# Meta-Analysis Study: Could Social Support Reduce Depression and Anxiety during COVID-19 Pandemic?

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### Abstract

*Purpose*. The purpose of this study is to evaluate previous findings regarding the correlation of social support in reducing depression and anxiety during the Covid-19 pandemic. *Methodology*. The method used is the Prefered reporting Items for Systematic Reviews and Meta-analysis (PRISMA) on 16 primary research journals which were analyzed based on the number of participants (N) of 14.945 and the correlation between variables (r)*Results*. The results show that the effect size value of social support on depression is -0.40 (95%CI -0.466, -0.287 and p = 0.0) with I2 = 96.2%. While the value of the effect size of social support on anxiety is -0.26 (95%CI -0.33, -0.174 and p = 0.0) with I2 = 94.4%. Based on these findings, social support has a negative correlation to depression and shows a large effect size. Then, social support has negative correlation to anxiety and shows medium effect size. The negative correlation between social support for depression and anxiety shows that when social support increases, depression and anxiety will decrease. Social support can be used to reduce depression and anxiety during the Covid-19 pandemic.

## Introduction

The Covid-19 pandemic has been ongoing since late 2019 until 2021. Virus transmission at the end of 2021 slowly began to rise again after previously being declared to have drastically decreased. Data gathered from case records on November 30th, 2021 showed that the number of confirmed positive Covid-19 patients reached 670,348 (World Health Organization, 2021). This data indicates that Covid-19 cases have increased again compared to the previous month.

The Covid-19 pandemic has resulted in many mental health problems for adults, such as depression and anxiety (Zhu et al., 2021). This is because Covid-19 is a new and frightening disease with a very rapid transmission of the virus, leading to relatively quick deaths. In addition, various policies around the world have had an impact on the mental health of communities. For example, lockdowns and social restrictions have had an impact on depression and anxiety (Peng et al., 2020). Kar et al. (2021) analyzed 628 newspapers in India and 141 newspapers in Bangladesh and found that lockdowns and social restrictions have led to an increase in suicide rates. Not only in developing countries, but also in the United States, suicide rates have increased during lockdowns, due to high levels of depression and anxiety in the population (Efsthatiou et al., 2021).

It has been noted that depression and anxiety around the world have continued to increase since the beginning of the pandemic. The trend of depression has been most accessed by communities in the Czech Republic, Taiwan, Poland, Indonesia, and the United States. Meanwhile, the trend of anxiety has been most accessed by communities in Malaysia, Singapore, Indonesia, the United States, and the Czech Republic. According to data from the Central Statistics Agency of the Republic of Indonesia (2020), the increase in anxiety in Indonesia includes anxiety towards media coverage, anxiety towards personal health, anxiety towards family health, and anxiety towards activities outside of the home.

According to the Indonesian Association of Psychiatrists (PDSKJI), a survey of 4010 clients during the first five months of the pandemic in Indonesia found that the dominant health problems experienced by the public were psychological trauma (75%), anxiety (65%), and depression (62%). Meanwhile, the Indonesian Association of

Clinical Psychologists (IPK) reported that out of 9,428 adult clients who consulted with psychologists, 13.5% had general stress problems, 19.7% had anxiety problems, 9.2% had mood problems, 8.1% had anxiety disorders, and 4.7% had somatic problems (IPK Task Force, 2020). A longitudinal study in Spain of 1041 individuals reported that community depression continued to increase over time during the pandemic, while anxiety remained relatively stable over time (Gonzalez-Sanguino et al., 2020).

Social support has become important during the pandemic as not all individuals have the ability to cope well with the problems experienced. According to Li et al. (2021), social support can act as a buffer for mental health when an individual's resilience is low. Other studies have also shown that social support can reduce anxiety and depression in individuals affected by the pandemic, including healthcare workers, teachers, adolescents, and even pregnant women (Bauer et al., 2020; Khoury et al., 2021; Ali et al., 2021; Qi et al., 2020; Alnazly et al., 2021).

Studies on the correlation between social support and depression and anxiety are commonly conducted in various countries. For example, Simon et al. (2021) found that social support has a significant negative impact on anxiety. O'Conor et al. (2021) also discussed that the lack of social support from the government is correlated with symptoms of depression and anxiety.

