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**THE MODERATING EFFECT OF INNOVATION
CAPABILITY ON THE RELATIONSHIP BETWEEN
TRANSFORMATIONAL LEADERSHIP AND NURSES'
PERFORMANCE**

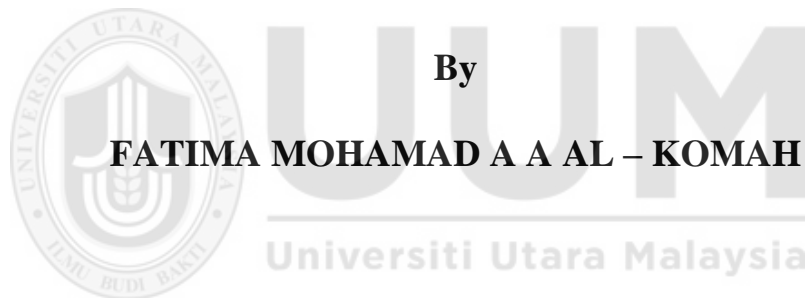


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UUM
Universiti Utara Malaysia

**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
DECEMBER 2025**

**THE MODERATING EFFECT OF INNOVATION CAPABILITY
ON THE RELATIONSHIP BETWEEN TRANSFORMATIONAL
LEADERSHIP AND NURSES' PERFORMANCE**



**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
in Fulfilment of the Requirements for the Degree of Doctor of
Philosophy**



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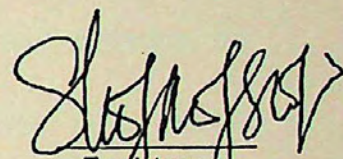
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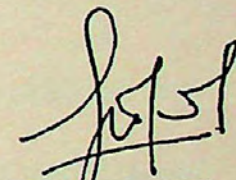


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Abstract

This study addresses the issue of inconsistent nurse performance in Qatar's public healthcare sector, which is often associated with ineffective leadership practices and the underutilization of innovation capacity. Although transformational leadership has demonstrated effectiveness in profit-driven organizations, its empirical application in government healthcare contexts remains limited. The study evaluates the influence of five dimensions of transformational leadership, namely idealized attributes, inspirational motivation, idealized behavior, intellectual stimulation, and individualized consideration, on nurse performance and examines the moderating role of innovation capability in these relationships. A quantitative, cross-sectional research design was employed, and a stratified random sampling method was used. Questionnaires were distributed across 13 hospitals using SurveyMonkey forms, and a total of 420 responses were received. After data screening, 403 valid responses were retained for analysis, meeting the recommended sample size based on Krejcie and Morgan's calculations. This represents a response rate of 85.6%. Data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS software. The findings indicated that idealized attributes, inspirational motivation, idealized behavior, and individualized consideration had significant positive effects on nurses' performance, whereas intellectual stimulation did not demonstrate a significant impact. In addition, innovation capability significantly moderated the relationships between idealized attributes and individualized consideration with nurses' performance. This research advances transformational leadership theory within the transformational-transactional leadership framework by introducing innovation capability as a strategic catalyst that enhances the effectiveness of specific leadership dimensions. The findings contribute both theoretically and practically by providing evidence-based insights for healthcare administrators to design responsive and innovative leadership strategies that foster high-performing nursing teams. In conclusion, leadership approaches that integrate innovation can significantly improve quality of care, staff engagement, and organizational resilience in public health systems.

Keywords: Transformational leadership; Nurses' performance; Innovation capability; Government healthcare; Qatar.

Abstrak

Kajian ini dijalankan untuk menangani isu prestasi jururawat yang tidak konsisten dalam sektor penjagaan kesihatan awam di Qatar, yang sering dikaitkan dengan amalan kepimpinan yang kurang berkesan serta penggunaan kapasiti inovasi yang terhad. Walaupun kepimpinan transformasi terbukti berkesan dalam organisasi berorientasikan keuntungan, aplikasi empirikalnya dalam sistem penjagaan kesihatan kerajaan masih kurang diterokai. Oleh itu, kajian ini bertujuan meneliti pengaruh lima dimensi kepimpinan transformasi, iaitu atribut ideal, motivasi inspirasi, tingkah laku ideal, rangsangan intelektual dan pertimbangan individu, terhadap prestasi jururawat serta menilai peranan penyederhanaan keupayaan inovasi dalam hubungan tersebut. Reka bentuk kajian kuantitatif keratan rentas telah digunakan dengan kaedah persampelan rawak berstrata. Soal selidik diedarkan di 13 buah hospital melalui borang atas talian menggunakan SurveyMonkey. Sebanyak 420 respons diterima, dan selepas proses penapisan data, 403 respons yang sah digunakan untuk analisis, memenuhi saiz sampel yang disyorkan berdasarkan pengiraan Krejcie dan Morgan. Jumlah ini mewakili kadar respons sebanyak 85.6 peratus. Data dianalisis menggunakan pemodelan persamaan berstruktur kuasa dua terkecil separa (PLS-SEM) melalui perisian SmartPLS. Dapatan kajian menunjukkan bahawa atribut ideal, motivasi inspirasi, tingkah laku ideal dan pertimbangan individu memberi kesan positif yang signifikan terhadap prestasi jururawat, manakala rangsangan intelektual tidak menunjukkan kesan yang signifikan. Selain itu, keupayaan inovasi didapati menyederhanakan hubungan antara atribut ideal dan pertimbangan individu dengan prestasi jururawat secara signifikan. Kajian ini memperkukuh teori kepimpinan transformasi dalam kerangka kepimpinan transformasi-transaksional dengan memperkenalkan keupayaan inovasi sebagai pemangkin strategik yang meningkatkan keberkesanan dimensi kepimpinan tertentu. Sumbangan kajian ini adalah bersifat teori dan praktikal, dengan menyediakan panduan berasaskan bukti kepada pentadbir kesihatan merangka strategi kepimpinan yang responsif dan inovatif bagi membangunkan pasukan kejururawatan yang berprestasi tinggi. Kesimpulannya, pendekatan kepimpinan yang mengintegrasikan inovasi berpotensi meningkatkan kualiti penjagaan, penglibatan staf, dan daya tahan organisasi dalam sistem kesihatan awam.

Kata Kunci: Kepimpinan transformasi; Prestasi jururawat; Keupayaan inovasi; Penjagaan kesihatan Kerajaan; Qatar.

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Fatma

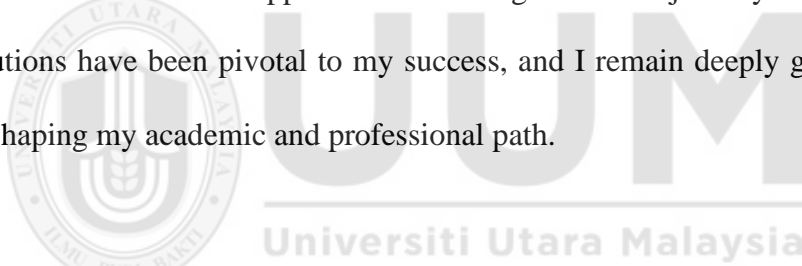


TABLE OF CONTENTS

CERTIFICATION	III
ABSTRACT.....	Error! Bookmark not defined.
ACKNOWLEDGEMENTS	VII
TABLE OF CONTENTS.....	IX
LIST OF TABLES	XII
LIST OF FIGURES	XIII
LIST OF ABBREVIATION	XIV
CHAPTER ONE INTRODUCTION	1
1.1 Background of the Study	1
1.2 Problem Statement	8
1.3 Research Questions	16
1.4 Research Objectives	16
1.6 Scope of the Study	18
1.7 Definition of Related Terms	20
1.8 Organization of the Thesis	20
1.9 Chapter Summary	21
CHAPTER TWO LITERATURE REVIEW	24
2.1 Introduction.....	24
2.2 Overview of Transformational Leadership	24
2.2.1 Idealized Attributes	37
2.2.2 Inspirational Motivation.....	39
2.2.3 Idealized Behaviour	40
2.2.4 Intellectual Stimulation.....	42
2.2.5 Individual Consideration.....	44
2.2.6 Critical Synthesis of Transformational Leadership Literature.....	49
2.3 Overview of Nurses' Performance.....	51
2.3.1 Critical Synthesis of Nurse Performance Literature	61
2.4 Overview of Innovation Capability	62
2.4.1 Critical Synthesis of Innovation Capability Literature	72
2.5 Theoretical Review	73
2.5.1 Transformational-Transactional leadership (TTL) theory	73
2.5.2 Leader-Member Exchange (LMX) theory	77
2.6 Theoretical Framework.....	80
2.7 Hypothesis Development	84
2.7.1 Overall Impact of Transformational Leadership on Nurses' Performance.....	85
2.7.2 Impact of Innovation Capability on Nurses' Performance	96
2.7.3 Moderating Role of Innovation Capability (INNVC) on the relationship between Transformational Leadership (TL) including Idealized Attributes (IA), Inspirational Motivation (IM), Idealized Behavior (IB), Intellectual Stimulation (IS) and Individual Consideration (IC)	98
2.7.4 Theoretical Application and Hypotheses for Moderating Role of Innovation	106

2.8 Research Gap	107
2.8.1 Theoretical and Methodological Gaps	109
2.9 Chapter Summary	111
CHAPTER THREE RESEARCH METHODOLOGY	113
3.1 Introduction.....	113
3.2 Research Design.....	113
3.3 Population of the Study.....	114
3.3.1 Location of the Study.....	115
3.4 Sample Size Determinations	117
3.5 Sampling Technique	120
3.5.1 Sampling Procedure (stepwise).....	122
3.6 Unit of Analysis	126
3.7 Data Collection Methods	128
3.8 Operational Definitions and Measurement of Variables	130
3.8.1 Definitions and Measurement of the Transformational Leadership	131
3.8.2 Definitions and Measurement of the Nurses Performance	135
3.8.3 Definitions and Measurement of the Innovation Capability.....	136
3.9 Instrument Validation and Reliability.....	138
3.9.1 Pre-test	139
3.9.2 Reliability Assessment Through Reliability Analysis	140
3.9.3 Pilot study	142
3.10 Questionnaire Development.....	150
3.11 Data Analysis Methods.....	151
3.11.1 Moderation Analysis Using PLS-SEM.....	152
3.12 Ethical Considerations	156
3.13 Chapter Summary	157
CHAPTER FOUR RESULTS AND DISCUSSION	158
4.1 Introduction.....	158
4.2 Measurements Properties	158
4.3 Preliminary Data Analysis	159
4.3.1 Response Rate:.....	159
4.4 Common Method Variance Test.....	160
4.5 Variance Inflation Factor (VIF)	161
4.7 Demographic Profile of the Respondents	163
4.8 Assumptions of Multiple Regressions (Using SEM).....	164
4.8.1 Multivariate Normality	164
4.9 An Evaluation of the PLS-SEM Path Model's Results Partial Least Squares (PLS) and Structural Equation Modelling (SEM)	166
4.10 Assessment of the Measurement Model	166
4.10.1 Convergent Validity.....	167
4.10.2 Discriminant Validity.....	170
4.10.3 Initial Measurement Model (Before Item Deletion)	173
4.10.4 Cross Loadings and Construct Validity	173
4.10.3 Hypotheses Testing.....	174
4.10.4 Examining (direct) Effect Hypotheses.....	176
4.10.5 Examining Moderation Effect Hypotheses	183

4.10.6 Summary of the Hypothesis Testing.....	188
4.12 Assessment of Predictive Relevance	194
4.12 Moderation Path Coefficients and R ² for Interaction Terms	196
4.13 Chapter Summary	197
CHAPTER FIVE DISCUSSION OF FINDINGS AND CONCLUSION.....	199
5.1 Introduction.....	199
5.2 Discussion of Findings.....	200
5.2.1 (H1) There is Positive and Significant Relationship betweentheTransformationalLeadership TL (Overall) and Nurses’ Performance NP	205
5.2.2 Hypothesis (H2) Impact of Innovation Capability on Nurses’ Performance	215
5.2.3 Hypothesis (H3) posited that “Innovation Capability (IC) significantly moderates the relationship between Transformational Leadership (TL) and Nurses’ Performance (NP)”	218
5.3 Implications for the Study and Practice	233
5.3.1 Theoretical Implications	234
5.3.2 Practical Implications.....	235
5.4 Study limitations	239
5.5 Future Research Directions.....	243
5.6 Conclusion	246
REFERENCES	251
APPENDIX A.....	313
APPENDIX B	314
APPENDIX C.....	315
APPENDIX D.....	316
APPENDIX E	317
APPENDIX F.....	321
APPENDIX G.....	322

