

Examining the Mediating Role of Prosocial Behavior in the Relationship Between Altruistic Leadership and Employee Performance Among Healthcare Professionals

Nurcan COŞKUN US

nurcan.coskun@omu.edu.tr

Ondokuz Mayıs University

Article

Keywords: Altruistic leadership, Prosocial behavior, Employee performance, Healthcare professionals, Mediation analysis, Social Exchange Theory

Posted Date: October 19th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11048418/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

Employee performance is central to the safety, effectiveness, and continuity of healthcare service delivery, yet it depends heavily on the discretionary, relationally embedded behavior of frontline staff. Altruistic leadership—a leadership style in which leaders consistently prioritize followers' welfare over their own self-interest—is theorized to enhance performance both directly and by activating prosocial behavior among employees, but this dual pathway has rarely been tested empirically in healthcare settings.

Aim

This study aimed to examine the mediating role of prosocial behavior in the relationship between altruistic leadership and employee performance among healthcare professionals.

Method

A cross-sectional, correlational study was conducted between 15 September 2024 and 15 May 2025 at a tertiary university hospital in the Black Sea Region of Türkiye. Using convenience sampling, data were collected from 741 healthcare professionals (response rate 80.3%) via researcher-administered questionnaires, including the Altruistic Leadership Scale, the Prosocial Organizational Behavior Scale, and the Employee Performance Scale. Data were analyzed using Pearson correlation, simple and multiple linear regression, and bootstrap-based mediation analysis (5,000 bias-corrected resamples) in Jamovi (Version 2.6).

Results

Altruistic leadership positively predicted prosocial behavior ($\beta = .329$, $p < .001$) and employee performance ($\beta = .213$, $p < .001$), and prosocial behavior positively predicted employee performance ($\beta = .224$, $p < .001$). Prosocial behavior partially mediated the relationship between altruistic leadership and employee performance (indirect effect: $B = 0.043$, 95% CI [0.026, 0.068], $\beta = .074$, $p < .001$), with the direct effect of altruistic leadership on performance remaining significant after accounting for the mediator. Married professionals and those with greater professional experience reported higher levels of all three variables, whereas educational level was associated only with altruistic leadership perceptions.

Conclusion

Altruistic leadership was positively associated with healthcare professionals' performance, both directly and indirectly through its positive association with prosocial behavior. Healthcare organizations seeking to sustain workforce performance amid persistent staffing pressures may benefit from investing in leadership development programs that cultivate altruistic, other-centered leader behavior and foster a prosocial organizational climate.

INTRODUCTION

Employee performance is widely regarded as the operational backbone of healthcare service delivery, directly shaping the safety, effectiveness, and continuity of patient care (Yesildag & Ugurluoglu Aldogan, 2026). Because healthcare organizations are labor-intensive systems in which outcomes depend almost entirely on the discretionary effort, competence, and engagement of frontline staff, even modest declines in individual performance can translate into

measurable reductions in care quality, patient satisfaction, and organizational efficiency (Al-Bataineh & Hayajneh, 2026). Unlike many production-based industries, healthcare performance cannot be fully standardized or automated; it is co-produced in real time through interactions between professionals and patients, which makes the psychological and relational conditions that sustain high performance a matter of strategic, not merely operational, importance (Ibrahim et al., 2024). Consequently, understanding the organizational and leadership antecedents of employee performance has become a central concern for health services research.

Leadership occupies a particularly consequential position within this system. Healthcare professionals operate under conditions of high emotional demand, time pressure, and ethical complexity, and the behavior of their immediate leaders substantially shapes how they interpret and respond to these demands (Zada et al., 2024). Empirical evidence from hospital settings consistently shows that leadership styles emphasizing employees' welfare, voice, and psychological needs—such as servant, transformational, and ethical leadership—are associated with more favorable performance and citizenship outcomes among nurses and other clinical staff (Mohammadpour Bayati et al., 2025; Ibrahim et al., 2024; Al-Bataineh & Hayajneh, 2026). These findings suggest that leaders who visibly subordinate self-interest to the interests of their followers and patients occupy a unique position to influence the motivational and behavioral climate of healthcare units.

Altruistic leadership captures this orientation directly. Rooted in the broader literature on ethical and value-based leadership, altruistic leadership refers to a leadership style in which leaders consistently prioritize the well-being, growth, and interests of followers over their own self-interest, modeling selflessness, compassion, and genuine concern for others in daily interactions (Kanungo & Mendonca, 1996; Kock et al., 2022). Because such behavior is inherently other-oriented, it resonates with the core professional ethos of healthcare work, where compassion and self-sacrifice are already normative expectations (Chen et al., 2022). At the same time, altruistic leadership is theorized to activate a parallel disposition in followers: prosocial behavior, defined as voluntary action intended to benefit others—colleagues, patients, or the organization as a whole—rather than to serve narrow self-interest (Grant, 2008; Grant & Berg, 2011). In healthcare settings, prosocial behavior manifests as helping overburdened colleagues, going beyond formal role requirements to assist patients, and sustaining cooperative, citizenship-oriented conduct even under resource constraints (Moserle et al., 2024).

The importance of these constructs is amplified by the structural challenges currently confronting healthcare systems worldwide. Persistent workforce shortages, high turnover, and widespread burnout have eroded the discretionary effort that healthcare organizations depend upon, with global projections indicating a shortfall of approximately 10 million health workers by 2030, disproportionately affecting low- and middle-income countries (Gulumbe & Usman, 2023). Under these conditions, formal staffing and compensation levers alone are insufficient to sustain performance; organizations increasingly rely on the voluntary, relationally embedded behaviors of their staff—behaviors that are highly sensitive to how supported, valued, and respected employees feel within their leader relationships (Eisenberger et al., 2020). This creates a pressing need to understand not only whether altruistic leadership improves performance, but through which behavioral mechanism this influence unfolds.

Taken together, these observations point toward a plausible and theoretically coherent sequence: altruistic leaders, by modeling and reinforcing other-oriented conduct, cultivate prosocial behavior among healthcare professionals, which in turn translates into higher levels of individual job performance. While isolated segments of this sequence have received empirical attention—altruistic leadership has been linked to reduced counterproductive behavior and improved relational climates (He & Wei, 2022), and prosocial or citizenship behaviors have been linked to performance and safety outcomes (Podsakoff et al., 2009; Moserle et al., 2024)—few studies have examined altruistic leadership, prosocial behavior, and employee performance together within a single mediation model, and fewer still have done so among healthcare professionals specifically.

The present study addresses this gap by empirically examining the mediating role of prosocial behavior in the relationship between altruistic leadership and employee performance among healthcare professionals. Grounded in Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory, the study contributes to the literature in three ways. First, it extends the altruistic leadership literature—still largely confined to general organizational and knowledge-management contexts—into the healthcare domain, where other-oriented leadership carries particular theoretical and practical relevance. Second, it clarifies the behavioral mechanism through which altruistic leadership translates into performance gains, offering a more precise theoretical account than direct-effect models alone. Third, by focusing on healthcare professionals, the study offers evidence that can inform leadership development and human-resource strategies aimed at sustaining performance and quality of care in increasingly strained health systems.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Review of Previous Studies and Research Gap

Altruistic leadership and employee performance

The theoretical case for a positive relationship between altruistic leadership and performance rests on the idea that leaders who behave altruistically toward followers generate reciprocal commitment and effort. Kock et al. (2022), drawing on an evolutionary account of leadership, argue that although self-interested traits were historically favored in ancestral social hierarchies, such traits are frequently counterproductive in modern organizational contexts, whereas leaders who prioritize followers' welfare enhance performance by strengthening followers' commitment and job satisfaction. Related evidence from hospital-based leadership research supports this general pattern: ethical leadership—an overlapping construct that likewise emphasizes fairness, integrity, and concern for others—has been shown to significantly predict internal motivation and, through it, job performance among clinical and administrative hospital staff (Al-Bataineh & Hayajneh, 2026). Similarly, in a study of Turkish hospital employees, positively oriented leader behavior was found to shape extra-role performance indirectly through work engagement and reduced organizational silence (Yesildag & Ugurluoglu Aldogan, 2026), and servant leadership—another follower-centered style conceptually adjacent to altruistic leadership—has been shown to enhance employee task performance both directly and through mediating motivational states (Zada et al., 2024). Despite this convergence of evidence for values-based leadership styles broadly, direct empirical tests of altruistic leadership's effect on performance remain scarce, and virtually none have been conducted among healthcare professionals specifically.

Altruistic leadership and prosocial behavior

A second stream of research suggests that altruistic leadership shapes followers' relational and prosocial orientations. He and Wei (2022) found that altruistic leadership—leaders who prioritize employees' interests over their own—significantly reduced knowledge-hiding behavior among employees, with the relationship transmitted through the positive emotions that altruistic leader behavior generates. Because positive emotional states are well-established antecedents of other-oriented action, this finding is consistent with the broader proposition that leaders who model selflessness cultivate reciprocal selflessness in followers. This is corroborated by adjacent work on leader humility, a construct that shares altruistic leadership's emphasis on subordinating self-interest: Jia et al. (2024), integrating social exchange, social learning, and self-determination perspectives, demonstrated that leader humility promotes follower prosocial behavior through multiple simultaneous theoretical pathways, underscoring that other-oriented leader conduct can activate followers' prosocial tendencies through more than one mechanism at once. In healthcare specifically, altruism has been documented primarily as an individual professional trait or value embedded in nursing identity (Chen

et al., 2022) rather than as an outcome shaped by leadership, leaving the leadership-to-prosocial-behavior pathway largely unexamined in clinical work settings.

