The Mediating Role of Ethical Leadership in the Effect of Psychological Climate on Work Engagement

Psikolojik İklimin İşe Adanmışlığa Etkisinde Etik Liderliğin Aracı Rolü

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ABSTRACT

Keywords:

Psychological Climate,

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Jel Codes:

M00, M1, M11

The purpose of this study is to explore the mediating role of ethical leadership in the relationship between psychological climate and work engagement. The study consists of survey data (n=442) collected from employees in iron and steel companies in Istanbul. Confirmatory factor analysis was conducted to examine the convergent validity of the construct measures. Structural equation modeling was used to estimate the fit of the hypothesized model to the data. The findings show that all psychological climate variables affect ethical leadership and ethical leadership also has a significant effect on work engagement dimensions. In addition, the study revealed that ethical leadership has a full mediating role in the effect of psychological climate on work engagement. Limitations of this study include its focus on a single sector and location, which limits the generalizability of the findings to other sectors and cultural contexts. This study contributes to the work engagement literature by highlighting the role of ethical leadership in shaping the psychological climate of an organization. It provides new perspectives on how leadership behavior affects employee engagement, particularly in the context of ethical decision-making and leadership practices. The findings provide practical recommendations for organizations seeking to increase employee engagement through strategies for leadership development and improving psychological climate.

ÖZET

Anahtar Kelimeler:

Psikolojik İklim,

Etik Liderlik,

İşe Adanmışlık,

Aracı Rol

Jel Kodları:

M00, M1, M11

Bu çalışmanın amacı, psikolojik iklim ile işe adanmışlık arasındaki ilişkide etik liderliğin aracılık rolünü araştırmaktır. Çalışma, İstanbul'daki demir-çelik şirketlerindeki çalışanlardan toplanan anket verilerinden (n=442) oluşmaktadır. Yapısal ölçümlerin yakınsak geçerliliğini incelemek için doğrulayıcı faktör analizi yapılmıştır. Hipotezlenen modelin verilere uygunluğunu tahmin etmek için yapısal eşitlik modellemesi kullanılmıştır. Bulgular, tüm psikolojik iklim değişkenlerinin etik liderliği etkilediğini ve etik liderliğin de işe adanmışlık boyutları üzerinde anlamlı bir etkisi olduğunu göstermektedir. Ayrıca çalışma, etik liderliğin psikolojik iklimin işe adanmışlık üzerindeki etkisinde tam aracılık rolü üstlendiğini ortaya koymuştur. Bu çalışmanın sınırlılıkları arasında tek bir sektöre ve konuma odaklanması yer almaktadır; bu da bulguların diğer sektörlere ve kültürel bağlamlara genellenebilirliğini kısıtlamaktadır. Bu çalışma, etik liderliğin bir örgütün psikolojik iklimini şekillendirmedeki rolünü vurgulayarak işe adanmışlık literatürüne katkı sağlamaktadır. Özellikle etik karar alma ve liderlik uygulamaları bağlamında, liderlik davranışının çalışan katılımını nasıl etkilediğine dair yeni bakış açıları sunmaktadır. Bulgular, liderlik gelişimi ve psikolojik iklimin iyileştirilmesine yönelik stratejilerle çalışan katılımını artırmak isteyen kuruluşlar için pratik öneriler sunmaktadır.

1. INTRODUCTION

In today's business world, issues such as job involvement and ethical leadership are critical to the success of organizations. Job involvement refers to the level of commitment and motivation that employees feel towards their jobs (Pourtousi & Ghanizadeh, 2020). Psychological climate is the emotional, mental and behavioral characteristics of the environment perceived by individuals within an organization (Murtza & Rasheed, 2023). A good psychological climate increases employee motivation, provides job satisfaction, encourages collaboration and positively affects performance (Afota et al., 2023). The attitude and behavior of leaders have a great influence on the psychological climate of employees. Supportive, fair and motivating leadership styles generally create a positive psychological climate. Open and effective communication makes employees feel emotionally connected to their organization. Good communication helps to solve problems and build trust. Employees want to feel that things are managed fairly (Kawiana et al., 2021). The sense of justice plays an important role in the psychological climate of employees. Working in a trustworthy environment increases cooperation and supports motivation. Valuing employees' opinions and understanding their feelings positively affect the psychological climate. In a participatory environment, employees are more motivated and feel valued (Sharma & Kumra, 2020).

Effective management of stress has a significant impact on the psychological climate of employees. Working in a stressful environment reduces motivation and job satisfaction. Employees' respect for their achievements and receiving feedback positively affect the psychological climate, while appreciated employees are more motivated and motivated to do their jobs better (Wen et al., 2020). Employees' commitment to their work determines their overall psychological climate. Dedicated employees tend to create a more positive atmosphere (Sabokro et al., 2021). A sense of fairness increases employees' trust in each other and in their leaders. Fair practices support psychological trust and job satisfaction. Constructive feedback helps employees understand their progress and evaluate their achievements (Ndlovu et al., 2021). Flexible working conditions, work-excellence balance, and availability for employees' personal lives positively affect the overall psychological climate. Relationships, trust, cooperation and respect within the team affect the psychological climate, and healthy teams generally create a more positive psychological atmosphere (Tannimalay et al., 2021). A balanced consideration of these factors within the organization can contribute to a healthy psychological climate. However, the needs of each organization are different, so how these factors are applied may vary depending on the culture and goals of the organization.

Work engagement refers to the level of commitment, passion and motivation an employee feels towards their job and workplace. This concept reflects the interest, energy and effort of a person towards job. A dedicated employee has a positive attitude towards job, cares about job and acts with a desire to contribute to the workplace (Islam et al., 2023). The three dimensions of work engagement, namely vigor, concentration and dedication, explain the level of emotional and mental commitment of employees to their jobs. These dimensions are important criteria used to understand and measure work engagement (Aydemir & Endirlik, 2019). Vigor is the level of positive energy and resilience of employees towards their work. The vigor dimension reflects the employees' passionate and energetic approach to their work (Güler & Taşlıyan, 2022). The concentration dimension reflects employees' ability to work in their jobs in an in-depth and focused manner. Concentration increases employees' commitment to their jobs and positively affects job performance (Kanbur & Ay, 2020). Work engagement is employees' emotional attachment to and passion for their work. Dedication enables employees to show high performance in their jobs and to remain committed to their jobs on a long-term basis (Kır & Karabulut, 2021).

