Original Research / Orijinal Araştırma

The Relationship between Job Satisfaction and Burnout in Healthcare Professionals: Meta-Analysis

Sağlık Çalışanlarında İş Tatmini ve Tükenmişlik İlişkisi: Meta-Analizi

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Abstract

Aim: The study aims to gather under a single roof a meta-analysis of the relationship between job satisfaction and burnout in healthcare workers, carried out in OECD countries, and to obtain a general result.

Method: Unlike similar methodologies employed in assessing the correlation between job satisfaction and job performance in international literature, the study employed the meta-analysis technique in its methodology. For this aim, the literature was systematically reviewed, and 35 specific studies meeting the established criteria were included. The initial step involved uploading these studies into the Comprehensive Meta-Analysis V3 program and subsequently coding them for analysis. Before commencing the study analysis, the decision was made regarding the model for the effect size calculation, with preference given to the random effects model. Following this, the analysis encompassed effect size determination, examination of publication bias, and execution of subgroup analyses.

Results: Considering the prominent findings of the study, a negative and significant relationship was found between job satisfaction and burnout. The individual studies included in the study do not have publication bias. There exists a statistically significant difference among countries concerning the correlation between job satisfaction and burnout.

Conclusion: The structure and functioning of countries' health systems are unique and different. The effects of this situation are also reflected in the findings of the study. To increase the satisfaction of healthcare professionals, human resources strategies specific to the dynamics of each country should be determined and implemented, and the results should be monitored.

Keywords: Job satisfaction, Burnout, OECD, Meta-Analysis

Özet

Amaç: Çalışma, sağlık çalışanlarında iş tatmini ile tükenmişlik arasındaki ilişkinin OECD ülkelerinde gerçekleştirilen meta-analizini tek çatı altında toplayarak genel bir sonuç elde etmeyi amaçlamaktadır.

Yöntem: Uluslararası literatürde yer alan, iş tatmini ile tükenmişlik arasındaki ilişkinin değerlendirilmesinde kullanılan metodolojilerden farklı olarak bu araştırmada meta-analiz tekniği kullanılmıştır. Bu amaçla literatür sistematik olarak taranarak belirlenen kriterleri karşılayan 35 spesifik çalışma araştırmaya dahil edilmiştir. İlk adım, bu çalışmaların kapsamlı Meta-Analiz V3 programına yüklenmesini ve ardından analiz için kodlanmasını içermektedir. Çalışma analizine başlamadan önce, etki büyüklüğü hesaplamasında kullanılacak modele karar verilmiş, ardından rastgele etkiler modeli tercih edilmiştir. Bunu takiben analiz, etki büyüklüğünün belirlenmesini, yayın yanlılığının incelenmesini ve alt grup analizlerinin yapılmasını kapsamaktadır.

Bulgular: İş tatmini ile tükenmişlik arasında negatif ve anlamlı bir ilişki bulunmuştur. Araştırmaya dahil edilen bireysel çalışmalarda yayın yanlılığı bulunmamaktadır. Araştırmanın bir diğer önemli sonucu ise iş tatmini ile tükenmişlik arasındaki ilişki açısından ülkeler arasında istatistiksel olarak anlamlı bir farklılık olmasıdır.

Sonuç: Ülkelerin sağlık sistemlerinin yapısı ve işleyişi kendine özgü ve farklıdır. Bu durumun etkileri çalışmanın bulgularına da yansımaktadır. Sağlık çalışanlarının memnuniyetini artırmak için her ülkenin dinamiklerine özel insan kaynakları stratejileri belirlenerek uygulanmalı ve sonuçları takip edilmelidir.