Prosocial behavior and employee performance

The performance consequences of prosocial or citizenship-oriented behavior are comparatively well documented outside healthcare. In an influential meta-analysis, Podsakoff et al. (2009) established that organizational citizenship behaviors—many of which are prosocial in nature—are associated with higher individual and unit-level performance, mediated by mechanisms such as improved coworker productivity and more efficient resource allocation. More recent evidence extends this logic to safety-critical performance domains: Moserle et al. (2024) found that prosocial safety behavior, shaped by emotional intelligence and perceived organizational support, was systematically related to performance-relevant safety outcomes among workers in high-stakes occupational settings. In nursing contexts, organizational citizenship behavior has similarly been linked to favorable performance-adjacent outcomes, with servant leadership found to be the strongest predictor of nurses' citizenship behavior in a multi-hospital sample (Mohammadpour Bayati et al., 2025). Nevertheless, these studies typically treat prosocial or citizenship behavior as an isolated outcome or as a single-stage predictor, rather than situating it as a mediating mechanism linking a specific leadership antecedent to individual performance among healthcare professionals.

Mediation models involving prosocial behavior

A smaller body of work has begun to model prosocial or citizenship-type behaviors as mediators between leadership and performance-related outcomes. Zada et al. (2024) demonstrated that employee promotive voice—a prosocially motivated behavior—mediates the relationship between servant leadership and task performance, while Ibrahim et al. (2024) showed that psychological empowerment mediates the link between transformational leadership and organizational citizenship behavior among nurses. These studies confirm that motivational and behavioral mechanisms meaningfully transmit leadership effects onto performance-relevant outcomes in clinical settings. However, none of these mediation models incorporate altruistic leadership as the focal predictor, and none jointly examine altruistic leadership, prosocial behavior, and employee performance within a single integrated framework.

Research Gap

This review reveals three interrelated gaps. First, although values-based leadership styles conceptually related to altruism (servant, ethical, transformational, humble leadership) have been linked separately to either prosocial/citizenship behavior or performance in healthcare samples, altruistic leadership itself remains largely unstudied as a predictor of employee performance in clinical work settings. Second, while theoretical and adjacent empirical work suggests that other-oriented leadership cultivates prosocial responses in followers (He & Wei, 2022; Jia et al., 2024), and that prosocial behavior in turn supports performance (Podsakoff et al., 2009; Moserle et al., 2024), these two links have rarely been tested jointly, leaving the behavioral mechanism connecting altruistic leadership to performance theoretically assumed rather than empirically demonstrated. Third, no identified study has tested a mediation model in which prosocial behavior transmits the effect of altruistic leadership onto employee performance specifically among healthcare professionals, a population for whom other-oriented conduct is both professionally normative and organizationally consequential. Addressing this gap is theoretically significant because it integrates Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory into a single explanatory account of how leader altruism translates into workforce performance, and it is practically significant because it identifies a modifiable behavioral pathway—prosocial behavior—that healthcare organizations can target through leadership development and team-climate interventions to sustain performance under current workforce pressures.

Hypothesis Development

H1: Altruistic leadership positively affects prosocial behavior

Social Exchange Theory (Cropanzano & Mitchell, 2005; Cropanzano et al., 2017) provides the primary theoretical rationale for this relationship. According to the norm of reciprocity that underlies social exchange, when leaders extend genuine, unconditional concern for followers' welfare, followers experience an implicit relational obligation to reciprocate in kind. Because altruistic leadership is defined by leaders' consistent prioritization of followers' interests over their own (Kanungo & Mendonca, 1996; Kock et al., 2022), it constitutes a high-quality, trust-based exchange resource that followers are motivated to reciprocate through discretionary, other-oriented conduct—that is, through prosocial behavior directed at colleagues, patients, and the organization. This reciprocation logic is reinforced by social learning mechanisms: leaders who visibly enact selfless, compassionate behavior provide a behavioral model that followers emulate, particularly in healthcare settings where such conduct aligns with professionals' pre-existing occupational identity (Chen et al., 2022). Empirically, this pattern is supported by He and Wei (2022), who found that altruistic leadership significantly reduced employees' knowledge-hiding behavior by generating positive emotions that discourage self-serving conduct—an effect that operates through the same relational mechanism theorized to promote prosocial behavior. Complementary evidence from Jia et al. (2024) shows that leader humility, a closely related other-oriented leadership disposition, promotes follower prosocial behavior through social exchange, social learning, and need-satisfaction pathways operating in parallel, reinforcing the theoretical plausibility that leaders who subordinate self-interest cultivate reciprocal prosocial responses in their followers. On this basis, it is hypothesized that:

H1. Altruistic leadership has a positive effect on healthcare professionals' prosocial behavior.

H2: Prosocial behavior positively affects employee performance

Prosocial Motivation Theory (Grant, 2008; Grant & Berg, 2011) holds that when employees are motivated to expend effort for the benefit of others, this other-oriented motivation translates into sustained persistence, effort intensity, and behavioral engagement that collectively enhance performance outcomes. Grant (2008) demonstrated that prosocial motivation operates synergistically with intrinsic motivation to predict persistence, performance, and productivity, because prosocially motivated individuals derive meaning from the impact their effort has on others, which sustains effort even under demanding conditions—a dynamic especially salient in healthcare, where the “beneficiaries” of effort (patients) are immediately present and identifiable. From an organizational-behavior perspective, this proposition is reinforced by extensive citizenship-behavior research: in their meta-analysis, Podsakoff et al. (2009) found that organizational citizenship behaviors, many of which are behaviorally prosocial (helping, cooperating, volunteering for extra tasks), are consistently associated with higher individual and unit-level performance, partly because such behavior improves coordination, reduces the need for supervisory monitoring, and increases collective efficiency. Consistent evidence in safety-critical, high-demand occupational contexts shows that prosocial behavior directly predicts performance-relevant outcomes (Moserle et al., 2024), while in nursing samples, organizational citizenship behavior—a closely related construct—has been strongly associated with favorable work outcomes and predicted by supportive leadership styles (Mohammadpour Bayati et al., 2025). Because healthcare work is fundamentally relational and interdependent, professionals who voluntarily help colleagues and go beyond formal duties are likely to sustain higher individual performance, both directly through their own effort and indirectly by improving the functioning of the broader care team. Accordingly, it is hypothesized that:

H2. Prosocial behavior has a positive effect on healthcare professionals' employee performance.

H3: Altruistic leadership positively affects employee performance

Organizational Support Theory (Eisenberger et al., 2020; Kurtessis et al., 2017) offers a complementary rationale for a direct relationship between altruistic leadership and performance. Because immediate leaders are typically perceived by employees as agents of the organization, leader behavior that demonstrates genuine concern for employees' well-being is interpreted as a signal of organizational support, which in turn activates felt obligation, affective commitment, and a heightened willingness to invest effort in role performance. Altruistic leaders, by consistently prioritizing followers' welfare over narrow self-interest (Kanungo & Mendonca, 1996), provide precisely this kind of support signal, and Kock et al. (2022) argue explicitly that such leaders enhance performance by strengthening followers' commitment and satisfaction—psychological states that Organizational Support Theory identifies as the proximal mechanisms linking perceived support to performance. This direct pathway is echoed in adjacent hospital-based leadership research: ethical leadership has been found to significantly predict job performance among hospital employees, both directly and through internal motivation (Al-Bataineh & Hayajneh, 2026), while values-based leader behavior in Turkish hospitals has been associated with improved extra-role performance (Yesildag & Ugurluoglu Aldogan, 2026), and servant leadership has demonstrated a direct, significant effect on employee task performance independent of mediating mechanisms (Zada et al., 2024). Because altruistic leadership shares its central defining feature—subordination of self-interest to followers' welfare—with these related constructs, a comparable direct effect on performance is theoretically expected among healthcare professionals. Thus, it is hypothesized that:

H3. Altruistic leadership has a positive effect on healthcare professionals' employee performance.

H4: Prosocial behavior mediates the relationship between altruistic leadership and employee performance

Integrating Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory suggests that altruistic leadership influences employee performance through two complementary routes rather than a single undifferentiated effect. The direct route (H3) reflects the motivational and affective consequences of perceived organizational support, whereby altruistic leader behavior directly strengthens followers' commitment and effort. The indirect route (H1 and H2) reflects a distinct behavioral mechanism: altruistic leadership first cultivates reciprocal prosocial behavior through social exchange and social learning processes, and this prosocial behavior subsequently enhances performance through the motivational and coordination benefits described by Prosocial Motivation Theory. Because these two mechanisms are theoretically independent yet simultaneously active, prosocial behavior is expected to carry only part of altruistic leadership's total effect on performance, consistent with a partial mediation pattern. This layered structure is consistent with prior mediation research in adjacent leadership domains: Zada et al. (2024) found that servant leadership affects task performance both directly and indirectly through promotive voice, and Ibrahim et al. (2024) similarly demonstrated that transformational leadership's effect on citizenship behavior operates alongside, rather than instead of, other direct mechanisms, indicating that follower-centered leadership styles typically exert their influence on performance-relevant outcomes through multiple, partially overlapping pathways. Applying this logic to the present model, prosocial behavior is expected to transmit a meaningful, but not exclusive, portion of altruistic leadership's influence on employee performance among healthcare professionals. It is therefore hypothesized that:

H4. Prosocial behavior mediates the relationship between altruistic leadership and healthcare professionals' employee performance.