This study aims to investigate the correlation between social support and depression and anxiety during the COVID-19 pandemic. A review of primary studies from various countries will be conducted, followed by a meta-analysis of the data obtained.

### *Social Support*

Social support is a social resource that is available or intentionally provided for individuals by non-professionals in formal or non-formal contexts (Gotlieb & Bergen, 2010). Social support is a part of the social context of adults. Social support can be formed from established social relationships (Vietze, 2011). Social support refers to the perceived help or support provided by others, or the sense of belonging to a community that provides reciprocal relationships (Bluestone, 1998).

Uchino et al. (2016) state that social support helps reduce psychological problems and improves mental health. Social support can also act as a protective factor or a preventive factor against suicide ideation caused by various mental health factors such as depression (Morgan, 2001). Social support can be sourced from an individual's relationships with their ecological environment, including relationships with micro-systems to macro-systems (Garbarino & Whittaker, 1983). With the development of technology, social support can be provided through online media (Bambina, 2007).

Social support becomes crucial when an individual's motivation decreases or when they are unable to face their problems, particularly support from family (Sarason & Pierce, 2013). Liu et al. (2021) also suggest that social support from family and friends can be a protective factor against depression during a pandemic. In pandemic situations, social support is also provided online. However, according to Meshi & Morgan (2021), direct social support has a greater impact on reducing depression and anxiety than social support provided through social media.

### *Depression*

Depression is a constant feeling of hopelessness, helplessness, and worthlessness that can last for weeks and disrupt daily life. The feeling of gloominess, negative thoughts, and lack of enthusiasm for life can drain all sense of happiness (Akhtar, 2018).

According to Beck & Alford (2009), depression is a mental health disorder that can be identified through emotional, cognitive, and behavioral deviations which include: (1) Changes in mood such as sadness and

loneliness; (2) Negative self-concept such as self-criticism and self-blame; (3) Regressive and self-punishing desires such as the desire to escape or commit suicide; (4) Changes in vegetative function such as anorexia, insomnia, and decreased libido; and (5) Changes in activity level such as retardation and agitation.

Nevid et al. (2003) state that depression and mood changes are relatively experienced by humans as a response to the ups and downs of daily life. The American Psychologist Association (2013) identifies depression as the emergence of a depressive episode characterized by at least one mood symptom such as feelings of sadness, hopelessness, and despair; or loss of interest and pleasure in all activities for at least 2 weeks.

The prevalence of depression in men and women according to Beck & Alford (2009) is one to two, with women being more vulnerable to depression than men. Balakrishnan et al. (2021) identified risk factors that contribute to depression during the Covid-19 pandemic in the Asia-Pacific region, which include fear of contracting the virus, female gender, deterioration of healthcare services, and lack of social support. In line with these findings, Marzo (2021) also reported that depression is more commonly experienced by women than men. Cases of depression are more frequently found in the general population, healthcare workers, and students. For Covid-19 patients, risk factors for depression and anxiety include age, oxygen saturation levels, hospitalization, and having family members infected with Covid-19 (Saidi et al., 2021).

### Anxiety

Anxiety and depression are two mental disorders that are interrelated (Kleinman & Becker, 1991). Many psychological scales have been directly created to determine these two mental conditions, such as HADS and DASS. According to Wehrenberg (2014), anxiety can decrease when individuals are able to solve a problem. In contrast, depression is characterized by individuals feeling helpless and hopeless towards the problems they face.

Anxiety is a state of worry in which an individual anticipates that something bad will happen soon (Nevid et al., 2003). Anxiety is a normal human function that detects the presence of danger or threat in the environment (Eysenck, 2013). Anxiety can be beneficial if it motivates individuals to improve their quality of life. Conversely, anxiety can become detrimental if it disrupts an individual's ability to perform daily activities (Nevid, 2003).

