.184

Shalev, A., Liberzon, I., & Marmar, C. (2017). Post-traumatic stress disorder. *The New England Journal of Medicine*, 376(25), 2459–2469. https://doi.org/10.1056/NEJMra161249

Sippel, L. M., Pietrzak, R. H., Charney, D. S., Mayes, L. C., & Southwick, S. M. (2015). How does social support enhance resilience in the trauma-exposed individual? *Ecology and Society*, 20(4), art10. https://doi.org/10.5751/ES-07832-200410

Southwick, S. M., Vythilingam, M., & Charney, D. S. (2005). The psychobiology of depression and resilience to stress: Implications for prevention and treatment. *Annual Review of Clinical Psychology*, 1, 255–291. https://doi.org/10.1146/annurev.clinpsy.1.102803.143948

Sugiyono.(2004). Statistika untuk Penelitian. Bandung: Alfabeta

Tabernero, E., Ruiz, L. A., España, P. P., Méndez, R., Serrano, L., Santos, B., Uranga, A., González, P., Garcia, P., Torres, A., Menendez, R., & Zalacain, R. (2022). COVID-19 in young and middle-aged adults: Predictors of poor outcome and clinical differences. *Infection*, 50(1), 179–189. https://doi.org/10.1007/s15010-021-01684-9

Tu, Y., Zhang, Y., Li, Y., Zhao, Q., Bi, Y., Lu, X., Kong, Y., Wang, L., Lu, Z., & Hu, L. (2021). Post-traumatic stress symptoms in COVID-19 survivors: A self-report and brain imaging follow-up study. *Molecular Psychiatry*, 26(12), 7475–7480. https://doi.org/10.1038/s41380-021-01223-w

Ungar, M. (2004). A Constructionist Discourse on Resilience: Multiple Contexts, Multiple Realities Among At-Risk Children and Youth. *Youth & Society*, 35(3), 341–365. https://doi.org/10.1177/0044118X03257030

Wisnu Wardana, V. A., & Rosyid, A. N. (2021). Inflammatory mechanism and clinical implication of asthma in covid-19. Clinical Medicine Insights. *Circulatory, Respiratory and Pulmonary Medicine, 15*, 11795484211042711. https://doi.org/10.1177/11795484211042711

Xiao, S., Luo, D., & Xiao, Y. (2020). Survivors of COVID-19 are at high risk of posttraumatic stress disorder. *Global Health Research and Policy*, 5, 29. https://doi.org/10.1186/s41256-020-00155-2

Yuan, K., Gong, Y.-M., Liu, L., Sun, Y.-K., Tian, S.-S., Wang, Y.-J., Zhong, Y., Zhang, A.-Y., Su, S.-Z., Liu, X.-X., Zhang, Y.-X., Lin, X., Shi, L., Yan, W., Fazel, S., Vitiello, M. V., Bryant, R. A., Zhou, X.-Y., Ran, M.-S., … Lu, L. (2021). Prevalence of posttraumatic stress disorder after infectious disease pandemics in the twenty-first century, including COVID-19: A meta-analysis and systematic review. *Molecular Psychiatry*, 26(9), 4982–4998. https://doi.org/10.1038/s41380-021-01036-x.