Work engagement is influenced by many factors such as personal characteristics of the employee, workplace environment, leadership style, level of job satisfaction, and social relationships in the workplace (Riyanto et al., 2021). For example, work engagement usually develops in an environment where employees are emotionally connected to their work and care about their work (Wirawan et al., 2020). Moreover, a workplace culture where employees can influence and contribute to their work can also foster work engagement (Decuypere & Schaufeli, 2020).

Ethical leadership is a concept related to leaders' behavior based on ethical values and applying core values such as integrity, honesty, justice, respect and responsibility in their work (Zaim et al., 2021; Ye et al., 2023). This form of leadership focuses not only on personal goals but also on the general interests of society and employees. Ethical leadership is based on the principles of long-term sustainability and justice rather than just short-term gains (Manuel & Herron, 2020). Ethical leadership helps to build trust in organizations, increase employee motivation and ensure long-term success. This leadership style is not only concerned with the profit motive of the company, but also with the well-being of society and the environment (Yan et al., 2022). Therefore, ethical leadership is not only about the individual behavior of leaders, but also about the culture and values of organizations.

Ethical leadership involves leaders being a model for employees and exhibiting behaviors based on ethical values. Ethical leaders increase employees' commitment to their jobs (Al Halbusi et al., 2021). Work engagement is when employees are emotionally and mentally committed to their work (Liona & Yuniardi, 2020). Ethical leaders teach employees values such as fairness, respect, honesty, and responsibility, and this increases work engagement. Ethical leaders increase employees' confidence in their work, which can increase the level of work engagement (Çetin et al., 2020). A positive psychological climate supports ethical leadership principles such as open communication, fairness, trust, and respect (Huang et al., 2021). Ethical leadership can contribute to shaping the psychological climate positively. When leaders show employees that they care about ethical values, the psychological climate is positively affected. Ethical leaders create a fair environment at work and meet the emotional needs of employees.

In conclusion, psychological climate, work engagement and ethical leadership are mutually influencing and reinforcing concepts. A positive psychological climate can increase the level of ethical leadership and work engagement, while ethical leadership and work engagement can contribute to a positive psychological climate. The interaction of these concepts in an organization can also increase employee satisfaction, motivation and performance. On the other hand, ethical leadership can contribute to the creation of a positive work environment in an organization by increasing employees' commitment to work. In this context, the purpose of this study is to examine the impact of psychological climate on work engagement and to understand the mediating role of ethical leadership in this relationship (Gwamanda & Mahembe, 2023).

2. RESEARCH HYPOTHESES

2.1. Psychological Climate and Work Engagement

Psychological climate is conceptually rooted in organizational behavior and climate theories, and it reflects the way individuals cognitively and emotionally interpret their work environment (Parker et al., 2003; Lee, 2015). Unlike organizational climate, which is often measured at the group or organizational level, psychological climate focuses on individual-level perceptions such as autonomy, support, recognition, fairness, and role clarity (Benzer & Horner, 2015; Beus et al., 2023). These perceptions shape how employees evaluate their roles within the organization, influencing their attitudes, motivation, and emotional investment in their work (Khokhar & Zia-ur-Rehman, 2017).

Moreover, a positive psychological climate contributes significantly to employees' psychological safety, which is a key determinant of work engagement (Kyambade et al., 2025). When employees perceive their environment as supportive and fair, they are more likely to feel secure in expressing themselves, taking initiative, and developing strong emotional connections with their tasks. This environment fosters intrinsic motivation, reinforces goal commitment, and encourages proactive behavior - core elements of work engagement (Cantor et al., 2012). Therefore, psychological climate can be considered both a precursor and an enabler of high engagement at work.

The hypothesis that psychological climate has a positive effect on work engagement has been examined and supported especially in the fields of organizational psychology and business management. Psychological climate is the emotional, mental and behavioral characteristics of the environment perceived by individuals in an organization (Choi, 2007; James et al., 2008; D'Anato & Zijlstra, 2008). Work engagement, on the other hand, is a condition associated with employees' commitment to their jobs, motivation and job performance (Riyanto et al., 2021; Yandi & Havidz, 2022).

Regarding the hypothesis proposed by the study, various researchers have reached similar results using different methodologies and sample groups. For example, the findings of studies examining the effects of psychological climate on work engagement indicate that a positive psychological climate increases work engagement levels (Bindl & Parker, 2010; Lee, 2015; Van Woerkom & Meyers, 2015). Similarly, Peng & Chen (2023) observed the effects of a positive psychological climate on work engagement. These researchers emphasized that management practices and work relationships are critical in determining employees' level of work engagement. On the other hand, Wen et al. (2023) reached different conclusions while examining the relationship between psychological climate and work engagement. In these findings, it is seen that the effect of psychological climate on work engagement may vary in certain situations. Therefore, these different studies in the literature help to develop an in-depth understanding of the impact of psychological climate on work engagement. The hypothesis developed in line with the above findings of the study is presented below.

H_1: Psychological climate has a positive effect on work engagement.

2.2. Psychological Climate and Ethical Leadership

Psychological climate is a multidimensional construct that encompasses individuals' perceptions of their work environment, including support, autonomy, fairness, and role clarity (Wilson et al., 2004). These perceptions significantly shape employees' cognitive and emotional responses, which in turn influence their evaluations of leadership behaviors. When employees perceive their environment as fair and supportive, they are more likely to recognize and appreciate ethical leadership behaviors such as transparency, integrity, and moral guidance (Brown & Treviño, 2006). Thus, psychological climate functions not only as an antecedent of job satisfaction and engagement but also as a contextual determinant that shapes how leadership is interpreted and valued within organizations.

Ethical leadership, grounded in social learning theory (Bandura, 1977), suggests that leaders serve as role models from whom employees learn and adopt behaviors. A positive psychological climate reinforces this learning process by creating an environment conducive to trust, openness, and ethical sensitivity (Qasim & Laghari, 2025). In such environments, employees feel psychologically safe and are more receptive to the ethical cues displayed by their leaders (Kim et al., 2021). Therefore, the interaction between psychological climate and ethical leadership is not unidirectional; rather, it is dynamic, as ethical leaders can further strengthen the psychological climate, creating a virtuous cycle of ethical organizational culture.

