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RESEARCH ARTICLE

LEADERSHIP STYLES AND ITS OUTCOME IN MONGOLIAN HOSPITALS

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ABSTRACT

BACKGROUNDS:

Leadership plays an important role enhancing performance, employee and patient satisfaction, and clinical outcomes. Previous studies done in other countries showed that transformational leadership was generally considered the most effective style across various contexts.

AIM:

This study investigates differences in clinical leadership styles between rural and urban public hospitals in Mongolia, comparing these against international benchmarks to identify insights for policy and administrative improvement.
Material and methods:

METHODS:

This study was conducted using quantitative method, multicentre cross-sectional design, sampling 1,458 healthcare professionals from 12 sites across Mongolia, including both urban and rural regions. Stratified random sampling ensured diverse geographical representation. The MLQ-5X questionnaire was used to assess leadership styles and outcomes after validating the tool's reliability in Mongolian version by principal component analysis. The score of leadership style and outcome were compared with European Reference Score (ERS) using one sample T-test.

RESULTS:

Compared with ERS, Mongolian hospital managers employed significantly lower transformational and transactional leadership styles. Passive-avoidant leadership style was significantly more prevalent compared with ERS in both settings ($p<0.001$). Leadership outcome scores of heads of departments and directors of hospitals were lower than ERS.

There was no statistical difference between rural and urban ratings of transformational leadership. Passive/avoidant leadership was rated slightly lower in rural areas. All components of transformational leadership were strongly and positively correlated with leadership outcomes such as Extra Effort, Effectiveness, and Satisfaction, with correlation coefficients ranging from $r = 0.684$ to 0.876 ($p < 0.01$). Leadership outcomes such as effectiveness, satisfaction, and extra effort were perceived similarly across both settings, indicating broadly consistent leadership practices across geographic regions.

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CONCLUSIONS:

Passive-avoidant leadership style is the dominant approach among both settings. Contrary to expectations, leadership style perceptions did not significantly differ between rural and urban healthcare settings in Mongolia. This suggests a relatively uniform leadership culture within the public health sector. Policymakers and administrators in Mongolia should enhance leadership training oriented to transformational and transactional styles to improve performance across diverse healthcare environments.

KEYWORDS

Healthcare administrator, Leadership style, Leadership outcome, Head of department, Director of hospital, European Reference Score

INTRODUCTION

Leadership plays an important role in enhancing performance, improving employee and patient satisfaction, and clinical outcomes. Previous studies done in other countries showed that transformational leadership is generally considered the most effective style across various contexts. Our study investigated leadership styles and their outcome in Mongolian public hospitals [1,2].

The impact of leadership styles may vary across regions due to distinct local challenges and cultural contexts [3]. Barbara Kellerman (2012) discusses that while the core principles of leadership may remain consistent, the application of these principles can differ across geographic and cultural boundaries. Therefore, it is important to acknowledge regional differences in leadership practices and outcomes whilst examining their effects on healthcare systems globally.

Worldwide, healthcare systems face a multitude of challenges, many of which vary significantly across different regions [3]. For instance, healthcare models in urban environments often differ drastically from those in rural settings, particularly in terms of access, infrastructure, and resource distribution. The study of healthcare models and leadership in rural environments remains an underexplored area in academic literature, with few studies offering in-depth insights into the unique challenges faced by rural healthcare organizations [4]. Moreover, comparative analyses between leadership practices in rural and urban settings remain scarce, despite the fact that such studies could provide invaluable information on how leadership practices can be adapted to the unique needs of different environments [5].

The Full Range Leadership Model (FRLM) serves as a robust framework for understanding leadership behaviors across a spectrum—from transformational leadership to laissez-faire leadership [6]. Transformational leadership is widely regarded for its positive impact on employee engagement, satisfaction, and overall performance, with numerous studies highlighting its superior effectiveness in fostering motivation and organizational commitment. Transactional leadership, which relies on structured rewards and punishments to drive performance, is often considered less effective in comparison. While transactional leadership can yield satisfactory short-term results, it tends to produce sub-optimal outcomes in the long term, particularly in environments where innovation, engagement, and proactive problem-solving are crucial. In contrast, transformational leadership fosters a more enduring commitment to organizational goals, promoting higher levels of job satisfaction, creativity, and overall performance. This distinction is supported by a large body of research demonstrating that transformational leadership is generally more effective than transactional leadership in cultivating positive work environments and achieving long-term organizational success [7,8]. In turn, laissez-faire leadership is marked by a lack of decision-making and direction, often leading to disengagement and suboptimal organizational performance [7,8]. Different leadership styles are critical to understanding how leadership influences healthcare organizations, particularly those facing challenges in terms of staffing and resource management.

Healthcare organizations, as complex social systems, are primarily driven by the effectiveness and dedication of their human resources. The success of these organizations is contingent upon the ability of both managers and staff to collaborate effectively toward achieving common goals. In these systems, leadership plays a pivotal role in shaping organizational culture, ensuring the alignment of staff with the mission and objectives of the healthcare institution, and fostering positive patient outcomes [9]. Therefore, the role of leadership is not only to direct but also to inspire and engage healthcare professionals to perform at their best.

In Mongolia, the healthcare sector faces many of the global challenges discussed above, particularly in terms of leadership and workforce distribution. Despite significant advancements, including an 8.2% increase in healthcare facilities and a 3.9% growth in the workforce between 2020-2021, there remain critical challenges such as an uneven doctor-to-nurse ratio and stark disparities in healthcare access between urban and rural regions [11]. Ulaanbaatar, the capital city, hosts 47.6% of the population, despite occupying only 0.3% of the country's territory. This concentration of the population has led to increased demand for healthcare services in the capital, while rural areas continue to struggle with limited access and resources [12]. These disparities are further compounded by a high rate of migration to urban areas for reasons such as better living conditions, education, employment opportunities, and healthcare access [13]. The urban-rural divide in Mongolia significantly impacts healthcare delivery, and effective leadership is required to bridge this gap. One key challenge is the country's current doctor-to-nurse ratio, which remains below the targeted 1:1.6, with disparities in the patient-to-doctor ratio reaching as much as 45.7% above the standard at family health centers in some regions [11]. These challenges highlight the importance of leadership that is adaptable, strategic, and culturally attuned to both rural and urban healthcare needs.

