Influence of Leadership Styles on Team Performance in Ethiopian Biomedical and Public Health Institutes

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STATEMENT OF DECLARATION

I declare that the project work entitled “Influence of Leadership Styles on Team Performance in Ethiopian Biomedical and Public Health Institutes” is my original work and all sources of material used for the work have been duly acknowledged.

Dereje Nigussie Woldemichael

STATEMENT OF CERTIFICATION

This is to certify that, this project work **"Influence of Leadership Styles on Team Performance in Ethiopian Biomedical and Public Health Institutes"**, undertaken by Dereje Nigussie Woldemichael in partial fulfilment of the requirements for Master of Arts in Business Leadership at Addis Ababa University School of Commerce, is an original work and not submitted earlier for any Degree either at this university or any other university.

Dr. Tekelgorgis Assefa

APPROVAL SHEET

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

BUSSINESS LEADERSHIP (MBL) PROGRAM

Influence of Leadership Styles on Team Performance in Ethiopian Biomedical and Public Health Institutes"

By: Dereje Nigussie Woldemichael

Approval of Examiners:

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ACRONYMS

AHRI – Armauer Hansen Research Institute

ANOVA – Analysis of Variance

CEO – Chief Executive Officer

EBPHI – Ethiopian Biomedical and Public Health Institutes

ECX – Ethiopian Commodity Exchange

EPHI – Ethiopian Public Health Institute

HR – Human Resources

MBL – Master of Business Leadership

MLQ-6S – Multifactor Leadership Questionnaire (Short Form)

SPSS – Statistical Package for the Social Sciences

ABSTRACT

The research topic is to look at how different leadership styles affect the performance of teams within Ethiopian Biomedical and Public Health Institutes. It seeks to understand how transformational, transactional and servant leadership shapes the relationships among team members, their communication and decisions about talent. For data collection a mixed-methods approach has been used to process giving surveys to 198 people and interviewing others to access both types of data. The study shows that using transformational leadership can greatly improve how well a team performs by supporting motivation, trust and teamwork. Moreover, having the right organizational culture and effective ways to communicate influences a lot in determining team success. From these outcomes, we understand the value of training leaders to be flexible and supportive in the workplace which is important for achieving better public health outcomes.

Keywords: Leadership style, team performance, public health & biomedical research institutes

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

The Ethiopian Institute for Public Health (EPHI) together with the Armauer Hansen Research Institute (AHRI) plays a key role in strengthening the health care system through research, health product development, diseases prevention and public health interventions. The Ethiopian Public Health Institute (EPHI) functions as a vital governmental organization that performs public health research while also conducting surveillance activities and developing policies throughout Ethiopia to advance health results and disease prevention. The Armauer Hansen Research Institute operates under government authority to conduct health research and innovations on traditional medicines as well as vaccines and diagnostic devices alongside therapeutic tools while supporting local pharmaceutical manufacturing. These Ethiopian institutions work together under the umbrella of the Ministry of Health to support health research studies and develop the healthcare system which fights major public health problems in the country. Management in public health institutions is critical because it affects the decision -making, efficiency of communication and motivation of employees, all of which contribute to organizational efficiency (Tesfaye & Wolde, 2021).

Effective leadership supports teamwork, innovation and efficiency in public health organizations. Aldoshan (2016) claims that "the style of leadership and teamwork is very closely related", which emphasizes that successful teams are often a product of management. The performance of the team therefore depends on how employees respond to organizational culture and leadership (Akmal, 2015; Makaske, 2015). In order to effectively fulfill their mandates, Biomedical and public health institutes must determine clear communication, support cooperation and implement the practices of strategic talents management. Management, which does not support teamwork, recognizes talent or facilitates constructive dialogue, can prevent institutional efficiency. Medical institutions, like other complex organizations, require structured teams to meet growing requirements for service provision, research progress and policy implementation. Studies suggest that organizations structured around efficient teams are experiencing improved productivity and innovation (Brown, Johnson, Meyer and Robert, 2012; Solat, Bashir, Ali, Baig and Hussain, 2024). As a research and

political institution, they must prefer team cohesion to effectively address national health challenges.

Management styles play a basic role in the formation of team efficiency. The transformation and transaction lines of the management were identified as a key driving forces of the successful team (Malik et al., 2012). However, adaptability is necessary because different situations require different guidance styles (Al Rahbi, Kalid, & Khan, 2024). In the public health sector in Ethiopia, there is a flexible and inclusive leadership necessary to manage various teams, solutions of sectoral challenges and implementation of health -based health solutions. Poor management within public health institutions can lead to inefficiency, reduce employees' morale and weakening of services. In Ethiopia, ineffective teamwork caused by gaps in leadership may endanger the supervision of disease, health research and the ability to respond to emergencies. Bekele et al. (2022) emphasize that the shortcomings of leadership in health institutions negatively affect the effectiveness of the organization, leading to a reduction in the quality of patient care and delay in the implementation of critical health programs. As a national research body, Biomedical and public health research institutes must ensure that the team management and performance are in line with strategic health goals.

Given the growing complexity of health care requirements in Ethiopia, it is necessary to understand the impact of the communication and management of talent on team performance. The aim of this study is to explore how management styles affect Ethiopian Biomedical and Public Health Institutes teamwork and provide insight into improving management procedures for increasing institutional efficiency. The findings will contribute to a wider discourse on leadership in the public health sector in Ethiopia and offer practical recommendations for team performance optimization.

1.2. Statement of the Problem

The Ethiopian Biomedical and Public Health Institutes faced significant challenges of leadership, which are characterized by weak administration and management of Institutes and a professional offense between managers and directors. These problems negatively affected the performance and provision of services. Effective leadership is essential in health care environment because it

directly affects the dynamics of the team, the motivation of employees and the overall institutional efficiency (Tesfaye & Wolde, 2021). Studies evaluating health care in Ethiopia suggest that the effectiveness of management remains a problem. Research conducted on public health institutions in Addis Ababa found that only 46.8% of managers showed effective leadership, with factors such as emotional intelligence, democratic management styles, university education and extensive work experiences positively associated with effective leadership. On the other hand, limited knowledge of management and reliance on autocratic styles prevented cooperation and reduced motivation of employees (Ayele & Mekonnen, 2020).

Communication within health organizations is a critical factor in ensuring the efficiency and provision of quality services. A study conducted among healthcare professionals in Ethiopian hospitals revealed that only 45.8% of employees showed effective communication skills, with obstacles, including lack of formal training, hierarchical structures and insufficient management of management (GebreMaraiam & Abbe, 2019). The ineffective management of management was associated with reduced satisfaction with work, lower involvement of employees and poor performance of the team in public health institutions (Bekele et al., 2022). It recognizes these challenges and EPHI has implemented management programs to increase the capacity of the management. In August 2022, Bishoft was held training with a focus on team performance, organization of the system and involvement of participating parties. The aim of the program was to equip the leaders with the necessary skills to effectively perform the vision and mission of the Institute (the annual EPHI report, 2022). Similarly, The Armaeur Hanse Research have provided a training for directors and deputy general director at Adama in April 2025 in collaboration with the Ministry of Health.

Despite this effort, there remains a significant gap in the field of research concerning the relationship between communication, talent management and team performance in the public health sector in Ethiopia. Existing studies generally examined the effectiveness of leadership, but had not examined extensively how strategies of communication and talent management affect the dynamics of the team and institutional performance.

1.3. Research Questions

In line with the study objectives, the following research questions were raised for determination in this investigation:

1. What is the predominant style of leadership in Ethiopian Biomedical and Public Health Institutes?
2. Is there a significant effect of leaders' communication style on Team Performance in EBPHI?
3. What is the impact of leaders' talent management approaches on team performance in EBPHI?

1.4. Research objectives

Based on the research questions, the research objectives can be formulated as follows:

1. To identify the predominant style of leadership in Ethiopian Biomedical and Public Health Institutes (EBPHI).
2. To examine the effect of leaders' communication style on team performance in EBPHI.
3. To assess the impact of leaders' talent management approaches on team performance in EBPHI.

1.5. Hypotheses of the Study

H1: Leadership communication style has a significant effect on Team Performance.

H2: Assertive communication style enhances team performance more than passive, aggressive, or passive-aggressive styles.

H3: Leadership talent management approach significantly influences Team Performance.

H4: The strategic pools approach to talent management has the highest positive impact on Team Performance compared to other talent management approaches.

H5: Transformational leadership style positively influences team cohesion and overall effectiveness.

H6: Transactional leadership style is predominantly used in the Health Institutes, impacting Team Performance based on reward and management-by-exception principles.

1.6. Significance of the Study

This study holds substantial importance for Ethiopian biomedical and public health institutions, policymakers, and organizational leaders by providing critical insights into how leadership styles influence team performance. Given Ethiopia's growing healthcare demands and the pivotal role of research institutions like the Ethiopian Public Health Institute (EPHI) and Armauer Hansen Research Institute (AHRI), understanding effective leadership dynamics is essential for improving institutional efficiency, research output, and public health outcomes. The findings highlight the dominant leadership styles—particularly transactional and transformational approaches—and their impact on communication, talent management, and team cohesion. By identifying assertive communication and strategic talent management as key drivers of performance, this research offers actionable recommendations for leadership training programs, fostering a more motivated and productive workforce.

Additionally, the study contributes to the broader academic discourse on leadership in low-resource settings, where organizational constraints often challenge team effectiveness. It bridges a gap in existing literature by examining leadership within Ethiopia’s unique public health context, providing empirical evidence that can guide policy reforms and institutional strategies. For practitioners, the insights can inform decision-making in human resource management, team structuring, and leadership development initiatives. Ultimately, enhancing leadership practices in these institutions can lead to better research outcomes, stronger health systems, and improved service delivery, directly benefiting Ethiopia’s public health landscape and aligning with national healthcare goals.

1.7. Scope of the Study

Geographical Scope

This study focuses on leadership dynamics within Ethiopian biomedical and public health institutes, specifically the Ethiopian Public Health Institute (EPHI) and the Armauer Hansen Research Institute (AHRI). These institutions play a critical role in Ethiopia's healthcare system, conducting research, disease surveillance, and policy development. By concentrating on these key organizations, the research provides insights into leadership challenges and team performance within Ethiopia's public health sector, offering context-specific findings that may differ from leadership studies in other regions or industries.

Conceptual Scope

The study examines the relationship between leadership styles (transformational, transactional, autocratic, and servant leadership), communication approaches (assertive, passive, aggressive, and passive-aggressive), and talent management strategies (people, practices, position, and strategic pool approaches) in influencing team performance. The conceptual framework integrates theories such as Bass's Transformational Leadership and Blake and Mouton's Managerial Grid to analyze how leadership behaviors shape productivity, innovation, teamwork, and research output. The study also explores the moderating effects of organizational culture, team motivation, and resource availability, providing a holistic understanding of leadership effectiveness in research-driven environments.

Methodological Scope

The research adopts a mixed-methods approach, combining quantitative surveys with qualitative interviews to capture both statistical trends and in-depth perspectives. Data was collected from 198 respondents, including directors, researchers, and administrators, using structured questionnaires and interviews. Statistical techniques such as Pearson correlation, regression analysis, and descriptive statistics were employed to test hypotheses, while thematic analysis of interviews enriched the findings with real-world leadership experiences. The study's methodological rigor

ensures reliable insights into leadership practices, though future research could expand by incorporating longitudinal data or multi-institutional comparisons for broader applicability.

1.8. Limitation of the Study

While this study provides valuable insights into the influence of leadership styles on team performance in Ethiopian biomedical and public health institutes, it has several limitations that should be considered. First, although the research incorporated qualitative interviews alongside quantitative surveys, the number of interviewees (60 participants) was relatively small compared to the survey sample. This may limit the depth and diversity of perspectives captured, particularly since leadership dynamics can vary significantly across different departments and hierarchical levels.

Another limitation is the potential for self-reporting bias in both the survey and interview responses. Participants, especially leaders, may have presented themselves in a more favorable light, emphasizing strengths while downplaying weaknesses in leadership practices. Additionally, the study's cross-sectional design means that while it captures perceptions at a specific moment, it does not track how leadership styles and team performance evolve over time. A longitudinal approach could have provided stronger evidence of causality and long-term trends.

The qualitative component, while valuable, was structured rather than open-ended, which may have restricted participants from elaborating on nuanced experiences or unexpected themes. A more flexible, in-depth interview approach might have uncovered richer insights into how leadership communication and talent management operate in real-world settings. Furthermore, the study focused primarily on internal organizational factors, leaving out external influences such as government policies, funding fluctuations, or public health crises, which could significantly shape leadership effectiveness.

Finally, while the research included multiple institutes (EPHI and AHRI), the findings may not fully represent leadership challenges in smaller or regional public health organizations, where resource constraints and operational dynamics could differ. Future studies could expand the

qualitative sample, adopt a mixed-methods design with more open-ended interviews, and incorporate external contextual factors to provide a more holistic understanding of leadership in Ethiopia's public health sector.

1.9. Operational Definitions

- **Transformational Leadership**: A leadership approach where leaders inspire and motivate followers to exceed expectations by fostering innovation, trust, and shared vision (Bass & Riggio, 2006).
- **Transactional Leadership**: A leadership style focused on structured exchanges (e.g., rewards/punishments) to achieve compliance with goals (Burns, 1978).
- **Laissez-Faire Leadership**: A passive style where leaders avoid decision-making and provide minimal guidance (Skogstad et al., 2007).
- **Team Performance**: The effectiveness of a team in achieving objectives, measured by productivity, cohesion, and goal attainment (Kozlowski & Bell, 2013).
- **Organizational Culture**: Shared values, norms, and practices that shape behavior and interactions within an institution (Schein, 2010).
- **Talent Management**: Strategic processes to attract, develop, and retain skilled employees to meet organizational needs (Collings & Mellahi, 2009).
- **Assertive Communication**: A direct, respectful communication style that balances clarity and empathy, enhancing teamwork (Alberti & Emmons, 2017).
- **Public Health Institutes**: Organizations like EPHI and AHRI that conduct research, surveillance, and policy development to improve population health (WHO, 2020).

1.10. Organization of the Paper

This study is organized into five chapters. Chapter One introduces the research by outlining the background of Ethiopian Biomedical and Public Health Institutes (EBPHI), the problem statement,

research questions, objectives, and hypotheses. It establishes the importance of leadership styles, communication, and talent management in team performance. Chapter Two reviews theoretical and empirical literature on leadership, team performance, and talent management, while presenting the conceptual framework. Chapter Three details the methodology, including the mixed-methods approach, data collection tools (surveys, interviews), model specification, and ethical considerations. Chapter Four presents and analyzes data, covering demographics, descriptive statistics (leadership styles, team performance), correlation and regression results, and thematic interpretations. Finally, Chapter Five summarizes key findings, concludes the study, provides practical recommendations for EBPHI, and identifies gaps for future research. The paper adheres to a structured academic format, ensuring clarity and coherence throughout.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Theoretical Literature Review

2.1.1. Leader, Leadership, and Leadership Style

Leader, leadership, and leadership styles represent the most widely discussed and researched concepts in work organizations (Kuchler, 2008). This could be mainly as a result of the fact that the survival and thriving of any group or team are dependent on leadership. In the extant body of literature, leader, leadership, and leadership styles as terms have attracted several definitions. Starting with leadership, it has been traditionally conceived as skills or ability possessed by an individual that is useful in running an organization (Nivala & Hujala, 2022). This definition suggests that leadership involves an individual(s) influencing the activity of an organization, which may or may not be limited to the direction of labor or the application of capital and other resources owned by the organization. According to Cole (2022), leadership is a constantly changing process in terms of time, organization, and types of organization requiring an individual to influence a group of people to achieve an overall objective.

