Research Article

Leadership Style as a Social Determinant of Health: A Conceptual and Empirical Analysis

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Abstract

Leadership style has traditionally been conceptualized within organizational and managerial contexts, yet emerging evidence suggests it functions as a crucial social determinant of health (SDOH). This paper examines the impact of transformational, transactional, and ethical leadership on health outcomes, mediated through psychosocial work environments, job satisfaction, stress, and employee engagement. Using a mixed-methods synthesis of studies from PubMed, EBSCOhost, and ProQuest, the analysis integrates quantitative metrics such as absenteeism, burnout, and mental health indicators with qualitative insights from organizational case studies. Findings indicate that transformational and ethical leadership styles significantly reduce work-related stress and enhance employee wellbeing. In contrast, transactional leadership is associated with higher stress levels and decreased job satisfaction. Regression analyses demonstrate that leadership effectiveness accounts for 35–45% of variance in psychosocial health outcomes, highlighting its centrality in shaping workplace health. Moreover, leadership quality moderates the effects of adverse social determinants such as workplace inequality, role ambiguity, and resource constraints, suggesting that strong leadership can buffer health risks in challenging environments. Qualitative evidence underscores the importance of trust, communication, and ethical conduct in fostering organizational climates that promote mental and physical health. The synthesis further reveals that poorly implemented leadership practices exacerbate burnout, absenteeism, and cardiovascular risk factors, highlighting the need for systemic interventions. These findings support the classification of leadership style as a social determinant of health, with implications for policy, organizational training, and public health interventions. Targeted leadership development programmes may thus serve as actionable strategies to improve workforce health outcomes across diverse sectors. The conclusion emphasizes the imperative for policymakers, public health professionals, and organizational leaders to incorporate leadership assessment within health equity frameworks.

Introduction

Public health scholarship has traditionally focused on material and structural factors, such as income, education, employment, housing, and access to healthcare, as key social determinants of health. However, recent advances in health systems research and organizational science have highlighted the significance of leadership style as a powerful yet often overlooked determinant influencing health outcomes within both micro and macro contexts [1,2]. Leadership determines how power is exercised, resources are allocated, and people are motivated - factors that shape the environments in which individuals live, work, and receive care. The way leaders make decisions, communicate their vision, and manage conflict directly influences psychosocial conditions, employee wellbeing, and an institution's responsiveness to social inequities [3]. These mechanisms align closely with the structural and intermediary determinants of health identified by the World Health Organization's Commission on Social Determinants of Health, suggesting that leadership style functions as

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a core driver of health outcomes [4]. Understanding leadership as a determinant extends the boundaries of health discourse, emphasizing that social and organizational power structures can either perpetuate or mitigate inequity in health.

Leadership's role in shaping workplace and organizational environments is particularly relevant to health systems and public service institutions. Studies demonstrate that transformational and servant leadership styles promote staff satisfaction, morale, and engagement, thereby reducing burnout and absenteeism among healthcare professionals [5]. By contrast, autocratic or laissez-faire leadership styles are associated with increased occupational stress, poor team cohesion, and decreased productivity [6]. In the healthcare sector, where psychosocial safety and teamwork are integral to service quality, leadership has a direct impact not only on staff health but also on patient outcomes [7]. The relationship between leadership and employee health underscores an important causal pathway: the psychosocial work environment. Poor leadership practices can amplify stress, reduce perceived fairness, and erode social support networks, all of which are established mediators of mental and physical health [8]. Conversely, empowering and inclusive leadership styles contribute to healthier organizational climates that foster resilience and psychological safety. Thus, leadership operates as a psychosocial determinant that influences both individual and collective wellbeing.

Beyond organizational dynamics, leadership exerts macro-level influence through public policy, governance, and institutional design. Political and administrative leaders determine the distribution of social resources and the prioritization of health equity initiatives within national frameworks [9]. Decisions about funding, regulation, and health reform are rarely neutral; they reflect leadership philosophies and ethical orientations that either advance or constrain population health equity. For instance, inclusive and transparent leadership in governance fosters community participation, trust, and accountability—conditions associated with stronger health outcomes and social cohesion [10]. Conversely, weak or corrupt leadership undermines public confidence, misallocates resources, and perpetuates systemic inequities, resulting in poorer health indicators [11]. Therefore, leadership must be recognized not only as an organizational competency but also as a structural factor embedded in social systems. Its influence extends to the macro-political sphere, where policy priorities and institutional integrity determine population wellbeing.

Furthermore, leadership shapes the moral and ethical climate within organizations and societies, influencing how justice, empathy, and equity are operationalized [12]. Servant and authentic leadership frameworks emphasize values of care, compassion, and shared responsibility—principles that mirror the ethical imperatives of public health practice [13]. Leaders who adopt these frameworks tend to prioritize inclusivity and fairness in decision-making, ensuring that vulnerable or marginalized groups are not excluded from opportunities for wellbeing. Ethical leadership can therefore be considered a form of social capital, as it enhances trust, cohesion, and legitimacy across institutional boundaries [14]. In contrast, toxic or exploitative leadership practices reinforce inequities by fostering exclusion, discrimination, and fear, which are known precursors to psychosocial harm [15]. As public health increasingly embraces systems thinking, the ethical quality of leadership emerges as a determinant shaping both the distribution and experience of health. This conceptual expansion situates leadership within the moral architecture of social determinants, where power and ethics intersect to influence human flourishing.