In this study, we utilize the Multifactor Leadership Questionnaire (MLQ-5X), the most widely used measure of leadership styles, to compare leadership practices between urban and rural healthcare organizations in Mongolia. Transformational leadership and transactional leadership will positively influence key outcomes such as work engagement, organizational commitment, and job satisfaction, consistent with findings from similar studies in other countries [6,8]. In contrast, laissez-faire leadership will have a negative impact on these outcomes, as seen in previous studies on leadership effectiveness in healthcare organizations [7].

The primary aim of this study is to comparatively analyze leadership styles in urban and rural healthcare settings in Mongolia against international benchmarks, generating insights to inform policy and enhance administrative decision-making for improved efficiency and effectiveness. In Mongolia, there are significant disparities between urban and rural healthcare settings in terms of infrastructure, human resources, and access to professional development [1]. These structural and contextual differences are likely to influence how leadership is practiced. Therefore, this study hypothesizes that leadership styles differ between urban and rural healthcare organizations in Mongolia. Urban healthcare organizations are typically better resourced, have more specialized staff, and provide greater access to leadership development and modern management practices. These factors create a favorable environment for transformational leadership, which emphasizes innovation, shared vision, and staff empowerment [2,3]. Transformational leaders are more likely to emerge in urban settings where organizational complexity and expectations for strategic leadership are higher. Conversely, rural healthcare facilities often operate under challenging conditions—limited staff, equipment shortages, and administrative burden. In such constrained environments, transactional leadership, which focuses on task completion, role clarity, and short-term objectives through rewards and corrections, may be more prevalent out of necessity [4]. This style may help maintain basic functionality but is less effective in driving engagement or innovation. Cultural context also plays a critical role. According to Hofstede's cultural dimensions, Mongolia is considered a high-power distance society, meaning hierarchical authority is more readily accepted, and leadership is expected to be directive [5]. These cultural norms may reinforce more traditional or transactional leadership styles, especially in rural areas where social change is slower.

MATERIAL AND METHODS

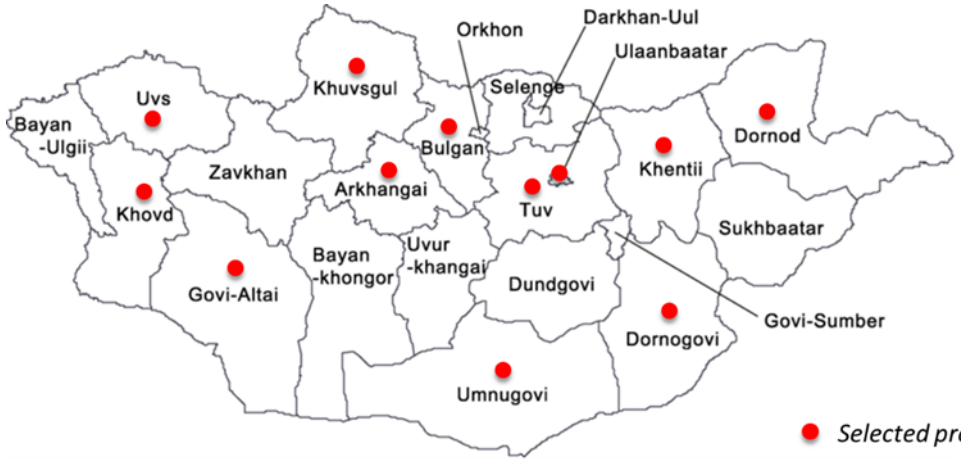
STUDY DESIGN

The study was conducted using a quantitative method, a multi centre, cross-sectional design according to the STROBE guidelines.

STUDY SETTING AND SAMPLE

In Mongolia, approximately 22% of the total healthcare workforce are doctors, amounting to around 14,000 individuals. A total of 1883 healthcare professionals were recruited from 4 regions and 11 provinces across Mongolia, including institutions from both the capital city (Ulaanbaatar) and other rural provinces (Figure 1). We included 1,532 cases evaluating department heads and directors in the analysis. Stratified random sampling was employed based on hospital location and job position to ensure proportional representation and reduce sampling bias. This method was considered appropriate for capturing the structural and geographical diversity of Mongolia's public healthcare system. The participants held a range of professional roles, including hospital directors, department heads, physicians, nurses, midwives, laboratory technicians, radiology technicians, and public health officers. Participants were recruited through coordination with the human resources departments of public hospitals. Each hospital provided a staff list, from which a professional researcher randomly selected potential participants using an informed consent. Before enrollment, selected individuals were screened to confirm their eligibility. Participants were eligible for inclusion if they were employed full-time at a public hospital (a), had held their current position for at least six months (b), and voluntarily provided informed consent. No incentives were provided to participants in the study.

FIGURE 1. SELECTED PROVINCES FOR STUDY



Sites	n	%
Rural		
Arkhangai	251	13.3
Bulgan	22	1.2
Govi-altai	194	10.3
Dornogovi	122	6.5
Dornod	21	1.1
Umnugovi	145	7.7
Tuv	98	5.2
Uvs	21	1.1
Khovd	156	8.3
Huvsgul	62	3.3
Khentii	135	7.2
Urban		
Ulaanbaatar	656	34.8
Total	1883	100.0

Mongolia is divided into four regions (21 province and capital city), and the survey included participants from all these regions. Each province has a central hospital, and the survey selected participants from both the central hospital and primary healthcare centers for inclusion.