A more organization-inclined definition of leadership was offered by Gill (2024) as involving an individual who assists by stimulating, motivating, and encouraging followers in order to achieve results that satisfy the existence and objective of an organization. This definition of leadership addressed the individual who is the leader as someone whose influence is captured in stimulating, motivating, and encouraging a group of people to work to achieve a goal. Hence, Lok and Crawford (2023) believe that leaders play an important role in the decision of whether a company succeeds or fails. A leader is a person who has the power to motivate people towards achieving a goal or an objective, and leaders play a vital role in setting the culture of a firm. A capable leader is one who directs and guides his followers to achieve the desired goals. A leader is a person who can influence the behavior of his/her followers to achieve the set goals. A leader is a person who inspires his/her subordinates through directing and motivating them to perform specific tasks to accomplish outlined company objectives. Simply put, a leader is someone who sets the direction for others to follow (Fustin, 2023). Successful leaders understand themselves, their followers, and the tasks and procedures that govern the organization as a whole.

A leader needs confidence and strategy to manage a wide range of different issues effectively – from creating learning associations where workers grow and develop as effective members of an organization to managing any conflict that arises; as well as fostering hierarchical clarity to inspiring energy and creativity through bold visions (Gallos, 2008). There are several approaches

to leadership which can be generally referred to as leadership styles. As such, leaders can adopt different styles including the administrative style, autocratic style, charismatic style, free economy style, democratic style, situational style, cooperative style, relationship-based style, transactional style, transformational style, and so on (Mosadeghard, 2003). Evidence in literature abounds that leaders use different leadership styles in several situations, depending on organizational culture as well as employee maturity. However, today's employees are mostly specialized and highly educated, dictating the type of influence they require from their employer or leader as the case may be.

2.2. Theoretical Framework

The study adopted two major theoretical perspectives to explain the aspects of leadership investigated in the study. Specifically, the transformational leadership theory was used to explore the impact of leadership communication style on Team Performance while Blake and Mouton 'Managerial Grid' was applied to understand how Team Performance is influenced by leadership talent management approaches.

2.2.1. Transformational Leadership Theory

Transformational leadership as a concept was first introduced by James V. Downton in 1973. Downton (1973) attempted to identify some form of charismatic leadership under revolutionary contexts. However, the popularization of the concept is attributed to James Macgregor Burns. Burns (1978) delineated transactional and transformational leadership as mutually exclusive within the context of politics and defined the latter as a process wherein both leaders and followers are lifted to advanced levels of inspiration and motivation as they lift each other at work. Under transformational leadership, there is a willingness on the part of the followers to follow the leader, stemming from the trust, loyalty, admiration, and respect that the transformational leader inspires in the followers through his or her qualities. The word "transform" in this context entails that this leadership style initiates changes in how things are done in a team, as well as in the people within the team. The transformation results from the leader being a role model and connecting with the team members' sense of identity and self to collaboratively initiate the required changes. Thus,

transformational leadership is deeply rooted in the concept of causing a change in the life of the organization and team members that are intrinsically pursued by leaders and willing followers, based on the inspiration that the leader provides.

A formal attempt to theorize transformational leadership is credited to Bernard M. Bass, who expanded on the idea of James Macgregor Burns to form the 'Bass Transformational Leadership Theory'. Bass (1985) attempted to provide a basis for evaluating transformational leadership and explicitly identified the psychological mechanisms or components via which transformational leaders initiate change and motivate followers. Bass (1985) conceptualized his model on the basic assumptions that people become motivated when made aware of the importance of tasks and team-focus which produce collective wins rather than self-gains.

From those assumptions, Bass (1985) conceptualized that the change and motivation initiated by the leader occur via the 4 mechanisms identified in Figure 4 above. As such, the leader initiates change based on his charisma as a role model (idealized influence); challenging of stereotypes and performance-reducing assumptions and stimulation of team members' creativity (intellectual stimulation); a personalized leader-follower relationship that meets the needs of individual team members (individualized consideration); and providing a sense of meaning, direction, and challenge toward goals that followers find very compelling (inspirational motivation). Another dimension of Bass' theory that differs from the views of Burns (1978) is that Bass (1990) does not consider transactional and transformational leadership to be mutually exclusive but perceives them instead as complementary approaches that can be employed by the same leader given the context and leadership requirement of a team or organization.

The relevance of this theory and its impact on team outcomes have been validated by several empirical studies (Krishna, 2021; Chou, Lin, Chang, & Chuang, 2023; Wahba, 2022). In the context of this study, however, this theory is apt as it emphasizes a pivotal role for communication in all the mechanisms through which transformational leadership initiates required changes. Thus, Cherry (2018) identifies communication skills as a critical component of transformational leadership.

2.2.2. Team Performance

Team Performance and they all depend on how and how well the leader can communicate with team members. The leader will have to know what communication style is apt in a given context either to intellectually stimulate team members or inspire them. Even within the context of individualized consideration, leadership communication style will go a long way to decide if the interpersonal relationships between the leader and team members will either reduce or improve team performance. Taking a marketing team in Ethiopian Biomedical and Public Health Institutes, for example, the extent to which a leader gets a team to be effective either in terms of task completion, team thrust, team trust, or getting the support for the team to either meet a marketing target or expand market reach will depend a lot on how the leader can communicate to the team members, using the appropriate communication style. Irrespective of the component of transformational leadership adopted (idealized influence, individualized consideration, inspirational motivation, or intellectual stimulation), the leader of the marketing team must communicate appropriately depending on the context to achieve the right team outcomes.

2.2.3. Blake and Mouton Managerial Grid

Management theorists Robert Blake and Jane Mouton in the 1960s developed a grid-based model that features types of leadership, delineated based on the extent of balance on the part of the leader in showing concern for people and/or concern for task (Make a Dent Leadership (2018) In the original formulation, a graphical illustration depicted five types of leadership, wherein the concern for people is captured on the y-axis on a scale of 1-9, while the concern for the task is captured on the x-axis on a scale of 1-9 (Blake & Mouton, 1964). Based on the two extreme leadership focuses, five basic styles of leadership are identifiable. It is, however, imperative to state that the Blake and Mouton Managerial Grid has undergone significant evolutions over the years with several other styles of leadership identified or positioned at several points within the grid (Rouse, 2024). The adoption of any of the five basic styles by a leader as depicted in Figure 5 above will depend on the extent the leader focuses on either people or tasks. Hence, the extremes of this model align

with the ‘Theory X and Y,’ depicting absolute concern for production and people respectively (Rouse, 2024).

The relevance of the Blake and Mouton managerial grid as an explanatory tool for the impact of leadership talent management on Team Performance stems from the explicit focus of the grid-based model on the concern for people as a critical pillar in organizational management. In that regard, a leader who has a talent mindset and is people-oriented will ensure that teams produce more effectively. The focus of the leader on team members either within the accommodating, middle-of-the-road, or team management leadership grids will require some talent management techniques on the part of the leader to make the team effective. Concerning marketing teams in Ethiopian Biomedical and Public Health Institutes wherein customer interface is very important, Health Institutes staff will most likely have better interactions with customers when they belong to teams that have leaders who are more people-oriented than task-oriented. Other desirable team outcomes that the people-oriented approach can bring about include team thrust, trust, more collaborative efforts amongst team members, as well as higher team support for leaders. Moreover, the professional development of the members of the marketing team can be expedited when the team leader as a people-oriented person becomes very involved in the development of team members.

2.2.4. Leader Communication and Team Performance

Leadership communication involves transmitting information and common understanding from the leader to subordinates about roles, processes, expectations, goals as it relates to tasks, as well as within the context of interpersonal interactions between leader and follower. Interaction is always required in teams, especially the one that takes place between leaders and team members, as a lot depends on how effective it is. Thus, the leader should be ahead of others in an organization, in at least his/her communication skills, to be effective.

Communication plays an irrefutable role in who becomes a leader. The leader of a team should understand the importance of trust-based and transparent communications at both the personal and group levels. Leadership is fundamentally a communication-based activity, as there are

instructions on tasks and processes that leaders will have to communicate with several stakeholders with different information needs. Ketchum (2012), based on global data, reports that 50% of effective leadership is linked with how effective leaders communicate. In that context, Olenski (2022) opines that effective leadership communication depends on a leader's proficiency at reading body language, having good video presentation skills, being skillful at listening, as well as excellent speaking and writing skills. Similarly, Anthony (2018), contends that effective leadership communication entails the leader being able to communicate using both verbal and non-verbal cues (body language), active listening, leaders setting an example with how they communicate, leaders being able to adapt to or use different communication styles as is necessary, as well as leaders always improving how they communicate. JRS Consulting (2008) assessed effective leadership communication in terms of communication intelligence, courageous communication, strategic messaging, inspiring and influencing others, as well as two-way communication.

The communication style of a leader will fundamentally flow from his/her leadership style (Raducan & Raducan, 2021). As such, one can expect that an autocratic leader will communicate aggressively, while a laissez-faire leader will most likely be a passive communicator. Hackman and Johnson (2023) attribute the effectiveness of the leader to his/her communication style. While clear-cut leadership communication styles are not very popular in literature, it is still very apt to say that the leader's communication style will fall within the basic communication styles which include: passive, aggressive, passive-aggressive, and assertive. (William, 2018; Karell, 2018). While the centrality of communication to leadership and Team Performance is not in doubt, Luthra and Dahiya (2024) emphasize that managers and teams must communicate effectively to complete projects successfully. As such, it is the leader's role to determine the appropriate communication approach that will enable him or her to persuade team members, engender a sense of responsibility, and provide support and motivation to make the team effective.

2.2.5. Leader Talent Management Approach and Team Performance

Talent management fundamentally involves the strategic handling of the process by which the firm hires and retains employees, such that business capabilities can come from the workforce to meet

the present and future needs of the business. Precise definitions of talent management that are commonly accepted do not exist, as the practice of talent management continues to draw from several other fields (Garavan, Carbery, & Rock, 2012; Thunnissen, Boselie, & Fruytier, 2023; Sparrow, Scullion, & Tarique, 2021).

2.2.6. Conceptualization of What 'Talent' Means in the Workplace

Gallardo-Gallardo, Dries, and González-Cruz (2023) provide an extensive conceptualization of talent within the context of the workplace. This is depicted in Figure 2 above. The operationalization of talent management can be said not to be easy because of the definitional difficulties associated with the term 'talent', wherein the academia and management consulting tend to take 'talent' to mean different things (Tansley, 2021; Dries, 2023). However, Sager (2018) believes that talent could mean any of the following:

1. The pool of people available to an organization to meet its goals and targets.
2. An inherent feature that one has or does not have that separates the one who has it exceptionally from the one who does not have it.
3. The ability of an individual to leverage education, training, and opportunities to learn to do what is not inherently given to him or her.

From the above 3 broad conceptualizations pointed out by Sager (2018), three different meanings or operationalization of talent management can be developed. In line with the first meaning of talent, talent management would be ensuring that the organization has the pool of people that can deliver on the mandate of the organization. In line with the second meaning of talent, talent management would entail identifying people with exceptional inherent abilities and nurturing those abilities for either the personal development of the individual or profitability or competitiveness of the organization to whom the talented individual belongs. In line with the third meaning, talent management would entail providing people with the required education, training, and opportunities that can be leveraged to effectively and efficiently perform tasks for which they do not have the inherent capacity to accomplish.

Sparrow et al. (2021) made a more systematic attempt to crystallize talent management approaches based on conceptual clarifications provided by Collings and Mellahi (2023). While talent management is taken to vary in context, it would more often than not have to do with finding the right people for the right job.

2.2.7. Talent Management Approaches

Sparrow, et al. (2021) explains that under the people approach to talent management, the organization distinguishes between top or high-performing employees and those who are not. This approach to talent management emphasizes offering some sort of preferential treatment or differential management to these top performers or high-potential employees based on certain unique skills they are deemed to have or can have, which have far-reaching implications for the competitive advantage of the firm. The practices approach to talent management draws from the traditional human resource management (HRM) approach but entails clearly defined practices of recruitment and staff development embedded in proactive and active management of the talent pool required by the organization to meet its business needs. The position approach to talent management emphasizes that talent management should focus on getting the required talent into key positions that are at the core of the firm's growth and competitiveness. The strategic pools approach to talent management emphasizes that the firm should manage talent or employees such that it has an internal pool of talents to draw from within the firm when there is the need to fill up some key positions as they become vacant (Collings & Mellahi, 2023; Sparrow et al., 2021a).

2.3. Conceptual Framework

The study explores the influence of leadership style on Team Performance, emphasizing leadership communication style and talent management approaches. Leadership communication is crucial in shaping interactions within teams, while talent management plays a key role in developing and sustaining effective teams.

- Leadership Communication Style and Team Performance
- Leadership is inherently a communication-based activity, as leaders must pass information across to team members and receive feedback.
- Effective leadership communication fosters team cohesion, satisfaction, and performance.
- Various leadership communication styles—assertive, passive, aggressive, and passive-aggressive—impact how well team's function.
- Assertive communication has been identified as the most effective in enhancing team performance.
- Talent Management and Team Performance
- Talent management is crucial for assembling high-performing teams.
- Organizations adopt different talent management approaches, such as the people approach, practices approach, position approach, and strategic pool approach.
- The strategic pool approach, which focuses on continuous professional development and internal talent sourcing, has been found to significantly impact Team Performance.

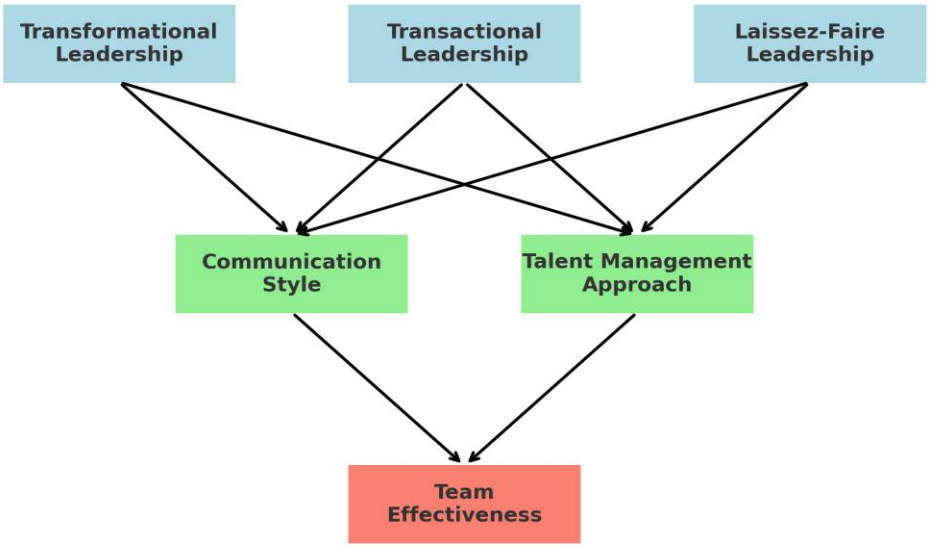


Figure 2- 1 Theoretical Framework of the Study

This study is grounded in Transformational Leadership Theory, which posits that effective leaders inspire and motivate their teams by fostering trust, loyalty, and a shared vision (Bass & Riggio, 2020). Transformational leaders engage in behaviors that elevate followers' motivation and performance by providing a compelling vision, encouraging innovation, and offering individual support (Northouse, 2021). These leaders cultivate an environment where employees feel valued, enhancing overall team cohesion and productivity. Transformational leadership is particularly effective in dynamic organizational settings where adaptability and proactive communication are crucial for success (Avolio & Yammarino, 2020).

In addition, this study employs the Blake and Mouton Managerial Grid as a secondary theoretical foundation to understand how different leadership styles balance concern for people and concern for tasks (Blake & Mouton, 2020). The grid classifies leadership behaviors into five major styles, ranging from impoverished leadership (low concern for both people and tasks) to team leadership (high concern for both dimensions). The model provides insights into how leaders prioritize communication and talent management approaches, ultimately shaping team performance (Dulewicz et al., 2021). Leaders who demonstrate a strong task orientation and interpersonal engagement are more likely to foster high-performance teams by ensuring effective resource allocation and employee development (Goleman, 2021).

Key relationships in the conceptual framework

The conceptual framework of this study emphasizes the connection between the communication of the guidance, the management of talent and the performance of the team and emphasizes the effectiveness of leading as a function of communication strategies and talent management procedures.