Leadership style also interacts with other social determinants in complex and reinforcing ways. For example, within low-income or high-stress environments, effective leadership can buffer the adverse effects of economic deprivation by providing social support, advocacy, and direction [16]. Conversely, in resource-rich contexts, poor leadership can exacerbate inequality by failing to allocate resources equitably or address the psychosocial needs of individuals. The dynamic interplay between leadership and structural determinants such as employment conditions, income, and education suggest that leadership is both an independent and moderating factor in health causation. Empirical research from occupational health studies supports this view, showing that leadership interventions can reduce stress-related illnesses, lower turnover rates, and enhance job satisfaction even in high-demand settings [17]. These findings position leadership as a leverage point for policy and practice, capable of amplifying the benefits of other health-promoting determinants. The inclusion of leadership in social determinant frameworks thus strengthens the integrative understanding of how health inequities emerge and can be mitigated.

Recognizing leadership as a social determinant of health also carries practical implications for health promotion, policy development, and workforce sustainability. Health institutions with strong, inclusive, and visionary leadership demonstrate better patient safety records, higher quality of care, and improved employee retention [18]. Moreover, leadership development has been shown to enhance organisational learning and adaptability - key elements of resilient health systems [19]. By contrast, leadership neglect often results in fragmented service delivery, low morale, and inefficiency. The social and psychological influence of leadership extends beyond the formal hierarchy, shaping everyday interactions, values, and norms that constitute the lived experience of work and health [20]. Hence, framing leadership as a social

determinant not only redefines accountability but also expands the domain of health equity interventions to include leadership assessment, training, and ethical governance.

In summary, leadership style operates through multiple pathways - psychosocial, organizational, ethical, and political - to influence health at both individual and population levels. Its impact is evident in workplace wellbeing, policy decisions, and the overall effectiveness of health systems. By conceptualizing leadership as a social determinant of health, scholars and policymakers gain a more comprehensive framework for understanding and addressing health inequities. This paper, therefore, advances the argument that leadership should be classified among the structural determinants of health, alongside socioeconomic and political contexts. The subsequent sections present the theoretical rationale, empirical evidence, and practical implications supporting this classification.

Theoretical Framework

The conceptualization of leadership as a social determinant of health is best understood through an interdisciplinary integration of theories drawn from organizational psychology, public health, and sociology. These frameworks collectively elucidate how leadership functions as both a structural and intermediary determinant of health outcomes. The World Health Organization's Conceptual Framework for Action on the Social Determinants of Health identifies governance, social policies, and institutional processes as structural conditions that determine health equity [1]. Leadership directly shapes these domains by influencing decision-making, institutional accountability, and social participation. Thus, leadership operates at the intersection of structure and agency - where social conditions are both created and mediated through human interaction. From this perspective, leadership cannot be viewed merely as an individual attribute, but rather as a systemic property embedded within institutions that structure health opportunities and outcomes. This understanding justifies its classification as a determinant with causal and mediating influence on population health.

Transformational leadership theory, initially articulated by Burns and later expanded upon by Bass, offers a robust conceptual framework for understanding the positive impact of leadership on healthcare systems. Transformational leaders inspire and motivate followers to exceed expectations through vision, intellectual stimulation, and individualized consideration [2]. Within health institutions, such leadership has been linked to higher job satisfaction, improved patient outcomes, and reduced staff turnover [3]. The psychological mechanisms underlying these outcomes include increased trust, empowerment, and perceived organizational support - all of which reduce occupational stress and promote wellbeing. Transformational leadership aligns closely with public health principles of empowerment and participation, as it fosters collective ownership and shared vision among health workers and communities. In this way, it acts as a social determinant by shaping psychosocial environments conducive to health. Conversely, the absence of transformational behaviours often correlates with low morale, burnout, and disengagement, reinforcing its critical role in health-promoting systems [4].

Servant leadership theory, introduced by Greenleaf, complements this framework by foregrounding empathy, service, and ethical responsibility as central to leadership practice [5]. Servant leaders prioritize the needs of their followers, fostering supportive relationships and environments that enhance wellbeing. In the context of healthcare, servant leadership has been associated with improved team functioning, reduced workplace bullying, and increased job satisfaction [6]. By promoting compassion and inclusivity, servant leadership mitigates psychosocial risks and enhances the moral climate of organizations. This orientation is especially relevant in health systems where emotional labour and ethical stress are prevalent. Moreover, servant leadership supports social justice and equity - key determinants of public health - by amplifying the voices of marginalized groups and encouraging participatory decision-making [7]. The emphasis on collective welfare situates servant leadership as a moral and relational determinant of health, extending its relevance beyond the organizational to the societal level.

The psychosocial work environment model, developed by Karasek and Theorell, offers another theoretical lens for linking leadership to health outcomes. The model posits that job strain arises when high demands are coupled with low decision latitude and social support [8]. Leadership style is a significant determinant of these psychosocial factors, influencing how workers perceive control, support, and recognition. Autocratic or laissez-faire leadership increases psychological strain by limiting autonomy and reducing communication, whereas supportive leadership fosters resilience and coping capacity. Empirical studies show that poor leadership practices contribute to higher rates of cardiovascular disease, depression, and occupational stress among employees [9]. Conversely, empowering and participative leadership enhances job satisfaction, emotional wellbeing, and overall health [10]. Thus, the psychosocial model underscores leadership's role as an intermediary determinant that shapes mental and physical health through organizational stress pathways.

Systems theory further strengthens the conceptualization of leadership as a determinant by situating it within complex adaptive systems. Health systems are characterized by

interdependence, feedback loops, and non-linear relationships, where leadership functions as a critical node influencing system behaviour [11]. Leadership determines how institutions respond to internal and external pressures, adapt to change, and maintain equilibrium. When leadership is adaptive, inclusive, and learning-oriented, systems are more resilient and better equipped to sustain health equity initiatives. Conversely, rigid or authoritarian leadership impairs information flow, discourages innovation, and increases vulnerability to systemic failure. Systems theory thereby frames leadership not as an isolated behavioural variable but as a structural factor embedded in institutional dynamics that shape collective health outcomes. By influencing both micro-level (interpersonal) and macro-level (institutional) processes, leadership exerts a multi-scalar impact consistent with the determinants of health framework [12].

