

A META-ANALYSIS STUDY ON THE RELATIONSHIP BETWEEN FEAR OF COVID-19 AND
STRESS

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Abstract:

The fear felt due to Covid-19 increases the stress of the individuals. This study aims to survey the strength of the effect size of the relationship between fear of Covid-19 and stress. purpose of this study is surveying the relationship between fear of Covid-19 and life satisfaction. Meta-analysis technique is used. Scopus, Web of Science and GoogleScholar databases were searched to collect data and 8 suitable studies are found. CMA software is used to analyze the correlation values collected from these studies. The results of the analyses showed that the data set is heterogeneous. Random effects model is used. No publication bias was detected in the data set. The findings of this study revealed that the direction of the relationship between fear of Covid-19 and stress is negative. The strength of this effect size is medium ($r=-.451$). The results of this study can be used by the researchers who wants to study these variables. Moreover, the managers determining organizational policies including fear of covid-19 in their own organization can also use the results of this study.

Keywords: Fear of Covid-19, Stress, Meta-Analysis.

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Introduction:

After Covid-19, everyday life of the individuals was not the same as it affected the life standards of the individuals in various ways. It was spreaded quickly and a pandemic alert was given by World Health Organization. Curfew started in many countries with the declaration of pandemic.

The news about Covid-19 was everywhere. The mortality rate was very high and with every mutation this disease was becoming more contagious. This situation increased the fear of Covid-19 and the stress of the individuals.

Fear of Covid-19 causes a psychological pressure on the people. This fear also includes the fear of uncertainty. Because Covid-19 is a new disease compared to the others. Despite many news about Covid-19, many people still believes that very little is known about Covid-19.

Fear of Covid-19 leded some of the individuals to suicide (Bakioglu et al., 2020). It was obvious that some of the people started to feel desperate. But despair was not the only outcome of fear of Covid-19. The researches have shown that stress is also a significant outcome of fear of Covid-19 (Dymecka et al., 2021).

Stress is a negative feeling affecting the well-being adversely. It increases when a person feels like it is not possible to get rid of the unwanted factor causing stress. The main objective of this study is surveying the relationship between fear of Covid-19 and stress. Meta-analysis technique will be used to get more significant and valid results. Thus, it is also aimed to find the effect size of the surveyed relationship and to prepare the forest plot of the collected studies.

Methodology

The precautions and the declarations of the governments increased the fear of Covid-19. Because many people believes that governmental bodies provide reliable information. The previous studies showed that fear of Covid-19 is a predictor of stress (Satici et al., 2020; Lin et al., 2020). The researches also showed that fear of Covid-19 has a positive effect on stress (Bakioglu et al., 2020; Dymecka et al., 2021). Therefore if the fear of Covid-19 increases, the sress will also increase. The following hypothesis is derived to test these results:

H1: Fear of Covid-19 has a positive and significant effect on stress.

Guidelines of PRISMA was followed to prepare this study (Moher et al., 2019). The Scopus, Web of Science, GoogleScholar, and Proquest databases are searched. 102 studies are reviewed and 8 suitable studies are chosen among these studies.

Comprehensive Meta Analysis (CMA) software was used for meta-analysis. Heterogeneity and significance tests were carried out. Two different techniques are used to detecet publication bias: funnel plot diagram and Duval and Tweedie's Trim and Fill test. The quality of each study is evaluated by the quality test of Zangaro and Soeken (2007). Lastly, forest plot of the collected studies were prepared.

Findings

Table 1 shows the heterogeneity analysis results of this study. I^2 is a percentage showing the extent of heterogeneity. According to the analysis results, the allocation of the correlation values was heterogeneous at .01 level of significance. Hence, random effects model is used which was already recommended by Borenstein et al. (2009).

Table 1. Results of Heterogeneity Analysis

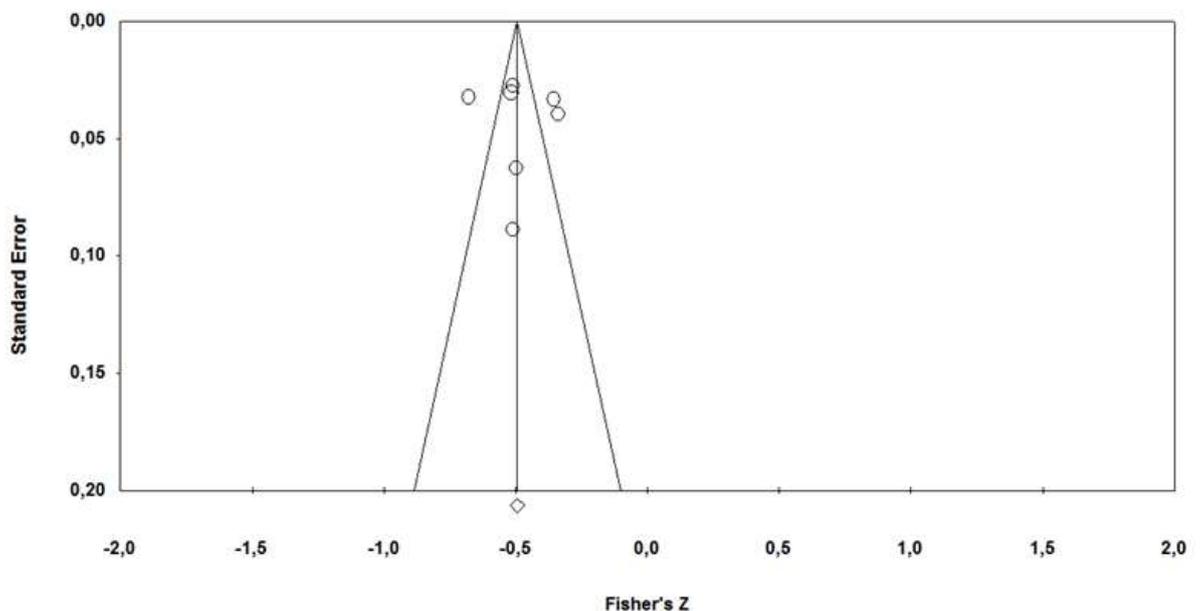
Variable	I^2	P value
Stress	90.985	0.000