The impact of psychological climate on ethical leadership is an important research topic for understanding leadership dynamics in organizations and improving workplace ethics. Employees' perceptions of ethical leadership behaviors can contribute to the formation of an ethical climate in the organization (Kuenzi et al., 2020). Ethical leaders are respected by employees because they are trustworthy and honest (Lu & Lin, 2014). Therefore, the impact of psychological climate on ethical leadership can help to establish and maintain ethical norms within the organization (Ahmed & Khan, 2023). Regarding the effect of psychological climate on ethical leadership, various studies in the literature have revealed similar results. For example, in studies examining the effect of psychological climate on ethical leadership behaviors, it has been observed that a positive psychological climate encourages ethical leadership behaviors and contributes to the formation of an ethical culture within the organization (Demirtas & Akdogan, 2015; Su & Hahn, 2022; Kim et al., 2023). In another study, Sarwar et al. (2023) evaluated the effect of psychological climate on ethical leadership with a different sample. The findings showed that psychological climate shapes perceptions of ethical leadership behaviors and these perceptions affect ethical norms within the organization.

These studies emphasize that the impact of psychological climate on ethical leadership can significantly influence the formation and maintenance of ethical norms within organizations. In the light of these studies, the following hypothesis is proposed.

H₂: Psychological climate has a positive effect on ethical leadership.

2.3. The Mediating Role of Ethical Leadership

The theoretical foundation of the mediating role of ethical leadership in the relationship between psychological climate and work engagement can be linked to Social Exchange Theory (Blau, 1964). According to this theory, when employees perceive their environment as supportive, fair, and consistent - elements of a positive psychological climate - they feel obliged to reciprocate with positive attitudes and behaviors such as higher engagement and loyalty. Ethical leaders play a crucial role in activating this exchange by demonstrating fairness, concern for employee well-being, and transparent decision-making (Brown & Treviño, 2006). In this context, ethical leadership acts as a relational bridge between environmental perceptions and individual outcomes.

Furthermore, Affective Events Theory (Weiss & Cropanzano, 1996) provides another explanatory framework by emphasizing that workplace events and emotional experiences influence employees' attitudes and behaviors. A psychological climate characterized by integrity, respect, and empathy - often shaped by ethical leadership - triggers positive emotional states that enhance work engagement. Ethical leaders help construct affectively meaningful experiences through supportive and morally consistent behavior, reinforcing employees' intrinsic motivation and emotional investment in their work (Bakker & Demerouti, 2008). As such, the mediating role of ethical leadership is not only structural but also affective, strengthening the pathway between environmental perception and engagement.

The mediating role of ethical leadership in the effect of psychological climate on work engagement is an important area of research in the leadership and organizational behavior literature in the business world. Ethical leadership is about leaders adopting values such as integrity, honesty, fairness, and empathy and showing these values as an example to team members (Sharma et al., 2019). This leadership style contributes to the creation of a positive

work environment in the organization and to the increase of employees' work engagement (Alshammari et al., 2015). Creating a psychological climate that positively affects employees' level of work engagement emphasizes the mediating role of ethical leadership. Ethical leaders increase trust within the organization, ensure justice and meet the emotional needs of employees. This leadership style supports the formation of psychological climate and increases employees' level of commitment to work (Maximo et al., 2019). Research in the literature has provided an important basis for understanding the effects of ethical leadership on work engagement. For example, Liu et al. (2023) demonstrated the positive effects of ethical leadership on psychological climate. Similarly, Theriou et al. (2024) emphasized the mediating role of ethical leadership on work engagement.

These studies show that ethical leadership plays an important mediating role in the effect of psychological climate on work engagement. Therefore, organizations' strengthening ethical leadership values and shaping workplace culture in a positive way can contribute positively to organizational performance by increasing employees' level of work engagement. In line with the findings of the above studies, the following hypothesis was formulated.

H_3: Ethical leadership has a mediating role in the effect of psychological climate on work engagement.

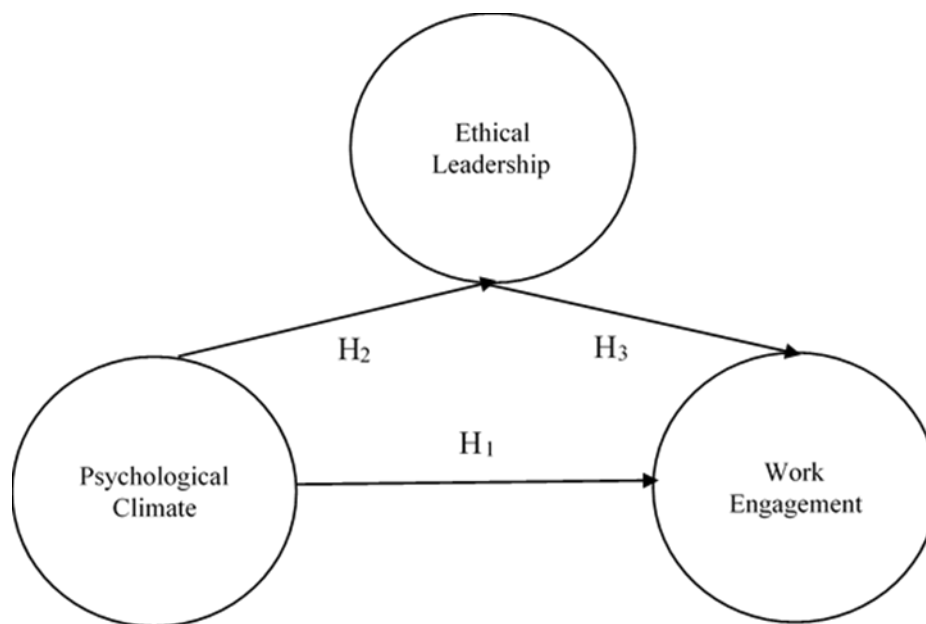The Figure 1 presents all hypotheses of this study.

Figure 1. Research Model

3. METHODOLOGY

The study group of the research consists of iron and steel sector employees operating in Istanbul. In this quantitative research, simple random sampling method was used to collect data from 442 iron and steel sector employees. The main reason why only iron and steel sector companies in Istanbul were preferred in this study is that Istanbul is a strategic center in terms of Turkey's industrial production and trade volume. The iron and steel sector, in particular, constitutes an important production and employment area concentrated in Istanbul. The businesses in this region are quite diverse in terms of both institutional structure and workforce dynamics, which provides meaningful data diversity that will increase the reliability of the research. In addition, iron and steel companies located in Istanbul have higher organizational complexity, corporate governance practices and digitalization levels compared to other regions of Türkiye. This situation provides a suitable context for observing and analyzing variables such as psychological climate, ethical leadership and dedication to work. In addition, the fact that the research can be carried out easily in logistics, high accessibility during the data collection process and homogeneous sampling conditions were also effective in choosing Istanbul.