Ultimately, the ethical and procedural justice theories provide a crucial normative foundation for incorporating leadership into the determinants of health paradigm. Procedural justice theory posits that individuals' perceptions of fairness and transparency in authority processes significantly influence their trust, compliance, and overall wellbeing [13]. Leadership that embodies fairness, respect, and integrity enhances legitimacy, which in turn promotes voluntary cooperation and collective morale. Ethical leadership models extend this by asserting that moral reasoning and value-driven behaviour are integral to sustainable organizational health [14]. In healthcare and public service contexts, ethical leadership reduces moral distress, improves decision quality, and reinforces a culture of accountability. The legitimacy derived from ethical leadership transcends organizational boundaries, influencing public trust in institutions and, by extension, social determinants such as civic engagement and community cohesion [15]. Together, these theories illuminate the moral dimension of leadership as a determinant - one that shapes not only behaviours and policies but the ethical infrastructure of health governance itself.

Collectively, these theoretical perspectives provide a multidimensional framework for understanding leadership as a social determinant of health. Transformational and servant leadership emphasize psychosocial and relational determinants; systems theory captures its structural and dynamic influence; and procedural justice and ethical theories highlight its moral and institutional significance. Integrating these approaches reveals leadership as both a cause and a mediator of health inequities, affecting how resources are distributed, how people are treated, and how systems function. Recognizing leadership as a determinant thus bridges the gap between individual agency and structural constraint, advancing a holistic model of health causation. This theoretical synthesis underpins the empirical analysis that follows, positioning leadership not merely as a managerial tool but as a critical social force in shaping wellbeing across populations.

Literature Review

The relationship between leadership and health outcomes has received growing attention across multiple disciplines, including public health, organizational psychology, and healthcare management. Research increasingly supports the notion that leadership functions as a determinant of both employee and population health by shaping organizational climate, psychosocial wellbeing, and access to resources [16]. Empirical studies conducted in healthcare institutions have demonstrated that leadership behaviours influence staff engagement, patient safety, and service quality - core indicators of institutional health performance [17]. A systematic review of 48 studies found that transformational leadership is significantly associated with lower burnout rates and higher job satisfaction among healthcare workers [18]. These effects, in turn, correlate with improved patient satisfaction and reduced adverse event rates, suggesting a direct and indirect link between leadership and health outcomes. Furthermore, the presence of supportive leadership has been linked to reduced workplace stress, enhanced emotional resilience, and improved self-rated health among employees [19]. Collectively, these findings establish leadership as an influential contextual variable within the broader social determinant's framework.

Transformational leadership has been particularly well-documented for its role in promoting health and wellbeing among healthcare personnel. Studies from the United Kingdom, Canada, and Scandinavia consistently show that transformational leaders enhance team performance by fostering trust, collaboration, and psychological safety [20]. A meta-analysis of leadership and health outcomes revealed that transformational behaviours such as intellectual stimulation and inspirational motivation significantly reduce psychosomatic symptoms and job-related stress [21]. This is primarily mediated by perceptions of fairness, empowerment, and autonomy in the workplace. Furthermore, hospitals led by transformational leaders report higher levels of innovation and adaptability in implementing patient safety protocols and infection control practices [22]. The leadership approach not only improves organizational performance but also strengthens employees' sense of purpose and belonging, both of which are recognized determinants of mental health [23]. The consistency of these results across diverse settings underscores the universal relevance of leadership in shaping the psychosocial determinants of health.

In contrast, destructive or authoritarian leadership styles are strongly linked to adverse health outcomes and diminished organizational effectiveness. Research indicates that autocratic leadership correlates with higher employee turnover, increased absenteeism, and elevated stress biomarkers, including cortisol

levels [24]. Studies conducted in hospital environments show that such leadership styles foster cultures of fear and silence, leading to underreporting of errors and moral distress among nurses and physicians [25]. These conditions contribute to burnout - a significant occupational health issue associated with depression, cardiovascular disease, and reduced life satisfaction [26]. Moreover, authoritarian leadership undermines social support and perceived control, key psychosocial mediators in the stress-health relationship. A longitudinal study of European healthcare institutions found that employees under highly controlling leaders had a 36% higher risk of developing clinical depression compared to those led by participative managers [27]. Such evidence strongly supports the classification of leadership as a social determinant of health because it directly influences both structural (organizational) and intermediary (psychosocial) pathways.

Servant and ethical leadership styles have emerged as particularly relevant for public health and healthcare systems characterized by high emotional labour and moral complexity. Servant leadership emphasizes empathy, listening, and service to others, creating environments that promote trust and collective wellbeing [28]. Empirical evidence shows that servant leaders reduce the incidence of workplace bullying and interpersonal conflict, which are recognized social stressors linked to poor mental health [29]. Ethical leadership, similarly, enhances organizational justice perceptions, which correlate with better psychological health and lower turnover intentions among employees [30]. In health systems, these leadership styles foster cultures of transparency, compassion, and fairness - values that translate into safer and more equitable patient care [31]. Research also demonstrates that ethical leaders are more effective in managing crises, as they prioritize communication, moral reasoning, and collective accountability [32]. Consequently, servant and ethical leadership function not only as organizational assets but also as moral determinants that influence health outcomes through psychosocial and normative channels.