Research Model

Building on the theoretical rationale developed above, the present study proposes a single-mediator research model in which altruistic leadership is specified as the independent variable, prosocial behavior as the mediating variable, and employee performance as the dependent variable. All three theoretical foundations—Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory—converge on the same directional logic: altruistic

leadership is expected to exert a positive influence on both prosocial behavior and employee performance, and prosocial behavior is, in turn, expected to exert a positive influence on employee performance.

The conceptual model therefore incorporates three theoretically grounded paths. The first path (H1) links altruistic leadership to prosocial behavior, representing the reciprocal, socially learned response of healthcare professionals to leaders who consistently prioritize followers' welfare. The second path (H2) links prosocial behavior to employee performance, capturing the motivational and coordination benefits that other-oriented behavior confers on individual work outcomes. The third path (H3) is a direct path from altruistic leadership to employee performance, reflecting the organizational-support-based mechanism through which supportive leader behavior enhances performance independently of its effect on prosocial behavior. Together, these three paths define the indirect effect of altruistic leadership on employee performance transmitted through prosocial behavior (H4), which is hypothesized to operate alongside, rather than in place of, the direct effect specified in H3—consistent with a partial mediation structure.

The full research model, including the hypothesized paths H1 through H4, is presented in Fig. 1. In this model, altruistic leadership is positioned as the exogenous variable, prosocial behavior as the intervening (mediating) variable, and employee performance as the endogenous outcome variable, with all hypothesized relationships specified in the positive direction. This model provides a parsimonious yet theoretically integrative framework for examining not only whether altruistic leadership is associated with better performance among healthcare professionals, but also the behavioral mechanism—prosocial behavior—through which part of this influence is transmitted, thereby offering a more complete account of the leadership-performance relationship than a direct-effect model alone would provide.

MATERIALS AND METHODS

Type of Research

This study employed a cross-sectional correlational design to investigate the relationships among altruistic leadership, prosocial organizational behavior, and employee performance among healthcare workers. The study was designed and reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies.

A cross-sectional design was considered appropriate because the primary objective was to examine naturally occurring associations among organizational and behavioral variables rather than to evaluate causal relationships or intervention effects. Therefore, the identified relationships should be interpreted as statistical associations rather than evidence of causal effects.

The study was conducted between 15 September 2024 and 15 May 2025 at a tertiary university hospital located in the Black Sea Region of Türkiye. The hospital serves as a major regional referral center, providing specialized healthcare services while also undertaking educational and research activities.

Population and Sample

The study population comprised 2,303 healthcare workers employed at the hospital during the study period. Eligible participants were healthcare workers who were actively employed at the hospital during the data collection period, directly involved in healthcare service delivery, voluntarily agreed to participate, and completed the study questionnaire. Temporary personnel, employees on long-term leave during the study period, and questionnaires containing substantial missing or invalid responses were excluded from the analyses.

Probability sampling was not operationally feasible because healthcare workers were distributed across multiple departments, worked rotating shifts, and had highly variable work schedules. Furthermore, heavy clinical workloads limited the implementation of random participant selection procedures without disrupting routine patient care activities.

Therefore, convenience sampling was adopted to facilitate access to participants from different professional groups while minimizing interference with healthcare services.

Although convenience sampling enabled the inclusion of a large and heterogeneous workforce, this approach may have introduced selection bias. It may limit the generalizability of the findings beyond the study setting.

To ensure an adequate number of valid responses and compensate for potential non-response, a total of 1,000 questionnaires were distributed. Of these, 803 questionnaires were returned, yielding a response rate of 80.3%. Following data screening, 62 questionnaires were excluded for substantial missing data, incomplete responses, or response patterns indicating insufficient data quality. Consequently, the final analytical sample consisted of 741 healthcare workers, representing 32.2% of the target population and 92.3% of the returned questionnaires.

Although a relatively high response rate was achieved, non-response bias cannot be completely ruled out because information on non-respondents' characteristics was unavailable. Therefore, the findings should be interpreted with appropriate caution.

Data Collection Tools

Data were collected using researcher-administered paper-based questionnaires.

Before participation, all eligible respondents received standardized verbal and written information explaining the purpose of the study, the voluntary nature of participation, confidentiality and anonymity procedures, and their right to withdraw from the study at any time without penalty.

Participants completed the questionnaires during periods that did not interfere with their routine clinical responsibilities. To minimize response bias, no personally identifiable information was collected, standardized administration procedures were followed throughout the study, and participants were informed that there were no right or wrong answers and that honest responses were important to the study's validity.

Additionally, completed questionnaires were returned in sealed envelopes and stored securely to ensure data confidentiality and reduce concerns regarding potential managerial access to individual responses.

Measurement Scales

The study employed previously validated scales to ensure measurement reliability and validity.

Personal Identification Form

A researcher-developed personal information form was used to collect sociodemographic data, including age, gender, educational level, profession, monthly income, and professional experience.

Prosocial Organizational Behavior Scale

Prosocial Organizational Behavior was measured using the Prosocial Organizational Behavior Scale developed by McNeely and Meglino (1994) and adapted into Turkish by Şentürk and Altunok. The scale consists of 17 items and three dimensions: prosocial organizational behaviors (6 items), role-prescribed prosocial behaviors (7 items), and prosocial individual behaviors (4 items). In the present study, the scale demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of .906.

Altruistic Leadership Scale

Altruistic Leadership was measured using the Altruistic Leadership Scale developed by Zheltoukhova (2016). The original scale consists of nine items and two dimensions: helping through empathy (6 items) and self-sacrificial

behaviors (3 items). The scale was adapted into Turkish by Çakmak, Biçer, and Uğurluoğlu (2019). Based on confirmatory factor analysis conducted during the Turkish adaptation process, the final Turkish version consisted of a unidimensional structure with eight items. In the current study, the scale demonstrated excellent reliability, with a Cronbach's alpha coefficient of .950.

Employee Performance Scale

Employee performance was assessed using the Employee Performance Scale originally developed by Kirkman and Rosen (1999) and Sigler and Pearson (2000), and subsequently adapted into Turkish by Şantaş et al. (2016). The scale consists of four items and a single dimension. Responses are rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). In the present study, the scale demonstrated high internal consistency, with a Cronbach's alpha coefficient of .880.

Statistical analysis

Data were analyzed using Jamovi (Version 2.6). Descriptive statistics were calculated and presented as frequencies, percentages, means, standard deviations, medians, minimum and maximum values, skewness, and kurtosis coefficients where appropriate.

The internal consistency of the measurement instruments was assessed using Cronbach's alpha coefficients. The normality of continuous variables was evaluated using the Shapiro-Wilk test together with skewness and kurtosis statistics. Although the Shapiro-Wilk test indicated significant departures from normality ($p < .001$), the large sample size ($N = 741$) supported the use of parametric procedures for correlational and regression analyses.

Differences between two independent groups were examined using independent-samples t-tests. Comparisons involving more than two groups were conducted using the Kruskal-Wallis H test. When significant group differences were detected, Dunn-Bonferroni post hoc tests were performed to identify the source of the differences. Effect sizes were reported as Cohen's d for t-tests and epsilon-squared (ϵ^2) for Kruskal-Wallis analyses.

Relationships among altruistic leadership, prosocial organizational behavior, and employee performance were examined using Pearson correlation analysis. The predictive effects of altruistic leadership and prosocial behavior were tested using simple and multiple linear regression analyses. Multicollinearity assumptions were evaluated using variance inflation factor (VIF) and tolerance values.

The mediating role of prosocial organizational behavior in the relationship between altruistic leadership and employee performance was examined using bootstrap-based mediation analysis. Indirect effects were estimated using 5,000 bias-corrected bootstrap resamples. Mediation was considered statistically significant when the 95% confidence interval did not include zero.

All statistical tests were two-tailed, and statistical significance was set at $p < .05$.

RESULTS

Table 1 presents the sociodemographic characteristics of the participants. A total of 741 healthcare professionals participated in the study. Of the participants, 59.8% were female ($n = 443$) and 40.2% were male ($n = 298$). Regarding marital status, 61.7% were married ($n = 457$), whereas 38.3% were single ($n = 284$).

With respect to educational attainment, the majority of participants held a bachelor's degree (57.5%, $n = 426$), followed by postgraduate degrees (25.4%, $n = 188$), associate degrees (11.5%, $n = 85$), and high school diplomas (5.7%, $n = 42$). Examination of professional roles revealed that 33.1% of the participants were nurses ($n = 245$), 31.3% were other

healthcare personnel (n = 232), 30.1% were physicians (n = 223), and 5.5% were midwives (n = 41). In terms of income level, the largest proportion of participants belonged to the 50,001–75,000 TL income group (35.9%, n = 266).

The mean age of the participants was 38.1 ± 9.51 years, with a median age of 37 years. Participants ranged in age from 21 to 65 years. Examination of professional experience indicated that 30.9% of the participants had 11–20 years of experience (n = 229), 28.2% had 1–5 years of experience (n = 209), 23.5% had 6–10 years of experience (n = 174), 10.3% had 21 years or more of experience (n = 76), and 7.2% had less than one year of professional experience (n = 53).

Overall, these findings indicate that the study sample predominantly consisted of middle-aged healthcare professionals with substantial professional experience.