Anahtar Kelimeler: İş tatmini, Tükenmişlik, OECD, Meta-Analiz

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Introduction

Burnout is characterized as a syndrome stemming from prolonged stress within the work environment that remains unaddressed and is distinguished by three key dimensions: feelings of energy depletion or exhaustion, an amplified mental detachment from one's job, and a sense of negativity or cynicism, resulting in reduced professional efficacy.[1] Job satisfaction is expressed as the sum of people's feelings and beliefs about their current job.[2] These two concepts are part of health professionals' work lives under intense and stressful conditions. The literature suggests that there exists an inverse correlation between job satisfaction and burnout.[3] Occupational stress, burnout, absenteeism due to fatigue, high staff turnover, decreased patient satisfaction, increased diagnosis and treatment errors occur due to time pressure, job definition ambiguities, long-term and shift work, and unsupported and moral injury.[4] In the literature, the causes of burnout in healthcare workers are listed as limited hospital resources, risk of exposure to the virus, long shifts, disruption of sleep patterns, inability to maintain work-life balance, neglect of families due to excessive workload, and lack of communication and information.[5] One of the reasons for burnout is stated to be low salary and fringe benefits.[6] In the reports of the World Health Organization (WHO), it is stated that low salaries and dissatisfaction are reasons for the international movement of health workers, and in this context, countries have/should make improvements.[7] In the Organization for Economic Cooperation and Development (OECD) countries, the factors affecting health workers' job satisfaction and burnout and their results are discussed as research subjects. For instance, according to reports from the WHO, the count of migrant doctors and nurses employed in OECD countries witnessed a 60% surge from 2010 to 2020. This indicates a growing disparity between the availability and economic requirements of healthcare professionals, coupled with the escalating trend of international migration among these workers.[8] This situation can be expressed as a risk caused by job dissatisfaction and burnout, which may prevent the sustainability of the health system on a global basis and the provision of equitable and equal healthcare services. Job dissatisfaction and burnout are essential factors affecting health service quality. In OECD reports, it was reported that job satisfaction of healthcare professionals is one of the practical tools that improve patient and employee safety culture.[9] Studies conducted in the USA and Lithuania determined that health professionals' job satisfaction is directly proportional to patient satisfaction and quality of care.[10-12] In studies conducted in Türkiye, Brazil, Japan, Austria, and Switzerland, it was determined that health workers' job satisfaction is affected by factors such as conflict resolution in the workplace, relations with colleagues, job stress, fair promotion, salary, and reward.[13-16] In this context, it can be stated that job satisfaction and burnout in health workers affect the health service delivery process from end to end. The study seeks to perform a statistical analysis using the meta-analysis method on studies conducted in OECD countries that explore job satisfaction and burnout among healthcare professionals, aiming to contribute as a comprehensive meta-compilation to the existing literature.

Method

In this study, the meta-analysis approach, which is one of the systematic review methods, was employed for analysis. In meta-analysis studies, correlation studies are used continuously, and the average effect size and homogeneity status are determined by bringing together the data related to the correlation. The hypotheses prepared by the purpose of the study are as follows:

H_1: There is a statistically significant negative relationship between burnout and job satisfaction.

H_2: There is a statistically significant difference between burnout and job satisfaction studies according to the years they were published.

H_3: There is a statistically significant difference according to the countries where burnout and job satisfaction studies are conducted.

Table 1. *Literature Evaluation Strategy*

Literature Review	Inclusion Criteria	Extraction Criteria
Publication language	Full-text articles in Turkish and English	Publications in other languages and non-articles
Publication type	Articles	Other publications
Data Sources	Pubmed, Google Scholar, Web of Science and National Academic Network and Information Center	Publications not in specified sources
Keywords	Job satisfaction, burnout, doctor, nurse, health worker, health.	Other words.
Statistics data	Correlation and sample size are needed for meta-analysis. In addition, the studies were evaluated in the years they were carried out.	Other data that is not needed.
Sample	Doctors, nurses, and other health professionals.	Other occupational groups
Release year	2010 and after	2009 and before

Based on the study's objective, an analysis was conducted on research within the OECD concerning the correlation between burnout and job satisfaction among healthcare professionals. In determining the studies on the subject, the exclusion and inclusion criteria strategies specified in Table 1 were developed to search the relevant literature and obtain results suitable for the study.