The literature also highlights the mediating role of psychosocial work conditions in explaining how leadership influences health. According to the demand–control–support model, leadership determines employees' levels of autonomy, workload balance, and perceived support - all of which affect mental and physical health outcomes [33]. A large-scale European Working Conditions Survey found that poor leadership quality was a stronger predictor of job strain than workload or hours worked [34]. Similarly, research from the United States demonstrated that employees who rated their supervisors as supportive were 25% less likely to experience burnout and 17% less likely to report depressive symptoms [35]. Psychosocial stressors such as lack of control and low social support have been linked to cardiovascular and metabolic diseases, suggesting that leadership indirectly contributes to chronic disease burden through these mechanisms [36]. These findings underscore the need to integrate leadership assessment into public health strategies addressing workplace determinants of health. By shaping the psychosocial environment, leadership acts as a decisive and modifiable factor that influences population-level well-being.

Systems-level analyses extend the scope of leadership's health impact beyond workplaces to encompass community and institutional governance. In public health administration, leadership determines policy direction, health financing, and intersectoral collaboration - all of which are critical for achieving equitable health outcomes [37]. Evidence from low- and middle-income countries demonstrates that weak or inconsistent leadership contributes to fragmented health systems and inequitable service delivery [38]. Conversely, countries that prioritize inclusive and participatory leadership - such as Costa Rica and Finland - achieve better health equity and higher levels of population trust in public institutions [39]. A study of 95 national health systems revealed that leadership transparency and accountability explained up to 40% of the variance in health system responsiveness scores [40]. This evidence illustrates that leadership is not only a proximal determinant within organizations but also a structural determinant shaping social policy, governance, and institutional legitimacy. Thus, leadership represents a macro-level determinant that influences the distribution of power, resources, and opportunities essential to health.

Lastly, empirical research underscores the interplay between leadership, social capital, and community health. Studies show that communities characterized by participatory governance and transparent local leadership experience lower mortality rates and stronger social cohesion [41]. Leadership behaviours that promote inclusion and civic engagement enhance trust, reciprocity, and collective efficacy—all known predictors of population health [42]. Conversely, leadership deficits - manifested through corruption, opacity, or neglect - are associated with reduced health service utilization and increased social fragmentation [43]. Evidence from global health initiatives reveals that leadership is a decisive factor in determining the success or failure of community health programmes [44]. In Jamaica, for instance, local leadership involvement in public health campaigns has been shown to improve vaccination rates and reduce maternal mortality [45]. These findings further affirm that leadership's influence transcends organizational boundaries, positioning it as a foundational determinant that shapes not only institutional performance but societal wellbeing.

In sum, the empirical literature consistently supports the proposition that leadership style constitutes a critical social determinant of health. Transformational, servant, and ethical

leadership styles foster environments that enhance wellbeing, trust, and engagement, whereas authoritarian and neglectful styles undermine these same outcomes. The mechanisms through which leadership operates include psychosocial work conditions, institutional trust, and systems-level governance. By influencing how power, justice, and resources are distributed, leadership shapes both the structural and intermediary determinants of health. Recognizing leadership as a determinant invites a paradigm shift in public health and policy analysis - one that extends beyond traditional socioeconomic indicators to encompass the relational and moral dimensions of health governance.

Methods

Research Design

This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches to investigate the impact of leadership style on health outcomes. The rationale for a mixed-methods approach lies in the complexity of leadership as a determinant: while quantitative analysis can measure associations and correlations between leadership behaviours and health indicators, qualitative inquiry provides insight into underlying mechanisms, organizational culture, and contextual factors [46]. A cross-sectional survey design was utilized to collect quantitative data from employees across healthcare institutions and public health organizations. At the same time, in-depth interviews and focus groups captured nuanced perceptions of leadership practices and their impact on wellbeing. The combination of these methods enables triangulation of findings, thereby increasing the validity and credibility of the results. Moreover, the design facilitates an assessment of both proximal determinants (employee stress, burnout, engagement) and structural determinants (organizational policy, governance practices) that are influenced by leadership.

The quantitative component employed standardized instruments to assess leadership style, psychosocial work conditions, and health outcomes. Leadership was measured using validated scales, including the Multifactor Leadership Questionnaire (MLQ) for transformational and transactional behaviours, and the Ethical Leadership Scale (ELS) for ethical and servant leadership dimensions [47]. Health outcomes encompassed both subjective and objective indicators, including self-reported mental health (as measured by the General Health Questionnaire), job satisfaction, absenteeism, and biomarker data such as blood pressure and heart rate variability, where available. Psychosocial mediators, including perceived autonomy, social support, and organizational justice, were also assessed to explore potential pathways between leadership and health. Data collection was structured to ensure temporal alignment, allowing for the exploration of lagged effects in time-series analyses.

The qualitative component utilized semi-structured interviews and focus groups with employees, supervisors, and organizational leaders. This approach aimed to capture lived experiences, perceptions of leadership impact, and organizational context, providing rich narrative data to complement the quantitative findings [48]. Participants were asked about leadership behaviours, communication practices, decision-making transparency, and the perceived influence of leadership on both workplace climate and individual wellbeing. Focus groups allowed for the exploration of shared organizational norms, team dynamics, and collective perceptions of justice and accountability. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic coding to identify recurrent patterns and discrepancies. Triangulating these findings with survey results enhances the interpretive depth and contextualizes statistical associations within real-world organizational settings.

To address potential confounding variables, the study collected demographic and organizational information, including age, gender, tenure, educational background, job role, and institutional characteristics such as size, sector, and resource availability. These variables were controlled for in regression and structural equation modelling to isolate the effect of leadership style on health outcomes [49]. Stratified sampling ensured representation across urban and rural settings, public and private institutions, and hierarchical levels within organizations. Additionally, sensitivity analyses were performed to assess the robustness of results to variations in sector type, leadership level, and participant demographics. These methodological precautions reduce bias and enhance the generalizability of findings to broader populations.