Table 1
Descriptive Characteristics of the Participants (N = 741)

Variable	n	%
Gender		
Female	443	59.8
Male	298	40.2
Marital Staatus		
Single	284	38.3
Married	457	61.7
Educational Level		
High school	42	5.7
Associate degree	85	11.5
Bachelor's degree	426	57.5
Postgraduate degree	188	25.4
Profession		
Physician	223	30.1
Nurse	245	33.1
Midwife	41	5.5
Other healthcare personnel	232	31.3
Monthly Income		
≤ 25,000 TL	53	7.2
25,001–50,000 TL	239	32.3
50,001–75,000 TL	266	35.9
≥ 75,001 TL	183	24.7
Professional Experience		
< 1 year	53	7.2
1–5 years	209	28.2
6–10 years	174	23.5
11–20 years	229	30.9
≥ 21 years	76	10.3
Variable	Mean ± SD	Median (Min–Max)
Age (years)	38.1 ± 9.51	37.0 (21–65)
Note. SD = standard deviation. TL_Turkish Liras * Professional experience was coded categorically (1 = < 1 year, 2 = 1–5 years, 3 = 6–10 years, 4 = 11–20 years, 5 = ≥ 21 years). Therefore, the detailed frequency distribution is presented above.		

Variable	n	%
Gender		
Professional Experience*	3.09 ± 1.13	3.0 (1–5)
Note. SD = standard deviation. TL_Turkish Liras * Professional experience was coded categorically (1 = < 1 year, 2 = 1–5 years, 3 = 6–10 years, 4 = 11–20 years, 5 = ≥ 21 years). Therefore, the detailed frequency distribution is presented above.		

Table 2 presents the descriptive statistics and normality analysis results for prosocial behavior, altruistic leadership, and employee performance. The mean score for prosocial behavior was 4.23 ± 0.53 , while the mean scores for altruistic leadership and employee performance were 3.70 ± 0.93 and 4.50 ± 0.54 , respectively. Among the study variables, employee performance had the highest mean score, whereas altruistic leadership had the lowest mean score.

The results of the Shapiro-Wilk normality test indicated that prosocial behavior ($W = 0.899$, $p < .001$), altruistic leadership ($W = 0.927$, $p < .001$), and employee performance ($W = 0.798$, $p < .001$) significantly deviated from a normal distribution. In addition, the skewness and kurtosis values suggested varying degrees of non-normality across the study variables. Despite these findings, the large sample size ($N = 741$) provided support for the application of parametric procedures in subsequent correlation and regression analyses.

Table 2
Descriptive Statistics and Normality Analysis Results for Prosocial Behavior, Altruistic Leadership, and Employee Performance ($N = 741$)

Variable	Mean ± SD	Median	Min-Max	Skewness	Kurtosis	Shapiro-Wilk W	p
Prosocial Behavior	4.23 ± 0.53	4.24	1.00–5.00	-1.47	5.89	0.899	< .001
Altruistic Leadership	3.70 ± 0.93	4.00	1.00–5.00	-0.895	0.624	0.927	< .001
Employee Performance	4.50 ± 0.54	4.50	1.00–5.00	-1.48	5.31	0.798	< .001
Note. SD = standard deviation. Normality was assessed using the Shapiro-Wilk test. Significant Shapiro-Wilk statistics ($p < .001$) indicated departures from normality for all study variables. However, given the large sample size, parametric analyses were considered appropriate for subsequent inferential analyses.							

Table 3 presents the comparison of prosocial behavior, altruistic leadership, and employee performance scores according to participants' marital status. Independent-samples t-test results indicated that married participants reported significantly higher levels of prosocial behavior ($M = 4.27$, $SD = 0.54$) than single participants ($M = 4.16$, $SD = 0.50$), $t(739) = -2.69$, $p = .007$, $d = 0.20$.

Similarly, married participants demonstrated significantly higher altruistic leadership scores ($M = 3.77$, $SD = 0.91$) than single participants ($M = 3.59$, $SD = 0.94$), $t(739) = -2.69$, $p = .007$, $d = 0.20$.

With respect to employee performance, married participants also reported significantly higher performance scores ($M = 4.55$, $SD = 0.50$) compared with single participants ($M = 4.43$, $SD = 0.61$), $t(739) = -3.02$, $p = .003$, $d = 0.23$.

Overall, married healthcare professionals exhibited higher levels of prosocial behavior, altruistic leadership, and employee performance than their single counterparts. However, the observed effect sizes were small ($d = 0.20$ – 0.23), suggesting that although the differences were statistically significant, their practical magnitude was limited.

Table 3

Comparison of Prosocial Behavior, Altruistic Leadership, and Employee Performance Scores According to Marital Status

Variable	Single Mean $\pm$ SD	Married Mean $\pm$ SD	t (df)	p	Cohen's d
Prosocial Behavior	4.16 $\pm$ 0.50	4.27 $\pm$ 0.54	-2.69 (739)	.007	-0.203
Altruistic Leadership	3.59 $\pm$ 0.94	3.77 $\pm$ 0.91	-2.69 (739)	.007	-0.203
Employee Performance	4.43 $\pm$ 0.61	4.55 $\pm$ 0.50	-3.02 (739)	.003	-0.228
Note. SD = standard deviation. Independent-samples t-tests were used to compare married and single participants. Cohen's d values indicate small effect sizes.					

Table 4 presents the results of the Kruskal-Wallis and Dunn-Bonferroni analyses examining whether prosocial behavior, altruistic leadership, and employee performance differed according to educational level. The results indicated that prosocial behavior scores did not differ significantly across educational groups, $\chi^2(3) = 3.30$, $p = .348$, $\epsilon^2 = .004$. Similarly, no significant differences were observed in employee performance scores across educational levels, $\chi^2(3) = 1.28$, $p = .735$, $\epsilon^2 = .002$.

In contrast, altruistic leadership scores differed significantly according to educational level, $\chi^2(3) = 17.07$, $p < .001$, $\epsilon^2 = .023$. Although statistically significant, the effect size was small, indicating that educational level accounted for only a limited proportion of the variance in altruistic leadership scores.

To identify the source of the observed differences, Dunn-Bonferroni post hoc comparisons were conducted. The results revealed significant differences between high school graduates and bachelor's degree holders ($p = .005$), between high school graduates and postgraduate degree holders ($p = .020$), and between associate degree holders and bachelor's degree holders ($p = .034$). No statistically significant differences were found between associate degree and postgraduate degree holders or between bachelor's and postgraduate degree holders ($p > .05$).

Overall, the findings suggest that educational level was associated with altruistic leadership but not with prosocial behavior or employee performance among healthcare professionals.

Table 4

Kruskal-Wallis and Dunn-Bonferroni Test Results for Prosocial Behavior, Altruistic Leadership, and Employee Performance According to Educational Level (N = 741)

Variable / Comparison	$\chi^2(df)$	p	ϵ^2	z	Adjusted p
Prosocial Behavior	3.30 (3)	.348	.004	-	-
Altruistic Leadership	17.07 (3)	< .001	.023	-	-
High School – Bachelor's Degree	-	-	-	-3.316	.005
High School – Postgraduate Degree	-	-	-	-2.933	.020
Associate Degree – Bachelor's Degree	-	-	-	-2.763	.034
Employee Performance	1.28 (3)	.735	.002	-	-
Note. χ^2 = Kruskal-Wallis H statistic; df = degrees of freedom; ϵ^2 = effect size. Dunn-Bonferroni post hoc comparisons were conducted only for altruistic leadership because the overall Kruskal-Wallis test was statistically significant. Only significant pairwise comparisons are reported. Bonferroni-adjusted p values are presented.					

Table 5 presents the results of the Kruskal-Wallis analyses examining differences in prosocial behavior, altruistic leadership, and employee performance according to professional experience. Significant differences were observed among professional experience groups for prosocial behavior, $\chi^2(4) = 15.60$, $p = .004$, $\epsilon^2 = .021$. Likewise, altruistic

leadership scores differed significantly according to professional experience, $\chi^2(4) = 49.40$, $p < .001$, $\epsilon^2 = .067$. Employee performance scores also varied significantly across professional experience groups, $\chi^2(4) = 19.50$, $p < .001$, $\epsilon^2 = .026$.

Examination of the effect sizes indicated that professional experience had a small effect on prosocial behavior ($\epsilon^2 = .021$) and employee performance ($\epsilon^2 = .026$), whereas its effect on altruistic leadership was small to moderate ($\epsilon^2 = .067$). These findings suggest that healthcare professionals with different levels of professional experience differ significantly in terms of prosocial behavior, perceptions of altruistic leadership, and employee performance.

Table 5

Kruskal-Wallis Test Results for Prosocial Behavior, Altruistic Leadership, and Employee Performance According to Professional Experience (N = 741)

Variable	χ^2	sd	p	ϵ^2
Prosocial Behavior	15.60	4	.004	.021
Altruistic Leadership	49.40	4	< .001	.067
Employee Performance	19.50	4	< .001	.026
Note. χ^2 = Kruskal-Wallis H statistic; df = degrees of freedom; ϵ^2 = effect size. Professional experience groups were categorized as < 1 year, 1–5 years, 6–10 years, 11–20 years, and ≥ 21 years. Based on conventional benchmarks, the effect sizes for prosocial behavior and employee performance were small, whereas the effect size for altruistic leadership was small to moderate.				

To determine the source of the significant differences observed among professional experience groups, Dunn-Bonferroni post hoc multiple comparison analyses were conducted (Table 6). For prosocial behavior, significant differences were identified between healthcare professionals with less than one year of experience and those with 6–10 years of experience ($p = .027$), as well as between those with less than one year of experience and those with 21 years or more of experience ($p = .026$).