The first relationship examines the management of management and the performance of the team and emphasizes how different communication styles affect the efficiency of the organization. Assertive communication has been widely recognized as the most effective approach and promotes

clarity, openness and constructive feedback, which in turn increases the involvement of the team's employees and cohesion (Men et al., 2022). On the contrary, passive and aggressive communication styles often lead to misunderstandings, reduce morale and team conflicts, which negatively affects performance (Shockley-Zalabak, 2020). Research has shown that teams led by leaders using transparent and inclusive communication strategies show a higher level of motivation and effectiveness (Carmeli et al., 2021).

The second relationship examines how talent management approaches the team's performance. Talent management is an essential organizational function that includes attraction, development and maintaining qualified employees (Collings et al., 2021). Companies that adopt approaches of strategic talent management, such as a strategic approach with the fund, experience higher employees' involvement, reduced turnover and improved productivity (Vaiman et al., 2022). Effective talent management ensures that employees are included in roles that are in line with their competences and aspirations in career, support motivation and performance (Thunnissen, 2020).

The third relationship considers Leadership style as a determinant of communication and talent approaches, which eventually affects the performance of the team. For example, transformation leaders support open communication and strategic talent management, leading to highly engaged and high -performance teams (Breevaart & Bakker, 2021). On the other hand, transaction and laissez-faire guidance styles have mixed effects-the transaction line can control the performance of structured rewards, may lack the personal involvement of the long-term development (Judge & Piccolo, 2021). Laissez-Faire leadership, characterized by low involvement and passive decision-making, often leads to ambiguity, relaxation and reduction of the team's efficiency (Skakon et al., 2020).

Independent variables: guidance styles

Leadership styles significantly affect the dynamics and team performance. It has been shown that transformation lines, characterized by idealized influence, inspiring motivation, intellectual stimulation and individualized consideration lead to innovation and determination in teams (Avolio et al., 2021). The leaders with idealized influence serve as patterns, inspire trust and

respect, while those who use intellectual stimulation support creative solutions to problems and independent thinking (Podsakoff et al., 2020).

Transaction lines, defined by contingent remuneration and exception of management, work on structured exchanges between leaders and employees. While conditional rewards strengthen performance through incentives, management, after an exception, focuses on repairing deviations from the expected behavior (Bass, 2020). This style is effective in the environments requiring stability and compliance, but may not support the innovation and development of employees (Eisenbeiss & Boerner, 2021).

On the other hand, Laissez-Faire leadership is characterized by avoiding management and minimal involvement. The leaders who accept this style provide only small guidance or feedback, which often leads to low team motivation, the ambiguity of the role and poor performance (Skakon et al., 2020). Studies have found that organizations led by highly passive leaders are experiencing lower productivity and dissatisfaction of employees due to lack of direction (Kelloway et al., 2021).

Intermediate variables

Communication styles play a key mediation role in the relationship of leadership. Assertive communication, which supports mutual respect, clear expectations and constructive feedback, is associated with higher team satisfaction and efficiency (Gilley et al., 2021). On the other hand, passive, aggressive and passive aggressive communication styles lead to a reduction in cooperation, increased misunderstandings and conflicts in the workplace (Men et al., 2022).

Similarly, talent management approaches mediate the relationship of leadership and performance by ensuring that employees are effectively accepted, developed and maintained (Collings et al., 2021). The approach of people emphasizes the individualized development of talent, while a strategic approach with the fund ensures long -term workforce planning and internal mobility, which significantly increases organizational performance (Vaiman et al., 2022). Organizations that carry out initiatives on the development of structured talents tend to have a higher obligation and maintaining employees (Thunnissen, 2020).

Dependent variable: team performance

The team's performance is evaluated through key indicators such as completing tasks, team cohesion, employee productivity, management support and organization efficiency. High - performance teams constantly meet the goals, demonstrate strong interpersonal cooperation and harmonize their efforts with strategic goals (Salas et al., 2021). Effective management increases the performance of the team by supporting engagement, motivation and shared responsibility (Hackman, 2021). Studies suggest that teams led by transformation and participant leaders tend to show greater coherence and innovation, contributing to the higher efficiency of the organization (Carmeli et al., 2021).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the research methodology that was used in this study, describes in detail the research approach, research design, data sources, data collection tools, model specifications, variable measurement, reliability and validity and ethical considerations. The study seeks to explore the impact of communication styles of talent management and team management approaches, apply the theoretical frameworks of the theory of transformation guidance and Blake and Mouton management of the grid.

3.1. Description of the Study

The Ethiopian Public Health Institute (EPHI) is established by the council of ministers' regulation No. 301/2023 which recognizes the Institute an autonomous federal government office having its own legal personality. The institute is accountable for the Federal Minister of Health. The institute shall have the following objectives: Undertake research, based on national public health research agenda, on priority health and nutrition problems, and generate, absorb and disseminate scientific and technological knowledge to improve the health of the general public. In collaboration with the

concerned bodies conduct surveillance for the early identification and detection of public health risks and prevent public health emergencies through adequate preparedness; and alert, warn and dispatch timely information during public health emergency, respond effectively and timely and ensure rapid recovery of the affected population from the impact of the public health emergency;

Strengthen its laboratories with trained man power and technology to undertake problem solving researches provide effective response to public health emergencies, carry out referral diagnostic and analytical tests; and support the capacity building of health and food science laboratories at the national level to enable them provide quality laboratory services. The Armauer Hansen Research Institute (AHRI) is a medical research institute established in 1970 by the Government of Ethiopia in collaboration with Save the Children Organizations of Norway and Sweden, and University of Bergen. It was named after the Norwegian physician, Gerhard Henrik Armauer Hansen, who first described the leprosy bacillus (Mycobacterium leprae).

ARHI was initially established to investigate the pathogenesis and human immune responses of leprosy. However, it undertakes medical research in a wide range of diseases such as tuberculosis, malaria, antimicrobial resistance, HIV various cancers, and other non-communicable conditions. By the council of Ministers, Regulation Number 530/2023, when AHRI was restructured, in addition to the tasks and responsibilities it had previously, it was mandated to include traditional and modern medicine research, vaccines and diagnostic development and pharmaceutical industry development sectors.

3.3. Research Approach

The study accepts access to mixed methods and integrates both quantitative and qualitative research methods to provide a comprehensive analysis of Leadership styles, talent management approaches and their impact on team performance. The quantitative component allows statistical measurement of relationships between these variables, facilitates objective evaluation and hypotheses testing. The qualitative approach, on the other hand, captures deep perspectives by analyzing structured interviews with team leaders. The approach of the mixed method strengthens the validity of the study of combinations of strictness with contextual understanding and ensures that both numerical trends and qualitative knowledge are incorporated into the finding.

3.4. Research Design

The Design of the study is used to explore the leading practice in Ethiopian biomedical and public health institutions (EBPHI). The approach of the case study is suitable for in -depth examination of complex interactions between management of management, talent management strategies and team performance in the organizational environment in the real world. This design enables intensive investigation of EBPHI leadership efficiency by bringing knowledge from employees and team leaders through surveys and interviews. Finding out of the case study will contribute to a deeper understanding of how the leadership styles shape the team dynamics and the overall performance of the organization.

3.5. Data Sources

The study is based on primary and secondary data to ensure well -rounded investigation. The primary data will be collected through structured surveys and deep interviews with a focus on Leadership styles, talent management approaches and team performance. The survey will collect quantitative data from employees, while structured interviews with team leaders will provide qualitative knowledge about the effectiveness of guidance and talent management. Secondary data will be obtained from organizational reports, regulation documents and the relevant academic literature, which serves as an additional source of information to verify primary findings.

3.6. Data Collection Tools

The study uses two primary data collection tools: a structured exploration questionnaire and structured interviews. The structured questionnaire is designed to measure the communication styles of the management, approaches for talent management and the performance of the team using the five -point Likert scale, in the range 1 = strongly disagree into 5 = strongly agree. The questionnaire will be divided into four sections: demographic information, Leadership styles, talent management approaches and team performance indicators. In addition to the survey, structured interviews with team leaders will be carried out to make a deeper understanding of their communication practices and talent management strategies. The interview questions will be

designed to capture the nuances of leaders 'behavior, employees' motivation and organizational culture. In order to ensure clarity and relevance, the pilot study will be performed in full before collecting data, improves the questionnaire and interviews on the basis of preliminary feedback.

3.7. Model Specification

The hierarchical regression model was used to analyze the relationship between communication, talent management and team performance. This model examines direct effects and interaction effects to determine whether the Leadership style alleviates the effect of talent communication and management on team performance. The regression equation is specified as follows:

$$TP = \beta_0 + \beta_1 LC + \beta_2 TM + \beta_3 LS + \beta_4 (LC \times LS) + \beta_5 (TM \times LS) + \varepsilon$$

In this equation:

TP represents team performance, which is the dependent variable.

LC represents leadership communication style, acting as a mediating variable.

TM represents talent management approach, also serving as a mediating variable.

LS represent leadership style, which is the independent variable.

LC × LS and TM × LS represent interaction terms that capture the moderating effects of leadership style on leadership communication and talent management, respectively.

β_0 to β_5 are regression coefficients that indicate the strength and direction of the relationships between the variables.

ε represents the error term, accounting for variations in team performance that are not explained by the included variables.

This model structure provides a comprehensive framework for analyzing how leadership style interacts with communication and talent management strategies to influence team performance.

By incorporating both direct and moderating effects, the model allows for a deeper understanding of leadership dynamics and their impact on organizational effectiveness.

3.8. Measurement of Variables

The variable studies are divided into independent variables (guidance styles), mediating variables (communication styles and talent management approaches) and a dependent variable (team performance). The Leadership styles are measured on the basis of three classifications: transformation lines, transaction guidance and Laissez-Faire. Transformation lines are evaluated through dimensions such as idealized influence, inspiring motivation, intellectual stimulation and individualized consideration. The transaction line is measured by means of conditional remuneration and management. Laissez-Faire leadership is evaluated on the basis of leadership behavior and minimal involvement in decision-making.

Leadership styles are categorized as passive, aggressive, passively aggressive and assertive communications. Talent management approaches are classified in access to people, access to practices, location access and strategic pole. The performance of the team is evaluated using indicators such as completion of tasks, team performance, employee productivity, management support and organization efficiency. Each variable is measured using a five -point Likert scale, allowing structured and quantifiable evaluation of the effectiveness of the management and team perception.

3.9. Reliability and Validity

Several measures are taken to ensure the reliability and validity of the research. Reliability is evaluated using Cronbach's alpha, with a coefficient of ≥ 0.70 considered acceptable. A pilot study will be conducted to improve the questionnaire and improve the clarity of the questions that ensure that the survey items effectively measure the intended constructs.

The validity is evaluated using multiple methods. The content is ensured by consulting experts in human resources management and management to review the questionnaire items and verify that they comprehensively capture the communication of the guidance, the management of talents and

the performance of the team. The construct is tested through the analysis of factors to confirm that the survey items are in line with the theoretical constructions of the study. The validity of the face is determined by preliminary testing of a questionnaire with a small sample of employees to assess clarity and relevance. These validation measures increase the credibility of the study.

3.10. Data Analysis Techniques

The collected data is analyzed by both descriptive and inference statistical methods. Description statistics, including average, standard deviations and frequency distribution, are used to summarize respondents' characteristics and survey answers. Inference statistical techniques such as regression analysis, t-tests and anova are used to test research hypotheses and exploration between variables. The hierarchical regression model is used to assess the mitigating effects of leadership on the relationship between communication, talent management and team performance. Data analysis is performed using SPSS version 27.0 and Microsoft Excel 16.0, which ensures accurate and reliable interpretation of results.

Inclusion The research methodology in this chapter provides a structured and systematic approach to exploring the impact of communication styles and talent management on team performance. Mixed method access ensures a comprehensive research problem, while the hierarchical regression model allows a detailed analysis of management dynamics. The aim of using strict techniques of data collection and validation is to contribute a valuable knowledge of the effectiveness of the team's leadership and the performance of the team in Ethiopian biomedical and public health.

3.11. Ethical Considerations

Ethical considerations are strictly supported during the study to protect the rights and confidentiality of the participants. All participants are provided with clear information about the goals, procedures and potential risks of the study before their involvement. Informed consent is obtained from all respondents and ensures that they voluntarily participate. Confidentiality is maintained by anonymization of the response and safely storing all the data collected. Voluntary

participation is emphasized, allowing respondents to withdraw from the study at any stage without any consequences. The study follows ethical instructions set out in research institutions and regulators and ensures adherence to standards of ethical research.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.1. Introduction

This chapter presents the results of the data analysis conducted to examine the relationship between leadership communication style, talent management, and team performance in Ethiopia's public health sector. The data were collected from 198 respondents at the Ethiopian Public Health Institute (EPHI) and the Armauer Hansen Research Institute (AHRI). The analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 27. The findings are presented in two parts: (1) demographic characteristics and descriptive statistics, and (2) inferential statistics, including correlation and regression analysis.

4.2. Demographic Characteristics of Respondents

This section provides an overview of the demographic profiles of the 198 participants who took part in the study conducted at the Both institutes. Understanding the demographic composition is essential to interpret the context of leadership, talent management, and team performance dynamics in public health institutions. The demographic characteristics covered include gender, age group, education level, job title, work experience, and departmental affiliation. Gender Distribution: The gender distribution of the respondents reflects a fairly balanced representation across male, female, and other gender identities. Out of the total participants, 35.9% were male, 30.3% were female, and 33.8% identified as other. This diverse gender representation suggests inclusivity in leadership and technical roles across the institution.

Table 4- 1 Gender Distribution of Respondents

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	60	30.3	30.3	30.3
	Male	71	35.9	35.9	66.2
	Other	67	33.8	33.8	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

Age Group Distribution: The age of participants ranged across five major categories. The largest proportion of respondents (24.2%) were aged 55 years and above, followed by 22.7% aged 45–54 years, and 19.7% between 7–10 years of experience. The remaining age brackets, 18–24, 25–34, and 35–44, were represented by 19.2%, 16.7%, and 17.2% of respondents respectively. This distribution suggests that the institution has a relatively mature workforce, which may have implications for leadership continuity and institutional memory.

Table 4- 2 Age Group Distribution of Respondents

Age_Group					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	38	19.2	19.2	19.2
	25-34	33	16.7	16.7	35.9
	35-44	34	17.2	17.2	53.0
	45-54	45	22.7	22.7	75.8
	55+	48	24.2	24.2	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

Educational Qualifications: Respondents had a range of educational qualifications. Both Bachelor's and Master's degree holders each accounted for 30.3% of the total sample. Respondents with a Diploma made up 21.2%, and PhD holders represented 18.2% of the participants. The high proportion of postgraduate qualifications indicates a highly educated workforce, consistent with the knowledge-intensive nature of biomedical and public health research.

Table 4- 3 Educational Level of Respondents

Education_Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's Degree	60	30.3	30.3	30.3
	Diploma	42	21.2	21.2	51.5
	Master's Degree	60	30.3	30.3	81.8
	PhD	36	18.2	18.2	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

Job Titles: Participants held diverse roles within the organization. The most common job titles were Director General (13.1%), Researcher and Team Leader (each 11.1%), and Project Manager and Administrator (each 10.1%). Other roles included Deputy Director General (8.1%), Director (8.6%), and positions within the DG Office (8.6%). This distribution demonstrates that a substantial portion of the sample consisted of leadership and mid-level management personnel, aligning with the study's focus on leadership and team performance.

Table 4- 4 Job Title Distribution of Respondents

Job_Title					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrator	20	10.1	10.1	10.1
	Chief Executive Officer	19	9.6	9.6	19.7
	Deputy Director General	16	8.1	8.1	27.8
	DG Office	17	8.6	8.6	36.4
	Director	17	8.6	8.6	44.9
	Director General	26	13.1	13.1	58.1
	Project Manager	20	10.1	10.1	68.2
	Researcher	22	11.1	11.1	79.3
	Senior Researcher	19	9.6	9.6	88.9
	Team Leader	22	11.1	11.1	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

Work Experience: Regarding work experience, 24.7% of respondents had less than 1 year of experience, followed by 20.7% with 1–3 years, and 19.7% with 7–10 years. Participants with more than 10 years of experience constituted 15.7%, while 4–6 years of experience was reported by

19.2% of the sample. This mix indicates both emerging professionals and experienced leaders are represented in the study, providing a robust perspective on organizational dynamics.