LIST OF TABLES

Table 1.1 Alignment of Problem Statement, Research Questions, and Research Objectives	22
Table 2.1 Summary of Transformational Leadership selected studies.....	47
Table 2.2 Summary of Nurse Performance Studies.....	59
Table 2.3 Summary of Innovation Capability Studies.....	71
Table 3.1 Population of the study	117
Table 3.2 Measurement items for the study constructs.....	132
Table 3.3 Items of Idealized Attributes.....	133
Table 3.4 Items of Inspirational Motivation	134
Table 3.5 Items of Idealized behavior.....	134
Table 3.6 Items of Intellectual Stimulation.....	134
Table 3.7 items of Individual Consideration.....	135
Table 3.8 Items of Nurses' Performance	136
Table 3.9 Items of Innovation Capability	137
Table 3.10 The Cronbach alpha value for the reliability test for each section of the questionnaire	141
Table 3.11 KMO and Bartlett's Test for Transformation Leadership.....	145
Table 3.12 Initial Eigenvalues for Transformation Leadership	145
Table 3.13 Transformation Leadership loading.....	146
Table 3.14 KMO and Bartlett's Test Nurses' Performance	147
Table 3.15 Nurses' Performance Items loading.....	147
Table 3.16 KMO and Bartlett's Test for Innovation Capability	148
Table 3.17 Total Variance Explained	149
Table 3.18 Nurses' Performance Items Loading for Innovation Capability (INNVC)	149
Table 4.1 List of measurement properties.....	158
Table 4.2 Summary of Response Rate.....	162
Table 4.3 Full collinearity test	162
Table 4.4 Preliminary Data Analysis.....	165
Table 4.5 Respondents Profile, Frequency Analysis	163
Table 4.6 Normality Test (Skewness and Kurtosis)	165
Table 4.7 Measurement model: Convergent Validity (Reflective).....	169
Table 4.8 Results of HTMT Discriminant Validity	171
Table 4.9 Outer loading of Deleted Item.....	175
Table 4.10 Loading and Cross Loading.....	176
Table 4.11 Examining Results of Test Hypotheses-Direct Effect.....	183
Table 4.12 Examining Result of Test Hypotheses (H2).....	184
Table 4.13 Results for Hypotheses Testing (INNVC).....	183
Table 4.14 Summary of Hypothesis testing.....	189
Table 4.15 Summary of Rejected Hypotheses.....	195
Table 4.16 Results of PLS-Predict.....	195
Table 4.17 Moderation Path Coefficient and R2 for Interaction terms.....	198
Table 5.1 Results of Hypotheses and Research Objective.....	203

LIST OF FIGURES

Figure 2.1 Theoretical Framework	82
Figure 3.1 Proportional accuracy of specialty wise sampling	125
Figure 3.2 Sampling Flow Chart.....	126
Figure 3.3 Flow chart of stepwise SEM-PLS	156
Figure 4.1 Measurement Model.....	172
Figure 4.2 The Structural Model (Path Coefficient).....	190
Figure 4.3 The Structural Model (T Statistics).....	191
Figure 5.1 Moderating Role of IC on IA and NP.....	233
Figure 5.2 Relationship Between IC and NP.....	234



LIST OF ABBREVIATION

ANOVA – Analysis of Variance
AVE – Average Variance Extracted
BI – Behavioral Intention
CMV – Common Method Variance
CR – Composite Reliability
EI – Emotional Intelligence
GCP – Good Clinical Practice
HMC – Hamad Medical Corporation
IA – Idealized Attributes
IB – Idealized Behavior
IBER – International Journal of Business and Economic Research
IC – Individual Consideration
ICN – International Council of Nurses
IJBSR – International Journal of Business and Social Research
IJMHS – International Journal of Mental Health Systems
IJRAOB – International Journal of Research in Administrative and Business
IJSRM – International Journal of Scientific Research and Management
IM – Inspirational Motivation
INNVC – Innovation Capability
IS – Intellectual Stimulation
JCI – Joint Commission International
KMO – Kaiser-Meyer-Olkin
LMX – Leader-Member Exchange
MRC – Medical Research Center
NP – Nurses’ Performance
OC – Organizational Commitment
OCB – Organizational Citizenship Behavior
PJCSS – Pakistan Journal of Commerce and Social Sciences
PLS – Partial Least Squares
POS – Perceived Organizational Support
RMSE – Root Mean Square Error
SEM – Structural Equation Modelling
SET – Social Exchange Theory
SPSS – Statistical Package for the Social Sciences
STML – School of Technology Management and Logistics
TL – Transformational Leadership
TTL – Transformational and Transactional Leadership
UUM – Universiti Utara Malaysia
VIF – Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In developed countries, healthcare organizations are highly competitive, and the performance of the nursing department plays a pivotal role in the success of hospitals and healthcare facilities. Nurses constitute the largest group of healthcare staff and work both day and night shifts, directly delivering patient care. As professionals who directly interface with patients, their work effectiveness significantly influences patient health outcomes, organizational productivity, and the image of the healthcare institution. Therefore, understanding and enhancing nurse performance is a paramount business concern for healthcare managers.

Key factors that influence nursing performance include leadership, organizational culture, and employee motivation. Leadership, particularly transformational leadership, has been identified as having a profound impact on nursing performance. Transformational leadership is defined based on its capability to transform employees' self-interests to higher, more organizational levels. According to Hidayah and Fadila (2019), leaders who adopt this style set an example for their subordinates by questioning the status quo, fostering creativity, and encouraging self-actualization.

A review of literature over the past two decades has demonstrated that transformational leadership results in positive outcomes in many dimensions such as job satisfaction and commitment. Bass (1998) defined this leadership style through

four components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, all of which create an empowering organizational culture that supports optimal performance (Avolio and Bass, 1995). This culture promotes high engagement and self-motivation, which are essential for enhancing nursing practices.

One of the significant advantages of transformational leadership is its capacity to introduce cultural changes within an organization. Key elements of this cultural shift include self-organizing work structures, trust, and collaboration, which encourage employees to be innovative and support change. In healthcare, where the pace of delivery is fast and the nature of care is ever-changing, this is particularly important. Nurses' decision-making and participation in change initiatives also hinge on the support received from transformational leaders who promote an organizational culture that embraces ideas and feedback from the employees and challenges them to be innovative and self-motivated in enhancing best practices (Mukti et al., 2022). Furthermore, the topic of transformational leadership does not emphasize preserving the current state but rather strives for growth and positive changes by focusing on the influence of purpose and commitment among nurses. This is done by gaining nurse buyin by inspiring them to envision the change, also known as Inspirational Motivation and by inviting nurses to challenge the existing situation and think outside the box as well as solve problems, known as Intellectual Stimulation. In this way, transformational leaders contribute to improving nurse's actions by helping them to learn how to think critically and fostering their ability to respond to changes in a healthcare setting (Bass, 1998).

However, leadership alone is not enough to guarantee optimal performance from employees. Organizational efficiency, including the ability to generate and implement new ideas, services, and practices, also plays a crucial role in enhancing productivity. Innovation in nursing such as advanced clinical practices, new monitoring tools, and educational programs for skill development has become a key factor in improving performance (Afzan and Abd Aziz, 2020). Studies have shown that organizations that embrace innovation are more adept at responding to environmental changes, improving service delivery, and enhancing patient experiences (Asurakkody and Shin, 2018). In nursing, where the workload demands flexibility and adaptability, the ability to innovate is crucial for addressing challenges and advancing healthcare practices.

Thirteen hypotheses were developed based on literature review, including five hypotheses regarding moderating variables influencing the relationship between transformational leadership and nurse performance, with a particular focus on innovation capability. Innovation is a key factor that transformational leaders are expected to foster as part of a positive leadership culture. By encouraging nurses to generate new ideas and experiment with them, transformational leaders aim to discover better ways to manage their division, the organization, and, most importantly, patient care. This approach not only enhances nursing performance but also brings about broader positive outcomes for the organization, particularly in terms of patient satisfaction, safety, and overall quality efficiency (Qi et al., 2019).

This paper highlights that the relationship between leadership, particularly transformational leadership, innovation, and nurse performance is complex and interconnected. On one hand, transformational leadership equips leaders with the tools

to create a vision, motivate staff, and establish the conditions necessary for innovation. On the other hand, innovation can only be effectively implemented when there is a motivated and competent workforce that has the tools and resources to carry out their tasks. Innovation, therefore, acts as the link between leadership and performance, transforming the leadership vision into operational enhancements that improve the quality, value, and nature of care delivered, ultimately improving patient outcomes (Thuneibat et al., 2022).

Innovation capability is widely regarded as an organizational competency that enhances adaptability and competitive advantage (Lawson & Samson, 2001). In healthcare settings, where rapid technological and procedural changes are common, innovation capability supports the successful implementation of leadership driven initiatives (Nieves & Haller, 2014). Therefore, it may influence how transformational leadership affects performance, either by amplifying or diminishing this relationship. Empirical studies have demonstrated that innovation capability moderates the effect of strategic practices on performance outcomes across various sectors, including service and healthcare organizations (Martínez-Costa et al., 2018; Sáenz et al., 2009). Hence, considering innovation capability as a moderating variable is both theoretically sound and practically relevant for this study.

Given that nurses occupy a crucial position in the healthcare system; their performance level serves as both a personal success and as the indicator of overall organizational efficiency. Nurses must demonstrate the ability to deliver care that addresses patient needs promptly and efficiently, as prescribed by the doctor. However, to maintain high performance, it is not sufficient to only possess clinical

expertise. It is equally important to create a work environment that fosters motivation, and continuous learning, which helps nurses become highly skilled professionals (Labrague et al., 2020). High-performing nurses contribute significantly to the success of healthcare organizations by improving patient outcomes, increasing patient satisfaction, and enhancing the productivity of healthcare facilities.

Conversely, poor performance among nurses is often the result of poor leadership practice, a lack of innovation, and a poor organizational culture. These factors can lead to poor-quality care, increased errors, and low patient satisfaction (Khan et al., 2020). This highlights the critical role of leadership in shaping the work environment and fostering the conditions necessary for optimal nursing performance.

In Qatar, transformational leadership emerged as the predominant style among nurse leaders, particularly among Directors of Nursing (DONs), although no statistically significant differences were observed between leadership roles. While transformational leadership skills such as intellectual stimulation were widely present, individualized consideration was less prominent, indicating areas for development. These findings highlight the need to promote structured leadership training to enhance transformational capabilities across nursing roles (Thawabiya et al., 2023). The results of an integrated review conducted by Devanesan and Deshmukh (2025) in Qatar revealed that nursing leaders, who exhibit transformational leadership behaviors contributed to psychological empowerment and wellbeing of nurses and fosters nurses' innovative behavior. The review stated that, by developing strong relationships, transformational leaders understand and anticipate the needs of their

staff and make great efforts to empower nurses. Empowered nurses seek innovative approaches in performing their duties and thereby improving their performance.

Despite the well-documented positive impacts of transformational leadership in for-profit healthcare settings, there remains a gap in research regarding its effectiveness within non-profit and government healthcare organizations, especially in Qatar. The dynamics in these settings differ significantly from those in for-profit institutions, and understanding the relationship between transformational leadership and nursing performance in Qatar's government healthcare system is crucial for addressing its unique challenges.

The healthcare system in Qatar, particularly in government-run organizations, faces unique challenges compared to for-profit healthcare settings. These challenges are influenced by regulatory frameworks, budget constraints, and the public service nature of government healthcare systems. Unlike for-profit organizations, which are driven by financial outcomes and competition, government healthcare systems prioritize public health and service delivery. This distinction can create challenges related to workforce satisfaction, retention, and performance, which may not be as pronounced in for-profit organizations that can offer competitive salaries and incentives.

A significant issue affecting the nursing workforce in Qatar's government healthcare sector is the high reliance on expatriate healthcare professionals. This can impact on workforce stability, leading to varying levels of commitment and continuity in care. Furthermore, the diverse patient population comprising both Qatari nationals and

expatriates presents a unique set of healthcare needs, which must be addressed by a workforce that is equipped to handle these differences.

Additionally, organizational challenges such as high staff turnover, insufficient professional development opportunities, and limited support for career advancement contribute to the decline in nurse satisfaction and performance in the region. Recent data from government healthcare organizations in Qatar highlight these issues. The bi-annual RN satisfaction survey conducted by Hamad Medical Corporation (HMC) in 2023 revealed a decline in nurse satisfaction scores, particularly regarding leadership styles of immediate supervisors. This dissatisfaction is linked to poorer quality care and diminished nurse performance, reflecting broader systemic challenges. Furthermore, a customer service survey conducted by Nesmaak (2023) corroborates these findings, showing a drop in patient satisfaction from 70.5% in 2021 to 64.8% in 2022. This decline is directly attributed to ineffective leadership, which negatively impacts nursing performance and patient care.

While leadership is crucial, the ability to innovate within the nursing sector plays an equally important role in improving performance. In Qatar's healthcare system, where patient care is often complex and multi-faceted, the implementation of innovative practices is vital. The adoption of new technologies, such as electronic health records (EHRs) and telemedicine can enhance care delivery by improving accuracy and efficiency. Furthermore, the development of specialized training programs that address emerging clinical challenges such as advanced paediatric care or trauma management can help nurses stay current with the latest developments in healthcare.

Organizations that embrace innovation are better able to respond to the ever-evolving demands of healthcare delivery. By fostering a culture of innovation, transformational leaders can empower nurses to think creatively, improve clinical practices, and adopt evidence-based approaches that enhance patient care.

Therefore, this study aims to explore the influence of transformational leadership on nursing performance within the unique context of Qatar's government healthcare system. Understanding the interplay between leadership, innovation, and nursing performance in non-profit healthcare settings is crucial for improving care quality and addressing the challenges faced by healthcare organizations in Qatar.

In conclusion, the performance of the nursing sector plays a significant role in the overall effectiveness of healthcare organizations. Transformational leadership contributes to nursing performance by promoting a culture of organizational learning, motivation, and innovation. An organization's capacity to innovate in areas such as clinical skills, care delivery models, and organizational structures directly impacts nursing performance. By focusing on transformational leadership and innovation, healthcare organizations can enhance nurse performance and overall organizational effectiveness.

1.2 Problem Statement

The healthcare system in Qatar, particularly within government and non-profit organizations, faces unique challenges not typically encountered in for-profit settings. These challenges are influenced by the regulatory framework, budget constraints, and the public service nature of government healthcare systems. Unlike for-profit

organizations, which are driven by financial outcomes and competition, government healthcare systems prioritize public health and service delivery. The complex dynamics in Qatar's government healthcare sector include a high reliance on expatriate healthcare professionals, a diverse patient population, and a strong emphasis on delivering care to meet both the immediate and long-term needs of the population. These factors contribute to significant challenges in workforce satisfaction, staff retention, and nursing performance challenges often less pronounced in for-profit institutions that offer more competitive salaries and incentives to attract top talent.

