



The Influence of Empathetic Leadership and School Culture on Teachers' Psychological Well-Being: A Meta-Analysis Approach

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Abstract: Teachers' psychological well-being was a crucial component in creating an educational environment that supported optimal and effective learning. The psychological condition of teachers influenced the quality of classroom interactions, work motivation, emotional resilience, and professional stability. Various interpersonal and organizational factors contributed to this well-being, including empathetic leadership demonstrated by school leaders and the school culture that shaped teachers' daily work environment. This study aimed to examine the influence of empathetic leadership and school culture on teachers' psychological well-being through a meta-analysis approach that provided a more objective and comprehensive estimation of the overall effect. A total of 25 quantitative empirical studies that met the inclusion criteria were analyzed using a random effects model. The results indicated that empathetic leadership had a positive and significant relationship with teachers' psychological well-being ($r = 0.460$, $p < 0.001$). School culture also showed a positive and significant relationship ($r = 0.449$, $p < 0.001$). These findings emphasized the importance of emotionally supportive leadership practices and collaborative school environments in maintaining teachers' mental health. This study provided empirical evidence and practical recommendations for strengthening leadership practices and improving school culture to enhance teachers' psychological well-being sustainably.

Keywords: Empathetic Leadership; Meta-Analysis; School Culture; Teachers' Psychological Well-being

Introduction

Teachers' psychological well-being is a critical factor influencing educational quality, as it directly affects classroom engagement, instructional effectiveness, and the quality of teacher-student relationships (Hascher & Waber, 2021). Despite its importance, teachers frequently experience stress from administrative burdens, academic pressures, and interpersonal conflicts, which can lead to emotional exhaustion and reduced job satisfaction (Harmsen et al.,

2018). Teacher psychological well-being is a mental state that reflects emotional balance, positive work experiences, and the ability to build healthy social relationships in a professional context.

Ryff (1989) explains that psychological well-being consists of six aspects: self-acceptance, positive relationships, autonomy, environmental mastery, purpose in life, and personal growth. Meanwhile, Seligman (2018) proposed the PERMA model, which emphasizes positive emotions, engagement, relationships, meaning, and achievement. Two

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organizational factors have been identified as potentially significant contributors to teachers' psychological well-being: empathetic leadership and school culture. However, research findings regarding their effects remain inconsistent.

Kock et al. (2019) define empathetic leadership as a leadership model that demonstrates how a leader's understanding and support can enhance followers' behavior and affective states through empathetic language and actions. Empathetic leaders are not only able to cognitively and affectively understand others' situations but are also willing to provide attention that results in supportive, appreciative, and respectful expressions and actions toward team members' needs (Muss et al., 2025). From school organization perspective, empathetic leadership is characterized by active listening and emotional support from school administrators. This leadership style has been associated with higher levels of teacher commitment and job satisfaction (Bellibas & Liu, 2018; Nguyen et al., 2020).

Beside from empathetic leadership, school culture has also been identified as a contextual factor that influences teachers' psychological well-being. School culture encompasses shared values, norms, beliefs, and practices that shape the social and professional environment in schools (Thapa et al., 2013). A positive school culture characterized by collaboration among teachers, social support, mutual respect, and a climate of trust can serve as a psychological resource that protects teachers from stress and enhances their well-being (Collie & Martin, 2017). Conversely, a competitive, hierarchical, or unsupportive school culture can exacerbate work stress and reduce teachers' well-being (Aldridge & Fraser, 2016).

Nevertheless, empirical studies have produced varying effect sizes. Some research reports strong positive relationships, while others find weak or nonsignificant effects (Zhou et al., 2024). These inconsistencies may result from differences in research design, measurement instruments, and contextual factors across studies (Aldrup et al., 2022; Pietsch et al., 2019). Although Dreer (2023) has done Systematic review that examined teacher well-being broadly, no comprehensive synthesis has quantified the specific contributions of empathetic leadership and school culture.

This meta-analysis study addresses these research gaps by synthesizing existing empirical evidence to produce reliable effect size estimates. The study has three primary objectives. First, it estimates the effect size of empathetic leadership on teachers' psychological well-being. Second, it analyzes the effect size of school culture on teachers' psychological well-being. Third, it compares the relative contributions of both variables in predicting teacher well-being. The findings are expected

to provide evidence-based guidance for improving leadership practices and school environments, ultimately supporting teachers' mental health and enhancing educational outcomes.