DATA COLLECTION PROCEDURE

Permission to conduct this study was obtained from the Ministry of Health of Mongolia. Upon receiving approval, logistical arrangements were made to administer the survey across 14 public healthcare institutions, including those in both urban centers and rural provinces. Coordination with hospital administrators and human resources departments facilitated smooth data collection. Data were collected through interviews by a trained researcher based on the questions.

MEASUREMENTS

Our primary objective was to assess the level of leadership and their styles among managerial staff in Mongolia's healthcare sector. The level of leadership was measured using the MLQ-5X (Multifactor Leadership Questionnaire), a validated tool for assessing various leadership styles and outcomes.

The Multifactor Leadership Questionnaire (MLQ-5X) was originally developed in English. It consists of 45 items that assess various aspects of leadership, including transformational, transactional, and passive-avoidant leadership styles, along with

outcomes such as effectiveness, satisfaction, and extra effort. Respondents rated each item on a 5-point Likert scale, ranging from 0 ("Not at all") to 4 ("Frequently, if not always").

This questionnaire assesses several dimensions of leadership, including transformational leadership, which is characterized by the ability to inspire and motivate employees through a shared vision, fostering innovation and commitment. Transactional leadership, on the other hand, focuses on the use of rewards and punishments to manage employee behaviors, maintaining order and achieving short-term goals. The questionnaire also measures *Laissez-Faire Leadership*, a style in which leaders avoid taking responsibility or making decisions, often disengaging from critical situations.

Additionally, the MLQ-5X evaluates the outcome**s** of these leadership styles, including the effectiveness of leadership in the workplace, the level of employee satisfaction with their leaders, and the extra effort that employees are willing to put in as a result of their leaders' influence. Each of these aspects is measured through the respondents' perceptions of their leadership environment, allowing for an in-depth understanding of the leadership styles and their impact on employees in the Mongolian healthcare system.

DATA ANALYSIS

All statistical analyses were performed using **STATA** 18 software. The reliability of the translated MLQ-5X was evaluated using Cronbach's alpha, which is reported in Tables 2, 3. This test measured the internal consistency of the questionnaire items, ensuring that the items within each leadership style dimension were reliability measuring the intended constructs.
To evaluate the construct validity of the Mongolian version of the MLQ-5X, both Exploratory Factor Analysis (EFA) using Principal Component Analysis (PCA) and Confirmatory Factor Analysis (CFA) were conducted. Prior to PCA, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were assessed to ensure the suitability of the data for factor analysis. The KMO value was acceptable (≥ 0.6), and Bartlett's test was statistically significant ($p < 0.001$), indicating the data were appropriate for factor extraction.

A scree plot was used to determine the number of components to retain. Factor loadings of 0.40 or higher were considered significant, while cross-loadings exceeding 0.50 were used as a threshold for item exclusion to ensure clear factor separation. Based on these criteria, items were grouped according to their strongest loadings to represent distinct leadership constructs.

We then conducted independent sample T-tests and Mann-Whitney U test to compare these scores across region (urban versus rural). This analysis offers insights into potential variations in leadership perceptions based on demographic factors, contributing to the scholarly understanding of organizational dynamics.

ETHICAL CONSIDERATIONS

The Mongolian National University of Medical Science's Ethical Review Board's ethical approval was sought. The research was approved by the Ethics Committee of Research of the Mongolian National University of Medical Sciences on February 18, 2022 (approval number 2022/3-02).

RESULTS

A total of 1532 healthcare professionals participated in the study, with 33.6% from urban and 66.4% from rural areas. Most participants were female (88.8%) with a mean age of 38 ± 9.8 years; rural participants were significantly older than their urban counterparts ($p < 0.0001$). Similarly, the number of years in hospital was longer in rural areas (median 9 years, range 1–38) than in urban areas (median 5 years, range 1–39, $p < 0.0001$). Nurses and mid-level practitioners were the largest group of professionals (43.9%), followed by doctors (34.9%) (Table 1).

TABLE 1. PARTICIPANTS GENERAL CHARACTERISTIC BY HOSPITAL LOCATIONS

Variables	Hospital locations				P value	Total	
	Urban		Rural				
	n	%	n	%		n	%
Age, years, mean±std‡	37±9.8		39±9.7		<0.0001	38±10.0	
Work experiences, years, median (min-max)‡	5.0 (1-39)		9.0(1-38)		<0.0001	8.0 (1-39)	
Gender					0.375		
Male	63	12.2%	109	10.7%		172	11.2%
Female	452	87.8%	908	89.3%		1360	88.8%
Education level					0.445		
Bachelor	342	66.4%	709	69.7%		1051	68.6%
Master	67	13.0%	114	11.2%		181	11.8%
Doctors	4	0.8%	4	0.4%		8	0.5%
Missing	102	19.8%	190	18.7%		292	19.1%
Level					0.006		
Head of department	14	2.7%	60	5.9%		74	4.8%
Health workers	501	97.3%	957	94.1%		1458	95.2%
Professions					<0.0001		
Doctor's	195	37.9%	339	33.3%		534	34.9%
Nurses	236	45.8%	437	43.0%		673	43.9%
Lab technician,	30	5.8%	57	5.6%		87	5.7%
Social worker, public health researcher	15	2.9%	4	0.4%		19	1.2%
Pharmacist	16	3.1%	26	2.6%		42	2.7%
Others	4	0.78%	8	0.79%		12	0.8%
Missing value	19	3.7%	146	14.4%		165	10.8%
Total	515	33.6%	1017	66.4%		1532	100.0%

Health workers are now working at medical units that included doctors, nursing and, Others -, ‡ - Mann-Whitney U test, ╪- Student T test, Others are health supporter workers that included radiology technicians, and public health officers,

MLQ-5X RELIABILITY AND VALIDATIONS

The data were analyzed using the Cronbach's alpha test, and the test value was 0.7 or greater, indicating that the questionnaire was reliable. The values of all subgroups were high, indicating strong reliability. Transformational Leadership (0.968) and Outcomes of Leadership (0.964) show excellent reliability, while Transactional Leadership (0.913) also has very good consistency. Laissez-Faire Leadership (0.834) is slightly lower but still acceptable. The overall Cronbach's alpha of 0.973 suggests the entire questionnaire is highly reliable, effectively measuring leadership styles and outcomes. The data were analyzed using the Kaiser–Meyer–Olkin test, and the test value was 0.87 or greater, indicating that the data were suitable for analysis. In the analysis, the loadings on the variable group were set to be 0.4 or higher. Also, if the loadings on other groups of variables (cross loading) were 0.4 or higher, double loading was considered.