All individual studies related to the subject of the study were examined in detail, and the summary parts of those deemed appropriate were ready to use in the analysis. In the first part of the study, 850 individual studies were determined by the literature review strategy. As a result of the deep examination, it was seen that 550 of 850 studies consisted of research repeated on different platforms of the same publications and were excluded. Abstracts of the remaining 300 studies were reviewed, and 250 more were excluded according to the exclusion and inclusion criteria. In the remaining 50 studies, it was deemed appropriate to exclude 15 and analyze 35 studies because they needed to comply with the pertinent data and study criteria fully. In the last stage, burnout and job satisfaction were transferred to the coding form prepared by the authors by the determined standards. The literature review strategy results are presented in the flow diagram of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) developed by Moher et al.[17]

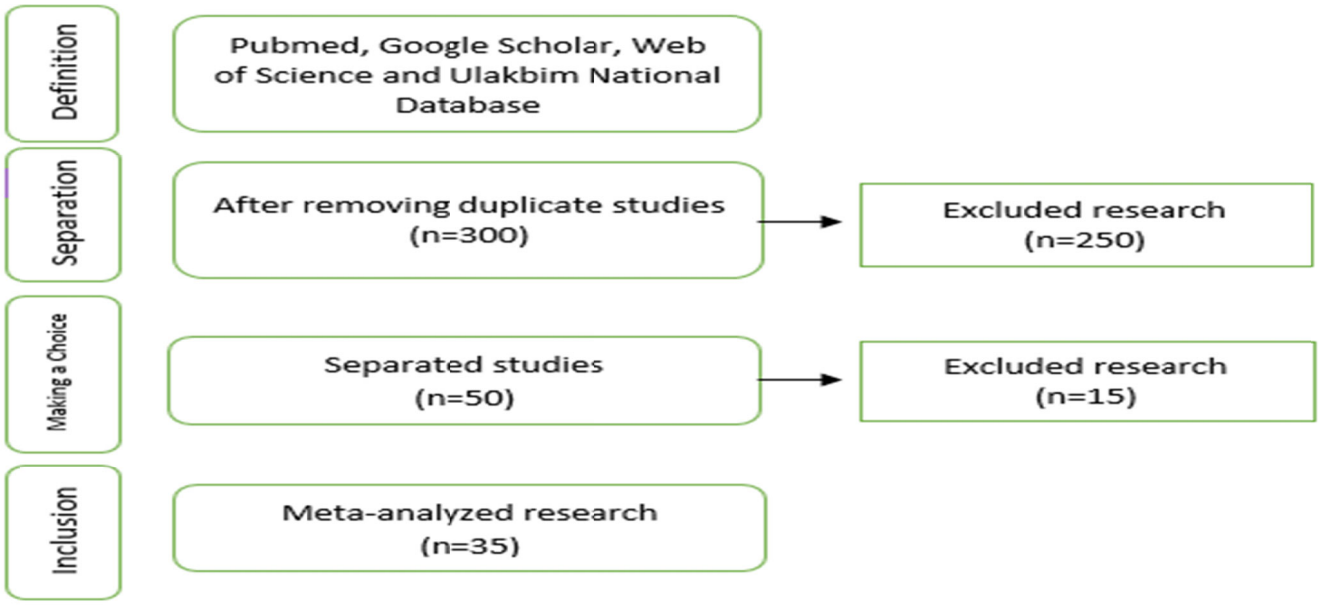


Figure 1. *PRISMA flowchart showing the process of literature search and inclusion of accessed individual studies in meta-analysis*

The Comprehensive Meta-Analysis v3 (CMA) package program was used to analyze the overall effect size of individual studies that examined the relationship between burnout and job satisfaction. In evaluating the effect size obtained, the effect size threshold values suggested by Cohen et al. for correlation coefficients were taken as a guide.[18] These threshold values are;

0.00< very weak effect <0.10;

0.11< weak effect <0.30;

0.31< moderate effect <0.50;

0.51< strong effect <0.80;

0.81 and above is considered a powerful effect.

The correlation coefficients and sample sizes from the 35 included studies were employed to compute the overall effect size concerning the relationship between burnout and job satisfaction. Initially, individual studies were subjected to homogeneity-heterogeneity analyses, assessing whether the test results surpassed the critical value. According to the results of this analysis, the appropriate effect size model, either fixed effect or random effect models, was chosen. Then, the findings were evaluated and interpreted by looking at the total number of studies dealing with the relationship (k), sample size (N), effect size, lower and upper limits, Q value, Fisher's z value, degrees of freedom (sd), and p-value.
The random effects model was used to test heterogeneity in this study. In this context, Cochrane Q statistics and I^2 tests were performed. In terms of heterogeneity, I^2 values can be between 0% and 100%, and as the percentage value increases, the heterogeneity also increases. The I^2 value represents 25% low, 50% medium, and 75% and higher high heterogeneity.
In 35 individual studies that were included in the meta-analysis, the scatter in the funnel plot was first evaluated to examine whether there was a publication bias. Then, by applying Egger's linear regression analysis and Begg and Mazumdar rank correlation test, it is stated that there is no publication bias if the results obtained in the Kendall Tau coefficient are not statistically significant.