Regarding altruistic leadership, significant differences were found between participants with less than one year of experience and those with 1–5 years ($p < .001$), 6–10 years ($p < .001$), and 11–20 years ($p = .005$) of experience. Additional significant differences were observed between participants with 1–5 years and those with 21 years or more of experience ($p = .038$), as well as between participants with 6–10 years and those with 11–20 years ($p < .001$) and 21 years or more of experience ($p < .001$).

For employee performance, significant differences were observed between participants with less than one year of experience and those with 6–10 years ($p = .004$) and 11–20 years ($p < .001$) of experience.

Overall, these findings suggest that altruistic leadership exhibited the greatest variation across professional experience groups. However, because mean rank values were not reported, the direction of the differences could not be determined. Therefore, the results indicate only which professional experience groups differed significantly from one another.

Table 6
Significant Dunn-Bonferroni Post Hoc Comparisons for Prosocial Behavior, Altruistic Leadership, and Employee Performance According to Professional Experience (N = 741)

Variable	Comparison	z	Adjusted p
Prosocial Behavior	< 1 year vs. 6–10 years	-2.997	.027
	< 1 year vs. ≥21 years	-3.012	.026
Altruistic Leadership	< 1 year vs. 1–5 years	-4.40	< .001
	< 1 year vs. 6–10 years	-6.02	< .001
	< 1 year vs. 11–20 years	-3.47	.005
	1–5 years vs. ≥21 years	2.89	.038
	6–10 years vs. 11–20 years	4.12	< .001
	6–10 years vs. ≥21 years	4.76	< .001
Employee Performance	< 1 year vs. 6–10 years	-3.531	.004
	< 1 year vs. 11–20 years	-4.222	< .001
Note. Only statistically significant pairwise comparisons are reported. p values were adjusted using the Bonferroni correction. Positive and negative z values indicate the direction of the difference in mean ranks between comparison groups.			

Table 7 presents the Pearson correlation coefficients among prosocial behavior, altruistic leadership, and employee performance. The results revealed a positive and statistically significant moderate correlation between altruistic leadership and prosocial behavior ($r = .329, p < .001$). This finding suggests that healthcare professionals who perceive higher levels of altruistic leadership tend to exhibit higher levels of prosocial behavior.

A positive and statistically significant low-to-moderate correlation was also found between altruistic leadership and employee performance ($r = .286, p < .001$), indicating that higher perceptions of altruistic leadership are associated with higher levels of employee performance.

In addition, prosocial behavior was positively and significantly correlated with employee performance ($r = .294, p < .001$). This result indicates that healthcare professionals who demonstrate higher levels of prosocial behavior tend to report better job performance.

Overall, all study variables were positively and significantly associated with one another, providing preliminary support for the hypothesized relationships among altruistic leadership, prosocial behavior, and employee performance.

Table 7
Pearson Correlation Coefficients Among Prosocial Behavior, Altruistic Leadership, and Employee Performance (N = 741)

Variable	1	2	3
1. Prosocial Behavior	—		
2. Altruistic Leadership	.329***	—	
3. Employee Performance	.294***	.286***	—
Note. Pearson correlation coefficients are reported. **p < .001.			

Table 8 presents the results of the simple linear regression analysis examining the effect of altruistic leadership on prosocial behavior. The regression model was found to be statistically significant, $F(1, 739) = 89.70$, $p < .001$. The model explained 10.8% of the variance in prosocial behavior scores ($R^2 = .108$), indicating that altruistic leadership accounted for a modest proportion of the observed variation in prosocial behavior among healthcare professionals.

Examination of the regression coefficients revealed that altruistic leadership was a significant positive predictor of prosocial behavior ($B = 0.186$, $SE = 0.020$, $\beta = .329$, $t = 9.47$, $p < .001$). Specifically, a one-unit increase in altruistic leadership was associated with an average increase of 0.186 units in prosocial behavior scores.

The standardized regression coefficient ($\beta = .329$) indicated a moderate positive association between altruistic leadership and prosocial behavior. Furthermore, the 95% confidence interval for the regression coefficient did not include zero (95% CI [0.148, 0.225]), providing additional support for the statistical significance of the observed relationship.

Overall, the findings suggest that healthcare professionals who perceive higher levels of altruistic leadership tend to report higher levels of prosocial behavior. No evidence of multicollinearity was observed ($VIF = 1.00$, $Tolerance = 1.00$).

Table 8
Simple Linear Regression Analysis Examining the Effect of Altruistic Leadership on Prosocial Behavior (N = 741)

Predictor Variable	B	SE	β	t	p	95% CI Lower	95% CI Upper	R	R ²	F	Model p
Intercept	3.538	0.075	-	47.09	< .001	3.390	3.686	.329	.108	89.70	< .001
Altruistic Leadership	0.186	0.020	.329	9.47	< .001	0.148	0.225				
Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; CI = confidence interval. The regression model was statistically significant, $F(1, 739) = 89.70$, $p < .001$, explaining 10.8% of the variance in prosocial behavior ($R^2 = .108$). No multicollinearity was detected ($VIF = 1.00$; $Tolerance = 1.00$).											

Table 9 presents the results of the multiple linear regression analysis conducted to identify the predictors of employee performance. The overall regression model was statistically significant, $F(2, 738) = 53.53$, $p < .001$. Altruistic leadership and prosocial behavior jointly explained 12.7% of the variance in employee performance ($R = .356$, $R^2 = .127$, Adjusted $R^2 = .125$).

Examination of the regression coefficients indicated that altruistic leadership was a significant positive predictor of employee performance ($B = 0.125$, $SE = 0.021$, $\beta = .213$, $t = 5.84$, $p < .001$). Specifically, a one-unit increase in altruistic leadership was associated with an average increase of 0.125 units in employee performance scores.

Similarly, prosocial behavior was found to be a significant positive predictor of employee performance ($B = 0.232$, $SE = 0.038$, $\beta = .224$, $t = 6.16$, $p < .001$). A one-unit increase in prosocial behavior was associated with an average increase of 0.232 units in employee performance scores.

Comparison of the standardized regression coefficients showed that prosocial behavior ($\beta = .224$) had a slightly stronger association with employee performance than altruistic leadership ($\beta = .213$). Furthermore, the 95% confidence intervals for both predictors did not include zero, providing additional support for the statistical significance of the observed relationships.

Multicollinearity diagnostics indicated no evidence of multicollinearity among the independent variables ($VIF = 1.12$, $Tolerance = .892$). Overall, the findings suggest that higher levels of altruistic leadership and prosocial behavior are associated with higher levels of employee performance among healthcare professionals. However, given the cross-

sectional nature of the study, these findings should be interpreted as predictive associations rather than causal relationships.

Table 9
Multiple Linear Regression Analysis Predicting Employee Performance (N = 741)

Predictor Variable	B	SE	β	t	p	95% CI Lower	95% CI Upper	R	R ²	F	Model p	95% CI Lower
Intercept	3.061	0.154	-	19.87	< .001	2.758	3.363	.356	.127	.125	53.53	< .001
Altruistic Leadership	0.125	0.021	.213	5.84	< .001	0.083	0.167					
Prosocial Behavior	0.232	0.038	.224	6.16	< .001	0.158	0.306					

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; CI = confidence interval. The overall model was statistically significant, $F(2, 738) = 53.53, p < .001$. Altruistic leadership and prosocial behavior jointly explained 12.7% of the variance in employee performance ($R^2 = .127$; Adjusted $R^2 = .125$). No evidence of multicollinearity was detected (VIF = 1.12; Tolerance = .892).

To examine the mediating role of prosocial behavior in the relationship between altruistic leadership and employee performance, a bootstrap-based mediation analysis was conducted (Table 10). The results showed that altruistic leadership had a positive and significant effect on prosocial behavior ($B = 0.187, SE = 0.020, \beta = .329, Z = 9.49, p < .001$). In addition, prosocial behavior was found to positively and significantly predict employee performance ($B = 0.232, SE = 0.038, \beta = .224, Z = 6.17, p < .001$).

The mediation analysis further revealed a significant indirect effect of altruistic leadership on employee performance through prosocial behavior ($B = 0.043, SE = 0.008, \beta = .074, Z = 5.17, p < .001$; 95% CI for B [0.026, 0.068]). Because the bootstrap confidence interval did not include zero, the indirect effect was considered statistically significant, providing evidence for a mediating effect of prosocial behavior.

Moreover, the direct effect of altruistic leadership on employee performance remained statistically significant after accounting for prosocial behavior ($B = 0.125, SE = 0.021, \beta = .213, Z = 5.85, p < .001$, 95% CI [0.081, 0.176]). The total effect of altruistic leadership on employee performance was also positive and significant ($B = 0.168, SE = 0.021, \beta = .287, Z = 8.13, p < .001$, 95% CI [0.119, 0.224]).

Taken together, these findings indicate that prosocial behavior partially mediates the relationship between altruistic leadership and employee performance. Thus, altruistic leadership influences employee performance both directly and indirectly through its positive effect on prosocial behavior.