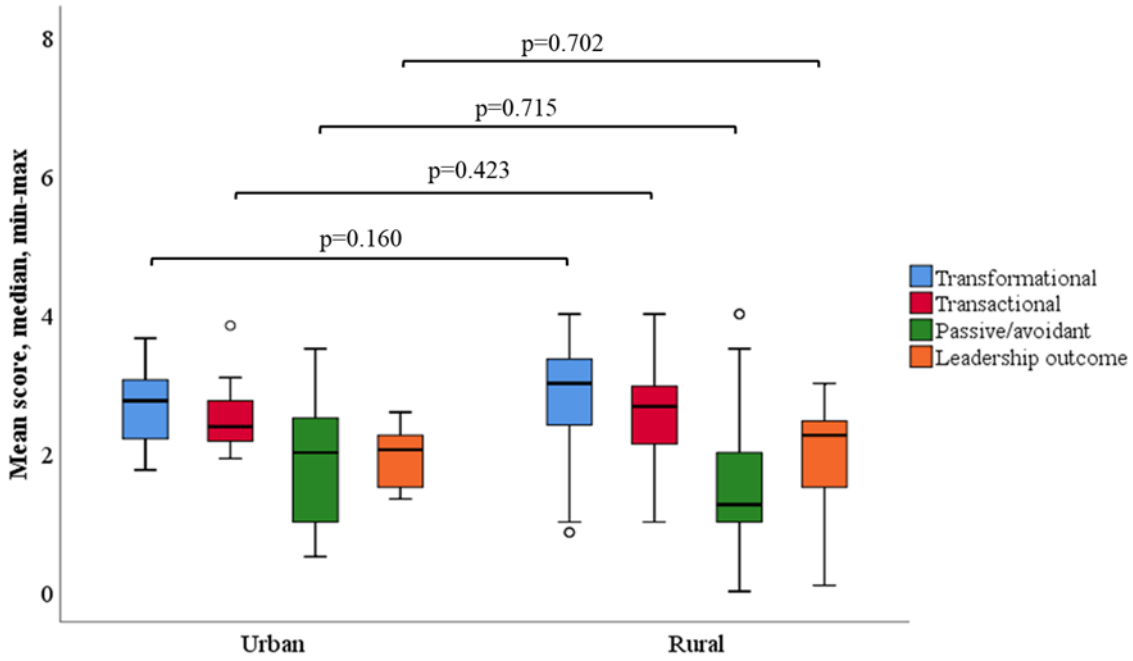
HEADS OF DEPARTMENT LEADERSHIP STYLE BY REGIONS

Transformational leadership had the highest mean scores among the two positive leadership styles for Heads of Department, with subscale means ranging from 2.51 to 2.63 (SD ≈ 1.0). The highest-rated component was *Inspirational Motivation* (M = 2.63, SD = 1.08), indicating that leaders were perceived as motivating and visionary. All components of transformational leadership were strongly and positively correlated with leadership outcomes such as Extra Effort, Effectiveness, and Satisfaction, with correlation coefficients ranging from r = 0.684 to 0.876 ($p < 0.01$). *Transactional leadership*, particularly *Contingent Reward*, also showed strong positive correlations with leadership outcomes (e.g., r = 0.789 with Extra Effort, r = 0.808 with Effectiveness). However, the scores for transformational and transactional leadership were both significantly lower than the benchmark scores (ERS) ($p < 0.0001$).

In contrast, the passive/avoidant leadership scores of department heads were statistically significantly higher than the international standard scores, which is noteworthy ($p<0.0001$). As expected, passive/avoidant leadership components showed weak or negligible correlations with leadership outcomes. For example, *Laissez-faire* leadership was only weakly related to *Satisfaction* ($r = 0.047$) and *Effectiveness* ($r = 0.049$), indicating its limited effectiveness in generating positive outcomes (Table 2).

The leadership styles of department heads demonstrated mean differences between urban and rural areas, but these were not statistically significant (Figure 2). Transformational leadership score was rated at 2.57 ± 0.92 in urban areas and similar at 2.51 ± 0.95 in rural areas. Transactional leadership scores were nearly identical, with means of 2.52 ± 0.92 (urban) and 2.50 ± 0.90 (rural). Passive leadership was rated at 1.97 ± 0.84 in urban locations and 1.98 ± 0.83 in rural areas. Leadership outcomes received equal ratings from both groups (2.55 ± 1.02 for urban areas and 2.55 ± 1.00 for rural areas).