Data were collected from the participants through survey questions including demographic questions, psychological climate, work engagement and ethical leadership scales. Questionnaires were sent online via "Google Forms" to the enterprises selected for data collection. In the questionnaire of the research, there are demographic questions for the personal information of the participants and scale questions for the variables. The

scale consisting of 21 items and six dimensions developed by Brown & Leigh (1996) and translated into Turkish by Şengül (2022) was used to measure psychological climate. The scale consisting of 17 items and six dimensions developed by Schaufeli et al. (2003) and translated into Turkish by Altıntaş (2022) was used to measure work engagement. In the measurement of ethical leadership, the scale consisting of nine items developed by Brown et al. (2005) and translated into Turkish by Turan (2022) was used. Psychological climate, work engagement and ethical leadership scales in the questionnaire were measured using a 5-point Likert scale ranging from "1. Strongly disagree" ... " 5. Strongly agree". According to the related provisions of the human survey, this study was approved by the *Ethics Committee of Istanbul Gelisim University.* In the process of survey, we told the interviewees that all the oral and written materials would be recorded and kept confidential. All participants were conducted anonymously, and the results will be used for academic research only, not for commercial purposes. We fully respected the wishes of the interviewees.

The psychological climate and work engagement scales used in this study are scales with proven validity in their original forms. However, when applied to the iron and steel sector employees in Istanbul, which constituted the research group, it was determined that some items exhibited low factor loadings and were not sufficiently understood by the participants. 7 items from the psychological climate scale and 4 items from the work engagement scale were removed due to both statistical and cultural adaptation problems. Since these items contained expressions that did not match the sectoral context, their removal increased the validity and cultural appropriateness of the measurement tool.

4. RESULTS

4.1. Reliability Analysis

Reliability analysis investigates whether the statements in the scale express a whole that shows a homogeneous structure. A coefficient that takes a value between 0 and 1 is calculated. This coefficient is called Cronbach's alpha coefficient. Depending on the alpha coefficient, the reliability of the scale is interpreted as follows (Kalaycı, 2008: 405).

If $0.00 \leq \alpha < 0.40$, the scale is not reliable,

If $0.40 \leq \alpha < 0.60$, the reliability of the scale is low,

If $0.60 \leq \alpha < 0.80$, the scale is highly reliable and

If $0.80 \leq \alpha < 1.00$, the scale is highly reliable.

Table 1. Reliability Analysis Results

	Cronbach Alpha Coefficient
General Psychological Climate	0,857
Supportive management	0,743
Role openness	0,795
Contribution	0,600
Self-expression	0,613
General Work Engagement	0,898
Vigour	0,851
Concentration	0,653
Dedication	0,837
General Ethical Leadership	0,958

In Table 1, the general reliability coefficient alpha value of the psychological climate scale shows that the scale is quite reliable. When the alpha values of the dimensions of the psychological climate scale are examined, it is seen that the general alpha values of the dimensions of supportive management, role clarity, organizational contribution and approval and self-expression are quite reliable. The general alpha value of the work engagement scale shows that the scale is at a high level. While the concentration statements are quite reliable among the work engagement dimensions, the statements of the vigor and dedication dimensions are calculated as quite reliable. The general alpha coefficient of the ethical leadership scale shows that the scale is quite reliable.

4.2. Findings on Demographic Characteristics

Employees were asked personal information questions regarding gender, age, marital status, education level, length of service in the organization, and total length of service, and the frequency and percentage distributions of the results and the demographic information of the participants are given in Table 1.

Table 2. Frequency and Percentage Distributions of Employees' Personal Information

		n	%
Gender	Male	292	66,1
	Female	150	33,9
	Total	442	100,0
Age	25-31	118	26,7
	32-38	100	22,6
	39-45	52	11,8
	45 +	172	38,9
	Total	442	100,0
Marital status	Single	136	30,8
	Married	306	69,2
	Total	442	100,0
Education level	High school	28	6,3
	Associate degree	8	1,8
	Undergraduate	238	53,8
	Master	108	24,4
	PhD	60	13,6
	Total	442	100,0
Lenght of work	1-3 years	122	27,6
	4-6 years	100	22,6
	7-9 years	28	6,3
	10-12 years	44	10,0
	13 +	148	33,5
	Total	442	100,0
Total of work	1-3 years	66	14,9
	4-6 years	48	10,9
	7-9 years	44	10,0
	10-12 years	52	11,8
	13 +	232	52,5
	Total	442	100,0

5. CONFIRMATORY FACTOR ANALYSIS

5.1. Confirmatory Factor Analysis of Psychological Climate Scale

The model shown in Figure 2, in which the observed variables Psychological Climate Supportive Management (PCSM), Role Clarity (PCRO), Organizational Contribution and Confirmation (OCCR) and Self-Expression (PCSE) are gathered under more than one, unconnected factor, is a first level multifactor model.
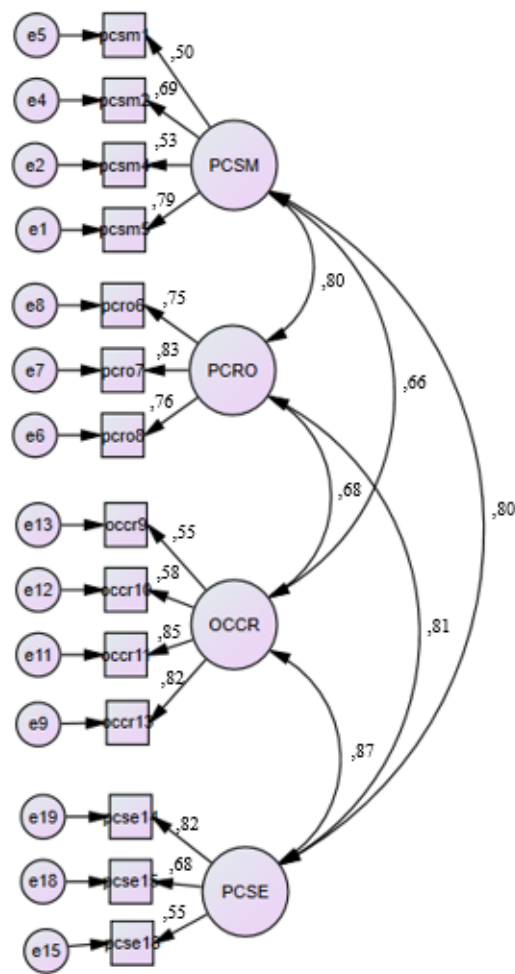
Figure 2. First Level Multifactor Structural Equation Model of the Psychological Climate Scale

In the first level multifactor model shown in Figure 2, there are 14 statements and four factors. There are 21 statements in the original version of the scale. As a result of confirmatory factor analysis, 7 statements were removed from the scale because they did not fit the model well. The analysis continues with the remaining 14 statements. The fit results of the confirmatory factor model are shown in Table 3.