The leadership theories most relevant to this study are Transformational Leadership Theory (Bass, 1985) and Innovation Diffusion Theory (Rogers, 2003). Transformational leadership emphasizes the role of leaders in inspiring and motivating their teams to achieve higher levels of performance by creating a supportive, engaging, and visionary environment. It is particularly important in healthcare settings, where leadership can significantly impact both job satisfaction and patient outcomes. Additionally, the Innovation Diffusion Theory provides insight into how innovations are introduced and adopted within organizations, including healthcare systems. By promoting creativity and empowerment, transformational leadership supports a culture of innovation that can directly enhance nursing performance. Integrating both leadership and innovation models provides a comprehensive lens to understand how leadership can influence nursing performance in Qatar's government healthcare sector.

Transformational leadership involves a focus on inspiring and motivating staff to achieve their highest potential. It encourages nurses to engage in innovative practices, fosters a positive work environment, and promotes professional development. Studies such as those by Kirkman et al. (2009), Liang and Steve (2013), Piccolo and Colquitt (2006), and Braun et al. (2013) consistently demonstrate the benefits of transformational leadership in improving job satisfaction, organizational commitment, and performance among nurses. This leadership style is thought to enhance employee engagement, foster a supportive work environment, and ultimately improve patient care. The multidimensional nature of transformational leadership idealized influence (attributes and behaviour), inspirational motivation, intellectual stimulation, and individualized consideration enables a holistic approach to managing human capital in nursing, which is particularly vital in high-pressure healthcare environments.

However, while the positive impacts of transformational leadership in for-profit healthcare settings are well-documented, there is a notable lack of research on its effectiveness within non-profit and government healthcare organizations, particularly in Qatar. This gap in the literature is significant, as the dynamics in government-run healthcare settings may differ substantially from those in for-profit environments. Understanding how transformational leadership influences nursing performance in these specific contexts is crucial for addressing the unique challenges faced by non-profit and government healthcare organizations.

The 2023 bi-annual RN satisfaction survey by Hamad Medical Corporation (HMC) highlighted significant concerns regarding nurse satisfaction and performance, with scores falling below global benchmarks and revealing dissatisfaction with leadership

styles among immediate supervisors. This issue is particularly pressing when compared to standards set by leading magnet hospitals, indicating leadership as a critical area for improvement within Qatar's government healthcare system. The decline in nurse satisfaction is closely linked to reduced quality of care and overall nurse performance, emphasizing the need for effective leadership strategies. While local surveys such as HMC and Nesmaak (2023) offer valuable insights, incorporating comparative data from similar healthcare systems in the Middle East, like the UAE or Saudi Arabia, could strengthen contextual understanding and help benchmark leadership effectiveness. Evaluating both subjective measures like satisfaction and objective indicators of performance is essential to accurately assess the impact of leadership on healthcare outcomes.

Patient satisfaction, while often used as a proxy for performance, must be carefully examined for its limitations as an outcome measure. Thus, it becomes necessary to assess both subjective (satisfaction) and objective (performance) indicators when evaluating the impact of leadership.

Further corroborating these concerns, a customer service survey conducted by Nesmaak (2023) reported a decline in patient satisfaction rates related to nurse performance. Patient satisfaction rates dropped from 70.5% in 2021 to 64.8% in 2022. This decline reflects underlying problems in nursing performance and highlights the negative impact of ineffective leadership on patient care quality. The correlation between leadership styles and patient satisfaction underscores the importance of addressing leadership issues to improve overall healthcare delivery.

The relationship between leadership styles and nursing performance is a critical area of investigation. Structural measures influenced by nurse managers' leadership styles have been identified as important determinants of job satisfaction, performance, and retention. Research by Asamani et al. (2016) and Kiwanuka et al. (2021) highlights the significant impact of leadership styles on these factors. Effective leadership can enhance job satisfaction, improve performance, and reduce turnover rates among nurses, leading to better patient outcomes and organizational efficiency. However, the presence of contradictory findings in the literature (Jaiswal and Dhar, 2015; Eliyana et al., 2019; Chen et al., 2018) complicates our understanding of the true effects of transformational leadership. These inconsistencies may be attributed to variations in organizational culture, leadership readiness, and support systems across different healthcare contexts.

Despite the extensive research on transformational leadership in for profit settings, there is limited evidence on its effectiveness in non-profit and government healthcare environments. Seyhan (2013) notes that while transformational leadership has been linked to positive outcomes in for profit organizations, its impact in non profit settings remains underexplored. This gap in research is particularly relevant for Qatar, where government healthcare organizations face unique challenges that may affect the applicability of transformational leadership principles. Additionally, various studies have used different dimensions or operationalization's of transformational leadership, leading to inconsistent findings. This study adopts the original five-dimension framework of Bass (1985), as it provides a robust and widely validated structure for evaluating leadership behaviour in complex settings.

The effectiveness of transformational leadership in enhancing nursing performance is not without controversy. While numerous studies have demonstrated the positive effects of transformational leadership on job satisfaction and performance, there is conflicting evidence regarding its overall impact. Research by Jaiswal and Dhar (2015) and Eliyana et al. (2019) suggests that transformational leadership may not always lead to improved employee performance. Chen et al. (2018) identified a paradox where transformational leadership could have both positive and negative effects on performance. These contradictory findings necessitate contextual research in environments like Qatar's healthcare system to understand the conditions under which transformational leadership is most effective.

Despite the recognized influence of transformational leadership on employee performance, recent evidence suggests that this relationship is not universally consistent and may depend on other organizational factors (Judge & Piccolo, 2004; Avolio & Bass, 2004). In dynamic healthcare environments, the capacity to innovate plays a critical role in determining whether leadership practices translate into improved performance outcomes. Innovation capability enables organizations to adapt to complex clinical demands, integrate new technologies, and enhance patient care delivery, thereby strengthening the link between leadership practices and performance outcomes. (Martínez-Costa et al., 2018; Sáenz et al., 2009). Without sufficient innovation capability, transformational leadership may fail to achieve the intended improvements in nursing performance. Consequently, this study investigates innovation capability as a moderating variable in the relationship between transformational leadership and nursing performance within government healthcare organizations in Qatar.

In addition to leadership, innovation capability is emerging as a key determinant of nursing performance. Nurses, who form the backbone of healthcare delivery, are uniquely positioned to drive innovative practices. Yet, despite the growing global emphasis on innovation, limited empirical research has examined how innovation capability influences nurse performance in Qatar's healthcare system (Bhatti et al., 2021). The International Council of Nurses (Kessel et al., 2012) and the American Nurses Association (Moreira et al., 2017) advocate for innovation-driven leadership in nursing. Nevertheless, cultural, institutional, and systemic barriers to innovation remain underreported in the Qatari context.

Transformational leadership has the potential to influence employees' creativity and innovation. Studies by Donkor et al. (2021) and Dhar (2015) suggest that transformational leadership can enhance performance and innovation capabilities among employees. Research by Masa'deh et al. (2016) indicates that effective leadership drives higher degrees of innovation among employees, leading to better performance. The relationship between transformational leadership and employees' innovative capabilities is crucial for improving overall performance in healthcare settings.

By promoting a supportive and motivating work environment, transformational leadership can encourage nurses to engage in innovative practices and contribute to advancements in patient care. The ability of leaders to inspire and support their staff is integral to fostering a culture of innovation within healthcare organizations. This, in turn, can lead to improved performance, higher job satisfaction, and better patient outcomes.

Given the unique challenges faced by government healthcare organizations in Qatar, there is a critical need to examine the influence of transformational leadership on nursing performance and explore the moderating role of innovation capability. The existing research largely focuses on for-profit settings, leaving a gap in understanding how these principles apply to non-profit and government healthcare environments.

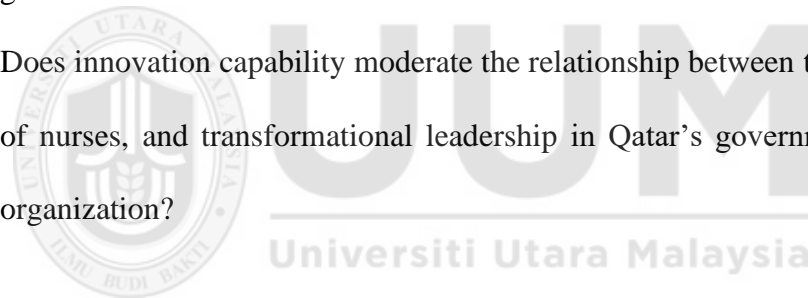
This study aims to fill these gaps by examining the impact of transformational leadership on nursing performance in Qatar's government healthcare organization. It will also explore the moderating effect of innovation capability in this relationship. Understanding these dynamics is essential for developing effective leadership practices and fostering a culture of innovation within healthcare settings.

By investigating the interplay between transformational leadership and innovation capability, this research will provide valuable insights into how these factors can be leveraged to improve nursing performance and overall healthcare delivery in Qatar. The findings will have practical implications for leadership practices, nursing management, and healthcare policies, ultimately contributing to the advancement of healthcare practice and the well-being of patients and healthcare professionals alike. Addressing these issues is essential for ensuring that healthcare organizations can meet the increasing demands of patient care while maintaining high standards of performance and satisfaction among nurses. Addressing these leadership and innovation challenges is crucial for ensuring high-quality, sustainable healthcare delivery in Qatar's evolving health system.

1.3 Research Questions

This study on the impact of transformational leadership on nurses' performance and the moderating role of innovation capability in the relationship between the Nurses' Performance in the government healthcare organization in Qatar and the components of Transformational leadership such as idealized attribute, idealized behaviour, inspirational motivation, intellectual stimulation, individual consideration, and aims to pose and define the subsequent research questions as a framework for the study:

1. Does transformational leadership impact the performance of nurses in Qatar's government healthcare organization?
2. Does innovation capability impact the performance of nurses in Qatar's government?
3. Does innovation capability moderate the relationship between the performance of nurses, and transformational leadership in Qatar's government healthcare organization?



1.4 Research Objectives

This study is principally aimed to investigate the impact of Transformational Leadership on Nurses' Performance and to examine the moderating role of innovation capability on these variables.

Other specific objectives, therefore, include the following:

1. To investigate the impact of Transformational Leadership (idealized attribute, idealized behaviour, inspirational motivation, intellectual stimulation, and

individual consideration) on Nurses' Performance in government healthcare organization in Qatar.

2. To investigate the impact of innovation capability in enhancing the nurse's performance.
3. To explore the moderating effect of innovation capability between Transformational Leadership and Nurses' Performance in the government healthcare organization in Qatar.

1.5 Significance of the Study

This study holds both theoretical and practical significance by advancing the understanding of how transformational leadership and innovation capability influence nurse performance, particularly within government healthcare organizations such as those in Qatar. Theoretically, it enriches existing literature by integrating transformational leadership theory with innovation frameworks in the context of nursing, an area that remains underexplored in public healthcare systems. Given that nurse performance is closely linked to the quality of patient care, safety, and satisfaction, this research offers valuable insights into leadership dynamics that drive workforce effectiveness and organizational success (Asbari et al., 2020; Zhao et al., 2024; Shan et al., 2023).

Practically, the study provides evidence-based guidance for healthcare leaders, nursing administrators, and policymakers to design and implement targeted leadership development programs. By emphasizing key transformational behaviors such as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration healthcare institutions can foster cultures that empower nurses, promote innovation, and improve patient outcomes (Grantham-Caston and

DiCarlo, 2023; Jankelová, 2021). In the Qatari context, where enhancing leadership effectiveness is a national healthcare priority, the findings support initiatives to reduce nurse turnover, combat burnout, and strengthen job satisfaction (Ahmad et al., 2022; Masood and Afsar, 2017; Alwali, 2023). Furthermore, the research underscores the societal value of strong nursing leadership in improving healthcare quality, advancing evidence-based practice, and ensuring continuity of care across systems (Casida and Parker, 2011; Alsyouf et al., 2022; Manesh et al., 2018).

1.6 Scope of the Study

This research was confined to examining how the five core dimensions of transformational leadership—idealized attributes, idealized behaviour, inspirational motivation, intellectual stimulation, and individualized consideration—relate to registered nurses' performance within a government-run healthcare system in Qatar. In particular, the investigation focused on Hamad Medical Corporation (HMC) as the sole study setting. HMC is Qatar's largest public healthcare provider, overseeing fifteen hospitals, an ambulance service, and home healthcare programs, all of which hold Joint Commission International (JCI) accreditation. By selecting HMC, the study leveraged a highly structured, multidisciplinary environment in which leadership practices, innovation initiatives, and nursing outcomes can be meaningfully assessed.

Only full-time registered nurses in non-managerial roles were included as participants. By excluding individuals in formal leadership or supervisory positions, the research isolated the influence of immediate supervisors' transformational leadership behaviours on frontline nursing performance, without conflating those effects with nurses who themselves exercise supervisory authority. The total nursing workforce at HMC exceeds 8499; from this population, a stratified random sampling

Approach ensured representation across different clinical departments (e.g., medical, surgical, paediatric, critical care, etc.), thereby enhancing the generalizability of the findings within the government-run context.

Data collection was conducted using cross-sectional survey administered electronically to the entire target population, as defined by the population frame, utilizing a stratified random sampling technique. The questionnaire contained validated scales for (1) each facet of transformational leadership (adapted from Bass and Avolio, 1990), (2) individual innovation capability (following Lei et al., 2020), and (3) observable performance behaviors (based on Welton et al., 2016). Prior to full deployment, the instrument underwent a formal pretest phase with subject-matter experts (academicians, HMC's Nursing and Midwifery Research Department, and MRC-Qatar specialists) to ensure linguistic clarity, contextual relevance, and face validity. Ethical approval was obtained from HMC's institutional review board, and all participants provided informed consent in compliance with Qatar's guidelines for human subject's research.