Table 4- 5 Work Experience of Respondents

Work_Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 years	41	20.7	20.7	20.7
	4-6 years	38	19.2	19.2	39.9
	7-10 years	39	19.7	19.7	59.6
	Less than 1 year	49	24.7	24.7	84.3
	More than 10 years	31	15.7	15.7	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

Departmental Affiliation: The respondents were drawn from six key departments within EBPHI. The largest share belonged to the Laboratory/Technical department (26.3%), followed by Policy & Planning (21.2%) and Administration (18.7%). Other departments included Research & Development (18.2%) and Public Health Research (15.7%). The departmental distribution supports the generalizability of the findings across the institutional structure of EBPHI.

Table 4- 6 Departmental Distribution of Respondents

Department					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administration	37	18.7	18.7	18.7
	Laboratory/Technical	52	26.3	26.3	44.9
	Policy & Planning	42	21.2	21.2	66.2
	Public Health research	31	15.7	15.7	81.8
	Research & Development	36	18.2	18.2	100.0
	Total	198	100.0	100.0	

Source: Survey Data, 2025

4.3. Descriptive Analysis Insights

To analyze the level of Public Health Research and R&D Team Performance, such as productivity, innovation, teamwork, and research output, means and standard deviation statistics were used to

examine the responses. The tables below demonstrate the extent to which respondents agreed with the given statements regarding the effectiveness and efficiency of team performance in biomedical and public health institutes in Ethiopia. This section presents a descriptive analysis that illustrates the sample's perception and agreement. Zaidatol and Bagheri's (2009) rule of thumb was used as a basis to describe the mean score of Public Health Research and R&D Team Performance and its dimensions. According to their rule, a mean score of ≤ 3.39 is considered moderate, 3.40 to 3.79 is good, and > 3.80 is high. Based on this guideline, the mean score of Public Health Research and R&D Team Performance and its sub-scales can be described as follows.

4.3.1. Descriptive Statistics Analysis for Team Performance

This section presents the descriptive statistical analysis of the dependent variable—Public Health Research and R&D Team Performance—which reflects the effectiveness and efficiency of research and development teams within Ethiopian biomedical and public health institutes. The analysis focuses on four key dimensions: productivity, innovation, teamwork, and research output. These dimensions collectively indicate how well R&D teams perform in contributing to public health advancement through collaborative and innovative research activities. Mean and standard deviation were used to evaluate respondents' perceptions of team performance levels across these dimensions. The purpose is to gain a clearer understanding of how respondents assess the overall performance of their research teams. The interpretation of the mean values follows Zaidatol and Bagheri's (2009) rule of thumb, where a mean score of ≤ 3.39 indicates a moderate level, 3.40 to 3.79 indicates a good level, and a score above 3.80 represents a high level of agreement or performance. The findings from this analysis provide foundational insights into how leadership styles may influence the effectiveness of public health research teams.

4.3.1.1. Productivity

Descriptive statistics were undertaken to elucidate the central tendency results for both the level of productivity and variation in responses of the participants. The analyses were conducted on a robust sample size of 198 respondents, and list wise deletion was applied to address missing data. The mean score for overall team productivity was 4.47, with a standard deviation of 0.683 (M = 4.47, SD = 0.683), indicating a high level of agreement among respondents regarding the

productivity of their research and development teams. The responses ranged from 3.00 to 5.00, suggesting consistent positive perceptions across the sample. Among the five productivity items, the highest mean score was recorded for the statement "Team members effectively collaborate and share knowledge to enhance research productivity" (M = 4.52, SD = 0.689), reflecting strong agreement on collaboration practices. The lowest mean was observed for "My team consistently meets research deadlines and project milestones" (M = 4.43, SD = 0.686), though this still represents a high level of perceived performance. The results suggest that respondents view their teams as highly productive, meeting standards of collaboration, innovation, and output that align with institutional and international expectations.

Table 4- 7 DV Productivity

Question	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
My team consistently meets research deadlines and project milestones.	198	3	5	4.43	0.686
My team produces high-quality research that meets institutional and international standards.	198	3	5	4.47	0.724
Team members effectively collaborate and share knowledge to enhance research productivity.	198	3	5	4.52	0.689
Leadership in my organization directly influences our ability to innovate and solve research challenges.	198	3	5	4.47	0.619
My team successfully translates research efforts into impactful scientific contributions.	198	3	5	4.45	0.695

Source: Survey Data, 2025

4.3.1.2. Innovation

Descriptive statistics were conducted to assess the level of innovation within public health research and R&D teams, based on participants' perceptions. The analysis was based on responses from 198 participants, with list wise deletion applied to manage any missing data.

Table 4- 8 Innovation

Question	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Our team generates new ideas and approaches to research challenges.	198	3	5	4.55	0.665
Team members are encouraged to share creative solutions.	198	3	5	4.48	0.696
We adopt innovative methods and technologies in our research practices.	198	3	5	4.52	0.674
Our team engages in brainstorming sessions to foster creativity.	198	3	5	4.49	0.681
We frequently implement changes based on innovative suggestions.	198	3	5	4.51	0.696

Source: Survey Data, 2025

The mean score for overall team innovation was 4.51, with a standard deviation of 0.682 (M = 4.51, SD = 0.682), indicating a high level of agreement regarding the presence of innovative practices within the teams. The response values ranged from 3.00 to 5.00, showing that participants generally acknowledged the innovative capabilities of their teams. Among the five innovation-related statements, the highest mean score was observed for "Our team generates new ideas and approaches to research challenges" (M = 4.55, SD = 0.665), reflecting strong recognition of creative thinking in addressing complex problems. The lowest mean score, though still high, was for "Team members are encouraged to share creative solutions" (M = 4.48, SD = 0.696), suggesting that while idea-sharing is practiced, there may still be room for further fostering a creative environment. In general, the results demonstrate that respondents perceive their teams as highly

innovative, frequently adopting new methods, brainstorming ideas, and translating suggestions into actionable improvements.

4.3.1.3. Teamwork

Descriptive statistics were applied to evaluate the level of teamwork among public health research and R&D teams. The responses were collected from a total of 198 participants, and list wise deletion was used to manage any missing data.

Table 4- 9 Teamwork

Question	N	Minimum	Maximum	Mean	Std. Deviation
Team members collaborate effectively to achieve common goals.	198	3	5	4.54	0.658
Our team has a strong sense of unity and purpose.	198	3	5	4.47	0.71
Communication within the team is open and constructive.	198	3	5	4.52	0.666
We support each other in overcoming challenges.	198	3	5	4.43	0.7
Conflicts are resolved quickly and effectively within the team.	198	3	5	4.54	0.658

Source: Survey Data, 2025

The mean score for overall teamwork was 4.50, with a standard deviation of 0.678 (M = 4.50, SD = 0.678), indicating a high level of agreement that team members collaborate well and work cohesively. The response range extended from 3.00 to 5.00, suggesting consistently strong perceptions of teamwork across respondents. The highest mean scores were tied between two items: "Team members collaborate effectively to achieve common goals" and "Conflicts are resolved quickly and effectively within the team", both with a mean of 4.54 and a standard

deviation of 0.658, reflecting strong agreement on coordination and conflict resolution. The lowest mean was 4.43 for the item "We support each other in overcoming challenges" (SD = 0.700), though still within a high-performance range. The findings indicate that teamwork is perceived to be a strong component of R&D team performance, characterized by effective communication, collaboration, unity, and conflict management.

4.3.1.4. Research Output

Descriptive statistics were used to examine respondents' perceptions regarding their teams' research output within public health research and R&D settings. A total of 198 valid responses were included in the analysis, with list wise deletion applied for any missing values.

Table 4- 10 Research Output

Question	N	Minimum	Maximum	Mean	Std. Deviation
The volume of research output from our team is satisfactory.	198	3	5	4.47	0.703
Our research findings contribute significantly to public health knowledge.	198	3	5	4.5	0.651
We publish our research in reputable journals regularly.	198	3	5	4.46	0.703
Our team receives recognition for our research contributions.	198	3	5	4.48	0.659
The impact of our research is evident in the public health sector.	198	3	5	4.5	0.666

Source: Survey Data, 2025

The mean score for overall research output was 4.48, with a standard deviation of 0.676 (M = 4.48, SD = 0.676), indicating a high level of agreement that teams are productive and impactful in terms of their research contributions. Response values ranged from 3.00 to 5.00, reflecting consistent

positivity among participants. The highest mean scores were recorded for two items: "Our research findings contribute significantly to public health knowledge" and "The impact of our research is evident in the public health sector", both with a mean of 4.50, indicating strong confidence in the relevance and influence of the teams' research efforts. The lowest mean score, though still high, was 4.46 for the item "We publish our research in reputable journals regularly" (SD = 0.703), suggesting that while publication standards are largely met, this area may have relatively more variability. In general, the results suggest that the research teams are perceived as highly productive, producing meaningful and recognized contributions to the public health sector through consistent and impactful scholarly activities.

4.3.2. Descriptive Statistics for Independent Variables (Leadership Styles)

This section presents the descriptive statistics results for the independent variable, leadership styles, with a focus on transformational, transactional, and laissez-faire dimensions as perceived by research and R&D team members. The analysis is based on responses from 198 participants, using mean and standard deviation to assess the level of agreement with various statements. Zaidatol and Bagheri's (2009) rule of thumb was applied to interpret the mean scores: a score of ≤ 3.39 is considered moderate, 3.40 to 3.79 is good, and > 3.80 is high. Based on this guideline, the descriptive results for each leadership style are reported below.

4.3.2.1. Transformational Leadership

Descriptive statistics were conducted to assess the extent of transformational leadership practiced in public health research and R&D teams. A total of 198 valid responses were analyzed, with list wise deletion applied to manage missing data.

Table 4- 11 Transformational Leadership

Question	N	Minimum	Maximum	Mean	Std. Deviation

There is a clear vision and direction communicated by our leaders.	198	3	5	4.44	0.709
Leaders inspire and motivate team members to achieve their full potential.	198	3	5	4.53	0.673
My leader encourages creative problem-solving and fosters an innovation-driven environment.	198	3	5	4.44	0.715
My leader supports the professional growth of team members through mentorship.	198	3	5	4.55	0.609
My leader recognizes and appreciates individual contributions to research success.	198	3	5	4.43	0.663
My leader challenges us to think beyond conventional research methods.	198	3	5	4.52	0.689
My leader sets clear performance expectations and rewards achievements.	198	3	5	4.47	0.696

Source: Survey Data, 2025

As illustrated in Table 4-11 mean score for transformational leadership was 4.48, with a standard deviation of 0.679 (M = 4.48, SD = 0.679), indicating a high level of agreement that leaders demonstrate inspirational, supportive, and innovative behaviors. The minimum and maximum scores ranged from 3.00 to 5.00, showing consistently positive perceptions. Among the items, the highest mean score was reported for the statement "My leader supports the professional growth of team members through mentorship" (M = 4.55, SD = 0.609), suggesting that leaders are highly engaged in mentoring and development. This was followed closely by "Leaders inspire and motivate team members to achieve their full potential" (M = 4.53, SD = 0.673), indicating the motivational strength of leadership practices. The lowest, though still high, mean was found for "My leader recognizes and appreciates individual contributions to research success" (M = 4.43, SD = 0.663), suggesting that recognition, while present, might be slightly less emphasized compared to other aspects of transformational leadership. The findings demonstrate a strong presence of transformational leadership traits within the teams, contributing to motivation, innovation, and professional growth.

4.3.2.2. Transactional Leadership

Descriptive statistics were conducted to assess the prevalence and perception of transactional leadership practices among public health research and R&D leaders. A total of 198 valid responses were included in the analysis, and list wise deletion was used to address any missing values.

Table 4- 12 Independent variables: Transformational Leadership

Question	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
My leader regularly monitors performance and provides constructive feedback.	198	3	5	4.52	0.635
My leader emphasizes adherence to rules, policies, and procedures in research.	198	3	5	4.47	0.674
My leader motivates team members primarily through rewards and incentives.	198	3	5	4.56	0.633
My leader ensures that team members are held accountable for their assigned tasks.	198	3	5	4.48	0.689
Grand Mean				4.51	

Source: Survey Data, 2025

The grand mean score for transactional leadership was 4.51, with individual item means ranging from 4.47 to 4.56, indicating a high level of agreement across all statements related to transactional leadership. This suggests that respondents generally perceive their leaders as focused on performance monitoring, rule compliance, accountability, and reward-based motivation. The minimum and maximum responses ranged from 3.00 to 5.00. The highest-rated item was "My

leader motivates team members primarily through rewards and incentives" (M = 4.56, SD = 0.633), indicating strong agreement that reward mechanisms are used to drive performance. This was followed by "My leader regularly monitors performance and provides constructive feedback" (M = 4.52, SD = 0.635), reflecting a strong emphasis on performance oversight and guidance. The lowest, but still high, mean was observed for "My leader emphasizes adherence to rules, policies, and procedures in research" (M = 4.47, SD = 0.674), suggesting that compliance remains an integral part of leadership practices, though slightly less emphasized than motivational strategies. These results imply that transactional leadership is perceived as a well-established and positively received leadership approach in the research environment, especially in ensuring accountability and using incentives to encourage performance.

4.3.2.3. Servant Leadership

Descriptive statistics were utilized to assess perceptions of servant leadership among public health research and R&D team leaders. Responses from 198 participants were analyzed using mean and standard deviation to evaluate the extent to which leaders demonstrate empathy, support, fairness, and participatory decision-making. The data show a consistently high perception of servant leadership practices across all measured items.

Table 4- 13 Servant leadership

No.	Statement	N	Minimum	Maximum	Mean	Std. Deviation
1	My leader actively listens to team members' concerns and considers their suggestions.	198	3	5	4.48	0.674
2	My leader prioritizes the well-being and professional development of team members.	198	3	5	4.51	0.711

3	Leadership in my organization fosters a supportive and trust-based research environment.	198	3	5	4.48	0.674
4	My leader ensures that all team members have equal opportunities to succeed.	198	3	5	4.45	0.68
5	My leader values collaboration over authority and involves team members in decision-making.	198	3	5	4.48	0.703
Grand Mean					4.48	

Source: Survey Data, 2025

The grand mean score for servant leadership was 4.48, indicating a high level of agreement among participants that their leaders embody servant leadership qualities. Response values ranged from 3.00 to 5.00, showing a uniformly positive perception of leadership behavior. The highest-rated item was "My leader prioritizes the well-being and professional development of team members" (M = 4.51, SD = 0.711), reflecting a strong emphasis on personal growth and support. This was followed closely by several items, including "My leader actively listens to team members' concerns and considers their suggestions", "Leadership in my organization fosters a supportive and trust-based research environment", and "My leader values collaboration over authority and involves team members in decision-making"—each receiving a mean score of 4.48, demonstrating balanced and collaborative leadership practices. The lowest, though still high, mean score was observed for "My leader ensures that all team members have equal opportunities to succeed" (M = 4.45, SD = 0.680), suggesting a slightly more variable perception in this area. In summary, servant leadership appears to be actively practiced and positively regarded in the research teams, especially in terms of leader empathy, support, inclusion, and shared decision-making.

4.3.2.4. Autocratic Leadership

Descriptive statistics were also conducted to evaluate the extent of autocratic leadership perceived among leaders in public health research and R&D teams. The responses from 198 participants were analyzed, and the mean and standard deviation were computed for each item to determine the level of agreement regarding authoritarian leadership behaviors.