FIGURE 2. HEAD DEPARTMENTS/MEDICAL UNITS LEADERSHIP STYLES BY LOCATION, MANN-WHITNEY U TEST



HOSPITAL DIRECTORS' LEADERSHIP STYLE BY REGIONS

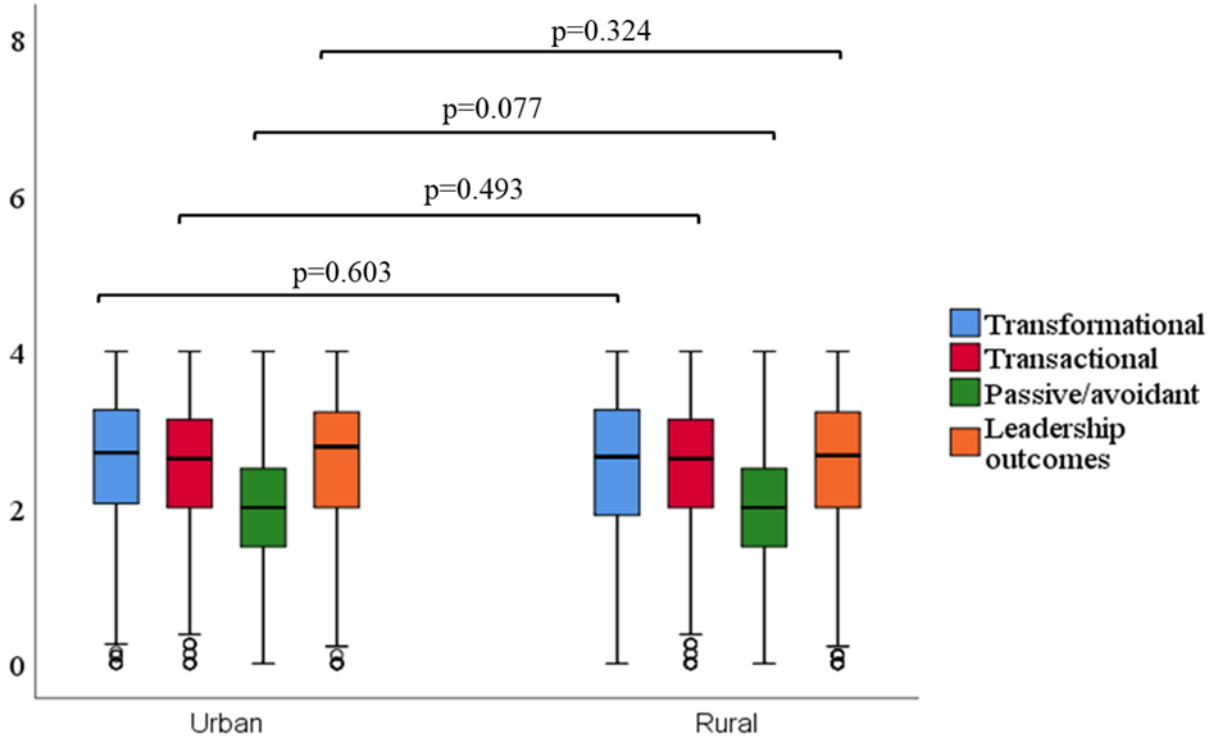
The transformational leadership score for hospital directors was higher than other styles but remained below ERS ($p<0.0001$). Passive/avoidant (laissez-faire) leadership scores were higher than ERS ($p<0.0001$) (Table 3).

The analysis reveals that transformational leadership is the strongest leadership style in terms of both impact and consistency. In contrast, transactional leadership is moderately impactful. Contingent reward (mean = 2.67, std = 0.93, ERS = 2.77) showed strong positive correlations with transformational leadership behaviors, suggesting that rewarding followers for performance does involve elements of transformational leadership. Transformational leadership strongly correlated with positive outcomes like Extra Effort, Effectiveness, and Satisfaction, with Inspirational motivation and Individual consideration having the highest correlations. Contingent reward also showed strong correlations with these outcomes, indicating the effectiveness of transactional leadership. Passive/avoidant leadership styles, such as Laissez-faire, showed weaker correlations with outcomes, reinforcing that they are less effective. Overall, transformational leadership was the most influential, followed by transactional leadership, with passive styles having the least impact.

Leadership style ratings of hospital directors, as perceived by health workers, did not show statistically significant differences between urban and rural areas ($p>0.0001$). Transformational leadership was rated slightly higher in rural areas (2.75 ± 0.82) than in urban areas (2.73 ± 0.57). Transactional leadership scores were similar across locations, with means of 2.66 ± 0.81 (rural) and 2.64 ± 0.52 (urban). However, passive leadership was rated lower in rural settings (1.84 ± 0.71)

compared to urban areas (2.07 ± 0.81). Leadership outcomes were also rated more favorably in rural areas (2.74 ± 0.91) than in urban settings (2.59 ± 0.62). Despite the relatively small mean differences, all comparisons between urban and rural responses were not statistically significant, suggesting that perceptions of leadership styles and outcomes differ meaningfully by location (Figure 3).

FIGURE 3. DIRECTORS OF HOSPITALS LEADERSHIP STYLES BY LOCATION, MANN-WHITNEY U TEST



DISCUSSION

Our study is the first to quantitatively assess the leadership styles and outcomes of administration of Mongolian hospitals. Healthcare employees assessed the heads of their departments and the directors of their hospital using the MLQ-5X questionnaire.

HEAD OF DEPARTMENT LEADERSHIP STYLES

There were no statistically significant differences in leadership styles between urban and rural settings. Avoidant leadership scores were notably higher than transformational and transactional styles compared to international benchmarks.

The results showed that transformational leadership among Mongolian department heads (mean = 2.53 ± 1.04) was significantly lower than benchmark scores from both regional and international studies. For instance, transformational scores reported in Iran [24] (3.21 ± 0.57), India [26] (2.88 ± 0.62), and Malaysia [25] (3.15 ± 0.69) suggest more prominent vision-oriented leadership in neighboring countries. The disparity is even more pronounced when compared to European counterparts such as Germany [27] (3.43 ± 0.50) and the UK [28] (3.25 ± 0.70).

Mongolian department heads demonstrated a higher tendency toward passive–avoidant leadership (mean = 1.98 ± 1.00), in some cases exceeding or aligning with figures from Iran [24] (2.01 ± 0.49) and India [26] (2.14 ± 0.52), but remaining below some reports from European settings such as Norway [29] (2.20 ± 0.53). The elevated scores for management-by-exception (active) - a component of transactional leadership - (overall transactional mean = 2.51 ± 0.98) indicate a reactive leadership style. This may reflect contextual barriers such as limited leadership training, constrained resources, or hierarchical decision-making structures common in Mongolian public hospitals.