By restricting the sample to HMC's government healthcare context, the study was excluded private hospitals, community clinics, and non-governmental organizations (NGOs). Equally, only registered nurses without formal supervisory titles were surveyed, which means the findings may not generalize to nurse managers or to facilities operating under different administrative structures. Finally, the cross-sectional design precluded causal inferences; longitudinal follow-up was identified as a recommendation for future research. Nonetheless, within these boundaries, the study sought to produce a comprehensive picture of how transformational leadership and

innovation capability jointly influence bedside nursing performance in a major Middle Eastern government health system.

1.7 Definition of Related Terms

Innovation capability refers to the capability of an employee in generating and realizing new ideas or behavior relating to a system, policy, program device, process, product or service. It reflects the activities of each employee for improving innovation at the individual level (Lei et al., 2020)

Nurse Performance refers to formal demonstration of efficiency, competency and effectiveness of nursing activities such as the nursing process practiced by the nurses in the care of patients. It also refers to the observable behaviour of nurses (Welton et al., 2016)

Transformational Leadership refers to leadership approach in which a leader transforms his followers, inspires them, builds trust, encourages them, admires their innovative ideas and develops those (Bass, 1985).

1.8 Organization of the Thesis

Chapter one describes the general context and explanation of the identified gap. The objectives, of the study were enumerated to investigate the impact of Transformational Leadership on Nurses' Performance and to examine the moderating role of innovation capability. Furthermore, the research questions relevant to this

study were also specified. The significance, scope and structure of the study were also discussed. The last section presents the organization of the study.

Chapter two discusses extensively on the research gaps identified in the evaluated literature. It illustrates the study's theoretical framework and conceptual research model. The theories examined in this study are also described. In addition to the underlying theories, this study describes on how the transformational leadership influence the performance of nurses in a government healthcare organization. This chapter also presents the development of the hypothesis for this study.

Chapter three gives a broad overview of the methods and approaches used to verify the study's premises and respond to its research objectives. This chapter describes the study's design, sampling technique, data collection procedures, measurement of variable, instrument development, pilot study and the statistical treatment of data.

Chapter four contains the study's data analysis and interpretation. It is the presentation of the outcome of the employed research methodologies. This study concludes with the chapter five that presents the conclusions and recommendations of this study. Commencing for the discussion of findings, next to the contribution and limitation of the study, suggestions for further research and conclusion of the study.

1.9 Chapter Summary

This study explores the influences of transformational leadership affects nurses' performance in Qatar's public healthcare system. To act as the study's compass, a number of research questions and their accompanying objectives were developed. It

will examine the impacts of innovation capability as a moderator on the relationship between the components of transformational leadership (idealized attribute, idealized behavior, inspirational motivation, intellectual stimulation, and individual consideration) and Nurses' Performance in the government healthcare organization in Qatar. The study's outcomes may contribute both practically and theoretically. This study is limited to government healthcare organization in Qatar because there are so many different types of healthcare organizations.

The scope of this research is deliberately confined to government healthcare organizations in Qatar, given the diversity in structure, policies, and operational models across different types of healthcare providers. This introductory chapter lays the groundwork for a structured exploration, guiding the researcher through the forthcoming chapters with clarity and intent.

Table 1.1: Alignment of Problem Statement, Research Questions, Research Objectives, Study Variables, and Hypotheses

Problem Statement	Research Question	Research Objective	Study Variables	Hypothesis
Ineffective leadership styles and low nurse satisfaction in Qatar's government healthcare sector (HMC survey 2023)	RQ1: Does transformational leadership impact the performance of nurses in Qatar's government healthcare organization?	RO1: To investigate the impact of Transformational Leadership on Nurses' Performance in government healthcare organization in Qatar.	Predictor Variable: Transformational Leadership Dependent Variable: Nurses' Performance	H1: Transformational Leadership has a significant positive impact on Nurses' Performance.
Emerging need for innovation to improve	RQ2: Does innovation capability impact the	RO2: To investigate the impact of innovation	Predictor Variable: Innovation Capability	H2: Innovation Capability has a significant positive impact

nursing outcomes; IC's potential impact on performance	performance of nurses in Qatar's government healthcare organization?	capability on the performance of nurses Qatar's government healthcare organization.	Dependent Variable: Nurses' Performance	on Nurses' Performance.
Gap in literature on how innovation moderates' leadership-performance relationship in Qatar healthcare context	RQ3: Does innovation capability moderate the relationship between transformational leadership and the performance of nurses in Qatar's government healthcare organization?	RO3: To explore the moderating role of innovation capability between Transformational Leadership and Nurses' Performance in the government healthcare organization in Qatar.	Predictor Variable: Transformational Leadership Dependent Variable: Nurses' Performance Moderator Variable: Innovation Capability	H3: Innovation Capability significantly moderates the relationship between Transformational Leadership and Nurses' Performance.



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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The first chapter outlined the study's foundation, scope, and relevance. Chapter Two provides a theoretical basis for research inquiries. This chapter examines nurses' performance (NP), innovation capability (INNVC), and transformational leadership (TL), including its components: idealized attributes (IA), inspirational motivation (IM), idealized behavior (IB), intellectual stimulation (IS), and individual consideration (IC). The chapter concludes by justifying the selection of transformational-transactional and Leader-member Exchange (LMX) theories as guiding frameworks.

The review of literature is organized under three main headings

1. Overview of Transformational Leadership (TL)
2. Overview of Nurse Performance (NP)
3. Overview of Innovation Capability (INNVC)

2.2 Overview of Transformational Leadership

Leadership, according to Choi et al. (2017), is a technique to support both individual and group efforts to achieve shared goals and to inspire others to understand and concur with what must be done. Based on the understanding that a work unit's leadership is how to persuade others specifically, staff and their employees, to carry out their tasks and obligations. In the literature, leadership has various distinct styles, and one of those is the transformational leadership which has become a dream and has

been considered one of the most widely accepted leadership styles in the literature of leadership (Judge and Piccolo, 2004), especially in improving employee performance. Transformational leadership is an involved, complex process that binds leaders and followers together in the transformation or changing of followers, organizations, or even whole nations. It involves leaders interacting with followers with respect to their “emotions, values, ethics, standards, and long-term goals, and includes assessing followers’ motives, satisfying their needs, and treating the manful human beings” (Northouse, 2010). This form of leadership is about improving each follower’s performance and helping followers develop to their highest potential and it has four major components –Idealized Influence, inspirational motivation, intellectual stimulation, and individualized consideration (Avolio, 1999; Bass and Avolio, 1990).

Additionally, transformational leadership is defining as the most important appreciated and positive change in its followers and effective in a variety of setting (Gousy et al., 2015). It initiates from personal principles and beliefs of leaders, not in an exchange of supplies between leaders and supporters. A leader is a role model for all the followers with his/her personal qualities. Transformational leaders have capability to unite both the followers and to change follower’s objectives and philosophies. This leadership type yielded higher level of achievement and performance among individuals than previously thought. According to Bakti and Hartono (2022), transformational leaders may successfully change the status quo in their organizations by responding correctly at each stage of the transformation process. If the old ways are no longer appropriate, the leader will create a new vision of the future with a strategic and motivating focus.

In the intervening time, transformative leadership is regarded as beneficial in any circumstance or culture, according to Andriani et al. (2018). A transformational leader can also have an impact on their followers by encouraging them to set their own interests aside and act with high integrity, increasing their awareness of particular concerns, and inspiring them to advance personally. (Asbari et al., 2020). In addition, Wang et al. (2017) assert that changes made by a transformational leader are associated with the organizational system being changed to meet the business's goal and functioning within its constraints. According to Anderson (2015), effective transformational leadership can change poor organizational performance into adequate performance. Today's organizations need transformational leaders, who put a strong emphasis on developing relationships with followers and bringing about change by highlighting ideals. Additionally, it aims to inspire and push followers to seek and even surpass their goals. Additionally, transformational leaders empower their followers by giving them more tasks and the self-assurance and inspiration they need to complete them (Usman, 2020).

Furthermore, transformational leadership globally plays important role in the health care system especially patient care by nurses, because performance of the staff nurses links closely to the leadership styles (Afzal et al., 2016). According to the American Organization of Nurse Executives, transformational leadership is the chosen leadership style for nursing executives. This option is based on the belief that transformative nurse executives are the key to strengthening health-systems worldwide (Giddens, 2018). Likewise, transformational leadership approaches are better suited for use in the nursing field (Wu et al., 2020). Transformational leadership in nursing is different from other industries. Nurses working pattern is different with

different shift and many times they go through a lot of emotional changes with the patient care (Suji et al., 2020).

In addition, Magbity et al. (2020) cited that nurse managers in healthcare organizations now mostly use nursing transformational leadership. It is clear that the rapidly evolving health care environment needs nursing leaders who can create a transformative vision and successfully communicate it. The style of the leader is one of the most crucial factors in determining leadership effectiveness. A leader's behavior when directing their team in the right way is referred to as their leadership style (Abd-Elrhaman and Abd-Allah, 2018).

In addition, transformational leadership and nurses' performance has a social identification process. Therefore, followers feel pride being part of this team or group. The followers have a sense of responsibility that they know their effort as an individual and contribute this with the goal achievement. This perception enhances the workers' delicate significance towards their work. By stressing these transformational leaders is capable to buildup association between self-concepts and identifications by connecting the follower's self-concept and vision (Laschinger et al., 2016).

Nurse leaders adopt transformational leadership style the nurses' performances enhance, and patient gets quality care and improvement in government hospitals. The result of this study shows that transformational leadership has relationship with nurses' performance. The importance of transformational leadership in health care setting is absolute. This is important at formal and informal setting. This leadership style is required from training staff nurse(student) to nursing director. The importance

of leadership in nursing is logical because its education started in the early nursing courses. Leadership plays a vital role in nursing management and better performance (Sullivan et al., 2010).

Several writers have confirmed that the transformational leadership is highly positive correlated with job performance, extra effort and efficacy are obtained from the employees (Muenjohn et al., 2015). The research by Gebreheat et al. (2023) argues that the influence of leadership style on nurses' job performance revolves around the ramifications of various leadership styles on the job milieu and the caliber of care nurses deliver. Multiple nursing leadership styles directly and indirectly influence the nursing profession, its personnel, and patient outcomes. Every leadership style possesses distinct characteristics and exerts a specific influence within the nursing profession.

Transformational leadership style is commonly utilized in the healthcare system. Leadership is widely recognized as a pivotal component in the practical and cohesive delivery of healthcare services within hospital settings. By implementing structural measures, nurse managers' leadership styles are perceived to impact nurses' job satisfaction significantly. Hence, nurses' active engagement and involvement in the performance of optimal leadership styles are paramount in guaranteeing high-quality care, promoting professional advancement, and fostering a favourable climate within the healthcare sector. Transformational leadership is widely recognized as a leadership style that is believed to exert a favourable influence on job satisfaction, engagement, and performance. The proposed concept of leadership is a collaborative approach wherein leaders engage in team-based efforts to investigate and facilitate a

necessary paradigm change. This collaborative process involves formulating a shared vision, which other influential individuals within the organization then pursue.

Additionally, nurses supervised by managers who exhibited transformational leadership showed higher levels of job satisfaction and a greater intention to remain in their positions. Implementing a transformational leadership style can positively impact nurses' job satisfaction, performance and overall organizational commitment.

Transformational nurse leaders possess the ability to perceive and anticipate the needs of their subordinate nurses through establishing strong interpersonal connections and proactive efforts to meet those needs. This approach fosters a sense of empowerment and autonomy among the staff, leading to increased job satisfaction and reduced nurse turnover rates. The abovementioned factor contributes to elevated job satisfaction, performance levels, improving nurses' general well-being and effectiveness within their professional responsibilities.

In addition, Specchia et al. (2021) found that nursing staff have higher levels of job satisfaction and improved performance when their leaders employ a transformational leadership style than leaders who adopt a transactional leadership approach. This finding aligns with prior research that has indicated a positive relationship between open-bidirectional communication and employees' levels of job satisfaction. In most instances, transformational leaders allocate a significant portion of their time to the instruction and guidance of nurses. They prioritize cultivating and augmentation their strengths, offering advice for their professional and personal growth. These leaders approach their subordinates as unique persons, attentively attending to their concerns and uncertainties. Adopting this approach increases efficiency and heightened

dedication among nurses in pursuing predetermined objectives. Adopting a transformational leadership style significantly influences performance measures inside healthcare systems.

Recent studies underscore the critical role of transformational leadership in influencing nurse performance and innovative behavior within healthcare organizations. Transformational leadership has been found to enhance employee innovation, although its effects can be moderated by contextual factors. For instance, Bindel Sibassaha et al. (2025) examined the impact of digital transformation on employee innovative behavior in the banking sector and found that transformational leadership moderate this relationship, though not always in a positive direction.

In the nursing context, Guo et al. (2024) explored how leadership in nursing research influenced junior nurses' innovative behavior, mediated by perceived barriers and moderated by research motivation, suggesting that internal drive and organizational obstacles shape leadership outcomes.

Yu and Xiang (2024) provided evidence of a mediated relationship where transformational leadership enhanced team innovation through organizational resilience, especially under conditions of environmental uncertainty, aligning well with the current study's framework of moderated influence.