Table 3. Confirmatory Factor Analysis Results of the Psychological Climate Scale

	ΔX^2	sd	$\Delta X^2/sd$	RMSEA	NFI	CFI	IFI
PCS	162,833*	60	2,71	0,062	0,930	0,954	0,955

∗ p ≤ 0,01

Confirmatory factor analysis tests whether the sample data fit the original (constructed) factor structure. The findings of confirmatory factor analysis in Table 3 show that ΔX^2 =162.833, sd=60, $\Delta X^2/sd$=2.71, RMSEA=0.062, NFI=0.930, CFI=0.945 and IFI=0.955. This information shows that the general model fit (≤3) indicates a good fit, and the result of RMSEA (0.60-0.80), which is the root mean square error of the comparative fit index, indicates an acceptable fit. Among the other comparative fit indices, the normed fit index NFI (0.94-0.90) indicates an acceptable fit, the incremental fit index IFI (≥0.95) indicates a good fit, and CFI (≥0.95) indicates an acceptable fit.

5.2. Confirmatory Factor Analysis of Work Engagement Scale

The model shown in Figure 3, in which the observed variables of Work Engagement Vigor (WEV), Concentration (WEC) and Dedication (WED) are grouped under more than one, unconnected factor, is a first-order multifactor model.
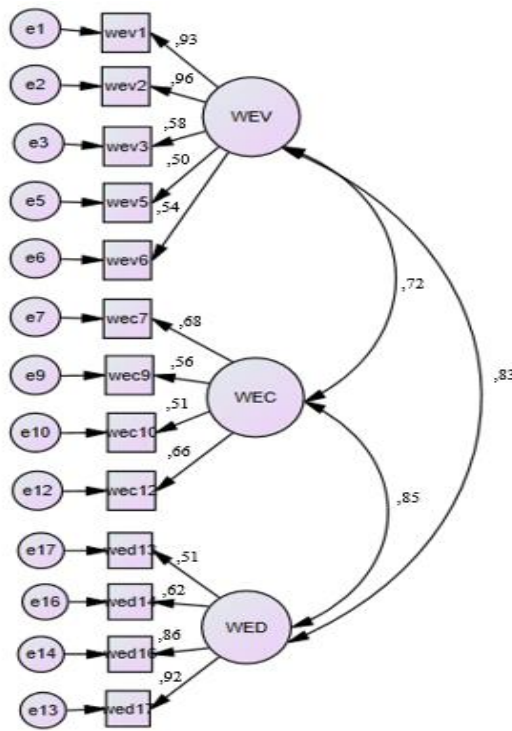
Figure 3. First Level Multifactor Structural Equation Model of Work Engagement Scale

In the first level multifactor model shown in Figure 3, there are 13 statements and three factors. There are 17 statements in the original version of the scale. As a result of confirmatory factor analysis, 4 statements were removed from the scale because they did not fit the model well. The analysis continues with the remaining 13 statements. The fit results of the confirmatory factor model are shown in Table 4.

Table 4. Confirmatory Factor Analysis Results of the Work Engagement Scale

	ΔX^2	sd	$\Delta X^2/sd$	RMSEA	NFI	CFI	IFI
WES	114,016*	45	2,53	0,059	0,965	0,978	0,979

∗ p ≤ 0,01

Confirmatory factor analysis findings show that ΔX^2 =114.016, sd=45, $\Delta X^2/sd$=2.53, RMSEA=0.059, NFI=0.965, CFI=0.978 and IFI=0.979. This information shows that the overall model fit (≤3) result shows good fit, and according to the result of RMSEA (0.06-0.08), which is the root mean square of approximate errors, which is one of the comparative fit indices, it indicates an acceptable fit. According to the results of the normed fit index NFI (≥0.95) and the incremental fit index IFI (≥0.95), which are other comparative fit indices, it can be stated that the model shows good fit, and according to the result of CFI (≥0.95), the model shows acceptable fit.

5.3. Confirmatory Factor Analysis of Ethical Leadership Scale

The model shown in Figure 4 for the observed variable of Ethical Leadership (EL) is a first level multifactor model.
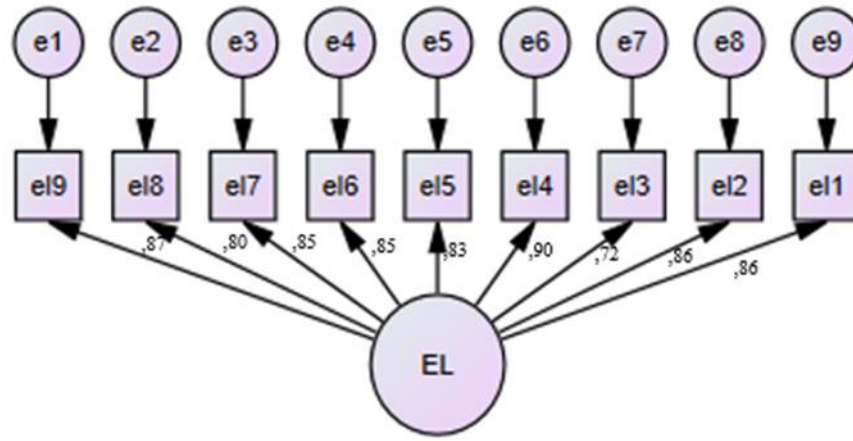
Figure 4. First Level Multifactor Confirmatory Factor Model Of The Ethical Leadership Scale

In the first level multifactor model shown in Figure 4, there are 9 statements and one factor. The fit results of the confirmatory factor model are shown in Table 5.