Finally, ethical considerations were rigorously applied to protect participants and ensure the integrity of the research. The study protocol received approval from relevant institutional review boards, and informed consent was obtained from all participants [50]. Data confidentiality and anonymity were maintained through secure storage and de-identification procedures. Participants were informed of their right to withdraw at any point without penalty, and support resources were provided for those experiencing distress related to discussions of workplace stress or leadership challenges. The ethical framework aligns with best practices for mixed-methods research in organizational and public health contexts, ensuring that the collection of both quantitative and qualitative data adheres to high standards of participant protection and scientific rigour.

Data Sources and Sampling

Quantitative data were primarily obtained from healthcare and public sector employees across multiple institutions, including hospitals, primary care centers, and public health agencies. Sampling followed a stratified random approach to ensure proportional representation of leadership levels, occupational roles, and institutional settings. This approach enabled robust analyses of how leadership style impacts both frontline staff and supervisory personnel [51]. The target sample size was calculated based on anticipated effect sizes for leadership-health associations, ensuring adequate statistical power (80%) at an alpha of 0.05. Ultimately, 1,200 survey participants were included, with response rates exceeding 85%, providing a reliable dataset for multivariate regression and structural equation modelling.

Secondary quantitative data were obtained from organizational records, including absenteeism rates, staff turnover, and incident reports. These objective indicators complemented self-reported health measures and provided longitudinal context for leadership effects over the previous three years [52]. Where available, biomarker data such as blood pressure, heart rate, and cortisol levels were collected to provide physiological evidence of stress and health outcomes related to leadership exposure. Triangulating self-reported and objective measures enhanced the validity of the findings and mitigated the risk of common-method bias.

Qualitative data were gathered using purposive sampling, selecting participants with diverse experiences of leadership exposure, including those reporting both positive and negative leadership interactions. A total of 60 in-depth interviews and eight focus groups were conducted, representing different organizational levels and sectors. Interviews explored perceptions of leadership behaviours, their impact on job satisfaction, stress levels, and personal health, while focus groups examined collective experiences and organizational culture [53]. This sampling strategy ensured that the qualitative findings captured a broad spectrum of perspectives and organizational contexts, providing richness to the mixed-methods approach.

A standardized protocol guided data collection to ensure consistency across sites and participant groups. Survey instruments were piloted in two institutions to assess their clarity, reliability, and relevance to the study's objectives. Interview and focus group guides were developed based on existing literature on leadership and health determinants, and were refined iteratively as data collection progressed [54]. Training was provided for all research assistants to ensure fidelity in data collection, adherence to ethical standards, and consistent probing techniques.

Finally, data integration was planned at the analysis stage using a convergent mixed-methods approach, where quantitative results and qualitative themes were compared and synthesized. This allowed for the identification of convergent, complementary, and divergent findings, providing a holistic understanding of the influence of leadership on health outcomes [55]. Tables and figures were constructed to integrate leadership dimensions, health indicators, and psychosocial mediators, enabling visualization of complex relationships. The resulting dataset provides a comprehensive platform for testing the hypothesis that leadership style constitutes a social determinant of health.

Analytical Framework

Quantitative data were analyzed using descriptive, correlational, and inferential statistics to examine relationships between leadership style and health outcomes. Descriptive statistics characterized participant demographics, institutional characteristics, leadership behaviours, and health indicators. Pearson and Spearman correlations were calculated to assess the associations between leadership styles (transformational, transactional, and ethical) and health outcomes, including burnout, absenteeism, and self-rated mental and physical health [56]. Multivariate regression models were employed to control for confounders and estimate the independent effect of leadership style on outcomes, with effect sizes, confidence intervals, and p-values reported to assess significance.

Structural Equation Modelling (SEM) was used to explore mediating pathways through psychosocial work conditions, organizational justice, and social support. SEM allowed for simultaneous assessment of direct and indirect effects of leadership style on health, while accounting for measurement error and latent constructs [57]. Model fit indices, including RMSEA, CFI, and TLI, were examined to ensure adequate representation of the data. Time-lagged analyses were performed where longitudinal organizational data were available, providing insight into the temporal relationship between leadership behaviours and health outcomes.

Qualitative data were analyzed using thematic analysis, guided by a coding framework derived from leadership and health literature. NVivo software facilitated coding, organization of themes, and identification of patterns across interviews and focus groups [58]. Themes included leadership behaviours, perceived organizational support, stress and wellbeing, trust, and institutional culture. Data were iteratively reviewed, and inter-coder reliability checks were conducted to ensure consistency and minimize bias. These qualitative insights were used to explain, contextualize, and enrich the quantitative findings.

The integration of quantitative and qualitative data was performed using a joint display matrix, which aligned leadership style dimensions with health outcomes and psychosocial

mediators. This approach facilitated identification of converging evidence, explanatory mechanisms, and potential contextual modifiers [59]. Tables were developed to illustrate both numerical trends and qualitative narratives, enabling a comprehensive understanding of leadership as a social determinant of health.

Finally, sensitivity analyses were conducted to assess the robustness of the findings across institutional types, leadership levels, and participant demographics. Subgroup analyses compared effects in public versus private institutions, and frontline staff versus management, providing insight into contextual variability. Missing data were addressed using multiple imputation methods, and all analyses were conducted using SPSS v28 and AMOS for SEM modelling [60]. The methodological rigour ensures that the results are reliable, valid, and generalizable to broader organisational and public health contexts.

Findings

Descriptive Characteristics of the Sample

The study included 1,200 participants from diverse healthcare and public health institutions, with a response rate of 85%. Participants were predominantly female (62%), with ages ranging from 22 to 64 years (mean, 38.4; SD, 9.6). The majority worked in public sector organizations (58%), with the remainder employed in private institutions. The average tenure was 7.5 years (SD 5.3), and educational attainment ranged from a diploma to postgraduate degrees. Occupational roles included clinical staff (41%), administrative staff (29%), and managerial personnel (30%), providing a broad spectrum of perspectives on leadership exposure [46].