DIRECTORS OF HOSPITAL LEADERSHIP STYLE

This study also represented the first nationwide analysis of leadership styles among hospital directors across urban and rural healthcare institutions in Mongolia. Knowledge and understanding of leadership remain limited for both Directors and Heads of Department and similar across urban and rural settings.

The findings revealed a similar pattern to department heads, with hospital directors scoring lower in transformational leadership (mean = 2.53 ± 1.04) and higher in passive–avoidant behavior (mean = 1.98 ± 1.00) compared to international norms. For instance, hospital leadership in the USA [30] (3.38 ± 0.55), Canada [31] (3.29 ± 0.62), and Brazil [32] (3.10 ± 0.68) consistently demonstrated stronger transformational practices and higher leadership outcomes (USA: 3.32 ± 0.58; Canada: 3.26 ± 0.60; Brazil: 3.12 ± 0.59).

Transactional leadership scores for Mongolian directors (2.51 ± 0.98) were comparable to or slightly lower than those reported internationally (e.g., India: 2.96 ± 0.55 [26]; Germany: 2.90 ± 0.60 [27]; USA: 3.02 ± 0.51 [30]), but the reliance on management-by-exception suggests a reactive rather than developmental approach. Despite these limitations, some positive findings emerged. The contingent reward component of transactional leadership showed a strong positive correlation with leadership outcomes, such as staff effectiveness, satisfaction, and willingness to exert extra effort, suggesting that certain transactional behaviors can have beneficial effects when used strategically.

The consistent leadership profiles found across both department heads and hospital directors may reflect Mongolia's legacy of centralized, compliance-driven health governance. Historically, leadership roles have been defined more by administrative authority than by innovation or vision, resulting in a standardized leadership culture that may inhibit the proactive behaviors required in dynamic healthcare environments. Rather than undermining the contribution of our findings, this uniformity highlights systemic constraints and emphasizes the need for reform. The low levels of transformational leadership and elevated passive–avoidant tendencies will be contributing to diminished staff motivation, poor team coordination, and limited responsiveness to healthcare demands, particularly in under-resourced settings. Addressing these challenges requires targeted strategies such as embedding leadership development within medical education, promoting participatory governance, and encouraging mentoring systems to strengthen leadership competencies from within.

Furthermore, the observed uniformity in leadership styles across regions does not imply equal performance; instead, it invites closer examination into how similar behaviors may yield different outcomes based on local conditions such as resource availability, workforce stability, or community expectations.

Finally, although this study was not designed to analyze leadership history, it is important to acknowledge that Mongolia's transition from Soviet-influenced managerial models to more decentralized systems continue to influence current leadership norms. Future research exploring this historical trajectory could deepen understanding of how entrenched institutional cultures affect leadership efficacy today.

These combined findings indicate a national trend of underdeveloped transformational leadership and elevated passive behaviors among healthcare administrators, emphasizing the need for capability-building programs tailored to Mongolia's health sector leadership needs.

STUDY STRENGTHS AND LIMITATIONS

This study offers several strengths. It is the largest and first nationwide quantitative investigation of leadership styles among Mongolian healthcare administrators, employing the well-validated MLQ-5X tool [23]. The sample included 1,458 participants from both urban and rural hospitals, enhancing the representativeness of the findings. Internal consistency was excellent across all subscales (Cronbach's alpha > 0.9), affirming the reliability of the instrument. Comparative insights were strengthened by benchmarking findings against regional and global studies [24–32].

However, the study has some limitations. Its cross-sectional design restricts causal inferences between leadership styles and their perceived outcomes. Self-reported data introduces the risk of social desirability and subjective bias. Whilst

international comparisons offer valuable context, caution is needed due to cultural and organizational differences that may shape leadership perceptions. Response rates in rural areas may also have been affected by logistical or technological constraints, and the absence of longitudinal data limits conclusions about leadership development over time.

This study revealed that both department heads and hospital directors in Mongolian hospitals exhibit low transformational and high passive–avoidant leadership styles, reflecting a concerning trend of disengaged leadership. The results highlight the urgent need for targeted leadership development and policy reforms to promote proactive and visionary leadership. Future research should include longitudinal and qualitative studies to understand the root causes and long-term impacts of leadership behaviors, whilst practical efforts must focus on integrating leadership training into health education and institutional practices.

CONCLUSIONS

For both hospital directors and department heads, transformational leadership is the most prevalent positive leadership style in Mongolia. However, both transformational and transactional leadership styles score significantly lower than ERS and avoidant leadership scores are higher than the international average.

Addressing these challenges requires targeted strategies at national policy level such as embedding leadership development within medical education, promoting participatory governance, and encouraging mentoring systems to strengthen leadership competencies from within. This will positively impact on employee satisfaction, leadership outcomes and hospital performance.

Future research and implementation should focus on developing leadership approaches tailored to the specific characteristics of urban and rural healthcare environments, which is critical for the Mongolian health sector. Future studies should also explore causal relationships and include qualitative insights to deepen understanding of leadership's role in healthcare delivery.