Results

Table 2. *Description and Analysis of Studies Included in Meta-Analysis*

Features of Studies		**Burnout and Job Satisfaction Studies**	
		N	**%**
Number of studies		35	100
Total number of samples		10.328	100
Country	USA	6	21
	Australia	2	7
	France	1	3,5
	Netherlands	1	3,5
	Spain	3	10,5
	Canada	1	3,5
	Korea	8	28
	Norway	1	3,5
	Poland	1	3,5
	Türkiye	11	38,5
	Total	35	100

Table 2 shows the descriptive features of the individual studies included in the study. It is seen that 35 individual studies, 10,328 samples, and the countries with the highest number of studies included are Türkiye (n= 11), Korea (n= 8), USA (n= 6), Spain (n= 3), Australia (n= 2) and other countries France, Netherlands, Canada, Norway, and Poland (n=1).

Table 3. *Heterogeneity Test for Correlation Between Burnout and Job Satisfaction*

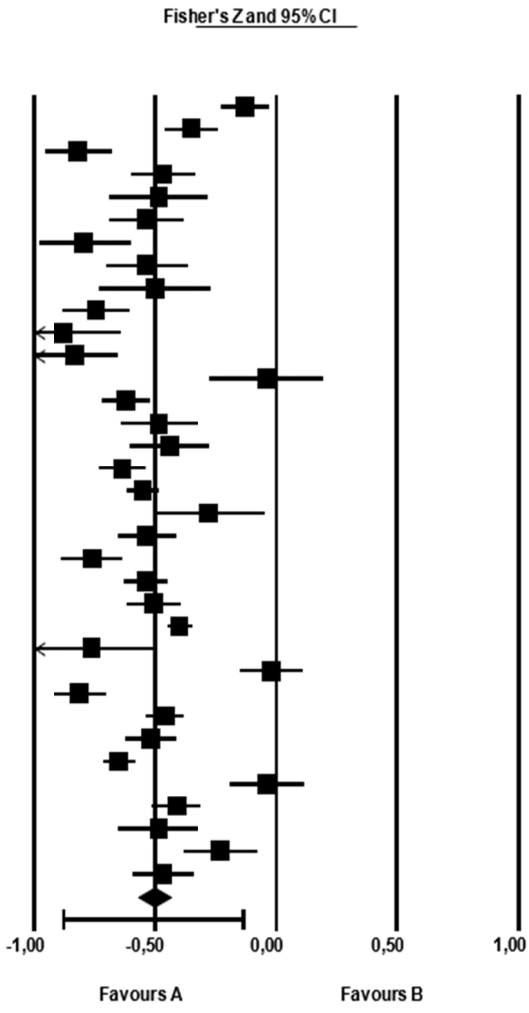
Model	**95% Confidence Interval of Effect Size**				**Heterogeneity Test**				
	Number of studies	Effect size (r)	Lower limit	Upper limit	Q value (x^2)	.05 Confidence level (x^2)	Value of freedom (df)	p	I^2
Fixed	35	-0,499	-0,518	-0,480	349,730	49,802	34	0,000	90,278
Random	35	-0,503	-0,567	-0,440					

First, homogeneity-heterogeneity tests are performed for individual studies that are meta-analyzed. According to the analysis result, whether it is above the critical value or not and whether the significance value is less than 0.05, a fixed or random effect model is selected. If the studies are homogeneously distributed, the fixed effect model should be used, while if they are heterogeneously distributed, the random effect size model should be used. In addition, they stated in the literature that it is necessary to use the random effects model from the structure of data in social sciences.[18]

Table 3 shows the heterogeneity test results for the relationship between burnout and job satisfaction. According to the results of the heterogeneity test, it is seen that the studies included in the meta-analysis are heterogeneous because the p-value is 0.000, it is found to be less than 0.05, and the Q value is greater than the value corresponding to the freedom value.[19] The I^2 statistical value used to determine the level of heterogeneity was defined as 90,278. Considering these results, a random effects model was used to determine the effect size in the study.