Table 4- 14 Autocratic leadership styles

No.	Statement	N	Min	Max	Mean	Std. Deviation
1	My leader makes important decisions without consulting team members.	198	3	5	4.52	0.658
2	My leader enforces strict adherence to instructions without room for discussion.	198	3	5	4.49	0.659
3	Team members have little to no autonomy in research-related decision-making.	198	3	5	4.51	0.696
4	My leader discourages open communication and does not accept alternative ideas.	198	3	5	4.4	0.711
5	Research team members primarily follow direct orders rather than engaging in independent thinking.	198	1	5	2.91	1.461
	Grand Mean				4.166	0.837

Source: Survey Data, 2025

As shown in Table 4.14, the grand mean score for autocratic leadership was 4.17 with a standard deviation of 0.837, indicating a generally high perception of autocratic leadership practices. The mean scores for individual items ranged from 2.91 to 4.52, with most items falling within the high agreement range based on Zaidatol and Bagheri's (2009) rule. The highest-rated item was "My leader makes important decisions without consulting team members" (M = 4.52, SD = 0.658), followed by "Team members have little to no autonomy in research-related decision-making" (M

= 4.51, SD = 0.696), suggesting a dominant perception of centralized decision-making and limited autonomy within teams. The lowest-rated item by a considerable margin was "Research team members primarily follow direct orders rather than engaging in independent thinking" (M = 2.91, SD = 1.461). This indicates that while some aspects of autocratic leadership are prevalent, respondents perceive a higher degree of independent thinking in contrast to rigid command-following. The findings indicate a noticeable presence of autocratic leadership traits such as unilateral decision-making and strict control, though elements of team autonomy and critical thinking still exist in some capacity.

4.3.2.5. Moderating Variables (MVs) – Organizational and Team Factors

This section presents the descriptive analysis of the moderating variables, which include organizational culture, team motivation, and resource availability. These factors were examined to understand their influence on the relationship between leadership styles and team performance in Ethiopian biomedical and public health institutes.

Table 4- 15 Organization Culture

No.	Statement	N	Minimum	Maximum	Mean	Std. Deviation
1	My organization promotes a culture of collaboration and open communication.	198	1	5	2.94	1.431
2	Leadership development and training programs are encouraged within my organization.	198	1	5	3.02	1.409
3	The organizational structure supports leadership styles that foster innovation and teamwork.	198	1	5	3	1.418

4	The organization values transparency and fairness in leadership and decision-making.	198	1	5	2.82	1.357
5	Research team members feel respected and valued within the organization.	198	1	5	3.04	1.362
	Grand Mean				2.964	1.3954

Source: Survey Data, 2025

Table 4- 16 Team Motivation

No.	**Statement**	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
1	Leadership in my organization enhances my motivation to contribute to research projects.	198	1	5	3.07	1.378
2	Recognition and appreciation from leadership positively impact my work engagement.	198	1	5	2.93	1.404
3	My team is motivated to go beyond minimum expectations due to leadership support.	198	1	5	2.97	1.435
4	Clearly defined goals and expectations from leadership help maintain my motivation.	198	1	5	3.09	1.379
5	Leadership styles within my organization directly impact my job satisfaction and commitment.	198	1	5	2.94	1.457
	Grand Mean				3	1.4106

Source: Survey Data, 2025

Table 4- 17 Resource Availability

No.	Statement	N	Minimum	Maximum	Mean	Std. Deviation
1	My research team has access to the necessary equipment, technology, and funding to achieve its goals.	198	1	5	2.91	1.421
2	Leadership ensures that resources are allocated fairly across research projects.	198	1	5	3.01	1.402
3	Limited funding and resource constraints negatively affect my team's performance.	198	1	5	3.03	1.409
4	Training and development programs are adequately supported within the organization.	198	1	5	2.98	1.31
5	Leadership plays a key role in securing external funding and partnerships for research success.	198	1	5	3.06	1.443
	Grand Mean				2.998	1.397

4.3.2.6. Team Motivation

The analysis of team motivation factors focused on leadership's role in enhancing motivation, recognition, goal clarity, and job satisfaction. Responses from 198 participants revealed a moderate level of agreement with these statements, as detailed in Table 4.16. The grand mean score for team motivation was 3.00 (SD = 1.41), reflecting moderate perceptions. Item means ranged from 2.93 for recognition and appreciation (SD = 1.40) to 3.09 for clearly defined goals and expectations

(SD = 1.38). This suggests that while leadership's motivational influence is recognized, there is potential to strengthen motivational strategies within the teams.

4.3.2.7. Resource Availability

Resource availability was assessed through statements regarding access to equipment, funding, training, and leadership's role in securing resources. The descriptive statistics in Table 4.19 show that participants reported a moderate level of resource availability, with a grand mean score of 2.998 (SD = 1.40). Mean scores for individual items ranged from 2.91 for access to necessary equipment and technology (SD = 1.42) to 3.06 for leadership's role in securing external funding and partnerships (SD = 1.44). Limited funding and resource constraints were noted as a challenge affecting team performance (M = 3.03, SD = 1.41), indicating that resource allocation remains a critical factor in research productivity.

4.4. Pearson's Correlation Coefficient

Pearson Product-Moment Correlation, often referred to simply as Pearson Correlation, is a widely used statistical method to assess the linear relationship between two continuous variables. This method calculates the correlation coefficient, a numerical value that indicates both the strength and direction of the linear association (Shoaib & Jaisharma, 2024). Pearson's r ranges from -1 to +1, where values closer to +1 or -1 indicate a stronger relationship and values near 0 imply a weak or no linear relationship. In this study, a Pearson correlation analysis was employed to examine the bivariate relationships among Transformational Leadership (Centered_TL), Organizational Culture (Centered_OC), the interaction term between the two (Interaction_TL_OC), and two outcome variables: Team Performance and Research Output. This analysis is critical for determining the degree to which changes in leadership and culture variables are linearly associated with changes in team- and research-related outcomes. A researcher was interested in examining the relationship between leadership behaviors and team-level outcomes in an academic institutional setting. Specifically, the analysis included the variables Transformational Leadership (Centered_TL), Organizational Culture (Centered_OC), their interaction term (Interaction_TL_OC), Team Performance, and Research Output. Null Hypothesis (H_0): There is

no significant linear relationship between the independent variables (Centered_TL, Centered_OC, Interaction_TL_OC) and the dependent variables (Team Performance, Research Output) in the population. Alternative Hypothesis (H_1): There is a significant linear relationship between the independent variables and the dependent variables in the population.

Table 4- 18 Correlation Matrix

Correlations				
		Team Performance	Research Output	Centered_TL
Team Performance	Pearson Correlation	1	.733**	.527**
	Sig. (2-tailed)		.000	.000
	N	150	150	150
Research Output	Pearson Correlation	.733**	1	.523**
	Sig. (2-tailed)	.000		.000
	N	150	150	150
Centered_TL	Pearson Correlation	.527**	.523**	1
	Sig. (2-tailed)	.000	.000	
	N	150	150	150
Centered_OC	Pearson Correlation	.517**	.242**	-.016
	Sig. (2-tailed)	.000	.003	.844
	N	150	150	150
Interaction_TL_OC	Pearson Correlation	-.043	-.059	-.049
	Sig. (2-tailed)	.602	.476	.549
	N	150	150	150

Correlations			
		Centered_OC	Interaction_TL_OC
Team Performance	Pearson Correlation	.517**	-.043

	Sig. (2-tailed)	.000	.602
	N	150	150
Research Output	Pearson Correlation	.242**	-.059
	Sig. (2-tailed)	.003	.476
	N	150	150
Centered_TL	Pearson Correlation	-.016	-.049
	Sig. (2-tailed)	.844	.549
	N	150	150
Centered_OC	Pearson Correlation	1	.065
	Sig. (2-tailed)		.430
	N	150	150
Interaction_TL_OC	Pearson Correlation	.065	1
	Sig. (2-tailed)	.430	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: SPSS output Results (2025)

The results in Table 4.18 show that there is a strong, positive, and statistically significant relationship between Team Performance and Research Output ($r = .733$, $p < .001$). This implies that as Research Output increases, Team Performance also tends to increase, and vice versa. The correlation is statistically significant at the 0.01 level, indicating a highly reliable association in this sample of 150 respondents. Moreover, Transformational Leadership (Centered_TL) is positively and significantly correlated with Team Performance ($r = .527$, $p < .001$), suggesting that teams led by transformational leaders tend to exhibit higher levels of performance. A similar significant positive relationship is observed between Transformational Leadership and Research Output ($r = .523$, $p < .001$), demonstrating that transformational leadership behaviors are also conducive to higher academic research productivity.

Organizational Culture (Centered_OC) was also significantly correlated with Team Performance ($r = .517$, $p < .001$) and Research Output ($r = .242$, $p = .003$). These findings support the notion that a constructive and collaborative culture enhances both team outcomes and individual research performance, albeit to a stronger degree for performance outcomes. In contrast, the interaction term between Transformational Leadership and Organizational Culture (Interaction_TL_OC) does not show a significant correlation with Team Performance ($r = -0.043$, $p = .602$) or with Research Output ($r = -0.059$, $p = .476$). This indicates that the combined influence of leadership and culture, at least as specified in this interaction term, is not linearly related to either outcome variable.

Additionally, no significant correlation was found between Transformational Leadership and Organizational Culture themselves ($r = -0.016$, $p = .844$), suggesting that these two constructs operate relatively independently in this context. The correlation between Organizational Culture and the interaction term ($r = 0.065$, $p = .430$), as well as between Transformational Leadership and the interaction term ($r = -0.049$, $p = .549$), were also not significant, further reinforcing the independence of the moderator term from its constituent variables. In summary, the correlation analysis reveals that both Transformational Leadership and Organizational Culture are individually and significantly associated with improved team performance and research productivity. These findings align with previous research in the academic sector (e.g., Bass & Riggio, 2006; Gumusluoglu & Ilsev, 2009; Sagnak, 2012), which has emphasized the importance of supportive leadership and adaptive culture in enhancing performance. However, the absence of a significant correlation for the interaction term suggests that the moderating effect of culture on the leadership-performance link is complex and may not follow a simple linear pattern.

4.5. Assumption Testing and Model Diagnostics

To ensure the validity and reliability of the regression analysis used to examine the effects of transformational leadership and organizational culture on team performance, multiple statistical assumptions were tested. These included normality, multicollinearity, linearity, homoscedasticity, and the presence of outliers or influential cases.

4.5.1. Test of Normality

The assumption of normality of residuals was assessed using both the Shapiro-Wilk test and the Kolmogorov-Smirnov test, as residuals in linear regression are expected to be normally distributed.

Table 4- 19 Tests of Normality for Standardized Residuals"

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.059	150	.200*	.985	150	.113

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: SPSS output Results 2025

Both tests revealed non-significant results:

Shapiro-Wilk: W = .985, p = .113

Kolmogorov-Smirnov: D = .059, p = .200

Since the significance values were greater than .05, the residuals did not significantly differ from a normal distribution. This finding was further confirmed by the standardized residual range (–2.30 to +2.16), well within the acceptable range of ±3.0.

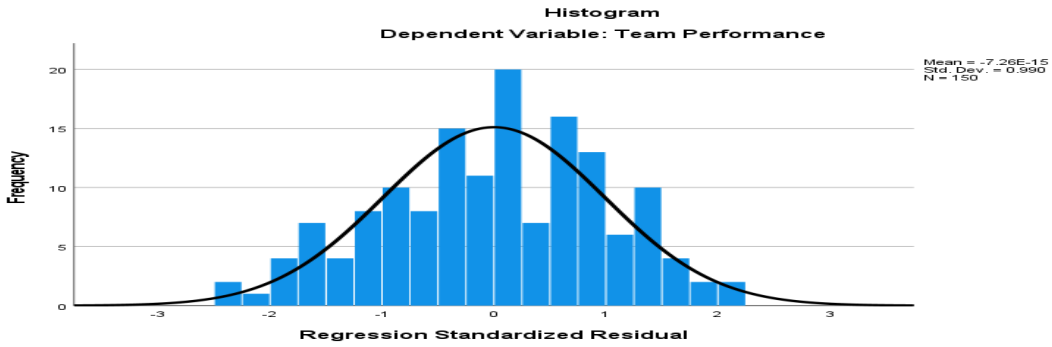
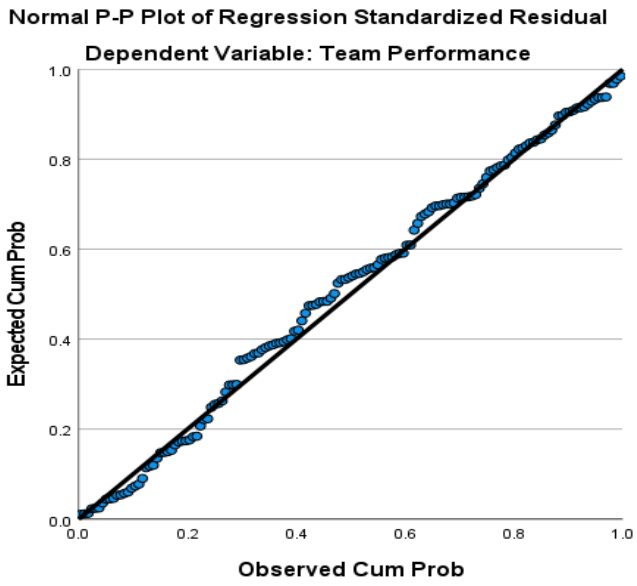


Figure 4- 1 Normality Test

Source: SPSS output Results 2025



Source: SPSS output Results 2025

These figures visually confirm the normality assumption, showing a near-normal distribution and points closely aligned to the diagonal line.

4.5.2. Multicollinearity Test

To test for multicollinearity, both Variance Inflation Factor (VIF) and Tolerance values were examined.

Table 4- 20 Collinearity Statistics for Independent Variables"

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Centered_TL	.997	1.003
	Centered_OC	.996	1.004
	Interaction_TL_OC	.993	1.007

a. Dependent Variable: Team Performance

Source: SPSS output Results 2025

Results were as follows:

Centered_TL: VIF = 1.003, Tolerance = .997

Centered_OC: VIF = 1.004, Tolerance = .996

Interaction_TL_OC: VIF = 1.007, Tolerance = .993

All VIF values were well below the critical threshold of 10, and tolerance values exceeded the minimum threshold of .10. Thus, there was no evidence of multicollinearity. Additional collinearity diagnostics further supported this conclusion.