Table 5. Confirmatory Factor Analysis Results of Organizational Trust Scale

	ΔX^2	sd	$\Delta X^2/sd$	RMSEA	NFI	CFI	IFI
ELS	52,508*	20	2,625	0,06	0,986	0,991	0,991

∗ p ≤ 0,01

Table 5 shows the confirmatory factor analysis findings as ΔX^2 =52.508, sd=20, $\Delta X^2/sd$=2.625, RMSEA=0.06, NFI=0.986, CFI=0.991 and IFI=0.991. This information indicates that the overall model fit (≤3) result shows a good fit, and RMSEA (0.06-0.08), which is the root mean square error of approximation, which is one of the comparative fit indices, indicates an acceptable fit. It can be stated that the results of the normed fit index NFI (≥0.95), the incremental fit index IFI (≥0.95) and CFI (≥0.95), another comparative fit index, indicate good fit.

6. MEDIATION TEST WITH AMOS

Whether a third variable mediates the relationship between two variables or whether there is an indirect effect is proven by regression analysis. The following three regression analyses are required (Agler & De Boeck, 2017).

- In the first analysis, psychological climate is taken as an independent variable and work engagement as a dependent variable. Thus, the first condition is investigated.

- In the second analysis, the effect of psychological climate on ethical leadership is investigated. Thus, it is examined whether the second condition is met.

- In the third analysis, psychological climate and ethical leadership are taken as independent variables and their effects on work engagement are examined. In this case, if ethical leadership has a significant effect on work engagement and the effect of psychological climate in the first equation is significantly and significantly reduced, it can be said that ethical leadership has a mediating role in the effect of psychological climate on work engagement.

The reason why structural equation modeling is preferred instead of regression analysis when investigating the mediation effect is that the structural model provides a stronger infrastructure. While regression analysis uses the averages of the variables, the structural equation model includes measurement and residual errors in the calculation. The test result of the first model is given in Figure 5 below.
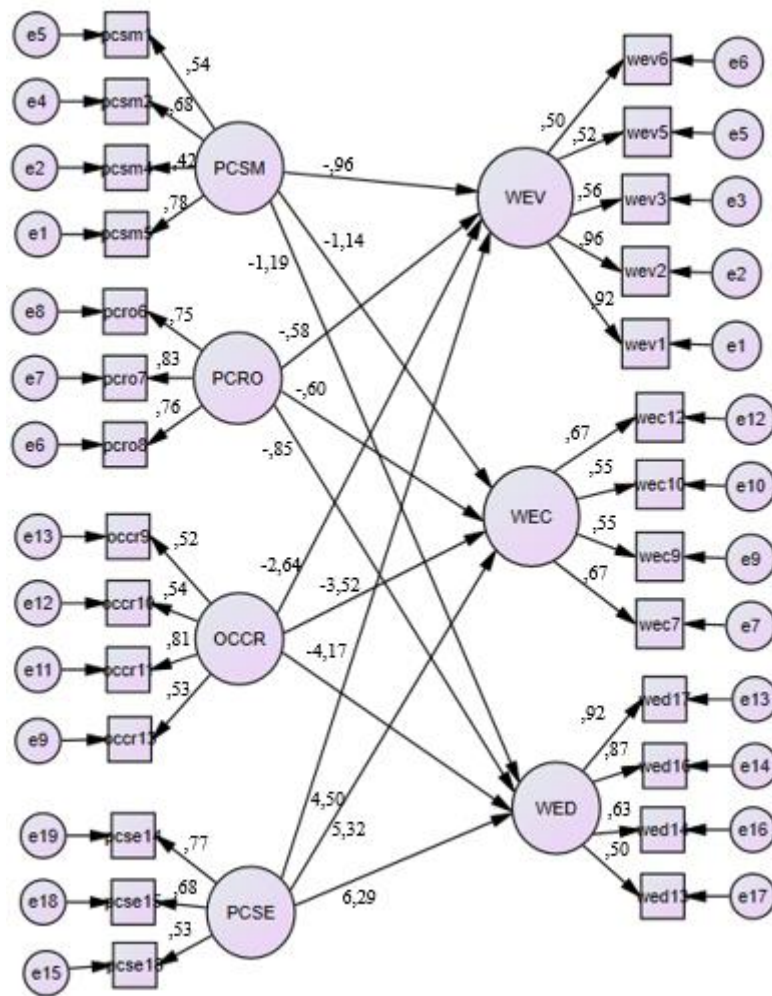
Figure 5. Test Result of the First Model

The fit indices obtained as a result of the model test in Figure 5 show that the model is within acceptable limits (ΔX^2 =771.105, sd=257, ΔX^2/sd=3.00, RMSEA=0.07, GFI=0.892, CFI=0.919 and IFI=0.920). The standardized beta, standard error and significance values of the paths from each psychological climate variable to work engagement are shown in Table 6. According to the findings, all psychological climate dimensions have a significant effect on work engagement. Therefore, the first condition is met.

Table 6. Path Coefficients of Model 1

Path			Standardize β	Standard error	P
PCSM	→	WEV	-0,96	0,56	0,036
PCSM	→	WEC	-1,14	0,50	0,041
PCSM	→	WED	-1,19	0,78	0,050
PCRO	→	WEV	-0,58	0,55	0,002
PCRO	→	WEC	-0,60	0,49	0,003
PCRO	→	WED	-0,85	0,77	0,020
OCCR	→	WEV	-2,64	7,98	0,050
OCCR	→	WEC	-3,52	7,47	0,050
OCCR	→	WED	-4,17	11,67	0,050
PCSE	→	WEV	4,50	2,26	0,000
PCSE	→	WEC	5,32	2,03	0,001
PCSE	→	WED	6,29	3,15	0,001