Table 4. *Average Effect Size of Correlation Between Burnout and Job Satisfaction Forest Plot*

Study name	Fisher's Z	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Turunc and Ogen,2022	-0,131	0,050	0,003	-0,229	-0,033	-2,612	0,009
Yucel and Kocak,2018	-0,351	0,057	0,003	-0,463	-0,238	-6,125	0,000
Atalay and Cakirel,2022	-0,816	0,071	0,005	-0,955	-0,677	-11,514	0,000
Edis and Keten,2022	-0,467	0,067	0,004	-0,598	-0,336	-6,994	0,000
Naldan et al., 2019	-0,483	0,104	0,011	-0,687	-0,280	-4,662	0,000
Celik and Kilic,2019	-0,533	0,077	0,006	-0,685	-0,382	-6,914	0,000
Kodaman and Kizilkaya,2022	-0,791	0,097	0,009	-0,981	-0,601	-8,144	0,000
Oral and Kose,2011	-0,532	0,087	0,008	-0,702	-0,362	-6,137	0,000
Kumas et al.,2019	-0,497	0,118	0,014	-0,728	-0,266	-4,220	0,000
Baglar and Develi,2021	-0,741	0,071	0,005	-0,881	-0,602	-10,406	0,000
Cimen et al.,2012	-0,873	0,119	0,014	-1,106	-0,641	-7,358	0,000
Hazell,2010	-0,829	0,091	0,008	-1,008	-0,650	-9,082	0,000
Iglesias and Bengoa Vallejo,2013	-0,040	0,119	0,014	-0,273	0,193	-0,337	0,736
Boamah et al.,2017	-0,618	0,050	0,002	-0,716	-0,521	-12,414	0,000
Lea et al.,2022	-0,482	0,081	0,007	-0,641	-0,323	-5,945	0,000
Myhren et al.,2013	-0,440	0,084	0,007	-0,605	-0,276	-5,248	0,000
Hayes et al.,2015	-0,633	0,049	0,002	-0,729	-0,537	-12,876	0,000
Meeusen et al.,2011	-0,549	0,034	0,001	-0,615	-0,483	-16,286	0,000
Munnangi et al.,2018	-0,277	0,118	0,014	-0,508	-0,046	-2,349	0,019
Senter et al.,2010	-0,532	0,061	0,004	-0,652	-0,412	-8,711	0,000
Mahoney et al.,2020	-0,756	0,064	0,004	-0,882	-0,631	-11,792	0,000
Yom,2013	-0,536	0,047	0,002	-0,627	-0,445	-11,510	0,000
Choi and Han,2013	-0,502	0,057	0,003	-0,614	-0,391	-8,860	0,000
Galian-Munoz et al.,2014	-0,400	0,026	0,001	-0,451	-0,349	-15,422	0,000
Chung and Han,2014	-0,758	0,129	0,017	-1,011	-0,505	-5,873	0,000
Meyer et al.,2015	-0,020	0,066	0,004	-0,150	0,110	-0,302	0,763
Im Choi and Koh,2015	-0,809	0,055	0,003	-0,917	-0,701	-14,628	0,000
Lim and Cho,2018	-0,459	0,039	0,002	-0,536	-0,381	-11,649	0,000
Uchmanowicz et al.,2019	-0,515	0,054	0,003	-0,620	-0,410	-9,597	0,000
Kim et al.,2017	-0,648	0,034	0,001	-0,714	-0,581	-19,121	0,000
Portero de la Cruz et al.,2020	-0,040	0,077	0,006	-0,191	0,111	-0,519	0,604
Rouxel, 2016	-0,412	0,053	0,003	-0,515	-0,309	-7,813	0,000
Jin et al.,2017	-0,485	0,084	0,007	-0,649	-0,320	-5,776	0,000
Scanlan and Still,2019	-0,229	0,078	0,006	-0,381	-0,077	-2,949	0,003
Yoon and Sok,2016	-0,466	0,066	0,004	-0,594	-0,338	-7,114	0,000
Pooled	-0,503	0,033	0,001	-0,567	-0,440	-15,447	0,000
Prediction Interval	-0,503			-0,872	-0,135		



Meta Analysis

The correlation coefficient was used to calculate the effect size of the relationship between burnout and job satisfaction. The effect size value, 95% confidence interval values, and Fisher's z values calculated according to the random effect model are shown in Table 4.