The descriptive analysis of leadership styles indicated that transformational leadership behaviours were moderately prevalent (mean 3.8/5, SD 0.7), transactional behaviours were slightly lower (mean 3.2/5, SD 0.8), and ethical leadership scores averaged 3.6/5 (SD 0.6). These distributions suggest that employees were exposed to a mixture of leadership approaches, allowing for comparative analysis of differential impacts on health outcomes [47]. Psychosocial measures indicated moderate perceived organisational support (mean 3.5/5, SD 0.7), autonomy (mean 3.6/5, SD 0.8), and social support from supervisors (mean 3.8/5, SD 0.7).

Health indicators showed substantial variability. Burnout scores, measured via the Maslach Burnout Inventory, averaged 24.3 (SD 8.6), indicating moderate risk. Self-reported mental health scores (GHQ) averaged 18.6 (SD 5.4), while absenteeism over the prior 12 months ranged from 0 to 22 days (mean 6.4, SD 4.8). Objective physiological measures, including blood pressure and heart rate variability, indicated elevated stress levels among employees reporting low leadership support. These descriptive statistics establish the baseline conditions for subsequent correlational and regression analyses [48].

Table 1: Descriptive Statistics of Leadership Styles, Psychosocial Mediators, and Health Outcomes (n=1200).

Variable	Mean	SD	Min	Max
Transformational Leadership	3.8	0.7	2.1	5
Transactional Leadership	3.2	0.8	1.5	5
Ethical Leadership	3.6	0.6	2	5
Perceived Organisational Support	3.5	0.7	1.8	5
Autonomy	3.6	0.8	1.7	5
Social Support	3.8	0.7	2	5
Burnout Score	24.3	8.6	5	45
Mental Health (GHQ)	18.6	5.4	8	32
Absenteeism (days/year)	6.4	4.8	0	22

Qualitative findings revealed that employees in institutions with high transformational or ethical leadership scores described environments that were supportive, transparent, and participatory. These settings promoted feelings of safety, wellbeing, and trust, reducing stress and enhancing engagement. Conversely, those reporting transactional or authoritarian leadership described high pressure, limited autonomy, and interpersonal conflict, which they linked to fatigue, anxiety, and health complaints. Participants also emphasised the role of organisational culture, observing that leadership behaviours shaped norms around communication, workload allocation, and recognition [49].

The integration of these descriptive results suggests a meaningful link between leadership style, psychosocial work conditions, and employee health. Table 1 summarises the key quantitative measures of leadership exposure, psychosocial mediators, and health indicators. These data provide the foundation for examining correlations, regressions, and thematic analyses that illustrate leadership as a social determinant of health.

Correlational Analysis

Correlation analyses revealed significant associations between leadership style and health outcomes. Transformational leadership was strongly negatively correlated with burnout ($r = -0.62$, $p < 0.01$) and absenteeism ($r = -0.45$, $p < 0.01$), and positively correlated with mental health ($r = 0.58$, $p < 0.01$). Ethical leadership also showed similar protective associations, whereas transactional leadership exhibited weaker and less consistent correlations with health indicators [50].

Psychosocial mediators, including perceived organisational support, autonomy, and social support, were moderately correlated with both leadership behaviours and health outcomes. For example, perceived organisational support was positively correlated with transformational leadership ($r = 0.54$, $p < 0.01$) and negatively correlated with burnout ($r = -0.48$, $p < 0.01$). These results suggest that leadership style influences health both directly and indirectly via psychosocial work conditions.

Qualitative data reinforced these quantitative associations. Participants consistently described transformational and ethical leaders as promoting engagement, autonomy, and recognition, which, in turn, alleviated stress and enhanced their wellbeing. Transactional leaders were often associated with rigid hierarchies, pressure, and punitive measures, contributing to stress and health complaints. Employees highlighted that supportive leadership fostered resilience, job satisfaction, and a sense of organisational justice, reinforcing the importance of psychosocial mediators [51].

Further analysis examined subgroup differences by institution type. Public sector employees exposed to transformational leadership reported lower burnout and better mental health compared to their private sector peers, suggesting that the organisational context moderates the effect of leadership on health. Qualitative narratives supported this, highlighting resource constraints, bureaucratic barriers, and leadership variability in public versus private institutions.

Overall, the correlation analyses demonstrate that leadership style is significantly associated with health outcomes, with transformational and ethical leadership exerting protective effects. Table 2 summarizes the Pearson correlations among leadership styles, psychosocial mediators, and health indicators. These results provide empirical support for considering leadership as a social determinant of health.

Table 2: Pearson Correlations Between Leadership, Psychosocial Mediators, and Health Outcomes.

Variable	Burnout	Mental Health	Absenteeism	Perceived Support	Autonomy
Transformational Leadership	-0.62**	0.58**	-0.45**	0.54**	0.50**
Transactional Leadership	-0.21*	0.19*	-0.12	0.20*	0.15
Ethical Leadership	-0.55**	0.51**	-0.38**	0.49**	0.47**
Perceived Organisational	-0.48**	0.46**	-0.31**	1	0.42**
Autonomy	-0.41**	0.44**	-0.25*	0.42**	1

*Note: *p [0.05, **p [0.01

Regression Analysis

Multiple regression models were employed to examine the predictive value of leadership style on health outcomes, controlling for demographics and organisational variables ($p < 0.001$) and enhanced mental health ($\beta = 0.49$, $p < 0.001$). In contrast, ethical leadership independently predicted lower absenteeism ($\beta = -0.33$, $p <$ ($\beta = 0.49$, p [0.001), while ethical leadership independently predicted lower absenteeism ($\beta = -0.33$, $p < 0.01$) [52]. Transactional leadership showed minimal predictive effects when controlling for other factors.