The threat posed by the Covid-19 pandemic has led to increased anxiety in society. It is known that adults are more susceptible to anxiety during social restrictions than children (Wu et al., 2021). Chen et al. (2021) suggest that increased anxiety is due to negative dispositional factors in society towards the risks and uncertainties caused by the Covid-19 pandemic. Malesza & Kaczmareck (2021) state that predictors of anxiety during the Covid-19 pandemic include demographic factors such as being female, older age, being married or living with someone, and having children. Anxiety is greater in individuals with a history of chronic illness.

Various studies have shown that the COVID-19 pandemic has led to increased anxiety among the general population, with different predictors and risk factors for men and women. While some studies suggest that women are more prone to anxiety during the pandemic due to factors such as living in urban areas, wearing masks, sleeping, exercising, and diet, others suggest that men are more vulnerable due to the impact of decreased income, trust in government handling of the pandemic, reading information about COVID-19, and decreased satisfaction with their job. Additionally, vulnerable groups such as pregnant women and frontline healthcare workers are also experiencing anxiety during the pandemic. Factors such as demographic, age, marital status, having children, and a history of chronic illness are also identified as predictors of anxiety during the pandemic. Anxiety is a normal response to perceived threats or danger, but it can become problematic when it interferes with an individual's daily functioning.

Based on the information provided, the hypotheses in this study are: (1) There is a negative relationship between social support and depression and anxiety; (2) There is a negative relationship between social support and depression; and (3) There is a negative relationship between social support and anxiety.

## Methodology

This study used a meta-analysis method to investigate the relationship between social support and depression and anxiety. Primary data were collected by searching relevant studies in Pubmed, Science Direct, Google Scholar, and Open Knowledge search engines. The keywords used to search for articles were "social support, depression, anxiety, covid", "Social support, depression, covid", and "social support, anxiety, covid". The publication year was limited to the last two years, 2020 to 2021, considering the emergence of the Covid-19 phenomenon at the end of 2019.

The Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) method was used by the researchers to screen the articles obtained from the channels and search engines mentioned. As a result, 16 articles were selected to be included in this study. The study's subject criteria included adults aged 18 years and above.

This study aims to investigate the correlation between social support and depression and anxiety, as well as the values of inconsistency and effect size. The data analysis in this study utilizes a free online meta-analysis service via the website meta-mar.com.

## Result

The articles collected through websites and search engines totaled 189,815. After specifying the articles published in the last two years, from 2020 to 2021, 26,086 articles were found. The researchers then reviewed 100 journals and obtained 16 articles relevant to this study based on the research variables, subject criteria, and correlation between research variables, as shown in Figure 1.
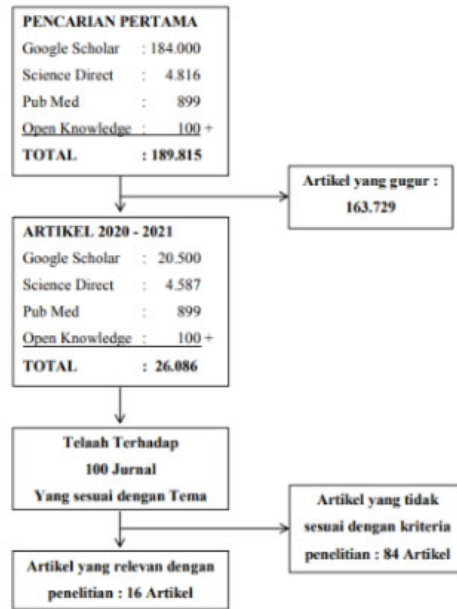
**Gambar 1.** The figure shows the results of article searches conducted through website channels and search engines.

The primary study of the 16 articles found that 6 articles generally discuss the correlation between social support and depression and anxiety, 5 articles specifically discuss the correlation between social support and depression, and 5 articles specifically discuss the correlation between social support and anxiety, as shown in Table 1.