***Significance at .01 level**

Publication bias are accepted as a sign of a missing data. It is usually thought like this missing part does not take place in the literature due to biased evaluation of the publishers. Therefore it is called publication bias. In fact, it is a sign of inconsistency that may also prove that some studies represented conflicting results. According to these quantitative techniques, the reason of this conflict must be errors of some studies.

The funnel plot technique is the first technique used to observe publication bias. Figure 1 indicates the funnel plot of this research. The allocation of the studies did not seem symmetrical, but also not asymmetrical. Thus, Duval and Tweedie's trim and fill test is also used to detect publication bias.

Figure 1. Funnel Plot Used to Test Publication Bias



Duval and Tweedies' Trim and Fill Test results showed that there is no trimmed study. Moreover, there is no difference between the observed and adjusted values. These results in Table 2 showed that there is no publication bias.

Table 2. Duval and Tweedies' Trim and Fill Test Results

Trimmed studies	Point estimate	Lower limit	Upper Limit	Q value
Observed values .37248 66.55291			-.45078	-.52270
Adjusted values .37248 66.55291	0		-.45078	-.52270

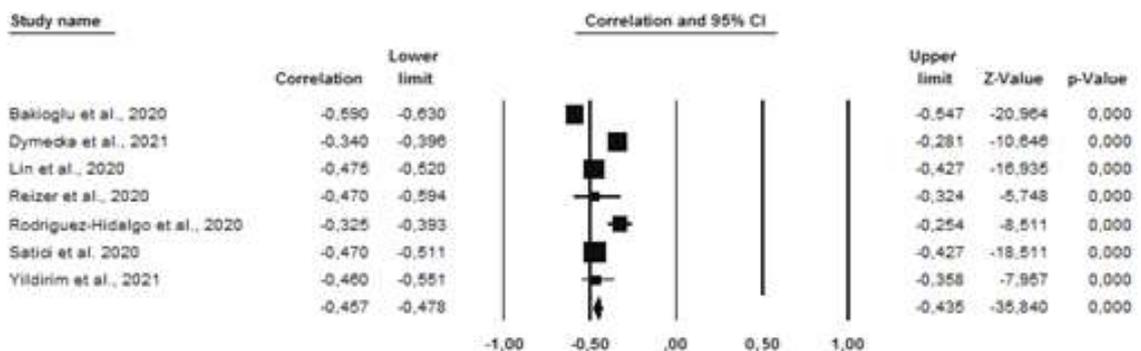
The significance test is applied to the collected data and the results showed that the relationship between fear of Covid-19 and stress is significant at a significance level of .01. The analysis results are in Table 3. The computed effect size regarding this relationship is medium (Cohen, 1988) and it is -0.451.

Table 3. Significance Test Results

Variable	Z Value	P value	Effect size (r)
Stress	10.086	0.000	0.451

The forest plot of the collected studies is in Figure 2. Forest plot shows the allocation of the collected correlation values. The studies shown in the forest plot are coded by the author. The names of the authors and the publication dates are written together with the sample size and correlation coefficients. Moreover, the quality test of Zangaro and Soeken (2007) was applied to each study. The studies scored as weak are excluded. One study was excluded. The rest of the 8 suitable studies were scored as high and added to this meta-analysis study.

Figure 2. Forest Plot



Discussion

Fear of Covid-19 is increasing with the news about new mutations increasing the contagiousness of this disease. Moreover, the news about rise in the cases can also increase the fear of Covid-19. Consequently, the stress experienced by the individuals will also increase.

The relationship surveyed by this meta-analysis relatively very new. Therefore, to the best of our knowledge, there is no other meta-analysis study surveying the relationship between fear of Covid-19 and stress. The results of this study showed that the direction of this relationship is positive as suggested by the collected 8 studies. The analysis results showed that there is no publication bias in the collected data. This result increased the reliability of this study.

Limitations and Future Studies

Only the studies in Turkish, German, and English are reviewed. The authors collaborate with each other to bring more studies together in the future. Moreover, increasing number of studies may enable a moderator analysis.

Conclusion and Implications

This study found the effect size of the relationship between fear of Covid-19 and stress is *medium*. Moreover the computed effect size is positive and ($r=-0.147$). The result provided by this study will guide the researchers who plan to study the variables of this study.

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