Furthermore, the study conducted by Labrague et al. (2020) investigated the impact of toxic and transformational leadership approaches on job satisfaction among nurses. The positive effects of transformational leadership on nurses' outcomes have been well acknowledged. The study findings indicate a significant association between

transformational leadership and the job satisfaction and performance of nurses. Specifically, it is suggested that nurses under the guidance of a transformational leader are more likely to experience better levels of job contentment and exhibit a decreased intention to leave the nursing profession. Nurses employed under a manager who displays toxic leadership characteristics show diminished job satisfaction, heightened stress levels, increased rates of absenteeism, and a greater inclination to leave the nursing profession. Strategies to retain nurses should incorporate initiatives that promote transformational leadership and discourage nurse managers from adopting toxic leadership behaviors. These efforts should be supported by evidence-based education, training, and professional development opportunities. Furthermore, Lai et al. (2020) stated that transformational leaders employ a range of behaviors to elicit organizationally advantageous behaviors from their followers, such as improved task performance and increased engagement in assisting activities.

Employees motivated by transformational leadership are more inclined to fully engage in their jobs, which leads to enhanced task performance and a greater propensity to engage in helpful behaviors. Workplace leaders exert influence over members' behavior due to their role as a representative embodiment of the company and their possession of the capacity to assess members' performance or make decisions regarding their advancement. Hence, the behavior of leaders has the potential to influence the behavior of their subordinates. Transformational leadership is a widely seen leadership style that can be demonstrated by leaders at various levels within an organization. Transformational leaders can influence and motivate their followers through four specific behaviors: idealized influence, inspirational

motivation, intellectual stimulation, and individualized consideration. By employing these behaviors, leaders may effectively alter the behaviors of their team members, motivating them to surpass expectations. Considerable theoretical and empirical investigations have been undertaken to examine the effectiveness of transformational leadership, uncovering its favorable influence on the job performance of individuals. Additionally, the research of Sulistiyani et al. (2018) in the SME sector proves that transformational leadership significantly affects employee performance. The same is also evident in Suhana et al. (2019) findings in the education sector.

The study conducted by Chandrasekara (2019) found a statistically significant beneficial association between transformational leadership and both job satisfaction and job performance. This finding suggests that the augmentation of transformational leadership attributes is associated with a corresponding enhancement in employees' job satisfaction, subsequently leading to improved job performance. Therefore, transformational leadership substantially and positively impacts job satisfaction and performance. The transformational leadership style encompasses various behaviors, including the cultivation of empathy, the recognition of the significance of collective identity, the willingness to take risks, the demonstration of kindness, the establishment of strong relationships, and the effective articulation of goals. Additionally, it encompasses engaging in decision-making processes and the equitable distribution of authority. The implementation of transformational leadership within an organization has a substantial impact on the job satisfaction of employees, fostering a sense of dedication toward corporate goals. This leadership style also motivates subordinates, including nurses, to successfully achieve these objectives, thus enhancing overall performance. Job satisfaction can be defined as the attainment of

job expectations and the internal alignment of workers with their jobs. It encompasses employees' sentiments towards intrinsic and extrinsic job factors, encompassing specific dimensions such as benefits, compensation, working conditions, career advancement opportunities, organizational policies, and interpersonal relationships with colleagues.

Transformational leadership is a behaviorcentric approach that seeks to surpass ordinary expectations and pursue exceptional performance. Establishing conducive work conditions that empower nurses structurally is of utmost importance in facilitating the delivery of excellent patient care. Research has indicated that transformational leaders can impact job satisfaction by establishing supportive behaviors, enhancing organizational performance, promoting follower work engagement, and encouraging employees' inclination to exert more effort.

The study conducted by Boamah et al. (2018) revealed significant associations between the transformational leadership behaviors of nurse managers and job satisfaction levels among their subordinates. Transformational leaders enhance the standard of patient care by establishing conducive practice settings and promoting organizational citizenship practices. They develop strong relationships with followers, cultivating trust and proactively meeting their needs. The provision of structurally empowering aspects, such as knowledge, support, and resources, is crucial in enabling nurses to successfully fulfil their professional responsibilities. Despite the extensive body of studies about job satisfaction among nurses, there continues to be a prevalent presence of elevated levels of job discontent. Strong nursing leadership is essential in cultivating conducive work cultures that promote favorable results for nurses and

patients. Transformational nurse managers enhance the quality of patient care by establishing conducive work environments that foster a sense of empowerment among nurses, enabling them to deliver optimal care. Transformational leaders possess compelling qualities and wield significant influence, allowing them to motivate colleagues to go beyond conventional performance expectations inside the workplace. Organizations furnish their personnel with a distinct understanding of their mission, a dedicated adherence to the objectives of the business, and strategies for effectively motivating others to emulate their actions. When nurses think their management is genuinely concerned for their personal growth and provides opportunities to enhance their skills and abilities, they experience increased self-assurance and commitment to their job. Transformational leaders strongly emphasize the advantages of cooperation, fostering an organizational environment characterized by open dialogue and promoting innovative capability. Nurses who are empowered actively pursue novel strategies to carry out their duties, resulting in an enhanced level of job satisfaction.

The presence of economic limitations, which prompt the need for alternative care models and changes in the composition of skills within hospital settings to minimize expenses, is a noteworthy phenomenon observed in numerous countries. This trend fosters a climate of heightened managerial focus on efficiency, often at the detriment of fostering substantial improvements in the quality of care provided.

Cummings et al. (2018) found that utilizing a transformational leadership style is linked to notable enhancements in the results of the nursing workforce and the overall work environments in which they operate. This leadership style has influenced nursing leadership studies and treatments, likely attributed to its focus on relationships

to achieve favorable change or outcomes. Relationally focused leadership emphasizes individuals and interpersonal connections, exemplified by transformational leadership that seeks to optimize the capabilities of subordinates by fostering innovation, creativity, and intellectual stimulation. Implementing transformational leadership methodologies has yielded more favorable outcomes for healthcare professionals, particularly those in nursing roles. Nurse leaders who exemplify transformational leadership exhibit higher emotional intelligence and ethical decision-making, resulting in improved outcomes.

Lastly, Donkor et al. (2021), in their study of 330 employees working in the state-owned enterprise sector in Ghana, found transformational leadership has a powerful consequence on employee performance. In addition, transformational leadership can motivate and encourage employees to appear more creative and innovative to encourage organizational growth. Furthermore, transformational leadership inspires employees always to be loyal and committed to their work and work harder without having the slightest desire to leave the job and the organization. This certainly has implications for improving employee performance. Several previous studies are in line with and strengthen these findings are conducted by (Ariyabuddhiphongs and Kahn, 2017; Baig et al., 2021; Buil et al., 2019; Han et al., 2020; Jaroliya and Gyanchandani, 2021; Kammerhoff et al., 2019; Khan et al., 2020; Kusumah et al., 2021; Mahdikhani and Yazdani, 2019; Maheshwari, 2021; Matsunaga, 2021; Prabhu et al., 2021; Tabassi et al., 2017; Ugwu, 2018).

Surprisingly, study findings by Eliyana et al. (2019), that transformational leadership is not able to improve employee performance. This is also evident in the study

conducted by Lutfi and Siswanto (2018), Prabowo, Noermijati, and Irawanto (2018), Li and Liu (2020), Kawiana et al. (2020). Indeed, Chen et al. (2018) have confirmed the paradox of positive and negative relationships between transformational leadership and employee performance. Even in the theme of Thompson et al. (2021) it concluded that transformational leadership (i.e., intellectual stimulation, idealized influence, individualized consideration, and inspirational motivation) has a partial effect on employee performance. In addition, few evidence did not show the scenario about the positive impact of the transformational leadership style. A cross-sectional study from Iran indicated that there was a positive correlation between transformational leadership and anticipated turnover (Pishgooie et al., 2019). In addition, the adoption of transformational leadership seems way behind in health care settings. A study from Belgium revealed that head nurses and nurse directors were excessively implementing passive-avoidant leadership styles in contrast to transformational leadership styles in nursing homes. Subsequently, all leadership outcomes (extra effort, effectiveness, and satisfaction) were significantly lower among both the head and director of nurses

Overall, the literature on transformational leadership in nursing highlights the significance of this leadership style in improving patient outcomes, promoting a positive work environment, and enhancing the overall quality of healthcare delivery. Several studies have demonstrated that nurses who exhibit transformational leadership behaviors inspire and motivate their subordinates, resulting in increased employee performance and satisfaction. Furthermore, transformational leadership has been associated with reduced nurse turnover rates and improved patient safety measures. This research provides valuable insights into the potential impact of transformational

leadership in nursing, ultimately contributing to the betterment of healthcare services and patient care.

Importantly, the literatures also suggest that transformational leadership in nursing plays a crucial role in promoting a culture of innovation and continuous improvement. By empowering and encouraging nurses to challenge the status quo, think critically, and engage in interdisciplinary collaborations, transformational leaders foster an environment that fosters creativity and enhances the development of evidence-based practices. This, in turn, leads to advancements in the nursing profession, benefiting not only individual nurses but also the healthcare system. Furthermore, the research on transformational leadership in nursing highlights the role of this leadership style in addressing various challenges faced by healthcare organizations. For instance, the literature suggests that transformational leaders are more adept at navigating complex healthcare systems.

While the existing body of literature on transformational leadership in nursing is robust, several areas for further research should be considered. This research study identified behavioral factors that include inspirational motivation (IM), intellectual stimulation (IS), and individual consideration (IC) that transformational leaders may impact the employee's performance, that will be covered below.

2.2.1 Idealized Attributes

A transformative leader who embodies these qualities inspires others by demonstrating to them that they can overcome obstacles (Hughes, 2014). They frequently talk about their fundamental principles, the importance of trust between

them, the significance of a common mission, and the usefulness of having a strong sense of purpose. (Afsar et al., 2019). As they see the leader as a charismatic representation of the organization's ideals and mission, the team or members of the organization frequently imitate leaders who have idealized influence (Mangulabnan et al., 2021).

Furthermore, idealized attributes inspire pride in followers, behave in a way that inspires respect, encourage others to put the needs of the group above their own, and exhibit confidence and power in their day-to-day actions (Bass, 1985). Idealized behaviors include things like making followers feel proud of their affiliation with the leaders (Bright, 2018). The leaders are also focused on goal accomplishment and the creation of a sense of mission among followers (Belayhun, 2021). Idealized traits are intended to influence the followers' opinions of the leaders as powerful, confident, and capable of achieving the stated goals. According to Al Ahmad et al. (2019), the primary behaviors of Idealized Attributes Leaders include displaying high levels of competence, effectively using power to improve group performance, and cultivating followers' respect for the leaders.

According to Ogola et al. (2017), supporters of idealized leaders are happy to be linked with them because of their traits. Leaders that exhibit Idealized traits inspire admiration in their subordinates (Bass, 1985). During routine tasks and activities, these leaders act in ways that foster respect, consider the interests of the group rather than their own, and demonstrate to followers their confidence in their ability to make decisions (Tannenbaum and Schmidt, 2017).

2.2.2 Inspirational Motivation

One crucial aspect of transformational leaders is the inspirational motivation. According to Hosna et al. (2002), inspirational motivation is frequently utilized by leaders to help employees construct a shared vision of the organization and set common goals for them to attain. Frequent interaction among employees greatly aids in attaining the goal. Transformational leaders motivate staff by instilling a sense of purpose in their job, which increases workers' motivation to succeed. Leaders motivate followers to perform well as a team in order to get the desired outcome (Afsar et al., 2019). According to Chen and Wu (2020), inspirational motivation is used to communicate organizational goals and the organization's vision to employees. Through inspirational motivation, employee performance is encouraged to contribute to the realization of the organization's goals. Leaders motivate employees through motivational speeches and individual conversations. Additionally, leaders use imagery and symbolism techniques to inspire staff members to improve their performance. According to research by Boamah et al. (2018), inspiring motivation has a very strong relationship to the development of employee performance.

The goal of inspirational motivation, according to Northouse (2021), is to raise employees' consciousness by inspiring and encouraging them to show dedication to the group's vision and mission. The inspiring, motivating leaders work to build a sense of unity and passion among their followers by outlining their high expectations in straightforward terms. Motivating leaders who inspire others increase task and work autonomy, which boosts output. Inspirational motivational leaders also motivate their followers to study more and advance their own personal and professional growth (Afsar and Umrani, 2019).

Employee performance is improved at work through inspirational motivation (IM). By offering a future blueprint, IM helps employees perform better. It helps keep employees performing well. Up to the achievement, the employee's performance is stable. Internally, IM stimulates employees where the employee's capacity to establish and realize the organizational vision. Employees are given values by IM, who also establishes performance standards based on how well a person performs over time. According to Mi et al. (2019), IM demonstrates the value of each employee's contribution in an environment where everyone feels valued. Motivating employees through inspiration shifts their attention from the present to the future, enabling them to act pro-actively and be forward-thinking, which is essential for career adaptability. Schuesslbauer et al., 2018); Hamtiaux et al., 2013). This is consistent with Schuesslbauer et al. (2018), who claimed that "frequent exploration, daydreaming, and the expectation of change" can improve one's orientation towards future career adaptability. People may foresee the effects of a change if they are focused on the future and "keep their attention on this desired end goal." Future-oriented thinking influences employees' attitudes, motivation, and behavior (Gielnik et al. 2013; Weikamp and Goritz, 2016), and it promotes proactive behavior and successful task adaptation (Super and Knasel, 1981). A future orientation is a vital component of career choice attitudes and competences, according to Schuesslbauer et al. (2018).

2.2.3 Idealized Behaviour

According to Choi, Goh, Adam, and Tan (2016), leadership is the capacity of an individual to procure commitment from subordinates towards achieving organizational goals. According to Lee and Chon (2020), transformational leadership

is the conduct of people who put the interests of the organization and the greater good ahead of their own. However, because of the always changing external influences, leaders must adapt regularly (Burke and Noumair, 2015). The performance of followers is increased when leaders use a transformational leadership strategy to inspire engagement and commitment to organizational goals (Gaipin et al., 2015). According to Farahnak et al. (2020), transformational leadership is characterized by the behaviors required to persuade workers to take action that will benefit the organization.