Table 10

Mediation Analysis Examining the Mediating Role of Prosocial Behavior in the Relationship Between Altruistic Leadership and Employee Performance (N = 741)

Effect/Path	B	SE	β	Z	p	95% CI Lower (B)	95% CI Upper (B)
Path Coefficients							
Altruistic Leadership → Prosocial Behavior (Path a)	0.187	0.020	.329	9.49	< .001	-	-
Prosocial Behavior → Employee Performance (Path b)	0.232	0.038	.224	6.17	< .001	-	-
Altruistic Leadership → Employee Performance (Path c')	0.125	0.021	.213	5.85	< .001	-	-
Effects							
Indirect Effect (AL → PB → EP)	0.043	0.008	.074	5.17	< .001	0.026	0.068
Direct Effect (AL → EP)	0.125	0.021	.213	5.85	< .001	0.081	0.176
Total Effect (AL → EP)	0.168	0.021	.287	8.13	< .001	0.119	0.224
Note. AL = Altruistic Leadership; PB = Prosocial Behavior; EP = Employee Performance. B = unstandardized coefficient; SE = standard error; β = standardized effect size; CI = confidence interval. Path a represents the effect of the independent variable on the mediator, path b represents the effect of the mediator on the dependent variable, and path c' represents the direct effect. Confidence intervals were estimated using 5,000 bias-corrected bootstrap resamples. A mediation effect was considered significant when the 95% confidence interval for the indirect effect did not include zero. Reported 95% confidence intervals correspond to the unstandardized (B) coefficients; standardized (β) coefficients are presented for effect-size interpretation.							

Hypothesis Testing Results

H1: Altruistic leadership positively affects prosocial behavior. → Supported

H2: Prosocial behavior positively affects employee performance. → Supported

H3: Altruistic leadership positively affects employee performance. → Supported

H4: Prosocial behavior mediates the relationship between altruistic leadership and employee performance. → Supported (Partial Mediation)

DISCUSSION

Overview of Main Findings

This study examined the relationships among altruistic leadership, prosocial behavior, and employee performance in a sample of 741 healthcare professionals in Türkiye, and tested whether prosocial behavior mediates the effect of altruistic leadership on performance. All four hypotheses were supported. Altruistic leadership positively predicted prosocial behavior (H1) and employee performance (H3), prosocial behavior positively predicted employee performance (H2), and prosocial behavior partially mediated the relationship between altruistic leadership and employee performance (H4), with the direct effect of altruistic leadership remaining significant after the mediator was introduced. Together, these findings indicate that altruistic leadership was associated with healthcare professionals' performance both

through a direct, organizational-support-related pathway and through an indirect pathway involving discretionary, other-oriented behavior that itself contributes to performance. The following subsections interpret each finding in relation to Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory, and situate them within the broader empirical literature.

The Effect of Altruistic Leadership on Prosocial Behavior (H1)

Altruistic leadership was a significant positive predictor of prosocial behavior, explaining a modest but meaningful share of its variance. This finding is consistent with a social-exchange account of leader–follower relations: when leaders consistently subordinate their own interests to those of their followers, they extend a valuable, unconditional relational resource that followers feel obliged to reciprocate (Cropanzano & Mitchell, 2005; Cropanzano et al., 2017). In a healthcare context, where staff routinely operate under emotional and workload strain, a leader who visibly prioritizes staff welfare over self-interest is likely to be experienced as a high-value exchange partner, prompting reciprocal helping, cooperation, and citizenship-oriented conduct directed at colleagues, patients, and the organization. The finding also aligns with a social-learning interpretation: altruistic leaders function as behavioral role models whose compassion and self-sacrifice followers emulate, an interpretation that fits particularly well with healthcare professionals, for whom compassion and self-sacrifice are already embedded in occupational identity (Chen et al., 2022). This result converges with He and Wei (2022), who found that altruistic leadership curtails self-serving conduct (knowledge hiding) via the positive emotions it generates, and with Jia et al. (2024), who showed that leader humility—a construct that, like altruistic leadership, centers on subordinating self-interest—promotes follower prosocial behavior through parallel social-exchange, social-learning, and need-satisfaction mechanisms. The present study extends this literature by demonstrating that the same reciprocity-based mechanism operates for altruistic leadership specifically, and does so in a large healthcare sample, a setting in which the leadership-to-prosocial-behavior pathway had previously received little direct empirical attention despite altruism itself being well documented as a professional trait in nursing (Chen et al., 2022). The magnitude of the effect ($\beta = .329$) corresponds to a moderate association by conventional benchmarks, suggesting that altruistic leadership is an important, though not sole, antecedent of prosocial behavior—other individual (e.g., empathic disposition) and organizational (e.g., staffing adequacy, workload) factors plausibly also contribute.

The Effect of Prosocial Behavior on Employee Performance (H2)

Prosocial behavior was also a significant positive predictor of employee performance, a result consistent with Prosocial Motivation Theory (Grant, 2008; Grant & Berg, 2011). According to this perspective, other-oriented motivation sustains effort and persistence because employees derive meaning from the visible impact of their actions on others; in healthcare, this dynamic is amplified because the beneficiaries of professionals' discretionary effort—patients and colleagues—are immediately present and identifiable, which should make prosocially motivated effort unusually self-reinforcing in this occupational context. Beyond its motivational function, prosocial behavior in healthcare typically manifests as helping overburdened colleagues, informal knowledge sharing, and flexible role-taking, all of which improve coordination and communication within care teams and reduce the likelihood of errors or delays that compromise patient-centered care. This interpretation is consistent with Podsakoff et al.'s (2009) meta-analytic evidence that citizenship-type behaviors enhance individual and unit-level performance partly by improving coordination and reducing the burden of supervisory monitoring, and with more recent evidence that prosocial behavior predicts performance-relevant outcomes in safety-critical occupational settings (Moserle et al., 2024). It also parallels findings from Turkish and international nursing samples in which citizenship-oriented behavior has been closely tied to favorable work outcomes and shaped by supportive leadership (Mohammadpour Bayati et al., 2025). Although the association observed here ($\beta = .224$) is modest in absolute size, it is important to note that it was estimated net of altruistic leadership's own direct effect, indicating that prosocial behavior contributes an independent, non-redundant increment to performance beyond what leadership alone explains—an increment with clear practical significance in team-based healthcare delivery,

where the cumulative effect of many small acts of voluntary cooperation across a unit can be substantial even when any single individual's incremental behavior appears modest.

The Effect of Altruistic Leadership on Employee Performance (H3)

Altruistic leadership also exerted a significant, independent, positive effect on employee performance. This direct pathway is best explained through Organizational Support Theory (Eisenberger et al., 2020; Kurtessis et al., 2017): because immediate supervisors are typically perceived as agents of the organization, a leader's altruistic conduct functions as a tangible signal that the organization values and cares about its employees, which activates felt obligation, affective commitment, and a heightened willingness to invest discretionary effort in one's formal role—independently of any change in other-oriented behavior toward colleagues or patients. This result is consistent with Kock et al.'s (2022) argument that leaders who prioritize followers' welfare enhance performance chiefly by strengthening followers' commitment and satisfaction, and it mirrors findings from adjacent hospital-based leadership research: ethical leadership predicted job performance among Jordanian hospital staff both directly and through internal motivation (Al-Bataineh & Hayajneh, 2026), supportive leader behavior shaped extra-role performance in Turkish hospitals (Yesildag & Ugurluoglu Aldogan, 2026), and servant leadership exerted a direct effect on task performance independent of its indirect pathways (Zada et al., 2024). Because altruistic leadership shares with these constructs its central defining feature—subordination of self-interest to followers' welfare—a comparable direct effect on performance in the present healthcare sample is theoretically unsurprising, and it reinforces the conclusion that leader-level, values-based conduct exerts an influence on healthcare workforce performance that is not fully captured by, or reducible to, its behavioral downstream consequences for staff.

The Mediating Role of Prosocial Behavior (H4)

The mediation analysis showed that prosocial behavior carries a statistically significant, but numerically modest, portion of altruistic leadership's total effect on employee performance (indirect $B = 0.043$, 95% CI [0.026, 0.068]; $\beta = .074$), while the direct effect of altruistic leadership on performance remained significant and of larger magnitude ($\beta = .213$) after prosocial behavior was entered into the model. This pattern constitutes partial, rather than full, mediation, and it is theoretically informative in its own right. Full mediation would imply that altruistic leadership influences performance exclusively by first changing followers' prosocial behavior; the present partial pattern instead indicates that altruistic leadership operates through at least two distinguishable mechanisms simultaneously. Consistent with Organizational Support Theory, part of its effect appears to work through a direct, support-based route—via felt obligation, trust, and commitment—that need not pass through any observable change in helping or citizenship-type conduct. Consistent with Social Exchange Theory and Prosocial Motivation Theory, a second, indirect route operates by first cultivating reciprocal prosocial behavior in followers, which then translates into performance gains through sustained effort and improved team coordination. Because these two mechanisms are conceptually independent yet co-occur, no single mediator—prosocial behavior included—should be expected to fully account for altruistic leadership's total effect; other unmeasured psychological states plausibly implicated in the direct pathway, such as trust in the leader, affective commitment, or psychological safety, likely explain the residual direct effect. This layered pattern echoes prior mediation findings in adjacent healthcare and organizational leadership research, in which servant leadership affected task performance both directly and indirectly through promotive voice (Zada et al., 2024), and transformational leadership's influence on citizenship behavior operated alongside other direct mechanisms rather than replacing them (Ibrahim et al., 2024). Taken together, the present findings suggest that in healthcare settings, altruistic leadership sustains employee performance through a dual-pathway process, of which prosocial behavior constitutes one identifiable and theoretically grounded, but not exclusive, behavioral channel.