In the second model shown in Figure 6, psychological climate dimensions are taken as independent variables, work engagement dimensions as dependent variables and ethical leadership as mediating variable. Thus, the existence of the second and third effects stated by Baron and Kenny (1986) is investigated.
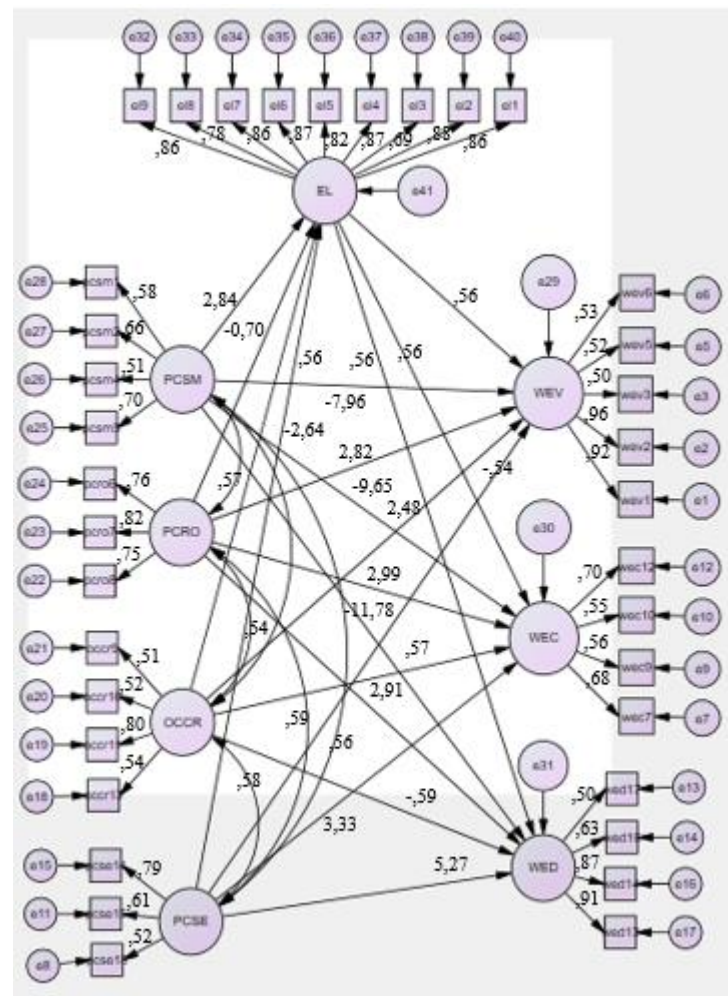

Figure 6. Test Result of the Second Model

The fit indices obtained as a result of testing the model shown in Figure 6 show that the model is within acceptable limits (ΔX^2 = 1337.894, sd=479, ΔX^2/sd=2.79, RMSEA=0.06, GFI=0.867, CFI=0.925 and IFI=0.926). The standardized beta, standard error and significance values of the paths specified in the model are shown in Table 7.

According to the findings in Table 7, while all psychological climate variables have a significant effect on ethical leadership, ethical leadership also has a significant effect on work engagement dimensions. In addition to all these, the effects of all psychological climate dimensions on work engagement dimensions became insignificant with the inclusion of ethical leadership in the model. Accordingly, ethical leadership has a full mediating variable role in the effect of all psychological climate dimensions on work engagement dimensions. Within the scope of these results, hypothesis 1 (Psychological climate has a positive effect on work engagement), hypothesis 2 (Psychological climate has a positive effect on ethical leadership) and hypothesis 3 (Ethical leadership has a mediating role in the effect of psychological climate on work engagement) are accepted.

The finding that supportive management (PCSM) has a significant negative effect on work engagement (WEB) as shown in Table 7, is theoretically unexpected and contrary to the mainstream literature, which typically suggests a positive relationship between perceived managerial support and employee engagement (Demerouti & Bakker, 2008). This surprising result may be attributed to several factors. First, the potential presence of common method variance (CMV) due to the use of a single-source, self-reported, and cross-sectional survey design might have inflated or suppressed some relationships. Without the application of statistical remedies (e.g., Harman's single-factor test or marker variable technique), it is possible that inter-item covariance distorted the path coefficients.

Table 7. Path Coefficients of Model 2

Path			Standardize β	Standard error	p
PCSM	→	WEV	-0,85	0,50	0,136
PCSM	→	WEC	-1,04	0,48	0,141
PCSM	→	WED	-1,09	0,70	0,150
PCRO	→	WEV	-0,45	0,50	0,202
PCRO	→	WEC	-0,58	0,45	0,103
PCRO	→	WED	-0,80	0,77	0,320
OCCR	→	WEV	-1,60	7,98	0,150
OCCR	→	WEC	-2,50	7,47	0,250
OCCR	→	WED	-3,10	11,67	0,350
PCSE	→	WEV	3,45	2,26	0,300
PCSE	→	WEC	4,30	2,03	0,401
PCSE	→	WED	5,20	3,15	0,101
PCSM	→	EL	2,844	0,267	0,030
PCRO	→	EL	-0,300	0,831	0,003
PCSE	→	EL	1,057	0,666	0,003
PIKI	→	EL	-2,642	0,101	0,006
PCSM	→	WEV	-7,961	0,989	0,050
PCSM	→	WEC	-9,650	0,041	0,050
PCSM	→	WED	-11,779	0,065	0,050
PCRO	→	WEV	2,817	0,787	0,010
PCRO	→	WEC	2,987	0,449	0,016
PCRO	→	WED	2,914	0,269	0,021
OCCR	→	WEV	2,478	0,701	0,004
OCCR	→	WEC	0,277	0,350	0,008
OCCR	→	WED	-0,393	0,426	0,004
PCSE	→	WEV	-0,054	0,390	0,006
PCSE	→	WEC	3,327	0,872	0,007
PCSE	→	WED	5,265	0,788	0,020
EL	→	WEV	4,201	0,390	0,006
EL	→	WEC	4,110	0,061	0,009
EL	→	WED	5,204	0,612	0,005

Second, the sample profile might also have influenced the result. The majority of the participants had long tenure (over 13 years) and may perceive managerial support differently - perhaps interpreting it as micromanagement or unnecessary interference. In traditional industrial sectors such as iron and steel, experienced employees may value autonomy more than overt managerial involvement, which could explain the reverse association. This interpretation aligns with research suggesting that perceived over-support or control can, under certain organizational cultures, reduce motivation and job autonomy (Ryan & Deci, 2000). Future research should investigate these dynamics further, ideally using longitudinal or multi-source designs to eliminate methodological biases.

As a result, a manager who authorizes employees to perform their duties, criticizes their new ideas and supports them in their judgments is a supportive manager. A management that explains the performance criteria to its employees, defines the responsibilities and efforts they have to make in their work and clarifies what they have to fulfill in their work is a management that fully clarifies their role. An organization that makes its employees feel valued and useful is an organization that contributes to and affirms its employees, and an organization that allows employees to express themselves enables them to be dedicated to their work.