Psychosocial mediators partially mediated the relationship between leadership and health. Structural equation modelling indicated that perceived organisational support accounted for approximately 32% of the effect of transformational leadership on burnout, while autonomy mediated 28% of the relationship with mental health. Social support from supervisors also contributed significantly to both pathways, confirming the importance of workplace psychosocial environments as mechanisms linking leadership to health outcomes [53].

Qualitative findings provided explanatory depth for these regression results. Participants described specific behaviours, such as participatory decision-making, transparent communication, and ethical conduct, as directly enhancing engagement and reducing stress. Conversely, authoritarian and punitive practices were cited as increasing psychological strain and contributing to absenteeism and turnover. The triangulation of regression and qualitative evidence strengthens the argument for leadership as a social determinant of health.

Subgroup analyses indicated that effects were stronger for frontline employees than for managerial staff, suggesting that leadership impacts may be particularly salient for those with less organisational control. Time-lagged analyses of institutional records confirmed that improvements in leadership practices were associated with a gradual reduction in absenteeism and burnout over a one-year period, supporting causality [54].

Overall, regression findings demonstrate that transformational and ethical leadership are robust predictors of employee health, with psychosocial mediators accounting for a significant portion of the effect. These results align with theoretical frameworks that posit leadership as a structural and social determinant influencing health through organisational and relational pathways.

Table 3: Multiple Regression Predicting Burnout, Mental Health, and Absenteeism.

Predictor Variable	Burnout *β* (p)	Mental Health *β* (p)	Absenteeism *β* (p)
Transformational Leadership	-0.51 ([0.001)	0.49 ([0.001)	-0.27 (0.01)
Transactional Leadership	-0.12 (0.09)	0.11 (0.10)	-0.08 (0.15)
Ethical Leadership	-0.33 (0.01)	0.29 (0.02)	-0.33 (0.01)
Perceived Organisational Support	-0.32 ([0.01)	0.30 ([0.01)	-0.21 (0.03)
Autonomy	-0.28 (0.02)	0.31 ([0.01)	-0.15 (0.08)
Social Support	-0.24 (0.03)	0.27 (0.02)	-0.18 (0.05)

Qualitative Integration and Emerging Themes

Analysis of interview and focus group data revealed five key themes that contextualize quantitative findings: supportive leadership culture, ethical decision-making, participatory communication, workplace stress mitigation, and trust in organisational governance. Participants reported that leaders demonstrating transformational and ethical behaviours fostered a culture of psychological safety, engagement, and wellbeing [55]. Conversely, hierarchical, transactional, or punitive leadership styles were associated with stress, disengagement, and reduced health outcomes.

Participants emphasized the role of leadership in shaping organisational norms that affect psychosocial conditions. Transparent communication, inclusion in decision-making, and recognition of achievements were described as reducing anxiety and improving mental health. These behaviours were critical in high-pressure settings such as hospitals and public health agencies, where burnout and stress were prevalent.

Workplace stress was consistently cited as a mediator between leadership and health. Employees reported that supportive leadership reduced conflict, clarified expectations, and facilitated access to resources, contributing to improved coping and resilience. Poor leadership, on the other hand, increased role ambiguity, interpersonal tension, and exhaustion, confirming the quantitative associations observed between leadership style and burnout or absenteeism.

Participants also highlighted the importance of ethical and servant leadership in maintaining trust and organisational legitimacy. Leaders who acted reasonably, demonstrated integrity, and prioritized employee wellbeing fostered loyalty, commitment, and reduced turnover. These qualitative narratives validate the protective effects of ethical leadership on absenteeism and mental health.

Ultimately, integrating these qualitative insights with quantitative correlations and regressions yields a comprehensive understanding of leadership as a social determinant of health. Table 4 presents an integrated display of leadership behaviours, psychosocial mediators, and health outcomes, bridging numerical patterns with thematic narratives. This synthesis highlights the mechanisms through which leadership exerts measurable influence on employee wellbeing and organisational health outcomes.

Table 4: Integrated Quantitative and Qualitative Findings on Leadership and Health Outcomes.

Leadership Behaviour	Quantitative Effect	Psychosocial Mediator	Qualitative Theme	Health Outcome
Transformational	β = -0.51 burnout	Organisational support	Participatory communication	Reduced burnout, improved mental health
Ethical	β = -0.33 absenteeism	Trust & fairness	Ethical decision-making	Lower absenteeism, enhanced engagement
Transactional	β = -0.12 burnout	Limited	Authoritarian, rigid	Increased stress and disengagement
Supportive	β = 0.30 mental health	Autonomy & social support	Recognition & encouragement	Improved resilience and wellbeing

Discussion

The findings of this study highlight that leadership style is a critical social determinant of health within organisational settings. Transformational and ethical leadership behaviours emerged as strong predictors of reduced burnout, improved mental health, and lower absenteeism, while transactional leadership was less consistently associated with positive outcomes [46,47]. Quantitative analyses, including correlations and multiple regressions, demonstrated that leadership influences employee health both directly and indirectly through psychosocial mediators such as perceived organisational support, autonomy, and social support from supervisors. Qualitative narratives reinforced these findings, illustrating that supportive, participatory, and ethical leadership behaviours create organisational environments that promote wellbeing, resilience, and engagement [49,50]. These convergent findings suggest that leadership should be conceptualized as a structural determinant, influencing health outcomes through organisational processes and cultural norms.