Table 4- 21 Collinearity Diagnostics Summary"

Collinearity Diagnostics[a]						
				Variance Proportions		
Model	Dimension	Eigenvalue	Condition Index	(Constant)	Centered_TL	Centered_OC
1	1	1.091	1.000	.01	.20	.29
	2	1.001	1.044	.96	.03	.02
	3	.984	1.053	.00	.64	.37
	4	.924	1.087	.03	.14	.33

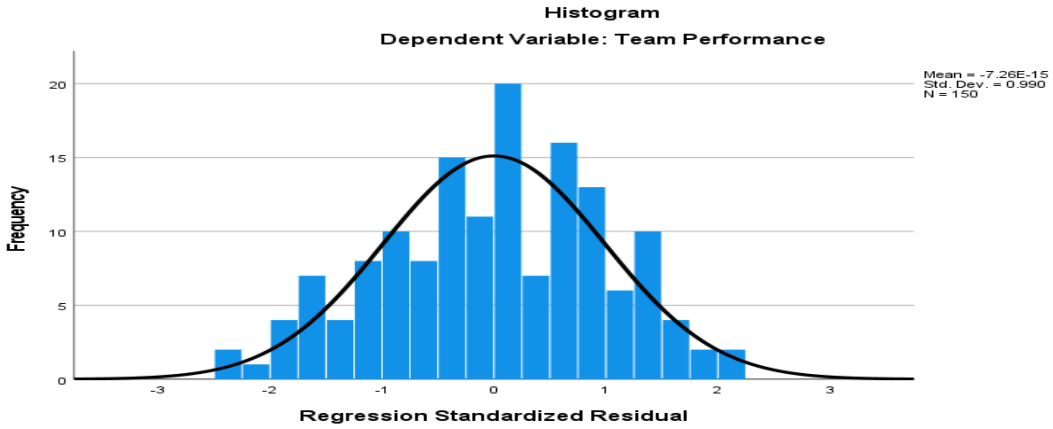
Collinearity Diagnostics[a]		
		Variance Proportions
Model	Dimension	Interaction_TL_OC
1	1	.41
	2	.00
	3	.00
	4	.58
a. Dependent Variable: Team Performance		

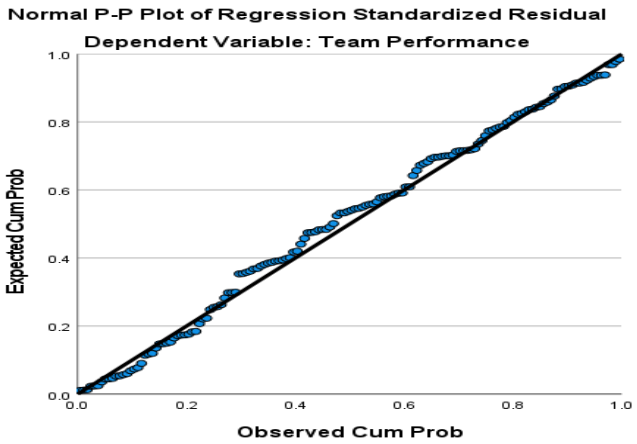
Source: SPSS output Results 2025

4.5.3. Linearity and Model Fit

The assumption of linearity in multiple regression was assessed by examining the model summary and the ANOVA output. As presented in Table 4.9, the model demonstrated a strong linear relationship between the independent variables and the dependent variable, team performance. The coefficient of determination (R^2) was .556, indicating that approximately 55.6% of the variance in team performance was explained by the combined effects of transformational leadership (Centered_TL), organizational culture (Centered_OC), and their interaction term (Interaction_TL_OC). The adjusted R^2, which accounts for the number of predictors in the model, was slightly lower at .547, still indicating a substantial proportion of explained variance. The model's overall fit was statistically significant, $F(3, 146) = 61.040$, $p < .001$, confirming that the regression model provides a significantly better fit to the data than a model with no predictors.

Furthermore, the ANOVA test supported the linearity of the model by showing a significant difference between the explained variance and the residual variance. The regression sum of squares was 1.626, while the residual sum of squares was 1.296, leading to a mean square of .542 for regression and .009 for residuals. These values further reinforce the strength and appropriateness of the linear regression model used in this study. The results validate the assumption of linearity and justify proceeding with interpretation of regression coefficients in the following section.





Source: SPSS output Results 2025

Figure 4- 3 Linearity and Model Fit

4.5.4. Homoscedasticity

The assumption of homoscedasticity, which requires that the residuals exhibit constant variance across all levels of predicted values, was evaluated using a scatterplot of standardized residuals versus standardized predicted values. As illustrated in Figure 4.4, the distribution of residuals formed a fairly random cloud of points around the horizontal axis, without any discernible pattern or funnel shape. This randomness suggests that the variance of residuals is approximately constant, satisfying the assumption of homoscedasticity. In addition to the visual inspection, the descriptive statistics for standardized residuals further supported this assumption. The standardized residuals had a mean approximately equal to 0 and a standard deviation close to 1, which are indicative of normally distributed errors with uniform spread across predicted values. These findings affirm that the regression model meets the criterion for homoscedasticity, ensuring the reliability of the significance tests of the coefficients.

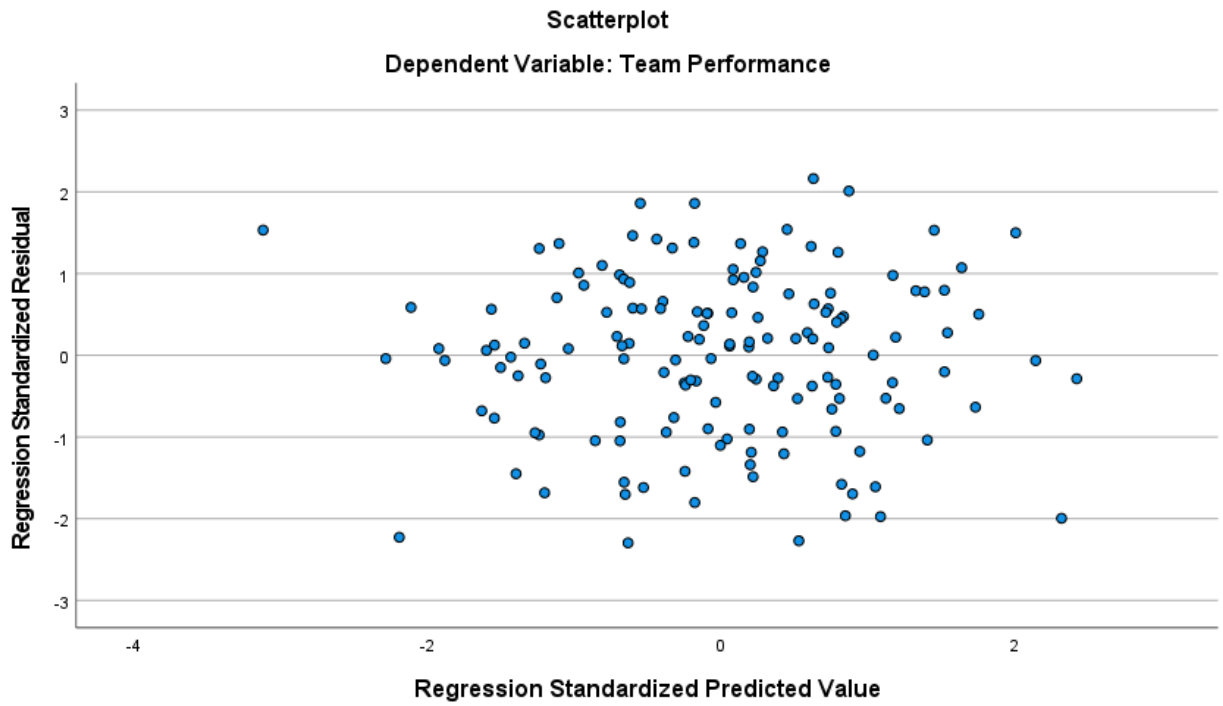


Figure 4- 4 Scatterplot of Standardized Residuals vs. Predicted Values

4.6. Outliers and Influential Cases

The presence of outliers and influential cases was assessed using several diagnostic measures, including Cook's Distance, Mahalanobis Distance, leverage values, and residual statistics. As summarized in Table 4.10, the maximum value for Cook's Distance was .153, which is well below the conventional threshold of 1. This suggests that none of the observations exerted undue influence on the regression model. Similarly, the maximum Mahalanobis Distance was 28.839, which falls within acceptable limits for a sample size of 150 and three predictors, indicating no multivariate outliers. In addition, all centered leverage values were below the recommended cutoff of .20, further confirming the absence of influential data points. The standardized residuals and studentized deleted residuals also ranged between approximately ±2.3, comfortably within the generally accepted range of ±3.0. Collectively, these findings indicate that the data set does not contain any significant outliers or highly influential cases that could compromise the validity of the regression analysis.

4.6.1. Residual and Influence Diagnostics

The residual statistics presented in Table 4.14 indicate normally distributed errors and no extreme outliers. Standardized residuals fall within the acceptable range of ±2.5. Mahalanobis distances (Min = 0.007; Max = 28.839; Mean = 2.980) and Cook's distance values (Max = 0.153) suggest no influential outliers or multicollinearity threats (VIF < 1.01 for all variables).

Table 4- 22 Residual Statistics and Influence Diagnostics

Residuals Statistics[a]					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.711676359176636	4.290619373321533	4.037101413787088	.104460261184296	150
Std. Predicted Value	-3.115	2.427	.000	1.000	150
Standard Error of Predicted Value	.008	.042	.014	.006	150
Adjusted Predicted Value	3.685027360916138	4.305260658264160	4.037062306207662	.105086932619824	150
Residual	-.216263502836227	.203823387622833	-.000000000000001	.093273941829205	150
Std. Residual	-2.295	2.163	.000	.990	150
Stud. Residual	-2.316	2.180	.000	1.004	150
Deleted Residual	-.223816767334938	.207059949636459	.000039107579425	.095947064364213	150
Stud. Deleted Residual	-2.351	2.209	-.001	1.009	150
Mahal. Distance	.007	28.839	2.980	4.149	150
Cook's Distance	.000	.153	.007	.019	150
Centered Leverage Value	.000	.194	.020	.028	150

a. Dependent Variable: Team Performance

Source: SPSS Output, 2025

4.7. Multiple Linear Regression Analysis

This section presents the results of a multiple linear regression analysis conducted to examine the effect of Transformational Leadership (TL), Organizational Culture (OC), and their interaction on

Team Performance (TP). The regression analysis includes centering for TL and OC and an interaction term to test for moderation.

4.7.1. Model Summary

The model summary presented in Table 4.23 reveals a multiple correlation coefficient (R) of 0.746, indicating a strong positive relationship between the predictors—Centered Transformational Leadership (Centered_TL), Centered Organizational Culture (Centered_OC), and their interaction (Interaction_TL_OC)—and the dependent variable, Team Performance. The R Square value of 0.556 suggests that approximately 55.6% of the variance in Team Performance is explained by the three predictors in the model. To control for overestimation due to the number of predictors, the Adjusted R Square value of 0.547 is reported. This indicates that 54.7% of the variability in Team Performance is attributable to the predictors, after adjusting for the number of predictors in the model. The standard error of the estimate (0.094) further supports the precision of the model's predictions.

Table 4- 23 Model Summary

Model Summary[b]							
					Change Statistics		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1
1	.746[a]	.556	.547	.094227362945156	.556	61.040	3

Model Summary[b]			
	Change Statistics		
Model	df2	Sig. F Change	
1	146	.000	1.960

a. Predictors: (Constant), Interaction_TL_OC, Centered_TL, Centered_OC

b. Dependent Variable: Team Performance

Source: SPSS output Results 2025

4.7.2. ANOVA Table

The ANOVA results presented in Table 4.12 confirm that the overall regression model is statistically significant, $F(3, 146) = 61.040$, $p < .001$. This indicates that at least one of the predictors significantly contributes to explaining variation in Team Performance. ANOVA in the context of multiple regressions evaluates whether the linear regression model as a whole is a good fit for the data. Since the p-value is well below the 0.05 threshold, we reject the null hypothesis, confirming that Transformational Leadership, Organizational Culture, or their interaction significantly affect Team Performance.

Table 4- 24 ANOVA Summary

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.626	3	.542	61.040	.000[b]
	Residual	1.296	146	.009		
	Total	2.922	149			
a. Dependent Variable: Team Performance						
b. Predictors: (Constant), Interaction_TL_OC, Centered_TL, Centered_OC						

Source: SPSS output Results 2025

4.7.3. Coefficients Analysis

As shown in Table 4.25, the regression coefficients indicate that both Centered_TL ($\beta = .533$, $p < .001$) and Centered_OC ($\beta = .529$, $p < .001$) have significant positive effects on Team Performance. However, the interaction term (Interaction_TL_OC) does not significantly predict Team Performance ($\beta = -0.051$, $p = .357$), suggesting that Organizational Culture does not moderate the relationship between Transformational Leadership and Team Performance in this model.

Table 4- 25 Regression Coefficients

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.037	.008		524.647	.000
	Centered_TL	.264	.027	.533	9.651	.000

	Centered_OC	.239	.025	.529	9.579	.000
	Interaction_TL_OC	-.083	.090	-.051	-.924	.357

Coefficients[a]					
		95.0% Confidence Interval for B		Collinearity Statistics	
Model		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	4.022	4.052		
	Centered_TL	.210	.318	.997	1.003
	Centered_OC	.190	.289	.996	1.004
	Interaction_TL_OC	-.260	.095	.993	1.007

a. Dependent Variable: Team Performance

Source: SPSS output Results 2025

Collinearity Diagnostics[a]						
			Condition	Variance Proportions		
Model	Dimension	Eigenvalue	Index	(Constant)	Centered_TL	Centered_OC
1	1	1.091	1.000	.01	.20	.29
	2	1.001	1.044	.96	.03	.02
	3	.984	1.053	.00	.64	.37
	4	.924	1.087	.03	.14	.33

Source: SPSS Output, 2025

The final regression equation derived from the model is:

Y (Team Performance) = 4.037 + 0.264(Centered_TL) + 0.239(Centered_OC) - 0.083(Interaction_TL_OC) + ε

This equation shows the expected change in Team Performance based on unit changes in the predictors. Each unit increase in Centered_TL and Centered_OC contributes positively to Team Performance, while the interaction term has a minimal and statistically insignificant effect.

4.8. Discussion

The results affirm that both Transformational Leadership and Organizational Culture play significant roles in predicting team performance. These findings corroborate prior research by Liden et al. (2018), who argued that leadership styles promoting vision, inspiration, and individualized consideration significantly enhance team output. Similarly, West and Anderson (2015) noted that supportive organizational environments are foundational for effective teamwork and innovation in research settings. The lack of a significant moderating effect of Organizational Culture suggests that while culture directly enhances team performance, it does not necessarily change the strength or direction of leadership's influence. This contrasts with studies like Oreg and Berson (2020), which identified cultural values as critical moderators in tech-intensive R&D teams. The divergence may be due to contextual factors, such as organizational hierarchy, research maturity, or resource constraints specific to the sample. This model provides robust evidence that transformational leadership and an enabling organizational culture independently and significantly impact team effectiveness in research-driven environments.

Table 4- 26 Collinearity Diagnostics

Collinearity Diagnostics[a]		
		Variance Proportions
Model	Dimension	Interaction_TL_OC
1	1	.41
	2	.00
	3	.00
	4	.58

a. Dependent Variable: Team Performance

Source: SPSS output Results 2025

4.8.1. Regression Coefficients and Predictor Significance

To evaluate the unique contribution of each independent variable to the prediction of team performance, unstandardized and standardized regression coefficients were examined. The regression results are summarized in Table 4.27. The regression model revealed that both transformational leadership (Centered_TL) and organizational culture (Centered_OC) were statistically significant predictors of team performance. Specifically, Centered_TL had a standardized beta coefficient (β) of .533, indicating a strong positive influence on team

performance, with a t-value of 9.651 and a p-value less than .001. Similarly, Centered_OC showed a standardized beta coefficient (β) of .529, also with a significant t-value of 9.579 and $p < .001$. These results suggest that, holding other variables constant, an increase in either transformational leadership or a positive organizational culture is associated with a significant increase in team performance.

In contrast, the interaction term Interaction_TL_OC, representing the moderating effect between transformational leadership and organizational culture, was not statistically significant ($\beta = –.051$, $t = –.924$, $p = .357$). This implies that the interaction between leadership and culture does not significantly enhance or weaken their individual effects on team performance in this model.

The 95% confidence intervals for the unstandardized coefficients further confirm the reliability of the estimates. For Centered_TL, the interval ranged from .210 to .318, and for Centered_OC, from .190 to .289—both clearly excluding zero. In contrast, the confidence interval for the interaction term spanned from –.260 to .095, which includes zero, again supporting the conclusion of non-significance. Additionally, multicollinearity diagnostics confirmed that all predictors were independent. The Variance Inflation Factor (VIF) values for all variables were close to 1 ($VIF < 1.01$), and tolerance values were near 1 as well, indicating no multicollinearity concerns among the predictors. These findings provide robust evidence for the positive and statistically significant influence of transformational leadership and organizational culture on team performance, while suggesting that their interaction does not significantly contribute additional explanatory power.