Method

Materials and Procedures

Data collection in this study was carried out through a systematic tracing process based on the guidelines of PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) to ensure transparency and minimize selection bias (Page et al., 2021). Literature searches were conducted on five indexed academic databases, namely Google Scholar, Scopus, ERIC, ScienceDirect, and SINTA, using a combination of keywords relevant to the research variables, namely empathetic leadership, school culture, and teacher psychological well-being. The literature search was carried out in October–November 2025, with a limitation of the publication time range of 2018–2025 so that the articles obtained are current data and in accordance with the context of modern education. The initial search results yielded 253 articles as listed in Table 1.

Table 1. Literature Search

Database	Number of Articles Found
Google Scholar	110
Scopus	60
ERIC	45
ScienceDirect	28
FEEL	10
Initial Total	253

The identification stage was carried out by removing duplicates of articles using Mendeley, and no automatic duplication was found. At the screening stage, a total of 195 articles were judged based on titles and abstracts, and all of them were judged relevant so none were eliminated. The full-text retrieval stage succeeded in obtaining all 195 articles in full-text form. Furthermore, an eligibility assessment was carried out for 123 articles. At this stage, the article is judged based on: the type of quantitative research, the availability of statistical data such as correlation coefficient (r), β , t , F , or other statistics that can be converted into effect size, and the relevance of the variables being studied. After going through all the PRISMA stages, a total of 25 studies were declared eligible and included in the meta-analysis.

The flow of the study selection is visualized in the PRISMA Flow Diagram 2020, as per the structure in the original document.

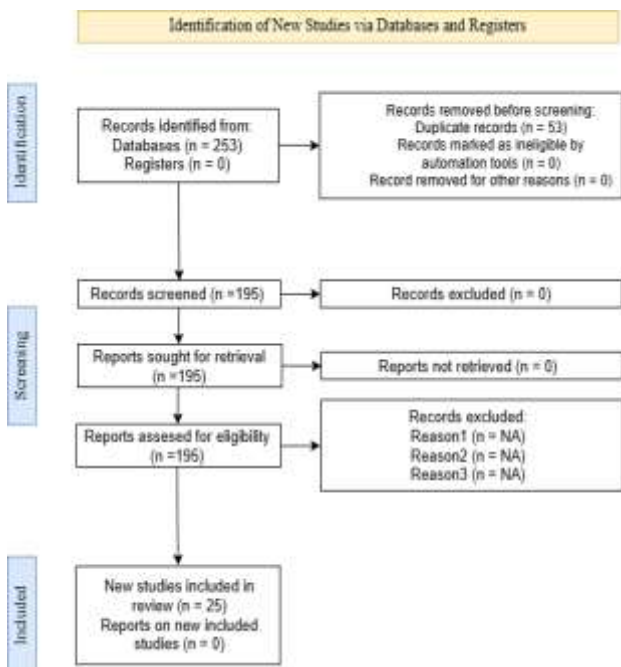


Figure 1. Flowchart of the 2020 PRISMA Study Selection Process (Page et al., 2021)

Data Source

The data sources in this study come from 25 quantitative scientific articles that have been declared to meet the inclusion criteria based on the PRISMA 2020 selection process. These articles are accredited publications in national and international journals that discuss the relationship between empathetic leadership, school culture, and teachers' psychological well-being in the context of formal education. The range of article publication is between 2018 and 2025, in accordance with research limitations so that the data used is up-to-date and relevant to the welfare issues of modern teachers. Each included article provides statistical data that allows the calculation of effect size, including correlation coefficient (r), regression value (β), t -value, sample size (n), and other test statistics (t , F , χ^2) that can be converted into correlation. In addition, each study provides information about the research design, data collection instruments, education level, and country context. The methodological characteristics of each article are recorded using a coding sheet in Microsoft Excel to ensure consistency and accuracy in data processing.

Data Analysis

The method of data analysis in this study uses a meta-analysis approach, which is a research method that combines the results of quantitative studies that have been systematically published to obtain more accurate conclusions (Retnawati et al., 2018). All statistical data obtained from the included articles are expressed in the form of effect size, where the effect size used in this

study is the correlation coefficient (r). This is because most studies report a linear relationship between the variables of empathetic leadership or school culture and teachers' psychological well-being.