The basis of idealized behavior is the leader's capacity to influence followers to behave respectfully. Their followers are impacted by the decisions made by their leaders (Northouse, 2021). They absorbed the values and principles of the leaders they respected. When leaders behave in an idealized manner, their followers are influenced to imitate that behavior (Quintana et al., 2015). Transformational leaders are visionary, trustworthy, and well-liked. (Lo et al., 2020). A transformative leader's vision resonates with his or her followers, making it simpler to achieve shared objectives. Idealized leadership empowers staff to be creative and achieve organizational goals. Idealized behavior is frequently described as the drive that motivates followers to be creative (Mgqibi and Sines, 2020).

According to Sayyadi (2019), transformational leadership is an effective leadership style needed to carry out change projects. Chou (2014) investigated how transformational leadership practices affected change projects. Also, Chou (2014) shown that the use of transformational leadership as a leadership strategy may effectively inspire followers to support change projects. According to Van Wart

(2014), successful organizational change is positively correlated with transformational leadership.

The idea of idealized behavior, which is described as the need for transformation and a vision to mobilize employees to effectively perform beyond expectations, was added by Alshihabat and Atan (2020) to their study. Furthermore, Castillo et al. (2018) conducted research on the relationships among coaches' value priorities and transformational leadership practices. They also looked into the potential mediation compared to moderation effects of two other variables in this relationship: perceived club pressure and an environment that promotes autonomy.

2.2.4 Intellectual Stimulation

Leaders can encourage their followers to employ creativity to solve problems by stimulating their minds (Thuan, 2020; Podsakoff et al., 2014). Innovation among the followers is also made possible by intellectual stimulation (Sundi, 2013; Gryphon et al., 2013). Students who have principals that are innovative and creative in their leadership are more likely to perform well on exams. Change occurs in the educational environment as a result of the intellectual stimulation provided by transformational leadership (Akbari et al., 2020). According to Musyoki et al. (2002), the intellectual leadership dimension enables the leader to promote and offer new ways of thinking to the followers in the organization. Bellé (2014) concur that their beliefs and values are at the center of the new ways of thinking.

According to Chebon et al. (2019), intellectual stimulation motivates followers to question group decisions and leadership actions. This fosters creative thinking.

According to Dansereau et al. (2013), by giving intellectual stimulation, managers can inspire their workers to experiment with new methods and come up with concepts that significantly improve performance. The intellectual stimulation element of transformational leadership contributes to organizational learning in a positive and healthy way (Chebon et al., 2019). Transformational leaders inspire their followers by helping them develop their creativity and, as a result, become better decision-makers, claim Jandaghi et al. (2009). They focus on the justifications for each choice. Transformational leaders constantly guide their followers towards rational problem-solving as opposed to the conventional approach. People can openly express their inner thoughts and remarkable ideas when leaders encourage them to think about new ideas.

The study by K'Aol et al. (2016) identified that intellectual stimulation enables transformational leaders to inspire critical thinking, improve problem solving, and empower their team members. In order to boost the self-efficiency and effectiveness of followers, McCleskey (2014) claimed that intellectual stimulation necessitates transparency without fear of criticism on the side of the leader and higher levels of confidence in problem-solving situations.

According to Jandaghi et al. (2009), transformational leaders influence their followers to make better decisions through fostering their creativity. They focus on the justifications for each choice. Transformational leaders constantly guide their followers towards rational problem-solving as opposed to the conventional approach. People can openly express their inner thoughts and remarkable ideas when leaders encourage them to think about new ideas. By questioning preconceived notions,

approaching routine issues in a novel way, and motivating followers to work more, transformational leaders inspire others to be creative and innovative (Chebon et al, 2019). The perspectives of followers are respected even if they differ from the leaders' and are further encouraged to attempt fresh approaches to an issue. As a result, mistakes that people make are rarely or never criticized (Krishna, 2011).

2.2.5 Individual Consideration

The main indicator of the factor, for individualized consideration, is building followers through coaching, mentoring, and teaching (Nagele and Awuor, 2018). Puts as the first component of a transformational leadership style, individual consideration is important. The leader who gives everyone of their followers' particular attention shows great concern for them, respects them as unique people, gets to know them well, and pays attention to both their worries and suggestions (Chebon et al., 2019). According to Khan et al. (2020), "individualized consideration" refers to the fundamental transformational leadership behaviors of treating people as valuable contributors to the organization. Leaders who employ this style of leadership give due consideration to the needs of their employees and mentor them to promote sustainable development. In conclusion, a leader who pays close attention to their team members exhibits the attitude of considering each worker as an individual and shows a keen interest in their long-term development (Maryani et al., 2021).

According to Auletto (2021) "individual consideration" refers to the principal's capacity to address the unique needs of each teacher in terms of both their personal and professional development. The principal can also serve as a mentor and offer the group support required for the teacher's professional growth. Adem et al. (2002) found that managers who demonstrate traits of this leadership style work hard to treat each

person as an individual and to comprehend and share their concerns and developmental requirements. Furthermore, an individualized leader shows significant concern for their followers, regards them as unique people, gets to know them well, and listens to both their worries and ideas. Individualized consideration refers to the basic transformational leadership practices of seeing people as significant members of the organization (Kirkbride, 2016). According to Ogola (2017) and Chebon et al. (2019), leaders that apply this style of leadership coach their staff to promote sustainable development.

Subsequently, individualized consideration is crucial to participative leadership, which emphasizes followers' personal growth and needs and is concerned with decisions affecting their work (Chebon et al., 2019). Individualized consideration has been shown to increase followers' satisfaction with leaders and their productivity. Individualized consideration in TF-leadership comprises individualized attention and a developmental attitude towards followers, according to studies, and these leaders are perceived to be kind, supporting, and encouraging towards self-development (Hautamäki, 2016).

According to Hannah et al. (2020), individual consideration in transformational leadership reflects the leader's concern for followers' welfare, developmental needs, and personal growth. Hautamäki (2016) adds that it involves psychological support, warmth, compassion, and acceptance of vulnerability. Transformational leadership enhances follower empowerment and motivation by influencing their relational self and identification with the leader (Kark and Shamir, 2002).

Table 2.1 Summary of Selected Studies on Transformational Leadership

Author(s)	Dependent variable	Independent variable	Result	Moderating/ Mediating effect
Choi et al. (2017)	Shared goals achievement	Transformational leadership technique	Supports individual and group efforts	Not reported
Judge & Piccolo (2004)	Employee performance	Transformational leadership style	Widely accepted in improving performance	Not reported
Northouse (2010)	Follower motivation and development	Leader–follower interaction	Binds leaders and followers	Not reported
Avolio (1999); Bass & Avolio (1990)	Follower performance development	Four components of transformational leadership	Improves follower potential	Not reported
Gousy et al. (2015)	Positive change in followers	Transformational leadership	Produces appreciated positive change	Not reported
Bakti & Hartono (2022)	Organizational transformation	Stages of transformational leadership	Leaders create new vision when needed	Not reported
Andriani et al. (2018)	Leadership effectiveness across contexts	Transformational leadership	Beneficial in any setting	Not reported
Asbari et al. (2020)	Follower integrity and personal advancement	Transformational leadership encouragement	Increases integrity and awareness	Not reported
Wang et al. (2017)	Organizational system change	Transformational leadership	Aligns systems to goals	Not reported
Anderson (2015)	Organizational performance	Transformational leadership	Improves poor performance	Not reported
Usman (2020)	Self-efficacy	Task empowerment by leaders	Empowers followers	Not reported

Afzal et al. (2016)	Patient care performance	Transformational leadership in nursing	Enhances patient care	Not reported
Giddens (2018)	Health-systems strength	Transformational nurse executives	Strengthens health systems	Not reported
Wu et al. (2020)	Applicability in nursing	Transformational leadership	Well suited for nursing	Not reported
Magbity et al. (2020)	Leadership style use	Nurse manager behaviors	Primarily transformational	Not reported
Laschinger et al. (2016)	Team identification	Transformational leadership	Enhances social identification	Mediating: social identification
Muenjohn et al. (2015)	Job performance and efficacy	Transformational leadership	Highly positive correlation	Not reported
Gebreheat et al. (2023)	Nurse job performance	Leadership style	Style impacts job milieu and care quality	Not reported
Specchia et al. (2021)	Job satisfaction and performance	Transformational vs. transactional leadership	Transformational yields higher satisfaction	Not reported
Labrague et al. (2020)	Job satisfaction	Toxic vs. transformational leadership	Transformational positive, toxic negative	Not reported
Lai et al. (2020)	Task performance and helping behaviors	Transformational behaviors	Enhanced performance and helping	Not reported
Sulistiyanı et al. (2018)	SME employee performance	Transformational leadership	Significant positive effect	Not reported
Suhana et al. (2019)	Educational sector performance	Transformational leadership	Significant effect	Not reported
Chandrasekara (2019)	Job satisfaction and performance	Transformational leadership	Significant positive association	Not reported
Ariyabuddhiphongs & Kahn (2017)	Employee performance	Transformational leadership	Positive performance support	Not reported

Baig et al. (2021)	Employee performance	Transformational leadership	Supports positive effect	Not reported
Buil et al. (2019)	Employee performance	Transformational leadership	Significant positive effect	Not reported
Prabowo et al. (2018)	Employee performance	Transformational leadership	No improvement	Not reported
Eliyana et al. (2019)	Employee performance	Transformational leadership	No significant improvement	Not reported
Pishgooie et al. (2019)	Turnover intention	Transformational leadership	Positive correlation with turnover	Not reported
Belgian nursing homes study	Leadership outcomes	Passive-avoidant vs. transformational leadership	Passive-avoidant lower outcomes	Not reported
Cummings et al. (2018)	Workforce outcomes and environment	Transformational leadership	Notable enhancements	Not reported
Donkor et al. (2021)	Employee performance	Transformational leadership	Strong positive effect	Not reported
Yu & Xiang (2024)	Team innovation performance	Transformational leadership	Effect mediated by resilience	Moderating: environmental uncertainty; Mediating: resilience
Bindel Sibassaha et al. (2025)	Employee innovative behavior	Digital transformation	Positive influence, moderated by transformational leadership	Moderating: transformational leadership
Guo et al. (2024)	Innovation behavior	Leadership in nursing research	Leadership affects innovation via perceived barriers	Moderating: research motivation; Mediating: perceived barriers

2.2.6 Critical Synthesis of Transformational Leadership Literature

2.2.6.1 Consistency of Positive Impact Across Contexts

Many studies support the positive influence of transformational leadership (TL) on performance outcomes (e.g., Judge and Piccolo, 2004; Anderson, 2015; Baig et al., 2021; Sulistiyani et al., 2018), reinforcing its effectiveness across sectors from healthcare to SMEs and education. These findings align with the foundational TL theory by Bass and Avolio (1990), which emphasizes idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. However, the lack of detail on context-specific variables weakens generalizability, suggesting a need for comparative cross-sector analysis.

2.2.6.2 Contradictory Findings and Underreported Null Effects

While the majority of research shows significant positive correlations, a few studies (Prabowo et al., 2018; Eliyana et al., 2019) report no significant improvements, suggesting that TL is not universally effective. These outliers challenge the robustness of the TL model and underscore the need to identify moderators or contextual barriers (e.g., organizational culture, readiness for change). However, most studies fail to elaborate on why TL may not work, revealing a methodological gap in explaining null or mixed outcomes.

2.2.6.3 Limited Integration of Moderating and Mediating Variables

Recent contributions such as Yu and Xiang (2024) and Guo et al. (2024) advance the field by integrating resilience and environmental uncertainty as mediating/moderating variables. These models are more nuanced and reflective of real-world complexity,

unlike earlier studies that treat TL as a standalone influence. Still, such frameworks are underutilized, suggesting a theoretical gap future research should adopt more multi layered models to explore mechanisms through which TL exerts its impact.

2.2.6.4 Relevance in Healthcare and Nursing Leadership

Studies by Afzal et al. (2016); Giddens (2018); Wu et al. (2020); Specchia et al. (2021) underscore TL's relevance in improving nurse performance, care quality, and job satisfaction. However, many lack methodological rigor, such as experimental designs or longitudinal data, limiting causality inference. Furthermore, few differentiate between nurse manager behaviors and executive leadership styles, which may obscure role-specific leadership effects.

2.2.6.5 Geographic and Cultural Limitations

Although the table includes global studies (e.g., Sri Lanka, Thailand, Ghana, Spain), many do not engage with cultural context or how local values influence TL effectiveness. For instance, transformational behaviors in collectivist societies may manifest differently compared to individualist cultures. This represents a cultural gap where comparative intercultural studies are needed to test the universality of TL.

2.2.6.6 Emerging Integration with Innovation and Digital Transformation

More recent works (Bindel Sibassaha et al., 2025; Guo et al., 2024) begin bridging TL with innovation and digital transformation, especially in the face of environmental uncertainty. This intersection is promising but underdeveloped, often lacking strong

theoretical integration (e.g., combining TL with innovation diffusion theory or dynamic capability theory).

2.3 Overview of Nurses' Performance

Nursing performance is described as the activities and actions they take to fulfil their responsibilities according to the guidelines that management has set. It serves as a barometer for their performance and how successfully they handle these obligations. Mohamed and Gaballah (2018) attribute this to the achievement of the objectives and requirements of the organization (Rey et al., 2019). Furthermore, Pepito and Locsin (2019) defined nursing performance as a nurse's ability to fulfil their patient care duties in an efficient manner, while Al-Kandari and Thomas (2009) defined it as the nurses' capacity to carry out nursing tasks. Additionally, the performance of nurses was defined as the formal demonstration of competence or ability. Competency is commonly defined as an integrated performance that reflects the professional nurse's feelings, thoughts, and judgement. Nursing competency, on the other hand, refers to a nurse's ability to successfully demonstrate a number of traits, such as personal characteristics, a professional attitude, values, knowledge, and abilities, as well as to accomplish his or her professional tasks through practice (Takase, 2013).