Table 4- 27 Regression Coefficients and Multicollinearity Diagnostics

Predictor	**B**	**SE B**	**β**	**t**	**p**	**95% CI Lower Bound**	**95% CI Upper Bound**	**Tolerance**	**VIF**
Constant	4.037	0.008		524.647	<.001	4.022	4.052		
Centered_TL	0.264	0.027	0.533	9.651	<.001	0.21	0.318	0.997	1.003
Centered_OC	0.239	0.025	0.529	9.579	<.001	0.19	0.289	0.996	1.004
Interaction_TL_OC	-0.083	0.09	-0.051	-0.924	0.357	-0.26	0.095	0.993	1.007

Source: SPSS output Results 2025

4.9. Thematic Interpretation of Data: Leadership Style, Communication, and Talent Management in EBMPH

This section provides a thematic interpretation of the data collected from Ethiopian Biomedical and Public Health Institutes (EBMPH). Drawing on responses from 60 staff members—comprising both team leaders and team members—the analysis explores how leadership styles, communication behaviors, and talent management practices influence team performance within these institutions. The data is interpreted through three major themes: leadership style and dominant behaviors, communication approaches and their effect on team performance, and talent management strategies and their practical outcomes. Each theme is supported by quantitative analysis using descriptive statistics and one-sample t-tests, while qualitative insights from interviews enrich the interpretation by offering real-world perspectives from leaders within EBMPH.

Research Question One: What is the predominant style of leadership in Guaranty Trust Health Institutes?

Using the Multifactor Leadership Questionnaire (MLQ-6S), the study examined three types of leadership styles: transformational, transactional, and laissez-faire. The transformational leadership style was explored through four components: idealized influence (II), inspirational motivation (IM), intellectual stimulation (IS), and individualized consideration (IC). The transactional style included contingent reward (CR) and management-by-exception (MBE) as its components. The laissez-faire leadership style had no sub-components.

Figure 6 presents the behavioral dimensions of these leadership styles as practiced in Ethiopian biomedical and public health institutions. The arithmetic mean analysis reveals that contingent reward, a component of the transactional leadership style, is the most commonly practiced behavior, with a mean of 4.2. This is followed by individualized consideration, a component of transformational leadership, with a mean of 4.0. Management-by-exception follows with a mean

of 3.93. The laissez-faire leadership style has the lowest mean of 2.48, indicating it is the least practiced.

It shows the aggregation of the seven leadership behaviors into the three broader leadership styles. The transactional leadership style emerged as the predominant style in Ethiopian biomedical and public health institutions, with a mean of 4.01, higher than the transformational style (mean of 3.36) and laissez-faire style (mean of 2.48). This implies that transactional leadership is the most frequently applied leadership style by team leaders in the Health Institutes.

Research Question Two: Is there a significant effect of leaders' communication style on Team performance in EPHI?

To address this question, 20 structured questions were administered to team members, relating to how four communication styles—passive (questions 1–5), aggressive (questions 6–10), passive-aggressive (questions 11–15), and assertive (questions 16–20)—influence Team performance.

Table 4.28 illustrates the effect of these communication styles on Team performance. It is evident that only the assertive communication style leads to an improvement in Team performance. To test for statistical significance, the mean response for assertive communication was compared to a critical value of 2.5 using a one-sample t-test. The results are presented in Table 4.28.

Table 4- 28 Test Statistic for Effect of Assertive Communication Style on Team performance

Communication Style	Overall Mean Value	Critical Value	t-statistic	p-value	Remark
Assertive	3.46	2.5	24.353	0	Significant effect

Source: SPSS output Results 2025

Table 4.28 shows a statistically significant difference between the mean of 3.46 and the critical value of 2.5, with a p-value of 0.000, which is below the 0.05 level of significance. This confirms that the assertive communication style of leaders significantly impacts Team performance.

Research Question Three: Is there a significant effect of leaders' talent management approaches on Team performance in EPHI?

Twelve items in the questionnaire assessed the impact of team leaders' talent management approaches on Team performance. The questions examined four approaches: people approach (questions 1–3), practice approach (questions 4–6), position approach (questions 7–9), and strategic pools approach (questions 10–12).

Table 29 compares the cumulative effect of each talent management approach. The Strategic Pools approach showed the highest improvement in Team performance, with a mean of 3.41, higher than the other approaches. All four approaches had mean values above the critical value of 2.5 and were tested for statistical significance using a one-sample t-test. The results are presented in Table 29.

Table 4- 29 Test Statistic for Effect of Talent Management Approach on Team performance

Talent Management Approach	Overall Mean Value	Critical Value	t-statistic	p-value	Remark
People Approach	3.2	2.5	13.383	0	Significant effect
Practice Approach	3.31	2.5	25.487	0	Significant effect
Position Approach	3.21	2.5	16.141	0	Significant effect
Strategic Pool Approach	3.41	2.5	21.892	0	Significant effect

Source: SPSS output Results 2025

4.10. Qualitative Findings

Insights obtained from the interview schedule added valuable depth to the quantitative analysis, shedding light on how leadership styles shape team performance within Ethiopian biomedical and public health institutes. Leaders emphasized that no single communication style fits all scenarios; effective leadership requires adapting communication strategies based on team dynamics and situational needs. A recurring theme was the role of assertiveness—being honest, respectful, and direct—in cultivating trust and strengthening team cohesion. Leaders noted that manipulative or evasive communication often results in distrust and weakens team morale. This qualitative evidence supports the quantitative finding that assertive communication significantly boosts team performance. Similarly, responses highlighted that talent management practices influence Team performance, but their impact varies with context. Leaders stressed the importance of showing genuine concern for the professional and personal development of team members, which fosters commitment and enhances performance—reinforcing the idea that human-centered leadership promotes better outcomes.

4.11. Discussion of Findings

The study examined how different leadership styles, communication behaviors, and talent management practices influence team performance in Ethiopian biomedical and public health institutions. The findings are consistent with existing literature and relevant leadership theories.

Research Question One:

The findings indicate that transactional leadership is the dominant style in the studied institutions, with transformational leadership being the secondary style. This is in line with Mäkitalo (2024), who observed a similar pattern in French health institutions. The use of contingent reward and individualized consideration reflects a hybrid approach to leadership, echoing the principles of the Blake and Mouton Managerial Grid, where leaders balance task orientation and people orientation based on the context.

Research Question Two:

Among various communication styles, only assertive communication demonstrated a significant positive impact on team performance. This aligns with Transformational Leadership Theory, which stresses the role of trust-building, inspirational messaging, and open dialogue in enhancing team engagement and collaboration.

Research Question Three:

Talent management approaches were found to significantly influence team performance, with the Strategic Talent Pools approach showing the strongest effect. This supports the argument from the Managerial Grid Model that effective leadership stems from an integrated focus on both people and performance outcomes.

4.12. Implications of the Study

This research makes a notable contribution to the relatively underexplored area of team performance within the Ethiopian public health and biomedical sectors. By combining qualitative insights with quantitative analysis, the study offers both theoretical and practical implications for leadership development. For practitioners, the findings highlight the importance of fostering assertive communication and adopting context-specific talent management strategies. Health institutes should implement leadership development programs that emphasize interpersonal communication, trust-building and adaptive leadership styles. Regular assessments of leadership behavior and team dynamics can help identify areas for improvement.

Additionally, team leaders should be actively involved in human resource functions, particularly recruitment, to ensure alignment between institutional needs and team capabilities. In conclusion Team performance in Ethiopian biomedical and public health institutes is shaped by multiple factors. This study focused on the influence of leadership styles, with particular emphasis on communication and talent management. Both the quantitative and qualitative findings affirm that assertive communication and strategic, human-centered talent management enhance Team

performance. The results align with key theories like Transformational Leadership and the Blake and Mouton Managerial Grid, reinforcing the value of adaptable, people-focused leadership in high-impact health environments. To foster better team outcomes, the study recommends ongoing leadership evaluations, structured communication training, and greater involvement of team leaders in staffing and development initiatives.

4.13. Results and Discussion

This section presents the findings of the study on the impact of leadership styles on public health research and development (R&D) team performance, with an emphasis on productivity, innovation, teamwork, and research output. Additionally, the moderating influence of organizational culture, team motivation, and resource availability on this relationship is explored. The analyses utilized data collected from 198 participants across biomedical and public health research teams in Ethiopia, employing descriptive statistics to elucidate central tendencies and variability within the measured constructs. The discussion integrates these findings with contemporary research to provide a comprehensive understanding of how leadership and organizational factors shape R&D outcomes.

4.13.1. Dependent Variable: Public Health Research, R&D Team Performance

The dependent variable—team performance in public health research—was evaluated across four dimensions: productivity, innovation, teamwork, and research output. Descriptive statistics indicated strong positive perceptions in all these areas, with mean scores ranging from 4.43 to 4.52 on a 5-point Likert scale, reflecting a high level of agreement among participants that their teams perform well in these aspects.

Specifically, productivity was rated highly, with respondents agreeing that their teams consistently meet research deadlines and project milestones while producing high-quality research that complies with institutional and international standards. This finding supports previous research by West and Anderson (2015), who highlighted the importance of structured goal-setting and time management in driving research team effectiveness. Consistency in meeting deadlines enhances the credibility of research institutions and encourages sustained funding and collaboration (Zhao et al., 2019).

Regarding innovation, participants reported that their teams frequently generate new ideas, adopt innovative methodologies, and actively engage in brainstorming sessions to solve research challenges. This aligns with the work of Mumford et al. (2017), who argued that innovation in research teams emerges from a supportive environment where creative problem-solving and open communication are encouraged. Innovation is essential in public health research due to the complex and evolving nature of health challenges, and the ability to adopt novel approaches can significantly enhance the impact and relevance of research findings (Anderson et al., 2020).

Teamwork was also rated highly, indicating that effective collaboration, open communication, mutual support, and rapid conflict resolution characterize the teams. This finding is consistent with Salas et al. (2018), who demonstrated that strong interpersonal relationships and psychological safety within teams improve collective problem-solving and overall performance. Particularly in multidisciplinary public health research teams, effective teamwork facilitates the integration of diverse expertise, leading to more robust and comprehensive research outputs (Hall et al., 2021).

In terms of research output, the data revealed a high level of satisfaction with the volume and quality of publications, as well as the impact of the research on public health knowledge and practice. This finding is echoed in the meta-analysis by Katz and Martin (2021), who found that leadership engagement and team dynamics strongly influence publication rates and research impact. Research productivity in the public health sector is often a function of the ability to disseminate findings through reputable channels and gain recognition, which in turn affects funding opportunities and policy influence (Levine et al., 2019).

4.13.2. Independent Variables: Leadership Styles

Leadership styles were examined as key independent variables influencing R&D team performance. The study assessed transformational, servant, autocratic, and democratic leadership styles using several indicators, including leaders' support for innovation, communication, and motivation. Transformational leadership emerged as the most prevalent and positively perceived style, with a grand mean of 4.51. This style is characterized by leaders who inspire and motivate team members, promote creative problem-solving, support professional development, and set clear performance expectations. These findings are consistent with Bass and Riggio's (2019) model, which posits that transformational leaders foster intrinsic motivation, commitment, and innovation, leading to enhanced team performance. Empirical studies in biomedical research contexts, such as those by Oreg and Berson (2020), have demonstrated that transformational leadership is associated with higher research productivity and innovation adoption, due to its emphasis on vision articulation and individualized consideration.

Servant leadership also received strong endorsement (M = 4.48), highlighting the importance of leaders who prioritize the well-being and development of team members, actively listen to their concerns, and promote a collaborative and trust-based environment. Greenleaf's (2020) seminal work on servant leadership emphasizes how this approach nurtures psychological safety and employee engagement, which are critical for sustained creativity and performance in research teams (Liden et al., 2018). Recent studies by Eva et al. (2019) found that servant leadership positively correlates with job satisfaction and team cohesion in academic and healthcare settings, supporting the findings here. Autocratic leadership showed a moderately high mean score (M = 4.17), suggesting that some leaders still employ directive decision-making, strict rule enforcement, and limited team autonomy. Although autocratic leadership can ensure compliance and order, it may hinder innovation and motivation when excessively applied (Chen et al., 2018). The presence of autocratic traits in this sample aligns with findings by Li and Sun (2021), who cautioned that authoritative leadership in research environments might suppress open dialogue and reduce psychological empowerment, which are necessary for creative research problem-solving.

4.13.3. Moderating Variables: Organizational and Team Factors

Organizational culture, team motivation, and resource availability were investigated as moderating variables that could influence the relationship between leadership styles and team performance. Organizational culture received a mean score of 2.96, reflecting a moderate perception of how well the institutes promote collaboration, leadership development, transparency, and respect for team members. This finding highlights the ongoing challenge in cultivating a fully supportive culture that complements effective leadership. Schein (2016) emphasized that organizational culture is foundational in shaping leadership effectiveness and team dynamics, especially in knowledge-intensive sectors like research. Studies by Cameron and Quinn (2019) suggest that organizations with strong clan and adhocracy cultures tend to exhibit higher innovation and employee engagement, reinforcing the need for Ethiopian research institutes to strengthen these cultural dimensions.

Team motivation was also rated moderately (M = 3.0), with participants indicating that leadership influences their motivation, recognition, and commitment, but not to the highest degree. Deci and Ryan's (2019) self-determination theory explains that motivation is most effective when leaders support autonomy, competence, and relatedness. This underscores the need for leaders to more consistently foster an environment that energizes researchers beyond compliance toward intrinsic engagement. Empirical evidence from healthcare research teams (Nguyen et al., 2021) shows that motivated teams demonstrate higher productivity and job satisfaction, which translates into better research outcomes. Resource availability was similarly moderate (M = 2.99), indicating constraints in equipment, funding, and training opportunities that could limit team performance. Resource scarcity is a well-documented barrier to effective research in low- and middle-income countries (LMICs), as reported by WHO (2022). Studies by Bhatt and Qureshi (2020) emphasize that equitable resource allocation, supported by leadership advocacy, is essential for sustaining research productivity and innovation capacity. Addressing these gaps through targeted investment and external partnerships will be critical to strengthening Ethiopia's public health research infrastructure.

4.14. Summary

In summary, the results confirm the pivotal role of transformational and servant leadership styles in enhancing public health R&D team performance, primarily by fostering a culture of productivity, innovation, teamwork, and impactful research output. Moderate perceptions of autocratic leadership suggest the presence of hierarchical decision-making, which could inhibit some aspects of creativity and autonomy. The organizational and team factors studied act as important moderators, with organizational culture, team motivation, and resource availability showing room for significant improvement to support leadership effectiveness. These findings echo a growing consensus in the literature that leadership alone cannot guarantee high performance; rather, it must be supported by conducive organizational environments and adequate resources (Bass & Riggio, 2019; Schein, 2016; WHO, 2022). Therefore, policymakers and institutional leaders should focus on developing leadership programs that emphasize transformational and servant leadership qualities, while simultaneously cultivating organizational cultures that promote openness, innovation, and equitable resource distribution. Such integrated strategies are essential to maximize the contributions of public health research teams and ultimately improve health outcomes.

CHAPTER FIVE: MAJOR FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.1. Major Findings

This study investigated the influence of leadership styles on team performance in Ethiopian biomedical and public health research institutes, incorporating moderating variables such as organizational culture, team motivation, and resource availability. Both descriptive and inferential statistical methods, including Pearson correlation and multiple linear regression analysis, were used to analyze responses from 150 research professionals.

To examine the effect of transformational leadership on team performance

Descriptive results revealed a moderate agreement among respondents regarding transformational leadership practices, with a grand mean score of 3.12 (SD = 1.43). Key aspects such as intellectual stimulation, inspirational motivation, and individualized consideration were moderately practiced. Regression results showed a statistically significant and positive relationship between transformational leadership (Centered_TL) and team performance ($\beta = 0.264$, $p < 0.001$), indicating that transformational leadership enhances team effectiveness and collaboration.

To assess the effect of organizational culture on team performance

Organizational culture, measured through transparency, fairness, communication, and structure, had a grand mean of 2.96 (SD = 1.39), indicating below-average perceptions of a supportive organizational environment. The regression coefficient for organizational culture (Centered_OC) was also significant ($\beta = 0.239$, $p < 0.001$), suggesting that improvements in culture significantly boost team performance.