References

1. Avolio BJ, Bass BM, Jung DI. Re-examining the components of transformational and transactional leadership using the multifactor leadership questionnaire. J Occup Organ Psychol. 1999 Dec;72(4):441–62.
2. Gilmartin MJ. Leadership Research in Healthcare A Review and Roadmap. The Academy of Management Annals, 2007; 1(1), 387–438. https://doi.org/10.1080/078559813
3. Rozensky RH. Health Care Reform: Preparing the Psychology Workforce. J Clin Psychol Med Settings. 2012 Mar 14;19(1):5–11.
4. Doshi D. Improving leadership of health services in rural areas: Exploring traits and characteristics. Int J Healthc Manag. 2020;13(S1):183–91.
5. Wakerman J, Humphreys JS, Wells R, Kuipers P, Jones JA, Entwistle P, et al. Features of effective primary health care models in rural and remote Australia: a case-study analysis. Medical Journal of Australia. 2009 Jul 20;191(2):88–91.
6. Transformational leadership in teams. [Internet]. [cited 2024 Mar 20]. Available from: https://psycnet.apa.org/record/1995-97316-003
7. Bass BM, Avolio BJ, Jung DI, Berson Y. Predicting unit performance by assessing transformational and transactional leadership. Journal of Applied Psychology. 2003;88(2):207–18.
8. Bass BM. From Transactional to Transformational Leadership: Learning to Share the Vision.
9. ABUALRUB RF, ALGHAMDI MG. The impact of leadership styles on nurses' satisfaction and intention to stay among Saudi nurses. J Nurs Manag. 2012 Jul;20(5):668–78.
10. Huber D. Leadership and Nursing Care Management. 3rd ed. Philadelphia, PA: Saunders Elsevier; 2006.
11. Health Development Centre of Mongolia. Mongolian Health Statistics 2021. Available at: https://www.hdc.gov.mn/media/uploads/2022-10/Boti-1-2021_on_i51Bx0L.pdf Accessed on Dec 16, 2024.

12. Batbaatar E, Dorjdagva J, Luvsannyam A, Savino MM, Amenta P. Determinants of patient satisfaction: a systematic review. Perspect Public Health [Internet]. 2017 Mar 1;137(2):89–101. Available from: https://pubmed.ncbi.nlm.nih.gov/27004489/
13. Mongolian Health Development Center. Health statistics [Internet]. 2022. Available at: www.hdc.gov.mn
14. Armstrong BK, Gillespie JA, Leeder SR, Rubin GL, Russell LM. Challenges in health and health care for Australia [Internet]. Vol. 187, ©The Medical Journal of Australia. 2007. Available at: www.mja.com.au
15. Wilkinson D. The Handbook of rural medicine in Australia. Oxford: Oxford University Press; 2004.
16. Hana J, Rudebeck CE. Leadership in rural medicine: the organization on thin ice? Scand J Prim Health Care. 2011 Jun;29(2):122–8.
17. Arami M. Comparison of leadership style of male and female managers in Kuwait: An empirical investigation. Vol. 1, Journal of International Business Research and Marketing. 2016.
18. Eagly AH, Johannesen-Schmidt MC, van Engen ML. Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. Psychol Bull. 2003;129(4):569–91.
19. Eagly AH, Karau SJ, Makhijani MG. Gender and the effectiveness of leaders: A meta-analysis. Psychol Bull. 1995;117(1):125–45.
20. Chin JL. Introduction to the Special Issue on Diversity and Leadership. American Psychologist. 2010 Apr;65(3):150–6.
21. Gupta RS, Warren CM, Smith BM, et al. The Public Health Impact of Parent-Reported Childhood Food Allergies in the United States. Pediatrics. 2018:142(6):e20181235. Pediatrics [Internet]. 2019 Mar 1 [cited 2024 Mar 20];143(3). Available from: https://pubmed.ncbi.nlm.nih.gov/30819972/
22. Rosener JB. Ways women lead. Harv Bus Rev. 1990;68(6):119–25.
23. Avolio, B. J., & Bass, B. M. Multifactor Leadership Questionnaire: Manual and Sampler Set (3rd ed.). Redwood City, CA: Mind Garden. 2004.
24. Eslami, A. A., Zarei, E., & Rezaei, S. Investigating the relationship between leadership styles and hospital performance indicators in teaching hospitals of Iran. Iran J Public Health. 2016; 45(4): 486–494.
25. Tan, S. L., & Lee, H. L. The impact of transformational leadership on healthcare service quality in Malaysian public hospitals. J Health Organ Manag. 2021; 35(2): 176–190.
26. Sharma, R., Singh, S., & Kaur, G. Leadership styles and their impact on organizational effectiveness in Indian hospitals. Int J Health Care Qual Assur. 2020; 33(5): 421–434.
27. Müller, R., & Schmitz, J. Leadership in healthcare: Insights from German hospital management. European Management Review. 2020; 17(1): 90–101.
28. Davies, M., & Thompson, Leadership style and staff well-being in NHS hospitals in the UK. BMJ Open. 2019; 9(6): e029075.
29. Hansen, M. B., Jacobsen, C. B., & Andersen, L. B. Transformational leadership in public hospitals: The Norwegian experience. Public Adm Rev. 2018; 78(1): 97–110.
30. Johnson, L. A., & Smith, P. C. Examining leadership styles in U.S. hospital administrators and their relationship with staff outcomes. J Healthc Leadersh. 2017; 9: 15–22.
31. Brown, A. M., & Green, D. L. Leadership style and healthcare performance in Canadian hospital systems. Healthc Manage Forum. 2019; 32(3): 125–131.
32. Silva, F. M., & Oliveira, C. A. Leadership behaviors in Brazilian hospitals: A study of transformational and transactional styles. Rev. Adm. Saúde. 2020; 20(80): 54–62.