In study by Fukada (2018), nursing competency was described as "the capacity for action through the integration of knowledge, skills, values, and nursing knowledge" A competent individual must have these attributes, as well as the motivation and aptitude to employ them, to provide safe, efficient, and professional medical treatment to his or her patients (Ashmieg, 2021). Nursing competency is typically classified using one of three theories: behaviorism, trait theory, or holism. Competence,

according to behaviorism, is the capacity to perform a set of essential skills and is measured by the demonstration of these abilities (Fukada, 2018). While competency is viewed holistically as a collection of factors such as information, skills, attitudes, thinking capacity, and values that are important in specific circumstances, competency is viewed from the perspective of an individual trait (knowledge, critical thinking skills) in trait theory. In a different study, the competency traits of nurses with one year of experience were examined. The findings demonstrated patterns of high proficiency in areas such as ethical practice, risk management, and basic responsibilities and low competency in areas such as care coordination, professional development, and nursing quality improvement, as well as health promotion (Ashmieg, 2021). The necessary nursing skills connected to ethics and obligations inevitably expand as new nurses specialize in the tasks at hand. The provision of individualized medical treatment that supports patients' lifestyles and engagement in professional development while providing care, however, is challenging for them (Fukada, 2018).

According to Hauzer et al. (2020), performance is the sum of the contributions made by specialists and the available healthcare staff to meeting patients' needs in perfect accordance with international quality standards; poor performance of the healthcare workforce, in turn, results in poor patient care and performance throughout the entire healthcare system. It can be deduced that nurses' performance is a significant driver of health care system performance since they make up the largest proportion of healthcare providers (Oppel and Young, 2018) and their performance has a significant impact on the delivery of hospital care (Mousa and Othman, 2020). Additionally, excellent nursing performance enhances patient safety, whereas poor nursing

performance can lead to patient deaths. According to Tesfaye, Abera, Hailu, Namera, and Belina (2015), enhancing and managing patients' needs (Kahya and Oral 2018), and lowering health care costs by shortening hospital stays (Baek, Cho, Kim, Hwang, Song, and Yoo, 2018) are all dependent on improving nurses' performance. In a similar vein, Abdullah and Nusari (2019) the performance of nurses, which has the potential to offer illustrious solutions to damaged systems, defines the strengths, defects, and failures of hospital systems. In light of the foregoing, health policy makers and hospital administrators must take steps to improve the quality and effectiveness of hospital services in order to ensure the active involvement of nurses and boost their performance.

Nursing performance complements managerial skills and patient care, and it is a major determinant of the quality of healthcare services that elucidates efficacy and efficiency and advances the objectives of the health organization (Ahmed and Zakaria, 2022). In order to meet organizational goals, deliver the specialized products and services they specialize in, and ultimately achieve competitive advantages, hospitals need high-performing nurses (Noviantoro et al., 2020).

According to Ismail, Iqbal, and Nasr (2019), performance-related behaviors are connected to the tasks that should be carried out in order to achieve a job's objectives. In addition, job performance is a crucial factor in the healthcare industry, particularly the nursing sector, because managing patients' healthcare makes the performance of nurses extremely important (Karem et al., 2019).

Furthermore, nurses' performance is critical in order to achieve desire patient outcomes and improve the healthcare system performance (Abdullah and Nusari,

2019). Evaluating nurse performance should be a top focus in health care management since it is critical to career growth and addressing patient requirements. It is also used to assess how hard nurses work to care for their patients (Numminen et al., 2016). There are the four criteria for evaluating how well staff nurses perform their jobs: civility, respect, communication, comfort, responsiveness, teamwork, and professionalism. Nursing includes, among other things, assessment, diagnosis, implementation, evaluation, and documentation. Education comes in fourth, followed by education and care quality (Ibrahim et al., 2016). Performance management includes setting performance goals, developing improvement strategies with head nurses, assessing head nurses' progress towards goals, providing ongoing feedback and coaching by supervisors and possibly peers, and measuring individual performance (Aswani, 2019).

The study of Abd-Elrhaman and Abd-Allah (2018) argued that performance evaluation in nursing focuses on assessing the competency, efficacy, and efficiency of the nursing process and activities utilized by staff nurses in the treatment of patients. Additionally, by examining nurses' performance and determining where additional training is required, the competence of nurses can be enhanced (Mohamed and Gaballah, 2018). Furthermore, regular evaluation of nurses' performance fosters the development of an efficient, effective, and high-quality healthcare system (VanFosson et al., 2016). Necochea and Fort (2003) noted that hospital administrators must build an atmosphere that upholds nurses, empowers them in a way that allows latent potential to be realized, and can reinforce or transform the culture of the organization in a good way in order to improve nurses' performance.

Various studies have explored factors influencing nurses' job performance. Sharma and Dhar (2016) found that emotional commitment significantly impacts performance. Masa'deh et al. (2016) reported that transformational and entrepreneurial leadership styles positively affect job performance. Additionally, Wazqar et al. (2017) highlighted that work pressure has a significant negative impact on nurses' performance. Organizational design has also been identified as a factor influencing job performance (Creteur and Pochet, 2002). In a study conducted in Saudi Arabia, Al Marashi and Al Zghool (2018) found that nurses' performance was negatively impacted by a lack of managerial support, low salaries, a violent work environment, poor team relationships, and aggressive patient behavior.

Similarly, creating a positive work environment is increasingly vital for enhancing nurses' satisfaction, productivity, and performance, especially in global healthcare settings that recognize the health workforce as key to strengthening health systems (Kitsios and Kamariotou, 2021). According to Mohammed and Gaballah (2018), a supportive workplace culture enhances nurses' commitment and reduces turnover intentions. Berberoglu (2018) emphasized that fostering such an environment positively influences nurses' morale, behavior, and attitudes, making it a key priority for healthcare providers.

Ahmed et al. (2019) further noted that nurses delivering competent care seek a work environment where they feel appreciated and valued. Ahmed et al. (2010) identified several factors that enhance a positive work environment and nurse effectiveness, including concern for people, team building, participative decision-making,

communication, customer service, quality, staff–physician interaction, and compensation.

Overall, the literature on nurse performance is recognized as a multidimensional construct, incorporating clinical competence, quality of care, and professional behavior. The literature consistently highlights its crucial role in influencing patient outcomes, satisfaction, and the overall effectiveness of healthcare delivery. Factors such as continuous professional development, supportive work environments.



Table 2.2 Summary of Nurse Performance Studies

Author(s)	Dependent variable	Independent variable	Result	Moderating/ Mediating effect
Mohamed & Gaballah (2018)	Nursing performance	Achievement of organizational objectives	N/A	N/A
Rey et al. (2019)	Nursing performance	Organizational requirements	N/A	N/A
Pepito & Locsin (2019)	Nursing performance	Efficiency of patient care duties	N/A	N/A
Al-Kandari & Thomas (2009)	Nursing performance	Capacity to carry out tasks	N/A	N/A
Takase (2013)	Nursing competency	Integration of personal characteristics, attitude, values, knowledge, abilities	N/A	N/A
Fukada (2018)	Nursing competency	Integration of knowledge, skills, values	N/A	N/A
Ashmieg (2021)	Competency traits	1 year of experience	High in ethics/risk management; Low in care coordination/professional development	N/A
Hauzer et al. (2020)	Healthcare performance	Contributions of healthcare staff	N/A	N/A
Oppel & Young (2018)	Nurses' performance	Health system performance	N/A	N/A
Mousa & Othman (2020)	Nurses' performance	Hospital care delivery	N/A	N/A

Tesfaye et al. (2015)	Nurses' performance	Patient safety	Positive correlation	N/A
Kahya & Oral (2018)	Nurses' performance	Patient needs management	N/A	N/A
Baek et al. (2018)	Nurses' performance	Healthcare costs	Reduced length of stay	N/A
Abdullah & Nusari (2019)	Nurses' performance	Hospital system defects	N/A	N/A
Ahmed & Zakaria (2022)	High-performing nurses	Healthcare quality	N/A	N/A
Noviantoro et al. (2020)	Nurses' performance	Competitive advantage	N/A	N/A
Ismail et al. (2019)	Performance-related behaviors	Job objectives achievement	N/A	N/A
Karem et al. (2019)	Job performance	Patient care management	N/A	N/A
Numminen et al. (2016)	Nurse effort Performance evaluation	Performance evaluation	N/A	N/A
Ibrahim et al. (2016)	Staff performance criteria	Civility, respect, communication, etc.	N/A	N/A
Aswani (2019)	Individual performance	Performance management practices	N/A	N/A
Abd-Elrhaman & Abd-Allah (2018)	Performance evaluation	Nursing process efficacy	N/A	N/A
VanFosson et al. (2016)	Regular performance evaluation	Healthcare efficiency	N/A	N/A
Necochea & Fort (2003)	Nurse performance	Supportive organizational culture	N/A	N/A

Sharma & Dhar (2016)	Job performance	Emotional commitment	Significant positive effect	None
Masa'deh et al. (2016)	Job performance	Transformational and entrepreneurial leadership	Significant positive effect	None
Wazqar et al. (2017)	Job performance	Work pressure	Significant effect	None
Creteur & Pochet (2002)	Job performance	Organizational design	N/A	N/A
Al Marashi & Al Zghool (2018)	Nursing performance	Managerial support, income, environment, team relations, patient behavior	Negative impact	None
Kitsios & Kamariotou (2021)	Satisfaction/Productivity/Performance	Work environment	Positive effect	None
Mohamed & Gaballah (2018)	Nurse commitment	Workplace culture	Positive effect	None
Berberoglu (2018)	Staff morale	Supportive workplace environment	N/A	N/A
Ahmed et al. (2019)	Nurse satisfaction	Appropriate work environment	N/A	N/A

Ahmed et al. (2010)	Work facilitation elements	Concern for people, team building, etc.	N/A	N/A
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2.3.1 Critical Synthesis of Nurse Performance Literature

The reviewed literature identifies multiple determinants of nurse performance yet remains largely descriptive with limited theoretical integration. Studies such as Mohamed and Gaballah (2018) and Pepito and Locsin (2019) link performance to organizational objectives and task efficiency but lack clarity in measurement and generalizability. Competency-focused work by Takase (2013) and Fukada (2018) offers valuable conceptual depth but fails to connect competencies to real-world outcomes, highlighting a gap between theory and practice.

While some evidence (e.g., Tesfaye et al., 2015; Baek et al., 2018) supports the impact of nurse performance on patient safety and cost efficiency, few studies examine moderating or mediating factors. Psychological and leadership dimensions explored by Sharma and Dhar (2016) and Masa'deh et al. (2016) demonstrate positive effects but are underrepresented in broader analyses.

Contextual contrasts also emerge; for example, Al Marashi and Al Zghool (2018) report negative workplace impacts in Saudi Arabia, whereas Kitsios and Kamariotou (2021) find the opposite in Greece. This variation underscores the need for cross-contextual studies using standardized tools. Furthermore, research lacks depth in performance evaluation and feedback systems key to sustaining nurse performance.

Overall, gaps persist in theoretical alignment, methodological rigor, and exploration of causal mechanisms calling for integrative, multilevel research that links leadership, innovation, and performance across diverse healthcare systems.

2.4 Overview of Innovation Capability

Innovation is fundamentally a type of change, according to Ferreira et al. (2015). This shift could apply to the products or services that an organization offers, or to the process through which these products and services are developed and provided. The introduction of change to organizational routines, policies, and techniques is another instance of innovation. The changes brought about by innovation might vary in their level of originality. According to Tidd and Bessant (2020), incremental innovations often involve minor adjustments (such as enhancements) to a company's products or procedures that build on already-developed skills and expertise. Contrarily, radical innovations are major adjustments to a company's product line that frequently encourage it to follow a new technical path (Kahn, 2018; Chen, Chen, Liu and Xu, 2020). Innovation also has positive social and economic effects. A complex road that necessitates challenging and extensive training in marketing and international market strategy, and invention results in a promising, practical, high-quality, and innovative product (Sengun, 2016).

Innovation activities are usually considered complex as they require special skills and capabilities to generate or develop the organization's products and services to meet their customers' desires (Aljanabi, 2020). Furthermore, these activities require the organization's continuous endeavor to configure and exploit the available knowledge in various aspects of the organization's work (Lei et al., 2019; Migdadi, 2020). Accordingly, innovation capability defined as the organization's ability to transform accumulated knowledge and new ideas into products and business models that achieve its strategic goals (Farhana and Swietlicki, 2020).

While Puspita, et al., (2020) referred to the innovation capability as the tendency of the organization to engage in the implementation of creative ideas and adoption of work methods that would provide distinctive offers to their customers. Developing the organization's innovation capability requires giving its employees the freedom to think and express their opinions, as well as providing an organizational climate in which the principle of creative thinking and effective communication between creative human resources is spread (Maldonado-Guzmán et al., 2019; Miranda et al., 2020)

In addition to management, innovation is important in healthcare, particularly in the field of nursing (Glasgow et al., 2018). The approach to innovation is linked to other popular subjects like nurses' individual variables (anxiety, stress and work engagement) and organizational assistance, which enables us to comprehend how these experts naturally respond to the innovation outputs and to innovative behavior (Moreno Cunha, Marques, and Santos, 2022). The use of innovation in nursing can take many different forms, including descriptions, modalities, and events (Timmermans et al., 2012). Overall, it entails introducing novelties that alter how nursing teams organize and practice nursing care in modest as well as significant ways (Timmermans et al., 2018).