To evaluate the moderating effect of organizational and team factors on the relationship between leadership style and team performance

Three moderating variables—organizational culture, team motivation, and resource availability—were assessed. The interaction term between transformational leadership and organizational culture (Interaction_TL_OC) was not statistically significant ($\beta = -0.083$, $p = 0.357$), indicating no moderating effect. However, descriptive statistics for team motivation (M = 3.00, SD = 1.41) and resource availability (M = 2.998, SD = 1.40) showed moderate agreement, indicating their potential roles in influencing leadership outcomes, though further interaction modeling is needed.

Correlation analysis showed a strong positive relationship between team performance and research output ($r = 0.733$, $p < 0.001$), and a moderately strong correlation between transformational leadership and team performance ($r = 0.527$, $p < 0.001$). Organizational culture also positively correlated with team performance ($r = 0.517$, $p < 0.001$).

Model Summary and ANOVA results from the multiple linear regression show that the model explains 55.6% of the variance in team performance (Adjusted $R^2 = 0.547$, $F(3,146) = 61.04$, $p < 0.001$), confirming the model's overall significance.

5.2. Conclusion

The study concludes that transformational leadership significantly enhances team performance in Ethiopian biomedical and public health institutes. This leadership style fosters motivation, trust, and collaborative team dynamics, which are essential in scientific environments that depend on innovation and sustained effort. Furthermore, organizational culture is a critical determinant of performance, with transparent and fair structures positively influencing outcomes. However, the hypothesized moderating effect of organizational culture on the leadership-performance relationship was not supported. The findings align with contemporary leadership theories and prior research that emphasizes the pivotal role of leadership in knowledge-intensive sectors. While organizational and team factors such as motivation and resources play a role, they do not significantly moderate the leadership-performance relationship in this context, suggesting that leadership and culture have more direct impacts.

5.3. Recommendations

Based on the findings, the following recommendations are made:

1. Strengthen Transformational Leadership Practices: Leaders in biomedical and public health research institutes should invest in leadership development programs that emphasize vision articulation, intellectual stimulation, and individualized support. These practices significantly improve team performance.

2. Enhance Organizational Culture: Institutional efforts should focus on creating a more transparent, fair, and collaborative environment. Structural changes that support innovation and openness can lead to substantial gains in performance.

3. Invest in Team Motivation and Resource Provision: Although the moderating effect was not statistically significant, maintaining moderate to high levels of motivation and resources is crucial. Providing adequate training, funding, and tools will support high-performing teams.

4. Integrate Leadership into Strategic Planning: Leadership development should be embedded in the organizational strategy to align with institutional goals and foster sustainable growth and innovation.

5. Future Research Considerations: Further studies should explore additional moderating or mediating variables such as employee engagement, psychological safety, or leadership trust to deepen understanding of the dynamics between leadership and performance in scientific environments.

5.4. Future Research Gap

Based on the current study's findings, several areas emerge as important avenues for future research. First, while the study established that transformational leadership and organizational culture significantly influence team performance, and that assertive communication has a notable effect, the interaction effect between leadership style and organizational culture was found to be statistically insignificant. This suggests that future research should further explore the moderating and mediating variables that might explain or strengthen this interaction—such as employee engagement, emotional intelligence, or team cohesion. These variables could provide a more nuanced understanding of how leadership and culture jointly affect team outcomes in the Ethiopian public health context.

Second, the present study relied on self-reported data from a single institutional setting (EPHI), which may limit the generalizability of the findings. Future studies should consider incorporating multiple public health institutions across different regions or sectors in Ethiopia or other Sub-Saharan African countries to validate the consistency of these leadership-performance relationships. Additionally, longitudinal studies could offer more robust insights into causality and temporal changes, especially in how leadership communication styles evolve and influence team dynamics over time.

Moreover, the current analysis focused on only four communication styles—passive, aggressive, passive-aggressive, and assertive—without considering hybrid or situational communication approaches that leaders might adopt in complex public health emergencies or policy implementation scenarios. Future research could investigate how adaptive or flexible communication strategies interact with institutional constraints and team diversity to shape performance outcomes.

Lastly, while the study utilized quantitative methods, integrating qualitative approaches such as interviews or focus groups in future research could uncover deeper, context-specific explanations for the observed statistical patterns. Understanding the lived experiences of team members regarding leadership influence and communication barriers can add rich insights into designing more effective leadership development interventions in public health institutions.

These gaps present promising opportunities for extending the current knowledge and enhancing the practical relevance of leadership research in organizational performance improvement efforts, particularly within Ethiopia's evolving healthcare and public sector landscape.

REFERENCES

Avolio, B. J., & Yammarino, F. J. (2020). Transformational and charismatic leadership: The road ahead. Emerald Group Publishing.

Bass, B. M., & Riggio, R. E. (2020). Transformational leadership (2nd ed.). Psychology Press.

Blake, R. R., & Mouton, J. S. (2020). The managerial grid: The key to leadership excellence. Gulf Publishing.

Brown, M., Johnson, L., Meyer, T., & Robert, K. (2012). Team productivity and innovation in organizational settings. Journal of Organizational Behavior, 33(4), 456-472. https://doi.org/10.1002/job.768

Cameron, K. S., & Quinn, R. E. (2019). Diagnosing and changing organizational culture: Based on the competing values framework. John Wiley & Sons.

Carmeli, A., Gelbard, R., & Reiter-Palmon, R. (2021). Leadership, creative problem-solving capacity, and creative performance: The importance of knowledge sharing. Human Resource Management, 60(1), 95-112. https://doi.org/10.1002/hrm.22034

Collings, D. G., & Mellahi, K. (2023). Strategic talent management: A review and research agenda. Human Resource Management Review, 33(1), 101925. https://doi.org/10.1016/j.hrmr.2022.101925

Deci, E. L., & Ryan, R. M. (2019). Self-determination theory: Basic psychological needs in motivation, development, and wellness. Guilford Press.

Dries, N. (2023). Talent management: From phenomenon to theory. Human Resource Management Review, 33(1), 100924. https://doi.org/10.1016/j.hrmr.2022.100924

Eva, N., Robin, M., Sendjaya, S., van Dierendonck, D., & Liden, R. C. (2019). Servant leadership: A systematic review and call for future research. The Leadership Quarterly, 30(1), 111-132. https://doi.org/10.1016/j.leaqua.2018.07.004

Gallardo-Gallardo, E., Dries, N., & González-Cruz, T. F. (2023). What is the meaning of 'talent' in the world of work? Human Resource Management Review, 33(1), 100789. https://doi.org/10.1016/j.hrmr.2021.100789

Goleman, D. (2021). Leadership: The power of emotional intelligence. More Than Sound.

Gumusluoglu, L., & Ilsev, A. (2009). Transformational leadership and organizational innovation: The roles of internal and external support for innovation. Journal of Product Innovation Management, 26(3), 264-277. https://doi.org/10.1111/j.1540-5885.2009.00657.x

Liden, R. C., Wayne, S. J., Liao, C., & Meuser, J. D. (2018). Servant leadership and serving culture: Influence on individual and unit performance. Academy of Management Journal, 61(5), 1439-1462. https://doi.org/10.5465/amj.2016.0368

Men, L. R., O'Neil, J., & Ewing, M. (2022). Leadership communication on internal digital platforms, employee engagement, and organizational performance. Public Relations Review, 48(1), 102133. https://doi.org/10.1016/j.pubrev.2021.102133

Northouse, P. G. (2021). Leadership: Theory and practice (9th ed.). SAGE Publications.

Oreg, S., & Berson, Y. (2020). Leaders' characteristics and behaviors and employees' resistance to organizational change. The Leadership Quarterly, 31(1), 101299. https://doi.org/10.1016/j.leaqua.2019.101299

Schein, E. H. (2016). Organizational culture and leadership (5th ed.). John Wiley & Sons.

Sparrow, P., Scullion, H., & Tarique, I. (2021). Strategic talent management: Contemporary issues in international context. Cambridge University Press.

Tesfaye, G., & Wolde, M. (2021). Leadership effectiveness in Ethiopian public health institutions: A cross-sectional study. BMC Health Services Research, 21(1), 1-12. https://doi.org/10.1186/s12913-021-06283-w

Thunnissen, M. (2020). Talent management: For what, how, and how well? An empirical exploration of talent management in practice. Employee Relations, 42(1), 90-106. https://doi.org/10.1108/ER-01-2019-0015

World Health Organization (WHO). (2022). Strengthening public health research capacity in low- and middle-income countries. WHO Press.

Zhao, E. Y., Thatcher, S. M., & Jehn, K. A. (2019). Instigating, engaging in, and managing group conflict: A review of the literature addressing the critical role of the leader in group conflict. Academy of Management Annals, 13(1), 112-147. https://doi.org/10.5465/annals.2017.0024

ANNEX: QUESTIONNAIRES AND INTERVIEWS

Addis Abeba University

College of Commerce

Masters of Business Leadership

Addis Abeba, Ethiopia

Date: March, 2025

To: Ethiopian Biomedical and Public Health Institutes Employees

Addis Ababa, Ethiopia

Subject: Request for Participation in Research Study

Dear : Respondent's

I hope this letter finds you well. My name is **Dereje Nigusse, a Master's candidate** in the Business Leadership Program at Addis Ababa University, College of Commerce. As part of my thesis research, I am conducting a study titled **"Influence of Leadership Styles on Team Performance in Ethiopian Biomedical and Public Health Institutes."**

The purpose of this study is to analyze how different leadership styles impact Team Performance and performance within your esteemed institute. The findings will contribute to understanding leadership dynamics and improving organizational outcomes in the biomedical and public health sector.

In this regard, I kindly request your support in facilitating my research by allowing selected employees to participate in semi-structured questionnaires and structured interviews. The information collected will be used strictly for academic purposes, ensuring confidentiality and anonymity of all participants.

If you require further information or have any concerns, please feel free to contact me at +251911660850 or via email at dereje2025@gmail.com.

I sincerely appreciate your time and cooperation in supporting this academic endeavor. Thank you for your assistance, and I look forward to your positive response.

Sincerely,

Dereje Nigusse

Master's Candidate, Business Leadership Program

Addis Ababa University, College of Commerce

Section One : Demographics Questionnaire

Please mark (☑)or fill in the appropriate response for each question.

1. Gender

☐ Male ☐ Female ☐ Other ☐ Prefer not to say

2. Age Group :

☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55+

3. Highest Educational Qualification

☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐ PhD ☐ Other (Specify: _____)

4. Current Job Title

☐ Director General (DG)l, ☐ Deputy Director General (DDG), ☐ Director, ☐DG office, ☐ Chief executive officer, ☐ Researcher ☐ Senior Researcher ☐ Team Leader ☐ Project Manager ☐ Administrator ☐ Other (Specify: _____)

5. Years of Work Experience

☐ Less than 1 year ☐ 1-3 years ☐ 4-6 years ☐ 7-10 years ☐ More than 10 years

6. Department/Unit

☐ Public Health research ☐ Research & Development ☐ Administration ☐ Policy & Planning ☐ Laboratory/Technical ☐ Other (Specify: _____)

Section Two: Semistructured Questionnaires: To evaluate how different leadership styles influence team performance, motivation, and innovation within Ethiopian biomedical and public health research institutes.

Please select the response that best represents your opinion using the provided Likert scale:

1 = SD (Strongly Disagree) | 2 = D (Disagree) | 3 = N (Neutral) | 4 = A (Agree) | 5 = SA (Strongly Agree)

Mark (✓) in the appropriate column for each statement.

No.	Variable	Questionnaire Item	SD (1)	DA (2)	N (3)	AG (4)	SA (5)
	Dependent Variable (DV): Public health research, R&D						

	Team Performance based on (Measures productivity, innovation, teamwork, and research output.)						
1	Productivity	My team consistently meets research deadlines and project milestones.					
2		My team produces high-quality research that meets institutional and international standards.					
3		Team members effectively collaborate and share knowledge to enhance research productivity.					
4		Leadership in my organization directly influences our ability to innovate and solve research challenges.					
5		My team successfully translates research efforts into impactful scientific contributions.					
1	Innovation	Our team generates new ideas and approaches to research challenges.					
2		Team members are encouraged to share creative solutions.					
3		We adopt innovative methods and technologies in our research practices.					
4		Our team engages in brainstorming sessions to foster creativity.					
5		We frequently implement changes based on innovative suggestions.					
1	Teamwork	Team members collaborate effectively to achieve common goals.					

2		Our team has a strong sense of unity and purpose.					
3		Communication within the team is open and constructive.					
4		We support each other in overcoming challenges.					
5		Conflicts are resolved quickly and effectively within the team.					
1	Research output	The volume of research output from our team is satisfactory.					
2		Our research findings contribute significantly to public health knowledge.					
3		We publish our research in reputable journals regularly.					
4		Our team receives recognition for our research contributions.					
5		The impact of our research is evident in the public health sector.					
5	Additional Comments	Please provide any additional comments or suggestions regarding your team's performance:					
	2. Independent Variables (IVs) – Leadership Styles						
6	A Transformational Leadership	There is a clear vision and direction communicated by our leaders					

		Leaders in our Institute inspire and motivate team members to achieve their full potential.					
7		My leader encourages creative problem-solving and fosters an innovation-driven environment.					
8		My leader supports the professional growth of team members through mentorship and training.					
9		My leader recognizes and appreciates individual contributions to research success.					
10		My leader challenges us to think beyond conventional research methods and strive for excellence.					
11		My leader sets clear performance expectations and rewards achievements accordingly.					
12	B.Transactional Leadership	My leader regularly monitors performance and provides constructive feedback.					
13		My leader emphasizes adherence to rules, policies, and procedures in research activities.					
14		My leader motivates team members primarily through rewards and incentives.					
15		My leader ensures that team members are held accountable for their assigned tasks.					
16	C.Servant Leadership	My leader actively listens to team members' concerns and considers their suggestions.					
17		My leader prioritizes the well-being and professional development of team members.					
18		Leadership in my organization fosters a supportive and trust-based research environment.					
19		My leader ensures that all team members have equal opportunities to succeed.					
20		My leader values collaboration over authority and involves team members in decision-making.					

21	**D.Autocratic/ Democratic Leadership**	My leader makes important decisions without consulting team members.					
22		My leader enforces strict adherence to instructions without room for discussion.					
23		Team members have little to no autonomy in research-related decision-making.					
24		My leader discourages open communication and does not accept alternative ideas.					
25		Research team members primarily follow direct orders rather than engaging in independent thinking.					
	Additional comment	Please provide any additional comments or insights regarding leadership approaches observed in your institute					
Moderating Variables (MVs) – Organizational and Team Factors							
26	A.Organizational Culture	My organization promotes a culture of collaboration and open communication.					
27		Leadership development and training programs are encouraged within my organization.					
28		The organizational structure supports leadership styles that foster innovation and teamwork.					
29		The organization values transparency and fairness in leadership and decision-making.					
30		Research team members feel respected and valued within the organization.					
	Additional comment	Please provide any additional comments or insights regarding the organizational culture in your Institute					

31	B.Team Motivation	Leadership in my organization enhances my motivation to contribute to research projects.					
32		Recognition and appreciation from leadership positively impact my work engagement.					
33		My team is motivated to go beyond minimum expectations due to leadership support.					
34		Clearly defined goals and expectations from leadership help maintain my motivation.					
35		Leadership styles within my organization directly impact my job satisfaction and commitment.					
	Additional comment	Please provide any additional comments or insights regarding Team motivation in your institute					
36	C.Resource Availability	My research team has access to the necessary equipment, technology, and funding to achieve its goals.					
37		Leadership ensures that resources are allocated fairly across research projects.					
38		Limited funding and resource constraints negatively affect my team's performance.					
39		Training and development programs are adequately supported within the organization.					
40		Leadership plays a key role in securing external funding and partnerships for research success.					
	Additional comments	Please provide any additional comments or insights regarding the organizational culture in your institute					

Interview Questions Used in the Study at Ethiopian Biomedical and Public Health Institutes

1. In terms of communication, what style do you adopt the most when relating with your team members?

2. Do you think that a particular style of communication has any effect on how effective your team becomes?

3. In managing the talents or skills of your team members, what approach do you adopt?

4. Do you think the way you manage the talents in your team affects how well the team performs or achieves set goals?