To improve accuracy in combining data between studies, the correlation coefficient is converted to Fisher's z before the analysis process, as described by Borenstein et al. (2009). This transformation provides variance stability to the correlation distribution and makes the synthesis results more precise. The formula used is:

$$z = 0.5 \times \ln \left(\frac{1 + r}{1 - r} \right) \tag{1}$$

With variance calculated using:

$$V_z = \frac{1}{N-3} \tag{2}$$

and the value z that has been obtained is then returned to the correlation form through:

The analysis was carried out using a random-effects model, because the research analyzed came from diverse educational contexts, so the assumption of the fixed-effect model could not be applied. This model recognizes that each study has different true effect size values, so the combined effect value is calculated as an average estimate of the distribution; not a single fixed value (Borenstein et al., 2009). To test the degree of heterogeneity between studies, Cochran's Q statistics and the I^2 index were used. Cochran's Q calculates the degree of deviation between the effect size values and the summary effect values, using the formula:

$$Q = \sum_{i=1}^k W_i (Y_i - M)^2 \tag{3}$$

The degrees of freedom to calculate the significance of Q are:

$$df = k - 1 \tag{4}$$

Meanwhile, the proportion of heterogeneity is calculated using the I^2 index which is formulated as:

$$I^2 = \left(\frac{Q - df}{Q} \right) \times 100\% \tag{5}$$

A high I^2 value ($\geq 50\%$) indicates moderate to high heterogeneity, so the interpretation of the results requires contextual considerations. In this study, the I^2 values of both variable relationships showed very high heterogeneity so that the application of the random-effects model was completely appropriate. To detect

possible publication bias, funnel plot analysis and Egger's Regression Test are used. The funnel plot visualizes the symmetry of the effect size spread, while Egger's test tests the existence of publication bias statistically. The symmetrical plot funnel and the p-value of Egger's test greater than $\alpha = 0.05$ indicate the absence of significant publication bias (Carlson et al., 2023).

The entire meta analysis process is done using JASP software version 0.18, while data encoding, initial calculations, and dataset management are done using

Microsoft Excel. All analysis procedures are carried out sequentially and well documented to ensure that the results can be replicated transparently in accordance with the PRISMA 2020 standard.

Result and Discussion

Based on article selection using the PRISMA method, 25 primary articles were obtained for further analysis using meta-analysis procedures. These articles are presented in Table 2.

Table 2. Research Description

Author and Year	Locus	Sample	Method	Independent Variable	Variable Dependency	β /f/ t/r
Alzoraiki et al. (2024)	Yaman	Public School Teachers (450)	PLS SEM	School Culture	Teacher Performance	r
Chaudhry & Chhajer (2023)	India	Rajasthani Gurus (356)	Hierarchical Regression	Social Energy Management	Psychological Well-Being	r
Espinoza-Díaz et al. (2023)	Spain	Kindergarten, Elementary, Junior High School Teachers (386)	Multiple Linear Regression	Psychosocial Climate	Psychological Well-Being	r
Harrison et al. (2025)	Hong Kong	Teacher (199+15)	Mixed Method	School Climate	Psychological Well-Being	r
Heidari et al. (2022)	Iran	High School Teacher (346)	Multiple Linear Regression	Normative Commitment	Psychological Well-Being	r
Meditamar (2024)	Indonesia	High School Teacher (208)	PLS SEM	School Climate	Teacher Welfare	t
Ismail et al. (2022)	Maldives	Public School Teacher (359)	WITHOUT	School Culture	School Effectiveness	t
M. Li et al. (2024)	Europe	Teacher (104358)	WITHOUT	School Culture	Self-Confidence	t
Nogadas & Apostol (2024)	Philippines	Elementary School Teacher (300)	Correlation	School Culture	Teacher Welfare	r
Thien & Lee (2023)	Malaysia	Elementary School Teacher (90)	PLS SEM	School Culture	Teacher Welfare	β
Mat Zin et al. (2023)	Malaysia	Elementary School Teacher (256)	Multiple Linear Regression	School Culture	Psychological Well-Being	t
Honoror et al. (2025)	Indonesia	Islamic Primary School Teacher (52)	Multiple Linear Regression	School Climate	Psychological Well-Being	t
Dreer (2023)	Germany	Teacher (564)	WITHOUT	School Culture	Teacher Welfare	r
Georgiadis & Arvanitidou (2025)	Northern Greece	Elementary School Teacher (312)	Multiple Linear Regression	Empathetic Leadership	Teacher Performance	β
J. Li et al. (2025)	China	Elementary and Secondary Teacher (768)	CFA	Transformational Leadership	Teachers' Psychological Well-Being	r
Floman et al. (2023)	United States	Teacher (1.860)	WITHOUT	Teacher's Perception	Teacher Welfare	β