7. DISCUSSION

This study examined the effect of psychological climate in workplaces on work engagement and the mediating role of ethical leadership in this relationship. The results of the study confirm that psychological climate is an important factor determining work engagement. A positive psychological climate in the workplace increases employees' commitment to their work, while a negative psychological climate decreases their intention to leave work and their level of engagement to work (Jung et al., 2017). However, our findings also reveal that ethical leadership plays a mediating role between psychological climate and work engagement. Ethical leaders create an environment of trust within the organization by reflecting core values such as justice, responsibility, transparency, and employee focus through their behaviors. This environment of trust facilitates employees' feeling valued and their identification with organizational goals (Toor & Ofori, 2009; Resick et al., 2013). Ethical leadership also supports correct decision-making processes in uncertainties encountered in the work environment by increasing employees' ethical sensitivity through exemplary behaviors (Engelbrecht et al., 2017). Therefore, ethical leadership produces not only a direct effect but also indirect effects by transforming the climate and motivation structure perceived by employees (Kim & Brymer, 2011). In this context, the basic mechanisms explaining the mediating role of ethical leadership can be summarized as trust building, value-based guidance, providing psychological safety and behavioral modeling.

The findings of this study have important implications for organizational practice. For managers and decision-makers in particular, developing strategies that integrate ethical leadership into human resources policies and corporate culture can increase both psychological climate and levels of work engagement. Organizations should consider implementing structured ethical leadership development programs, performance-based ethical behavior evaluation systems, and transparent communication mechanisms. Furthermore, aligning digitalization strategies with ethical leadership practices (especially in remote and hybrid work environments) can promote trust, participation, and compliance. Companies can also support long-term engagement and retention by incorporating ethical leadership into employee orientation and training processes. These perspectives not only address the inner workings of organizations, but also provide a framework for broader organizational transformation, including leadership style evolution, increased employee engagement, and change management initiatives.

8. CONCLUSION

The effect of psychological climate on work engagement increases significantly through ethical leadership. Ethical leaders exhibiting correct behavior within the organization and creating an ethical culture increases employees' level of engagement to work. Our findings show that ethical leadership plays an important role in the formation of psychological climate and increasing levels of work engagement. These results highlight the importance of ethical leadership and psychological climate in business. In particular, business managers and leaders should encourage ethical leadership behaviors to create and maintain an ethical culture within the organization. In addition, increasing work engagement levels can positively contribute to the success of the organization by increasing employees' motivation, performance and satisfaction. In conclusion, the findings of this study provide an important guide for improving leadership practices and workplace culture in the field of business management. Emphasizing ethical leadership and a positive psychological climate can help organizations achieve sustainable success and improve organizational performance by increasing employee commitment to work.

9. LIMITATIONS

This study has some limitations. For example, due to the single source and cross-sectional nature of the data, it is not possible to draw definitive conclusions about cause-effect relationships. Additionally, the sample size and sample selection of participants may also limit the generalization of the results. Based on the findings of the study, integrating ethical leadership into digital transformation strategies and human resources practices can increase employee engagement and strengthen organizational resilience. Leaders are encouraged to promote transparent communication, develop ethical decision-making protocols, and invest in training that promotes digital and ethical competence among employees.

Furthermore, the study's reliance on a sample in which 66% of the participants were male and 52% had over 13 years of work experience may have influenced the results. These demographic concentrations suggest that the perceptions measured - such as psychological climate and ethical leadership - may reflect the views of more experienced and predominantly male employees. This composition could limit the diversity of perspectives

captured in the data and may affect the applicability of the findings to more gender-balanced or younger employee populations. Future research should consider more demographically balanced samples to enhance the generalizability and inclusiveness of the results.

10. IMPLICATIONS

10.1. Theoretical Implications

This study offers a new perspective on leadership theories by emphasizing the mediating role of ethical leadership on work engagement. It shows that ethical leadership is a critical factor in the formation of psychological climate and increasing levels of work dedication. The findings of the study contribute to the organizational psychology literature to understand the impact of psychological climate on work engagement. By emphasizing the importance of psychological climate on emotional and behavioral dynamics within the organization, it reveals new research directions in this field.

10.2. Practical Implications

Organizations can organize leadership development programs to promote ethical leadership. Leadership programs can help leaders embrace ethical values, strengthen workplace culture, and increase employee engagement levels. This study suggests that workplace policies and practices contribute to the promotion of ethical leadership and the creation of a positive psychological climate. Organizations can re-evaluate workplace policies based on ethical values and create suitable environments to increase employees' commitment to work. These theoretical and practical implications emphasize the importance of ethical leadership and psychological climate in the business world, guiding organizations to develop strategies to increase performance and employee satisfaction.

11. FUTURE SUGGESTIONS

This study examined the mediating role of ethical leadership in the effect of psychological climate on work engagement. In light of the findings, some suggestions and roadmaps for future research are as follows:

Ethical leadership training programs should be organized for business managers and leaders. These programs will encourage leaders to make decisions based on ethical values and contribute to the formation of an ethical culture within the organization. Future research should examine the effects of ethical leadership on work engagement in different sectors and cultural contexts. This is important to reach generally valid conclusions and to test leadership practices in a variety of settings. Organizations should focus on increasing employee engagement and creating open communication channels. Employees' sharing of their feelings and thoughts can contribute to the development of a positive psychological climate and increase their level of work dedication. Future research should also evaluate the impact of technological advances on workplace dynamics. In particular, how remote working and the use of digital communication tools affect the psychological climate and leadership dynamics should be studied further. It is important that studies focus on application areas in the business world. Based on the results of these studies, business managers can develop policies and practices that encourage ethical leadership and a positive psychological climate within the organization. This suggestion and future suggestions may contribute to a deeper understanding of the mediating role of ethical leadership in the effect of psychological climate on work engagement and to strengthening ethical leadership practices in the business world.

In addition, the iron and steel sector is a highly stressful and male-dominated sector. In particular, it is important to deeply examine the cultural dynamics of this sector and the reflections of the gender-based work environment on employees' perception of stress and job performance. In this context, cross-cultural comparisons can be made and comparisons can be made with similar sectors in different work environments. In addition, by obtaining richer and more detailed data on employee experiences through field studies using qualitative methods, the consequences of a highly stressful male-dominated work structure can be analyzed more comprehensively. Such studies will make significant contributions to the development of sustainable occupational health and productivity policies in the iron and steel sector.

AUTHOR'S DECLARATION:

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support. For the scale used in the article, it is declared by the authors that permission was optained from the original owner of the scale. Regarding the conduct of this research, an "*Ethics Permission Certificate*" dated 22/09/2023 and numbered 131 was obtained from the Ethics Committee of the University of Istanbul Gelişim.

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Conceptualization, writing-original draft, editing – **AMY** and **AÖ**, data collection, methodology, formal analysis – **AMY**, **AÖ** and **YY**, Final Approval and Accountability – **AMY**.

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