Demographic Correlates: Marital Status, Education, and Professional Experience

Married healthcare professionals reported higher altruistic leadership perceptions, prosocial behavior, and performance than single professionals, although all three effect sizes were small ($d = 0.20-0.23$). Given the large sample size, these differences reached statistical significance despite their limited practical magnitude, and they should therefore be interpreted cautiously rather than as evidence of a substantively important marital effect. To the extent that the difference is meaningful, it may reflect broader psychosocial resources associated with marriage—such as spousal or family-based emotional support—that supplement the workplace resources emphasized by Organizational Support Theory, leaving married employees with a larger overall resource base from which to sustain discretionary, other-oriented effort at work.

Educational level was associated with altruistic leadership perceptions but not with prosocial behavior or employee performance, a dissociation worth noting. One plausible explanation is that more highly educated professionals bring different interpretive frameworks or expectations regarding leader conduct—shaped by greater exposure to formal management or professional-ethics training—that influence how leader behavior is appraised, without this appraisal difference translating into any measurable difference in professionals' own discretionary behavior or task performance. This pattern is consistent with the view that prosocial behavior is fundamentally motivational rather than competency-based (Grant, 2008), and thus need not vary systematically with formal educational attainment.

Professional experience was significantly associated with all three variables, with the largest, though still small-to-moderate, effect observed for altruistic leadership perceptions ($\epsilon^2 = .067$). The post hoc pattern—in which the least experienced professionals differed most consistently from more experienced groups, while several mid-to-senior tenure comparisons were also significant—suggests a non-monotonic relationship rather than a simple linear increase across career stages. This is broadly consistent with prior evidence that organizational citizenship-type behavior does not increase uniformly with tenure but instead follows a more complex trajectory across career stages, plausibly reflecting the accumulation of relational trust and professional identity in the early-to-mid career period, followed by a plateau (Atatsi et al., 2021). Because the present design examined tenure only as a categorical grouping variable, this interpretation remains tentative and warrants direct testing with continuous tenure measures in future research.

CONCLUSIONS

This study provides empirical evidence, from a large sample of 741 healthcare professionals in Türkiye, that altruistic leadership is positively associated with both prosocial behavior and employee performance, and that prosocial behavior partially mediates the relationship between altruistic leadership and performance. These findings support a dual-pathway account in which altruistic leadership is associated with healthcare workforce performance directly, through the organizational-support signal its conduct conveys, and indirectly, through its association with reciprocal, other-oriented behavior among staff. By integrating Social Exchange Theory, Organizational Support Theory, and Prosocial Motivation Theory within a single empirical model, the study clarifies a behavioral mechanism that has previously been assumed rather than directly tested in healthcare settings. For healthcare organizations confronting persistent workforce shortages and rising performance expectations, the results suggest that leadership development oriented toward altruistic, other-centered conduct is not merely an ethical aspiration but is empirically associated with stronger discretionary behavior and task performance among the clinical and administrative workforce. Altruistic leadership and prosocial behavior should therefore be regarded as complementary, mutually reinforcing components of a performance-sustaining organizational climate in healthcare.

Theoretical Implications

The study makes several contributions to the organizational behavior and healthcare management literatures. First, it extends the relatively young body of research on altruistic leadership—previously concentrated in general organizational and knowledge-management contexts (He & Wei, 2022; Kock et al., 2022)—into a large-scale healthcare setting, thereby demonstrating that this leadership construct retains explanatory value in an occupational context where other-oriented conduct is already professionally normative (Chen et al., 2022) rather than being rendered redundant by it.

Second, the study contributes to healthcare management literature by empirically linking altruistic leadership to employee performance in a single integrated model, addressing a gap noted in prior reviews of hospital-based leadership research, where related but conceptually narrower constructs—servant, ethical, and transformational leadership—have dominated the literature (Zada et al., 2024; Al-Bataineh & Hayajneh, 2026; Ibrahim et al., 2024).

Third, with respect to mediation theory, the finding of partial rather than full mediation offers a theoretically precise contribution: it empirically demonstrates that altruistic leadership's influence on performance operates through at least two distinguishable mechanisms rather than a single behavioral pathway, reinforcing calls in the leadership literature for multi-mechanism, rather than single-mediator, models of how follower-centered leadership styles translate into performance outcomes (Zada et al., 2024; Ibrahim et al., 2024).

Fourth, the study extends Social Exchange Theory and Prosocial Motivation Theory by jointly applying them within a single healthcare-specific model. It shows that the norm of reciprocity central to Social Exchange Theory (Cropanzano & Mitchell, 2005) operates not only to explain generalized citizenship behavior but specifically to transmit a leader's altruistic conduct into measurable performance gains, while extending Prosocial Motivation Theory (Grant, 2008; Grant & Berg, 2011) into a context—direct patient care—in which the theorized salience of beneficiary impact is maximal, offering a naturalistic test of the theory's core mechanism outside the experimental and general-workplace settings in which it was originally developed.

Finally, by simultaneously testing direct and indirect effects, the study offers healthcare management scholars a template for disentangling relational (support-based) and behavioral (prosocial) mechanisms of leadership influence, encouraging future theory-building that treats these mechanisms as complementary rather than competing explanations.

Practical Implications

The findings translate into several concrete recommendations for hospital administrators, healthcare managers, and human resource departments. First, because altruistic leadership was associated with both prosocial behavior and performance, hospital administrators should incorporate altruistic leadership competencies—modeling selflessness, demonstrating genuine concern for staff welfare, and prioritizing followers' interests in day-to-day decisions—into the formal criteria used to select and promote unit managers and clinical supervisors, rather than relying solely on technical or seniority-based promotion criteria.

Second, leadership development programs should include structured training modules that build empathy, active listening, and self-sacrificial decision-making skills among current and prospective healthcare leaders, since these are the behavioral substrates through which altruistic leadership is theorized to operate. Role-play, reflective supervision, and 360-degree feedback mechanisms focused specifically on other-oriented leader conduct are practical vehicles for such training.

Third, because prosocial behavior independently predicted performance and partially transmitted the effect of altruistic leadership, human resource departments should deliberately cultivate a prosocial organizational climate—for example, by recognizing and rewarding informal helping and cooperative behavior in performance appraisal systems, creating

peer-support and mentoring schemes that normalize discretionary assistance, and ensuring that staffing levels are not so constrained that prosocial effort becomes an additional source of role overload rather than a source of meaning.

Fourth, given that professional experience was associated with altruistic leadership perceptions, prosocial behavior, and performance, and that the least experienced staff differed most consistently from their more experienced colleagues, targeted onboarding and mentorship programs for early-career healthcare professionals may help accelerate the development of relational trust and professional identity that appear to underlie these differences.

Finally, from a workforce sustainability and quality-of-care perspective, hospital administrators operating in an environment of global health workforce shortages (Gulumbe & Usman, 2023) should treat leadership development and prosocial-climate initiatives not as peripheral "soft" interventions but as core retention and performance strategies: because these mechanisms operate largely independently of compensation and staffing levels, they represent a comparatively low-cost, organizationally relevant factor associated with sustaining discretionary effort and care quality even where structural workforce constraints cannot be immediately resolved.

Limitations of the Research

Several limitations should be considered when interpreting these findings. First, the cross-sectional design precludes causal inference; although the hypothesized model is theoretically directional, the observed associations should be interpreted as concurrent statistical relationships rather than evidence that altruistic leadership causes changes in prosocial behavior or performance over time. Second, participants were recruited through convenience sampling at a single tertiary university hospital, which may have introduced selection bias and limits the generalizability of the findings to healthcare professionals in other institutional, regional, or cultural contexts; the single-center design further means that unit-specific or institution-specific factors cannot be ruled out as alternative explanations for the observed relationships. Third, all constructs were assessed using self-report measures completed by the same respondents at the same point in time, raising the possibility of common method bias (Podsakoff et al., 2003); although the study relied on validated, previously translated scales with strong internal consistency, shared-method variance cannot be fully excluded as a contributor to the observed associations. Fourth, employee performance was measured through self-assessment rather than supervisor ratings or objective indicators, which may be subject to social desirability or self-enhancement bias. Fifth, because participants were nested within different departments and clinical units under different immediate supervisors, the potential clustering of responses within leader-based groups was not modeled (e.g., through multilevel or hierarchical analysis); this may have led to underestimated standard errors and an inflated likelihood of Type I error, particularly for the altruistic leadership-related effects. Finally, although the sample size was large, its restriction to a single referral hospital in the Black Sea Region of Türkiye limits the extent to which findings can be generalized to healthcare systems with different organizational cultures, staffing structures, or leadership norms.

Future research should address these limitations through multi-center studies spanning diverse healthcare institutions and regions to strengthen external validity, and through longitudinal designs that establish temporal precedence among altruistic leadership, prosocial behavior, and performance. Experimental or quasi-experimental designs—for example, evaluating leadership-development interventions targeting altruistic leader behavior—would help clarify the causal status of the relationships identified here. Future studies should also incorporate supervisor-rated or objective performance indicators alongside self-report measures to reduce common method concerns, and should examine additional mediators (e.g., trust in the leader, affective commitment, psychological safety) and moderators (e.g., unit-level workload, team climate, professional role) that may further clarify the boundary conditions and residual direct effect identified in the present mediation model. Finally, replicating this model across different healthcare settings and cultural contexts would help establish whether the dual-pathway mechanism identified here generalizes beyond the Turkish hospital context in which it was observed.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Ondokuz Mayıs University Social and Human Sciences Research Ethics Committee with decision number 2024-752 dated July 26, 2024. Throughout the research process, the ethical principles of the Declaration of Helsinki and adequate clinical practice standards were observed. Participants were informed about the purpose of the study, and informed consent forms were signed in accordance with the principles of voluntary participation.