Author and Year	Locus	Sample	Method	Independent Variable	Variable Dependency	β /f/t/r
Quinteros-Durand et al. (2023)	Peru	Elementary School Teacher (620)	WITHOUT	Leadership in Serving	Life Satisfaction	r
Khairunnisa et al. (2025)	Indonesia	High School Teacher (75)	PLS-SEM	Principal's Leadership	Teacher Performance	r
Roland et al. (2025)	Philippines	Elementary School Teacher (253)	Multiple Linear Regression	Emotional Leadership	Teacher Job Satisfaction	r
Bacalso-Baroman & Quirap (2024)	Philippines	Teacher (204)	Correlation	Transformational Leadership	Teacher Welfare	r
Buonomo et al. (2022)	Italy	Elementary and Junior High School Teacher(186)	WITHOUT	The Compassion Experience	Life Satisfaction	r
Kaya (2024)	Turkey	Teacher (417)	WITHOUT	Transformational Abilities	Life Satisfaction	β
Hoque & Raya (2023)	Malaysia	Elementary School Teacher (213)	Multiple Linear Regression	Democratic Leadership and Transformational Leadership	Teachers' Emotional Behavior	β
Khan & Javed (n.d.)	Pakistan	Teacher (316)	Multiple Linear Regression	Ethical Leadership	Psychological Well-Being	β
J. Li et al. (2025)	China	Elementary and Junior High School Teachers (311)	PLS SEM	Spiritual Leadership, Teacher Trust in Leaders, and Organizational Justice	Teacher Welfare	β

Result

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Table 3 shows the results of the heterogeneity test, which assesses the extent to which the effect size among the studies included in the analysis differs beyond what would have been expected through sampling error.

Table 3. Heterogeneity Test

	Q	df	p
Residual Heterogeneity Test	135.52	11	< 0.001

Table 4. Estimation of Heterogeneity Parameters

	Estimation	95% Confidence Interval	
		Lower Limit	Upper Limit
t^2	0.043	0.020	0.140
I^2	94.735	89.236	98.308

Based on the results of the heterogeneity test, $Q = 135.52$ with p -value < 0.001 ; $t^2 = 0.043$ and $I^2(\%) = 94.74$ is close to 100%, it shows that the effect size of the analyzed studies is heterogeneous. In addition, the random effect approach is used in conducting publication bias tests and calculating the average effect

size or summary of existing effect estimates as shown in table 5.

Table 5. Summary of effect size

	Estimation	SE	t	p	95% Confidence Interval	
					Lower Limit	Upper Limit
Intercept	0.460	0.064	7.23	< 0.001	0.32	0.60

Based on the results of the study using the random effects model, there was a positive relationship between empathetic leadership and teachers' psychological well-being ($t = 7.23$; 95%CI[0.320, 0.600]). This is shown by a p -value lower than 0.001, indicating that there is a relationship between empathetic leadership and the psychological well-being of teachers. Based on the estimated intercept value of 0.460, the relationship between empathetic leadership can be categorized in relation to the moderate category. In addition, forest plots illustrate the results of the study which makes it easy to compare the research through estimates of the combination of effects. The forest plot shows the points

that are within a certain interval (Figure 2).