**Table 1**. *Data on the findings of social support articles on depression and anxiety*

| No | Author | Subject | Country | N | r | measuring instrument |
|----|--------|---------|---------|---|---|----------------------|
| 1 | Simon et. al (2021) | adult | Austria | 560 | -0,64 | MPSS / HADS-D |
|  |  |  |  |  | -0,56 | MPSS / HADS-A |
| 2 | Bauer et. al (2020) | adult | Jerman | 4271 | -0,22 | F-SozU / PHQ-D |
|  |  |  |  |  | -0,10 | F-SozU / PHQ-A |
| 3 | Grey et. al (2020) | adult | Lebanon dan UEA | 2020 | -0,30 | MPSS / PHQ-9 |
|  |  |  |  |  | -0,17 | MPSS / GAD-7 |
| 4 | Zhuo et. al (2021) |  | China | 1017 | -0,30 | SSQ / PHQ-9 |

| | | | | | -0,28 | SSQ / GAD-7 |
|---|---|---|---|---|---|---|
| | | college student | | | | |
| 5 | Kong et. al (2020) | Covid-19 patient | China | 144 | -0,36 | PSS / HADS-D |
| | | | | | -0,20 | PSS / HADS-A |
| 6 | Li et. al (2021) | Covid-19 patient | China | 186 | -0,46 | SSRS / HADS-D |
| | | | | | -0,27 | SSRS / HADS-A |
| 7 | Hou et. al (2020) | adult | China | 1251 | -0,16 | MSPSS / CES-D |
| 8 | Kandeğer et. al (2021) | Covid-19 patient | turkey | 84 | -0,29 | MPSS / HADS |
| 9 | Fang et. al (2021) | Health workers | China | 540 | -0,53 | PSSS / SDS |
| 10 | Kaya et. al (2021) | adult | turkey | 894 | -0,24 | MSPSS / DASS |
| 11 | Mahamid et. al (2021) | adult | Palestina | 370 | -0,57 | BSSS / DSSS |
| 12 | Özmete & Pak (2020) | adult | turkey | 630 | -0,13 | MPSS / STAI (SA) |
| | | | | | -0,17 | MPSS / STAI (TA) |
| 13 | Ao et. al (2020) | adult | China | 736 | -0,32 | SSRS / TAI-C |
| | | | | | -0,15 | SSRS / SAI-C |
| 14 | Lu et. al (2020) | adult | Taiwan | 1537 | -0,30 | PSS / STAI |
| 15 | Yue et. al (2021) | Pregnant mother | China | 380 | -0,27 | SSRS / SAS |
| 16 | Labrague & de los Santos (2020) | Nurse | Philipina | 325 | -0,21 | PSSQ / Covid-19 Anxiety Scale |

The correlation between social support and depression

The number of subjects and the correlation between social support and depression can be seen in 11 articles in Table 2 below :

**Tabel 2**.Data finding a correlation between social support and depression

| No | Penulis | Subjek | Negara | N | r | SE | r lower | r upper |
|---|---|---|---|---|---|---|---|---|
| 1 | Simon et. al (2021) | adult | Austria | 560 | -0.64 | 0.04 | -0.72 | -0.55 |
| 2 | Bauer et. al (2020) | adult | Jerman | 4271 | -0.22 | 0.01 | -0.25 | -0.18 |
| 3 | Grey et. al (2020) | Adult | Lebanon dan UEA | 2020 | -0.30 | 0.02 | -0.34 | -0.25 |
| 4 | Zhuo et. al (2021) | college student | China | 1017 | -0.30 | 0.03 | -0.36 | -0.23 |
| 5 | Kong et. al (2020) | Covid-19 patient | China | 144 | -0.36 | 0.08 | -0.52 | -0.19 |
| 6 | Li et. al (2021) | Covid-19 patient | China | 186 | -0.46 | 0.07 | -0.60 | -0.31 |
| 7 | Hou et. al (2020) | Adult | China | 1251 | -0.16 | 0.02 | -0.21 | -0.10 |
| 8 | Kandeğer et. al (2021) | Covid-19 patient | turkey | 84 | -0.29 | 0.11 | -0.50 | -0.07 |
| 9 | Fang et. al (2021) | Tenaga Kesehatan | China | 540 | -0.53 | 0.04 | -0.61 | -0.44 |
| 10 | Kaya et. al (2021) | Adult | turkey | 894 | -024 | 0.03 | -0.30 | -0.17 |
| 11 | Mahamid et. al (2021) | adult | Palestina | 370 | -0.57 | 0.05 | -0.67 | -0.46 |