TABLE 2. HEAD DEPARTMENTS LEADERSHIP STYLE IN MONGOLIAN HOSPITALS

Variables	Mean ± SD	ERS	1	2	3	4	5	6	7	8	9	10	11	12	Alpha
Transformational															
(1) Idealized influence: attributed<	2.51±1.03	2.72	1												0.840
(2) Idealized influence: behavior<	2.59±0.99	2.69	.797**	1											0.880
(3) Inspirational motivation<	2.63±1.08	2.83	.754**	.800**	1										0.854
(4) Intellectual stimulation<	2.4±1.02	2.82	.749**	.757**	.780**	1									0.945
(5) Individual consideration<	2.52±1.07	2.66	.738**	.758**	.767**	.857**	1								0.909
Transactional															
(6) Contingent Reward<	2.48±1.04	2.77	.707**	.712**	.748**	.783**	.815**	1							0.915
(7) Management by exception: active>	2.53±0.92	2.33	.575**	.569**	.617**	.641**	.639**	.705**	1						0.916
Passive/avoidant															
(8) Management by exception: passive>	2.21±0.96	1.10	.425**	.463**	.458**	.498**	.497**	.521**	.639**	1					0.822
(9) Laissez –faire>	1.74±1.05	0.79	0.038	.076**	.053*	.079**	.068**	.071**	.183**	.369**	1				0.845
Leadership outcomes															
(10) Extra Effort<	2.55±1.03	2.75	.684**	.706**	.732**	.744**	.781**	.789**	.651**	.517**	.082**	1			0.905
(11) Effectiveness<	2.53±1.07	3.01	.701**	.711**	.737**	.736**	.785**	.808**	.636**	.503**	0.049	.876**	1		0.921
(12) Satisfaction<	2.56±1.07	2.94	.689**	.683**	.703**	.709**	.744**	.774**	.632**	.494**	0.047	.817**	.886**	1	0.916

< Significantly lower than ERS, > Significantly higher than ERS by One sample T test, ** Pearson's correlation is significant, p<0.001, Alpha is Cronbach alpha coefficients

TABLE 3. DIRECTORS OF HOSPITALS LEADERSHIP STYLE IN MONGOLIA

Variables	Mean, SD	ERS	1	2	3	4	5	6	7	8	9	10	11	12	Alpha
Transformational															
(1) Idealized influence: attributed	2.79±0.79>	2.72	1												0.875
(2) Idealized influence: behavior	2.65±0.88<	2.69	.797**	1											0.875
(3) Inspirational motivation	2.83±0.81	2.83	.754**	.800**	1										0.928
(4) Intellectual stimulation	2.69±0.89<	2.82	.749**	.757**	.780**	1									0.901
(5) Individual consideration	2.78±0.89>	2.66	.738**	.758**	.767**	.857**	1								0.936
Transactional															
(6) Contingent Reward	2.67±0.93<	2.77	.707**	.712**	.748**	.783**	.815**	1							0.926
(7) Management by exception: active	2.64±0.76>	2.33	.575**	.569**	.617**	.641**	.639**	.705**	1						0.807
Passive/avoidant															
(8) Management by exception: passive	2.22±0.86>	1.10	.425**	.463**	.458**	.498**	.497**	.521**	.639**	1					0.737
(9) Laissez –faire	1.74±1.05>	0.79	0.038	.076**	.053*	.079**	.068**	.071**	.183**	.369**	1				0.811
Leadership outcomes															
(10) Extra Effort	2.71±0.84<	2.75	.684**	.706**	.732**	.744**	.781**	.789**	.651**	.517**	.082**	1			0.879
(11) Effectiveness	2.72±0.98<	3.01	.701**	.711**	.737**	.736**	.785**	.808**	.636**	.503**	0.049	.876**	1		0.936
(12) Satisfaction	2.72±0.9<	2.94	.689**	.683**	.703**	.709**	.744**	.774**	.632**	.494**	0.047	.817**	.886**	1	0.908

< Significantly lower than ERS, > Significantly higher than ERS by One sample T test, ** Pearson's correlation is significant, p<0.001, Alpha is Cronbach alpha coefficients

APPENDIX

SUPPLEMENT TABLE 1. MLQ-5X QUESTIONNAIRE VALIDATION BY PRINCIPAL COMPONENT ANALYSIS

Variables	F1	F2	F3	F4
Talks only on most important values and beliefs	0.668			
Specific importance of having a strong sense of purpose	0.719			
Considers moral & ethical consequences of decisions	0.745			
Emphasizes importance of group's mission	0.770			
Instills pride in me for being associated with her/him	0.779			
Goes beyond self-interest for the good of staff	0.640			
Have my respect	0.636			
Displays sense of power and confidence in me	0.808			
Articulates a compelling vision	0.795			
Discusses with specific terms who is responsible for achieving performance targets	0.817			
Talks optimistically about future	0.820			
Expresses confidence on goal achievement	0.826			
Raises critical assumption to question whether they appreciate or not	0.790			
Suggests new ways to completing my work	0.705			
Seeking different perspective in problem solving	0.826			
Allows me look at problems different angles	0.841			
Spends time on training and coaching	0.726			
Treats me as individual rather than member of group	0.813			
Considers me as having different needs/abilities/aspiration	0.839			
Helps me to develop my strength	0.861			
Provides with assistants an exchange for my effort			0.800	
Clarifies my expectation when meeting perform expectation goal			0.822	
Is excited about what needs to be accomplished			0.800	
Expresses satisfaction when meeting performance			0.802	
Focuses attention on irregularities /mistake deviation from standards			0.590	
Gives all attention in dealing with mistake/complains/failure			0.530	
Keeps track of all mistakes			0.710	
Directs my attention towards failures to meet standards			0.644	
Wait for things go to wrong before taking action		0.727		
Do not fail interfere until the problem is serious		0.602		
Hospital believes in not making changes unless necessary		0.474		
Takes action only when problems become serious		0.614		
Avoids getting involved when important issues arise		0.850		
Is absent when needed		0.844		
Avoids making decisions		0.826		
Delays responding to urgent questions		0.408		
I demonstrate that I can accomplish more than expected using effective methods				0.780

Variables	F1	F2	F3	F4
I enhance motivation and desire to succeed				0.837
I encourage greater work effort				0.825
I use effective methods when working with colleagues				0.839
I enjoy working with my team				0.841
I discuss the needs my employees require to perform				0.823
I defend my employees' interests to senior leadership				0.805
I meet organizational demands effectively				0.791