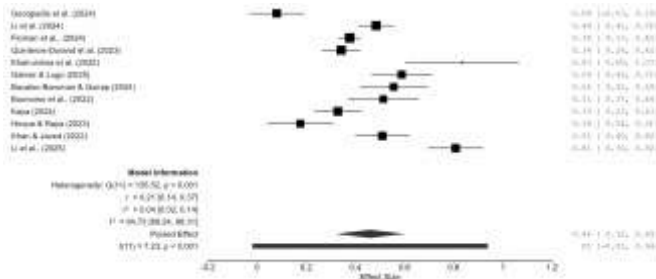


Figure 2. Forest Plot

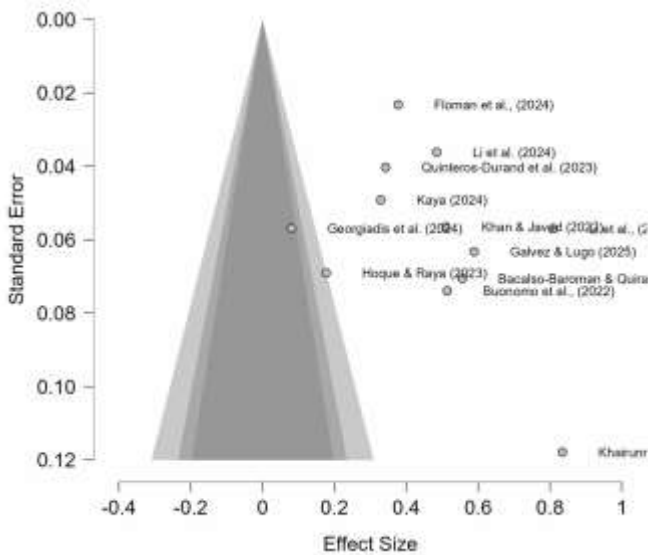


Figure 3. Funnel Plot

Figure 3 shows the plot funnel of the included study, where the effect size of the study is in the range of 0.08 to 0.83. The existence of a funnel diagram illustrates the potential bias of the published being analyzed or to find out whether the research selected as a sample is proven to be symmetrical or asymmetrical. The study was followed by the Egger Test to be statistically confirmed. The results of the Egger test are shown in table 6. where the p-value is 0.130 and greater than $\alpha = 0.05$ so that the hypothesis fails to be rejected. Thus, it can be concluded that the funnel plot is symmetrical and there is no significant publication bias.

Table 6. Egger's Test

	z	p
Egger's Test	1.515	0.130

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Table 7 shows the results of the heterogeneity test, which assesses the extent to which the effect size among the studies included in the analysis differs beyond what

would have been expected through sampling error.

Table 7. Heterogeneity Test

	Q	df	p
Residual Heterogeneity Test	885.4	12	< 0.001

Table 8. Estimation of Heterogeneity Parameters

	Estimation	95% Confidence Interval	
		Lower Limit	Upper Limit
t^2	0.253	0.176	0.432
I^2	97.305	94.55	99.06

Based on the results of the heterogeneity test, $Q = 885.4$ with p -value < 0.001 ; $t^2 = 0.253$ and $I^2(\%) = 97.305$ is close to 100%, it shows that the effect size of the analyzed studies is heterogeneous. In addition, the random effect approach is used in conducting publication bias tests and calculating the average effect size or summary of existing effect estimates as shown in Table 9.

Table 9. Summary of effect size

	Estimation	SE	t	p	95% Confidence Interval	
					Lower Limit	Upper Limit
Intercept	0.449	0.073	6.13	< 0.001	0.29	0.61

Based on the results of the study using the random effects model, there was a positive relationship between school culture and the psychological well-being of teachers ($t = 6.13$; 95% CI[0.29, 0.61]). This is shown by a p -value lower than 0.001, indicating that there is a relationship between school culture and the psychological well-being of teachers. Based on the estimated intercept value of 0.449, the relationship between school culture can be categorized in relation to the moderate category. In addition, forest plots illustrate the results of the study which makes it easy to compare the research through estimates of the combination of effects. The forest plot shows the points that are within a certain interval.