Considering the findings shown in Table 4, when the random effect size of 35 individual studies included in the meta-analysis study is examined, it is seen that the effect size value indicating the level of relationship between burnout and job satisfaction is (-0.503). The effect sizes in the 95% confidence interval of the related studies are between the lower limit (-0.567) and the upper limit (-0.440) values. It is also seen that the results of the Z test (-15,447) for 35 individual studies included in the meta-analysis and the impact of the overall effect size are

significant (p=0.000<0.005). When looking at the forest plot (Forest Plot) to see the estimated results with the confidence interval of all individual studies included in the meta-analysis, it is seen that the effect sizes of Cimen et al.'s article[20] on the far right and Meyer et al.'s article[21] on the far left. The obtained effect size value (-0.503) has a strong correlation, according to the study of Cohen et al.[18]

In meta-analysis studies, a funnel plot is one of the most used methods in examining and evaluating publication bias. The results of the funnel plot showing the publication bias of the studies included in the meta-analysis are shown in Figure 2. In the funnel plot, the y-axis gives the standard error value of individual studies, while the x-axis shows the effect sizes of these studies. Studies with a high standard error value are towards the bottom of the funnel plot, and studies with a low standard error value are near the mean effect size and at the top of the graph. In meta-analysis studies, the symmetrical spread of the circles showing the individual studies around the vertical line in the middle showing the effect size indicates no publication bias in the meta-analysis study.[22]