The research on social support and depression was conducted by the researchers on 11,337 individuals from various countries. Data analysis was performed using the website meta-mar.com to determine the correlation between social support and depression, the value of inconsistency, and the effect size, and the results were obtained in the following table:

**Tabel 3**. *random effect size of social support on depression*

|  | Fisher Z | r | SE | 95%CI | z sore | p value | Heterogeneity |
|---|---|---|---|---|---|---|---|
| Random effect size | -0.40 | -0.38 | 0.053 | [-0.466,-0.287] | 7.503 | 0.0 | $I^2$=96.2%, $Tau^2$=0.028 |

The value of inconsistency according to the table was obtained as I2=96.2%, indicating a high level of inconsistency and a large heterogeneity of characteristics in this study. Therefore, to measure the effect of social support on depression in this study, data analysis was carried out using a random effect size. This was also influenced by the use of different measurement tools in the primary studies used as references. The random effect size foresplot can be seen in the following figure:
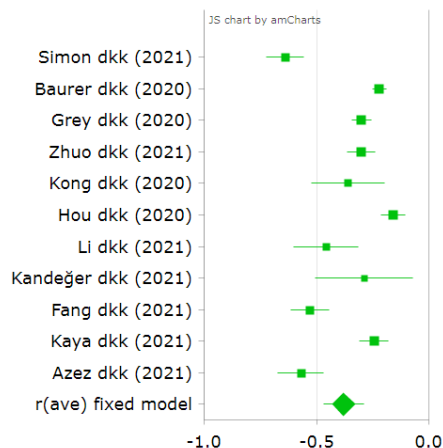
*Gambar 2*. Forest Plot random effect size of social support on depression

Based on the Fisher Z value in the table above, which is -0.40, 95%CI = -0.466, p = 0.0, it can be concluded that the effect size in this study is classified as a large effect size, indicating that social support has a significant influence on depression during the Covid-19 pandemic. This is consistent with the categories of effect size, which are r = ≤ 0.1 for small effect size, r = ± 0.3 for medium effect size, and r ≥ 0.5 for large effect size.

**Correlation between social support and anxiety**

The number of subjects and the correlation between social support and anxiety can be seen in 11 articles in the following table 2:

**Tabel 4**. Data finding a correlation between social support and anxiety

| No | Author | Subject | Country | N | r | SE | r lower | r upper |
|----|--------|---------|---------|---|---|----|---------|---------|
| 1 | Simon et. al (2021) | adult | Austria | 560 | -0.56 | 0,04 | -0,64 | -0,48 |
| 2 | Bauer et. al (2020) | adult | Jerman | 4271 | -0.10 | 0,01 | -0,13 | -0,07 |
| 3 | Grey et. al (2020) | adult | Lebanon dan UEA | 2020 | -0.17 | 0,02 | -0,21 | -0,12 |
| 4 | Zhuo et. al (2021) | college student | China | 1017 | -0.28 | 0,03 | -0,34 | -0,22 |
| 5 | Kong et. al (2020) | Covid-19 patient | China | 144 | -0.20 | 0,08 | -0,36 | -0,03 |
| 6 | Li et. al (2021) | Covid-19 patient | China | 186 | -0.27 | 0,07 | -0,41 | -0,12 |
| 7 | Özmete & Pak (2020) | adult | turkey | 630 | -0.15 | 0,04 | -0,23 | -0,07 |
| 8 | Ao et. al (2020) | adult | China | 736 | -0.23 | 0,037 | -0,31 | -0,16 |
| 9 | Lu et. al (2020) | adult | Taiwan | 1537 | -0.30 | 0,02 | -0,35 | -0,25 |
| 10 | Yue et. al (2021) | Pregnant Woman | China | 380 | -0.27 | 0,05 | -0,37 | -0,17 |
| 11 | Labrague & de los Santos (2020) | Nurse | Philipina | 325 | -0.20 | 0,05 | -0,32 | -0,10 |

The data on the relationship between social support and anxiety was collected by the researchers from 11 articles, involving a total of 11,806 participants from various countries. The analysis of the data was conducted through the website meta-mar.com to determine the correlation between the variables of social support and anxiety, as well as the values of inconsistency and effect size. The results are presented in the following table:

**Tabel 5**. Random effect size of social support on anxiety

| | Fisher Z | r | SE | 95%CI | z sore | p value | Heterogeneity |
|---|---|---|---|---|---|---|---|
| Random effect size | -0.26 | -0.25 | 0.043 | [-0.33,-0.174] | 6.065 | 0.0 | $I^2$=94.4%, $Tau^2$=0.018 |

Based on the table, the value of inconsistency was found to be I2 = 94.4%, indicating a high level of inconsistency in this study. The heterogeneity or diversity of characteristics in this study is also considered large. Therefore, a random effect size analysis is more appropriate in this study. This is also influenced by the use of different measurement tools in the primary studies used as a reference. The random effect size forest plot can be seen in the following figure:
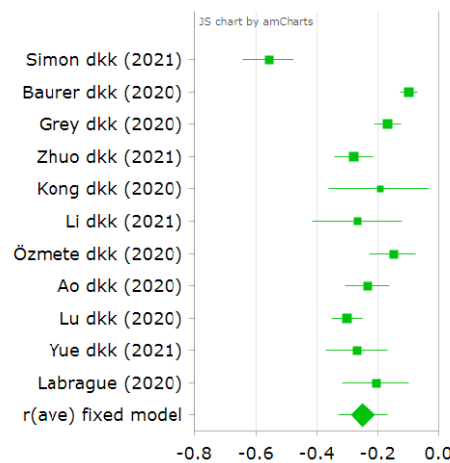


**Gambar 3**. Forest Plot random effect size of social support on anxiety

Based on the Fisher's Z value in the table above, which is -0.26, 95%CI = -0.330, and p = 0.0, it can be concluded that the effect size in this study is classified as a medium effect size, which means that social support has a moderate influence on anxiety during the Covid-19 pandemic. This is consistent with the effect size categories, which are r = ≤ 0.1 for small effect size, r = ± 0.3 for medium effect size, and r ≥ 0.5 for large effect size.

## Discussion

The results of the meta-analysis on primary research data confirm the previous studies that social support has an impact on reducing depression and anxiety during the Covid-19 pandemic. This study also found differences in the effects of social support on depression and anxiety. The effect of social support on depression is much greater than the effect of social support on anxiety. This can be seen from the confident interval values for social support on depression which are in the large category, while the confident interval values for social support on anxiety are in the medium category. These findings are consistent with previous studies that measured the effects of social support on depression and anxiety together and found that social support has a greater impact on depression than anxiety (Simon et al., 2021; Bauer et al., 2020; Grey et al., 2020; Zhuo et al., 2021; Kong et al., 2020; Li et al., 2021).

Social support has a significant impact on depression. Individuals who experience depression during the Covid-19 pandemic find it difficult to improve their mental health independently. Many news reports have highlighted suicide cases caused by pandemic-related depression. With strong evidence that increasing social

support can reduce depression during the pandemic, social support is expected to be promoted, prevent and even intervene in depression experienced by the community during Covid-19. According to Marzo et al. (2021), age, gender, and having infected friends or family are three important predictors of depression and anxiety.

Social support also has an influence on anxiety during the pandemic, although the effect is considered moderate. Individuals who experience anxiety do not necessarily have poor mental health. Anxiety is a normal response to perceived threats (Eysenck, 2013) and can also motivate individuals to improve their quality of life (Nevid, 2003), in this case, anxiety may increase compliance with health protocols. However, it is important to be cautious when anxiety disrupts daily activities, such as in cases of panic disorder and obsessive-compulsive disorder.

## Conclution

Based on the meta-analysis in this study, the heterogeneity of social support towards depression and social support towards anxiety is both considered large, therefore the researchers used Fisher's z-value in the random effect size. Based on the 95% confidence interval, it can be concluded that social support has an effect on depression and anxiety during the Covid-19 pandemic.

The effect of social support on depression and anxiety is not equally strong. Social support has a greater effect on depression than anxiety. However, the negative correlation between social support and both depression and anxiety indicates that the higher the social support, the lower the levels of depression and anxiety. Therefore, social support can be used to decrease depression and anxiety during the Covid-19 pandemic

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