Consent for publication: Not applicable.

Availability of data and materials

Datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The author declares that they have no competing interests. The author declare that this article has not been previously presented in any journal.

Funding

This research received no funding.

Disclosure statement

The author declares no conflict of interest.

Authors' contributions:

Conceptualization, N.C.U.; methodology, N.C.U.; software, N.C.U.; validation, N.C.U.; formal analysis, N.C.U.; investigation, N.C.U.; resources, N.C.U.; data curation, N.C.U.; writing—original draft preparation, N.C.U.; writing—review and editing, N.C.U.; visualization, N.C.U.; supervision, N.C.U.; project administration, N.C.U. The author has read and agreed to the published version of the manuscript.

Acknowledgements: The author reviewed and edited the output and takes full responsibility for the content of this publication. The author would like to thank the healthcare professionals who participated in this study for their time and patience.

References

1. Al-Bataineh, R., & Hayajneh, A. (2026). The mediating role of internal motivation on the relationship between ethical leadership and employee performance in hospitals in Northern Jordan. *PLOS ONE*, 21(1), e0341065. <https://doi.org/10.1371/journal.pone.0341065>
2. Atatsi, E. A., Stoffers, J., & Kil, A. (2021). Work tenure and organizational citizenship behaviors: A study in Ghanaian technical universities. *Sustainability*, 13(24), 13762. <https://doi.org/10.3390/su132413762>
3. Chen, Y., Xie, C., Zheng, P., & Zeng, Y. (2022). Altruism in nursing from 2012 to 2022: A scoping review. *Frontiers in Psychiatry*, 13, 1046991. <https://doi.org/10.3389/fpsy.2022.1046991>

4. Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of Management Annals*, 11(1), 479-516. <https://doi.org/10.5465/annals.2015.0099>
5. Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
6. Çakmak, C., Biçer, İ., & Uğurluoğlu, Ö. (2019). Alturistik (özgeci) liderlik ölçeğinin Türkçe uyarlaması: Geçerlilik ve güvenilirlik çalışması. *Ankara Hacı Bayram Veli Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 21(3), 785–802. <https://dergipark.org.tr/tr/pub/ahbvuibfd/article/562255>
7. Eisenberger, R., Rhoades Shanock, L., & Wen, X. (2020). Perceived organizational support: Why caring about employees counts. *Annual Review of Organizational Psychology and Organizational Behavior*, 7(1), 101–124. <https://doi.org/10.1146/annurev-orgpsych-012119-044917>
8. Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology*, 93(1), 48–58. <https://doi.org/10.1037/0021-9010.93.1.48>
9. Grant, A. M., & Berg, J. M. (2011). Prosocial motivation at work: When, why, and how making a difference makes a difference. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 28–44). Oxford University Press.
10. Gulumbe, B. H., & Usman, N. I. (2023). Projected shortfall of 10 million healthcare workers by 2030: Implications for low- and middle-income countries and the way forward. *Healthcare in Low-resource Settings*, 11(1), Article 11359. <https://doi.org/10.4081/hls.2023.11359>
11. He, Y., & Wei, X. (2022). Preventing knowledge hiding behaviors through workplace friendship and altruistic leadership, and mediating role of positive emotions. *Frontiers in Psychology*, 13, 905890. <https://doi.org/10.3389/fpsyg.2022.905890>
12. Ibrahim, I. A., El-Monshed, A. H., Altheeb, M., & El-Sehrawy, M. G. (2024). Transformational leadership, psychological empowerment, and organizational citizenship behaviors among nursing workforce: A single mediation analysis. *Journal of Nursing Management*, 2024, Article 9919371. <https://doi.org/10.1155/2024/9919371>
13. Jia, J., Feng, B., Deng, Y., Lin, W., & Ning, D. (2024). Leader humility and follower prosocial behaviours: Integrating three theoretical perspectives. *Journal of Occupational and Organizational Psychology*, 97(4), 1282–1306. <https://doi.org/10.1111/joop.12521>
14. Kanungo, R. N., & Mendonca, M. (1996). *Ethical dimensions of leadership*. Sage Publications.
15. Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: Antecedents and consequences of team empowerment. *Academy of Management Journal*, 42(1), 58–74. <https://doi.org/10.5465/256874>
16. Kock, N., Mayfield, M., & Mayfield, J. (2022). Altruistic leadership and job performance: A Darwinian evolutionary perspective. *Interdisciplinary Journal of Applied Science*, 6(11). <https://doi.org/10.18226/25253824.v6.n11.04>
17. Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A., & Adis, C. S. (2017). Perceived organizational support: A meta-analytic evaluation of organizational support theory. *Journal of Management*, 43(6), 1854–1884. <https://doi.org/10.1177/0149206315575554>
18. McNeely, B. L., & Meglino, B. M. (1994). The role of dispositional and situational antecedents in prosocial organizational behavior: An examination of the intended beneficiaries of prosocial behavior. *Journal of Applied Psychology*, 79(6), 836–844. <https://doi.org/10.1037/0021-9010.79.6.836>
19. Mohammadpour Bayati, M., Sadeghi, A., Maleki Jamasbi, M., & Tapak, L. (2025). Servant leadership, work-life quality, and organizational citizenship behavior in nurses: A cross-sectional design. *BMC Nursing*, 24(1), Article 561. <https://doi.org/10.1186/s12912-025-03209-3>
20. Moserle, G., Foti, G., Finstad, G. L., Bazzoli, A., Curcuruto, M., & Morgan, J. (2024). Prosocial behavior and workplace safety: Analysis of the role of emotional intelligence and perceived organizational support in two UK and US

samples. *Sustainability*, 16(21), 9190. <https://doi.org/10.3390/su16219190>

21. Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual- and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology*, 94(1), 122–141. <https://doi.org/10.1037/a0013079>
22. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
23. Sigler, T. H., & Pearson, C. M. (2000). Creating an empowering culture: Examining the relationship between organizational culture and perceptions of empowerment. *Journal of Quality Management*, 5(1), 27–52. [https://doi.org/10.1016/S1084-8568\(00\)00011-0](https://doi.org/10.1016/S1084-8568(00)00011-0)
24. Şantaş, F., Uğurluoğlu, Ö., Kandemir, A., & Çelik, Y. (2016). Sağlık çalışanlarında örgütsel sinizm, iş performansı ve örgütsel özdeşleşme düzeyleri arasındaki ilişkilerin incelenmesi. *Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 18(3), 867–886. <https://dergipark.org.tr/tr/pub/gaziuiibfd/article/300452>
25. Şentürk, F. K., & Altunok, D. (2023). Turkish adaptation of the Prosocial Organizational Behaviors Scale: A validity and reliability study. *Elektronik Sosyal Bilimler Dergisi*, 22(85), 118–134. <https://doi.org/10.17755/esosder.1134750>
26. Yesildag, A. Y., & Ugurluoglu Aldogan, E. (2026). Assessment of the relationships between leader behavior, organizational silence, work engagement, and extra-role behaviors in hospitals. *BMC Health Services Research*, 26(1), Article 881. <https://doi.org/10.1186/s12913-026-14652-6>
27. Zada, M., Khan, J., Saeed, I., & Zada, S. (2024). Examining the nexus between servant leadership and employee task performance: The moderation mediation model. *Humanities and Social Sciences Communications*, 11(1), 1559. <https://doi.org/10.1057/s41599-024-04052-8>
28. Zheltoukhova, K. (2016). *Developing and validating a scale of altruistic leadership* (Doctoral dissertation, Lancaster University). Lancaster University. <https://eprints.lancs.ac.uk/id/eprint/79965/>

Figures

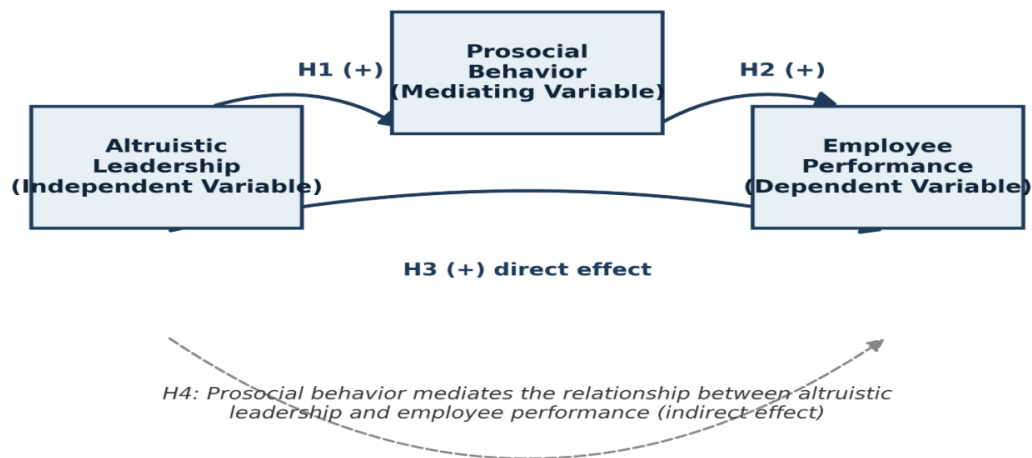


Fig. 1 Proposed research model

Proposed research model: the mediating role of prosocial behavior in the relationship between altruistic leadership and employee performance