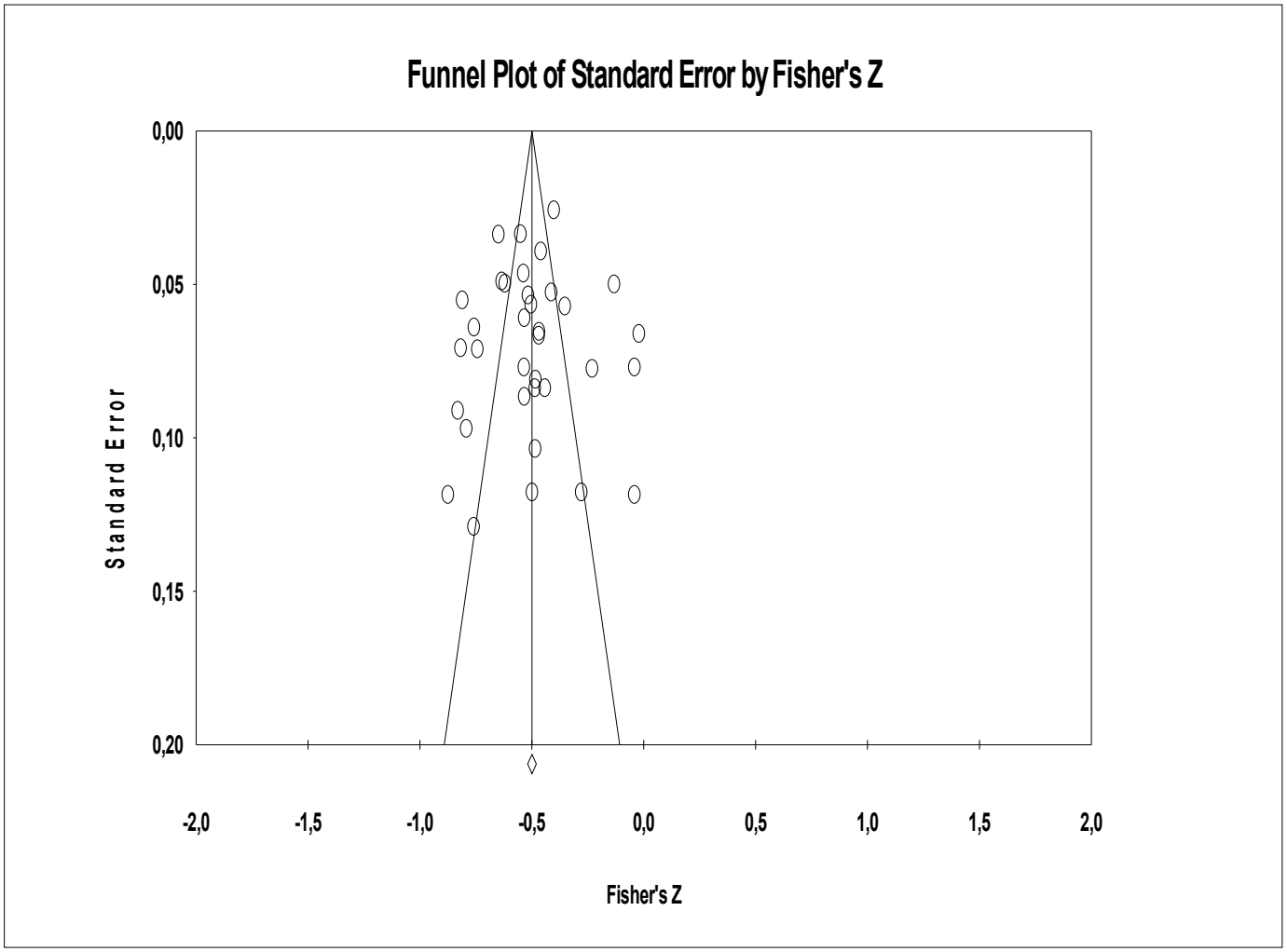


Figure 2. *Funnel Plot of the Relationships Between Burnout and Job Satisfaction*

One of the methods used to evaluate publication bias in meta-analysis studies is Egger's linear regression test. In this meta-analysis study, the result of Egger's linear regression test was determined as Intercept=-0.31202, t=-0.21914, p=0.82789. Another method used to assess publication bias in meta-analysis studies is the Begg and Mazumdar rank correlation statistics. According to this method, Kendall's tau b coefficient should be close to 1, and the p-value should be greater than 0.05. For this study, Kendall's Tau = 0.01513, p = 0.89830, indicating no publication bias in the studies included in the meta-analysis. Another method to look for publication bias is the Classic fail-safe N statistic. Classic fail-safe N statistics show the number of studies that should be included in the meta-analysis study for the p-value to be greater than the alpha value.[19] For example, the number of studies required for burnout and job satisfaction p-value to be greater than 0.05 is 20558. Since it is impossible to reach 20558 studies examining burnout and job satisfaction in OECD countries, this result shows no publication bias. As a result, it can be said that there is no publication bias in the meta-analysis study.

Table 5. *Subgroup Meta-Analysis Findings According to Publication Years of Studies Between Burnout and Job Satisfaction*

Variable		**k**	**Effect Size**	**95% Confidence Interval**		**sd**	**.05 Confidence Level X^2**	**Intergroup Homogeneity Value (Q_B)**	**p**
				Lower Limit	Upper Limit				
Broadcast years	2010	2	-0,587	-0,746	-0,365	10	18,307	**21,606**	**0,017**
	2011	2	-0,547	-0,543	-0,451				
	2013	4	-0,410	-0,512	-0,249				
	2014	2	-0,557	-0,719	-0,206				
	2015	3	-0,489	-0,723	-0,063				
	2016	2	-0,433	-0,473	-0,339				
	2017	3	-0,611	-0,595	-0,491				
	2018	3	-0,393	-0,455	-0,286				
	2019	5	-0,450	-0,515	-0,320				
	2020	2	-0,400	-0,801	-0,294				
	2022	5	-0,533	-0,668	-0,253				
	Total	33	-0,469	-0,495	-0,442				

Table 5 shows the results of the subgroup analysis made according to the years in which the burnout and job satisfaction studies were conducted. The sample number of the years included in the analysis is greater than 1. According to the results of this analysis, the highest effect size values were -0.611 for 2017, while the lowest was -0.393 for 2018. The effect size value for all the years of the research was found to be -0.469. The homogeneity test results aimed at assessing significant differences in effect sizes indicated a statistically significant variation among the research groups conducted in different years (QB=21.606, p=0.017<0.05).