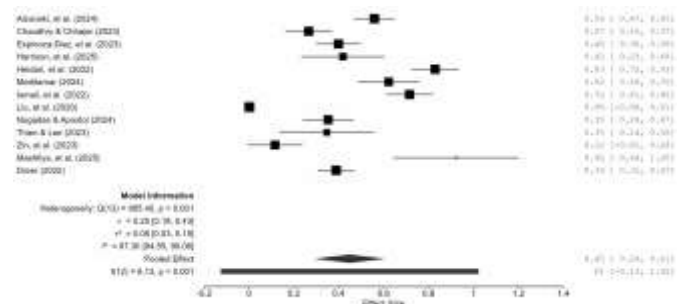


Figure 4. Forest Plot

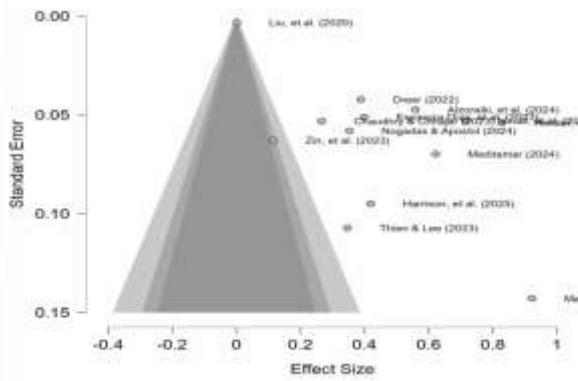


Figure 5. Funnel Plot

Figure 5 shows the funnel plot of the included study, where the effect size of the study is in the range of 0.002 to 0.922. The existence of a funnel diagram illustrates the potential bias of the published being analyzed or to find out whether the research selected as a sample is proven to be symmetrical or asymmetrical. The study was followed by the Egger Test to be statistically confirmed. The results of the Egger test are shown in table 10. where the p-value is 0.058 and greater than alpha = 0.05 so that the hypothesis fails to be rejected. Thus, it can be concluded that the funnel plot is symmetrical and there is no significant publication bias.

Table 10. Egger’s Test

	z	P
Egger’s Test	1.894	0.058

Discussion

The results of the meta-analysis showed that empathetic leadership had a positive and significant effect on the psychological well-being of teachers with a moderate effect size ($r = 0.460$). These findings confirm that school leaders who are able to show empathy, provide emotional support, and understand teachers' needs play an important role in maintaining teachers' psychological stability. Teachers who feel valued and supported tend to have lower stress levels and better work motivation. These findings are consistent with and reinforce the study by Floman et al. (2023), which found that principals' emotion regulation skills and emotional support predicted a decrease in teacher emotional exhaustion. Furthermore, these results support the arguments of Muss et al. (2025) and Buonomo et al. (2022) that manifestations of empathetic leadership create a caring and psychologically safe work environment. Given that these studies encompass diverse backgrounds, the results of this meta-analysis also extend the validity of the finding in Indonesia from Khairunnisa et al. (2025) which assert that the need for

responsive leaders for teachers to achieve mental stability.

In addition, school culture was also shown to have a positive and significant influence on the psychological well-being of teachers with moderate effect sizes ($r = 0.449$). The school environment characterized by collaboration, good communication, and supportive working relationships is able to create a sense of security and comfort for teachers in carrying out their professional duties. These findings align with research by Liu et al. (2021) and Mat Zin et al. (2023), which demonstrated that a supportive school culture serves as an ecological support system that enhances teacher self-satisfaction. This also supports the findings from Meditamar (2024) that a school environment that emphasizes positive interactions and trust can act as a buffer against work stress.

The high level of heterogeneity between studies shows differences in educational context and respondent characteristics, but the direction of consistently positive relationships reinforces the important role of empathetic leadership and school culture in supporting teachers' psychological well-being. This provides important theoretical implications that support the conceptual framework of Harrison et al. (2025) and Manke et al. (2025), namely these two factors work simultaneously and complement each other. Practically, the results of this study confirm that improving the psychological well-being of teachers needs to be done through strengthening the empathetic competence of school leaders and developing a healthy and collaborative school culture. This effort is important to maintain the sustainability of learning quality and teacher performance.

Conclusion

This meta-analysis confirms that empathetic leadership and school culture have significant and meaningful effects on teachers' psychological well-being. Empathetic leadership showed a moderate effect size ($r = 0.460$), indicating that leaders' emotional support and understanding contribute to teachers' psychological stability and professional readiness. School culture also demonstrated a moderate effect ($r = 0.449$), emphasizing the role of a supportive, collaborative, and communicative work environment in enhancing teachers' comfort and motivation. The consistency of these findings across studies highlights the importance of integrating empathy-based leadership development and positive school culture strengthening as strategic efforts to sustain teacher well-being and educational quality.

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Author Contributions

In this research, Darno Raharjo, Widodo Widodo, Merry Lapasau, Hasbullah Hasbullah, and Hendro Prasetyono contributed together to collecting, selecting, analyzing, and interpreting the research data. All authors reviewed and edited the manuscript, and have approved the final published version.

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Conflicts of Interest

The authors declare no conflict of interest.

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