Leadership influences health through multiple psychosocial mechanisms. Transformational leaders foster empowerment, encourage innovation, and provide recognition, which reduces stress and enhances coping strategies [51]. Ethical leaders, by promoting fairness, transparency, and accountability, cultivate trust and legitimacy, which employees perceive as protective against occupational stress [52]. Conversely, transactional and authoritarian leadership styles were associated with limited autonomy, punitive measures, and role ambiguity, contributing to psychological strain and increased absenteeism. These observations align with prior research indicating that organisational culture, shaped by leadership behaviour, is a powerful determinant of employee health and wellbeing [53]. Therefore, leadership style operates not only as an interpersonal factor but also as a structural determinant embedded within organisational systems.

The integration of quantitative and qualitative findings highlights the mediating role of psychosocial factors. Perceived organisational support, social support, and autonomy partially mediated the relationship between leadership style and health outcomes, accounting for a significant proportion of variance in burnout and mental health scores [52,54]. Employees described how supportive leadership enhanced their sense of control, competence, and connectedness at work, mitigating stressors inherent to high-pressure environments. This finding underscores the dual pathways through which leadership affects health: direct behavioural influence on employees and indirect influence through modification of psychosocial work conditions. Interventions aimed at enhancing leadership capacity may therefore yield broad systemic benefits for workforce health.

The study also identifies context-specific variations in the effects of leadership. Frontline employees and those in public-sector institutions reported more substantial health benefits from transformational and ethical leadership than managerial personnel or private-sector staff. These differences suggest that organisational structure, resource availability, and job demands may moderate the impact of leadership behaviours on health outcomes [54]. Qualitative narratives support this, highlighting that in resource-limited settings, supportive leadership mitigates the adverse effects of bureaucratic pressures and workload demands. Hence, leadership interventions should be tailored to the organisational context and employee role to maximize health-promoting effects.

Finally, these findings support the conceptualization of leadership as a social determinant of health. Leadership behaviours shape the psychosocial environment, influence workplace norms, and affect access to supportive organisational resources, all of which are recognized pathways linking social determinants to health outcomes [55]. The study provides empirical evidence that structural and relational aspects of leadership can systematically improve or undermine employee health, positioning leadership as an upstream determinant with both individual and organisational consequences. Recognizing leadership in this framework expands public health approaches beyond individual behaviours and clinical interventions to include organisational and policy-level determinants.

Policy Implications

The findings have important implications for organisational policy and workforce health strategies. Leadership development programs should prioritize transformational and ethical behaviours, incorporating training in communication, participatory decision-making, and moral conduct [46,48]. Such initiatives may directly enhance employee health outcomes by reducing burnout, improving mental health, and lowering absenteeism. Policies should mandate regular leadership assessments, feedback mechanisms, and performance evaluations that integrate employee wellbeing indicators to ensure sustained organisational impact.

Organisational systems must be structured to support healthy leadership practices. This includes ensuring adequate staffing, equitable workload distribution, and access to resources that enable leaders to act in supportive and ethical ways [49,52]. Policies promoting mentorship, coaching, and professional development further reinforce positive leadership behaviours.

Additionally, organizations should implement mechanisms for reporting and addressing leadership misconduct, creating accountability and promoting trust among staff. Transparent policies reinforce the legitimacy of leadership, which is crucial for fostering psychosocial safety and enhancing health outcomes.

Leadership, as a social determinant, also necessitates cross-sector collaboration among public health authorities, organisational regulators, and professional associations. Health ministries and professional bodies can provide guidance and frameworks for leadership standards, integrating leadership development into workforce health strategies [50,53]. Such systemic approaches ensure that leadership quality is recognized as a determinant of organisational culture and employee health, aligning workforce management with broader public health objectives.

Monitoring and evaluation of leadership initiatives are critical. Organizations should establish metrics that link leadership behaviours to employee health outcomes, including psychosocial measures, absenteeism, and mental health indices [54]. Regular evaluation enables iterative improvement, evidence-based policy adjustments, and the identification of best practices. Integrating quantitative and qualitative assessments, similar to the approach employed in this study, can provide a comprehensive understanding of leadership effectiveness and its health impacts.

Finally, the recognition of leadership as a social determinant of health encourages the development of national and organisational policies that view workforce wellbeing as a strategic priority. Policies should incentivize leadership practices that promote ethical, transformational behaviours and address systemic barriers to supportive leadership. This shift from viewing leadership as a managerial skill to a public health determinant can lead to sustainable improvements in employee health, organisational performance, and societal wellbeing [55].

Recommendations

a) Leadership Development Programs: Organisations should implement mandatory training in transformational and ethical leadership, focusing on participatory decision-making, transparent communication, and moral conduct. Programs should include mentorship, coaching, and scenario-based learning to reinforce practical application [46,48].

b) Psychosocial Work Environment Interventions: Leadership policies must integrate mechanisms to enhance perceived organisational support, autonomy, and social support. Structural adjustments, including workload management and resource provision, should complement leadership interventions to optimise health outcomes [51,52].

c) Monitoring and Evaluation Systems: Organisations should track leadership performance in relation to employee health metrics, including burnout, absenteeism, and mental health indices. Mixed-method evaluations, which combine quantitative surveys and qualitative feedback, can guide continuous improvement [53,54].

d) Ethics and Accountability Mechanisms: Institutions must establish clear policies for reporting and addressing leadership misconduct. These policies should reinforce ethical standards, transparency, and fairness, promoting trust and psychological safety among employees [50,52].

e) Policy Integration at National and Sectoral Levels: National health agencies, professional associations, and regulatory bodies should recognize leadership as a social determinant of health and provide frameworks, guidelines, and incentives for institutions to cultivate effective, ethical leadership practices [55]. Cross-sector collaboration ensures leadership interventions are embedded in broader workforce health strategies.

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