Table 6. Subgroup Meta-Analysis Findings According to Countries Where Studies Between Burnout and Job Satisfaction Studies were Conducted

Variable		**k**	**Effect Size**	**95% Confidence Interval**		**sd**	**.05 Confidence Level X^2**	**Intergroup Homogeneity Value (Q_B)**	**p**
				Lower Limit	Upper Limit				
Country	USA	6	-0,484	-0,543	-0,424	26	38,885	**267,537**	**0,000**
	Australia	2	-0,517	-0,599	-0,436				
	Korea	8	-0,574	-0,609	-0,539				
	Türkiye	11	-0,488	-0,532	-0,443				
	Total	27	-0,529	-0,553	-0,505				

Table 6 shows the results of the subgroup analysis according to the countries where the burnout and job satisfaction studies were conducted. The countries included in the analysis are those with a sample number greater than 1. According to the results of this analysis, the effect size values were determined as -0.574 for Korea, -0.517 for Australia, -0.488 for Türkiye, and -0.484 for the USA, respectively. The effect size value for the countries where the research was conducted was found to be -0.529. The results from the homogeneity test, assessing for a notable contrast in effect sizes, confirmed a statistically significant difference among the country groups where the research was conducted (QB=267.537, p=0.000<0.05).

Discussion

The objective of this study is to determine the directional correlation between job satisfaction and burnout through meta-analysis. Within this framework, it was identified that 35 studies met the criteria for inclusion in our current meta-analysis, as per the established research guidelines.

As indicated in Table 4, the effect sizes were calculated by analyzing 35 individual studies that were the subject of the study. The smallest effect size was -0.567, while the largest effect size was -0.440. Therefore, the average effect size of the study was determined as -0.503. As a result of this determined effect size, the H_1 hypothesis that there is a negative relationship between burnout and job satisfaction was accepted. Examining the research explicitly made for the health sector within the scope of OECD countries, we found that similar results were obtained with our study.[23-28] Due to working conditions in the health sector, stressful and long working hours and the inability to maintain a work-life balance may occur.[29-30] In this context, although the countries are different, the negative relationship between job satisfaction and burnout due to the working conditions of the health sector can be expressed as a result of the dynamics of the industry.

Tests for publication bias were carried out to assess the reliability and validity of the findings in the current meta-analysis study. In the study, Funnel Plot, Egger's linear regression test, Begg and Mazumdar rank correlations, and Classic fail-safe N statistics were used to determine publication bias. The test results concluded that the studies included in the current meta-analysis exhibit a very high degree of heterogeneity. The publication bias tests found no findings that could cause publication bias in the present study. In this context, H2 hypothesis was rejected.

According to the outcomes of the homogeneity test, the study found a statistically significant disparity among the countries from which the study samples included in the analysis were derived. In the literature, when the findings regarding the job satisfaction of the health workers of the countries included in the analysis were examined, it was determined that the rates were measured as 20.2% in Korea, 96% in Australia, 61.91% in Türkiye, and 77.6% in the USA.[31-34] Health systems reflect societies' social, cultural, and traditional expectations, lifestyles, and political systems.[35] As a result, each country has a unique health system.[36] In this context, it can be said that the health service provision of countries and, accordingly, the working conditions of health workers differ, and this situation causes differences in job satisfaction and burnout levels. In this direction, there is a statistically significant difference between burnout and job satisfaction studies according to the countries where the H_3 hypothesis was accepted.

Conclusion

The research concluded that a substantial and adverse correlation exists between job satisfaction and burnout. The structure and functioning of countries' health systems are unique and different. That's why job satisfaction and burnout levels vary among healthcare professionals as well. In this context, to reduce burnout of healthcare workers and increase job satisfaction, human resources strategies focused on employee satisfaction should be determined and implemented by analyzing the current situation and root cause for each country and the results should be monitored. By adding new variables and expanding the study area in future studies, more generalizable results can be achieved and comparisons can be made on a country basis

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Conflicts of Interest

The authors declare that they have no competing interests.

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