In order to change their knowledge, abilities, and behaviors, nurses must complete a variety of learning tasks (Gaberson and Oermann, 2010). For instance, the adoption of an electronic medical record (EMR) presents learning challenges for the team's nurses in terms of their familiarity with EPR content, digital proficiency, and capacity to do away with pen and paper (Veer and de Francke, 2010). For the individual nurses on

the team, novelties like using the bedside handover approach, hand hygiene regulations, or clinical pathways might cause a variety of learning challenges. The level of attitude and behavior adjustments made by the nurses on the team will ultimately determine the success of implementation, despite the variations in all the other innovations (Harrison and Shortell, 2021).

Nursing practices and patient care have become more sophisticated as medicine has advanced. Nursing innovation is necessary to stay up with the quickly changing information and scientific era, as well as to effectively handle worldwide competitiveness. (Ayvaz et al., 2019). Additionally, due to the advancement of technology and the rising expectations of those utilizing healthcare services, investments in innovation and R and D activities have increased (Liu et al., 2020).

In addition to innovation, developing affordable, usable solutions using cutting-edge technology and education for health care with limited resources is crucial. As the population ages, so does the proportion of people who have chronic illnesses. In addition, the care provided, and the demands are evolving. The demands and expectations for health care alter along with changes in income level and disease severity. The new healthcare services goods and programs are anticipated to improve care quality, lower prices, and contribute to the nation's socioeconomic development (Sengun, 2016).

In a 2009 article, the International Council of Nurses (ICN) defined the innovative nurse as a compensated healthcare worker who designs, develops, and markets unique programs and projects in the healthcare industry (ICN, 2004). Increasing the culture of innovation and their inventive development is crucial if health organizations are to

act and be modernized in accordance with the times (Yilmaz, 2014; Ayvaz et al., 2019). Additionally, ICN promoted the idea that nurses should lead the way in new care paradigms to offer individuals, families, and society competent services. Accordingly, it was noted that advancement and innovation in nursing are nevertheless important and ought to be (Rosa et al., 2019). Qualified nurses should receive the education necessary to address the gaps and needs in a globalizing society. (Dil, 2012). The advancement of the profession of nursing and the standard of nursing care depend greatly on innovation (Kara, 2016). A strong focus on profession and professionalization makes it feasible to identify requirements and look for solutions when providing healthcare. Encourage nurses who study scientific advancements and innovations and engage in new activities to maintain professional development (Ayvaz et al., 2019). Additionally, nurse's ought to think innovatively, take calculated risks, and be conscious of their strengths and weaknesses (Carlucci et al., 2020).

Professional nurses in the healthcare industry must create cutting-edge products and practices and provide them to society for the benefit of society's health to be managers, decision-makers, and carers (Atasoy, 2014). Because nurses are largely in charge of providing healthcare and because they devote more attention to patients and healthy people than other types of healthcare professionals. As well as providing patients with comprehensive care, nurses have been questioned and have provided innovative solutions. There has been substantial advancement in nurses' innovative values development and innovative product/program design, particularly in the twenty-first century (Merih, 2018). In order to improve results and performance at work by incorporating innovation into these professionals' daily activities, many managers urge nurses to innovate through the usage of products, services, technology,

and procedures (Weng, Huang, Huang, and Wang, 2012). However, when compared to other professionals, several Chinese studies have found that nurses exhibit medium to low levels of innovative behavior Fan, Zheng, Liu, and Li (2016). This finding may be related to nurses' need for assistance and support from their managers as they search for the resources necessary to put new ideas and behaviors into practice (Moreno et al., 2022).

Furthermore, in highly dynamic and rapidly evolving environmental circumstances, every employee, such as a nurse, must possess innovation capability. According to Zhao (2020), the employee innovation capability plays a significant role in determining an organization's performance by developing new products, improving quality, and gaining a competitive advantage. Innovation serves as the primary asset for organizations to foster growth and development.

According to Sena (2020), innovation capability development is facilitated by organizational support in promoting innovations and high-quality relationships between leaders and subordinates, such as nurses. Adopting innovative capability within an organization yields favorable results since it is fueled by a creative climate and the creative thinking abilities of its members. Job satisfaction is an internal aspect that can influence individuals' innovative capability. For instance, nurses who experience job satisfaction will likely derive pleasure from their profession. Sena (2020) stated that a positive correlation exists between job satisfaction, performance and innovative capability. Therefore, a rise in job satisfaction and Performance is expected to result in a corresponding increase in innovative capability. The experience of pleasurable feelings is often associated with individuals experiencing a sense of

satisfaction in their jobs. Alternatively, a sense of dissatisfaction may occur when one experiences a circumstance that is not aligned with their expectations or standards for their employment. Sharing a sense of enjoyment while engaged in work is essential for individuals to cultivate a state of comfort, facilitating the generation of innovative ideas inside the workplace. An individual who experiences satisfaction in their job is more likely to exhibit traits such as creativity, flexibility, and innovation. Innovation capability is influenced by various human views and attitudes, with job satisfaction being one manifestation of an individual's perception of their employment. This demonstrates that fostering job satisfaction inside an organization can catalyse people to generate creative and new ideas.

On the other hand, Asurakkody and Shin (2018) propose that engaging in innovative capability encompasses various aspects, such as enhanced job performance, reduced job burnout, increased job satisfaction, successful resolution of organizational problems, heightened organizational commitment, and improved organizational efficiency and effectiveness. Leadership plays a crucial role in fostering innovation inside an organization by facilitating novel thinking, generating new ideas, and encouraging innovative capability practices among employees, all of which contribute to enhanced organizational performance. Organizations increasingly recognize innovation as a critical strategy for improving effectiveness and maintaining competitiveness. The concepts of creativity and innovation have been frequently and interchangeably examined in the extant academic literature. The cultivation of creativity is of utmost significance in fostering inventive behavior. Employees' engagement in innovative capability is vital to organizational success. By fostering a culture that promotes innovative capability among employees, particularly nurses,

organizations can achieve optimal levels of efficacy and efficiency and fulfil their other resource needs. Healthcare workers, such as nurses, who possess a favorable attitude toward novel concepts, have the potential to enhance and enhance the capabilities of the current healthcare system or formulate innovative treatment strategies for patients. Cultivating efficiency and effectiveness in nursing will yield favorable patient safety and job satisfaction outcomes. An open and inclusive working environment, characterized by a harmonious organizational climate, effective communication across hierarchical levels, and a supportive corporate culture, can foster a sense of familial belonging among employees and enhance their overall job satisfaction. In addition to these dispositions, humans can conceive and execute novel ideas.



Table 2.3: Summary of Innovation Capability Studies

Author	Dependent Variable	Independent Variable	Result (+ve or -ve significant)	Moderating/Mediating Effect
Ferreira et al. (2015)	Conceptualization of innovation	Innovation type	+ Definition provided	None
Tidd & Bessant (2020)	Originality level of innovation	Incremental vs. radical adjustments	+ Conceptual distinction	None
Kahn (2018)	Scope of innovation	Radical innovation initiatives	+ Discussion of drivers	None
Chen et al. (2020)	Factors driving radical innovation	Technological change	+ Explored drivers	None
Sengun (2016)	Innovation outcomes	Training in marketing and international strategy	+ Highlighted training effect	None
Aljanabi (2020)	Innovation complexity	Special skills required	+ Asserted innovation need	None
Lei et al. (2019)	Knowledge exploitation	Continuous knowledge configuration	+ Emphasized exploitation	None
Migdadi (2020)	Knowledge application	Knowledge management practices	+ Support for application	None
Farhana & Swietlicki (2020)	Innovation capability	Transforming knowledge to products	+ Definition provided	None
Puspita et al. (2020)	Creative implementation tendency	Creative idea adoption	+ Described organizational tendency	None
Maldonado-Guzmán et al. (2019)	Effect of creative climate	Employee freedom and communication	+ Linked climate to innovation	None
Miranda et al. (2020)	Creative thinking climate	Organizational climate factors	+ Supported climate effect	None

Glasgow et al. (2018)	Importance of innovation in healthcare	Healthcare context variables	+ Examined nursing innovation	None
Moreno Cunha et al. (2022)	Innovative behavior	Individual variables (stress, engagement)	+ Positive correlation	None
Timmermans et al. (2012)	Innovation modalities in nursing	Forms of innovation	+ Categorized innovation forms	None
Timmermans et al. (2018)	Learning tasks for behavior change	Innovation adoption tasks	+ Described tasks	None
Gaberson & Oermann (2010)	Behavior change learning	Learning tasks	+ Outlined tasks	None
Veer & de Francke (2010)	EMR adoption challenges	Digital proficiency	+ Highlighted proficiency issues	None
Harrison & Shortell (2021)	Implementation success	Attitude and behavior adjustments	+ Determined outcomes	None
Ayvaz et al. (2019)	Need for nursing innovation	Medical advancement factors	+ Asserted necessity	None
Liu et al. (2020)	R&D investment trends	Tech advancement drivers	+ Discussed investment rise	None
International Council of Nurses (ICN, 2004)	Role of the innovative nurse	Program and project development	+ Defined nurse innovator	None
Yilmaz (2014)	Innovation culture	Organizational culture support	+ Emphasized culture	None
Rosa et al. (2019)	Importance of innovation	Advancement drivers	+ Noted ongoing need	None
Dil (2012)	Education needs for innovation	Global societal gaps	+ Called for training	None
Kara (2016)	Professional advancement	Professionalization efforts	+ Linked innovation to profession	None

Carlucci et al. (2020)	Risk-taking and self-awareness	Individual traits	+ Encouraged risk-taking	None
Atasoy (2014)	Functions of nurse innovators	Management and development roles	+ Highlighted roles	None
Merih (2018)	Innovation in product design	Innovative values development	+ Detailed advancements	None
Weng et al. (2012)	Daily innovation support	Managerial encouragement	+ Described support	None
Fan et al. (2016)	Level of innovative behavior	Managerial support	- Medium to low levels	None
Zhao (2020)	Performance improvement	Innovation capability	+ Positive impact	None
Sena (2020)	Job satisfaction	Performance and innovation capability	+ Positive correlation	None
Asurakkody & Shin (2018)	Organizational outcomes	Engagement in innovation	+ Outlined benefits	None

2.4.1 Critical Synthesis of Innovation Capability Literature

The literature on innovation capability in nursing consistently highlights its role in improving care quality, workforce performance, and system efficiency. While many studies report a positive link between innovation capability and outcomes (e.g., Zhao, 2020; Sena, 2020), much of the literature remains descriptive, lacking critical engagement or theoretical integration. For example, the influence of leadership on innovation is acknowledged (Fan et al., 2016; Weng et al., 2012), but not thoroughly analysed, with few studies exploring how leadership behaviors directly shape or moderate innovation.

Methodologically, many works rely on conceptual discussions without empirical depth, limiting generalizability. There is also minimal exploration of interaction effects between organizational enablers like culture, knowledge management, and autonomy. Furthermore, most studies are conducted outside the Middle Eastern context, raising questions about their applicability to Qatar's healthcare system.

A key gap lies in the limited examination of innovation capability as part of a broader leadership performance framework. Innovation is often treated as a static competency rather than a dynamic moderator influenced by leadership style. This study addresses that gap by positioning innovation capability as a moderating variable between transformational leadership and nurse performance, advancing both theoretical understanding and contextual relevance within government healthcare settings in Qatar.

2.5 Theoretical Review

The study employs two theories based on the analysis from the literature review. The relationship between transformational-transactional leadership and staff performance is explained by the transformational-transactional leadership theory. On the other hand, the connection between nurse performance and innovation capability is explained by a closer examination of the LMX hypothesis.

2.5.1 Transformational-Transactional leadership (TTL) theory

Over the last two decades, many theorists have indicated and demonstrated in their leadership research and modern organizational theories that transformational/transactional leadership philosophy might be an effective way out to meet the desires of such changes (Bass and Avolio, 1994; Bass and Bass, 2002; Boyatzis, 2006; Judge and Piccolo, 2004; Rhee and White, 2007; Tichy and Devanna, 2002). Transformational leadership is a process in which leaders and followers raise one another to higher levels of motivation and morality” (Burns, 1978). This motivation is supposed to invigorate people to accomplish beyond expectancy by generating belongingness in achieving the vision (Grossman and Valiga, 2000). Transformational leadership embraced the assumption that people have immense potential and can be successful if they are given the vision and support from highly engaging, positive and inspiring leaders (Gates, 2009). The platform for transformational leadership that can positively affect followers’ motivation and performance (Hay, 2007).

Siangchokyoo et al., (2020) established the transformational leadership (TL) theory very successfully, and it offered clear insights into how transformational leaders affect organizations. The effects of TL on workers' creativity, dedication, and performance

have been studied by a number of researchers (Judge and Piccolo, 2004). Their research's findings also contributed to a greater understanding of how to manage employees' creativity and performance. TL is in charge of the internal and external adjustments that people must make to achieve organizational goals. This type of leadership inspires workers to put in longer hours and produce more than expected (Shafi et al., 2020). After multiple rounds of elaboration and refinement, transformational leadership is often conceptualized through seven dimensions, including idealized influence, inspirational motivation, intellectual stimulation, individual consideration, laissez-faire leadership, and contingent reward (Kariuki, 2021; Francisco, 2019).

Furthermore, Mgqibi and Sines (2020) mentioned that transformative leaders are more likely to inspire followers to imitate their alluring behavior. To accomplish shared objectives, subordinates model the leader's constructive behavior. Additionally, idealized behavior is a transformative leadership behavior that influences subordinates' behavior in a good way, according to Puni et al., (2018). Transformative leaders are more likely to encourage followers to mimic their seductive behavior, claim Downe et al. (2016). Furthermore, Mgqibi and Sines (2020) assert that by taking the proper actions at different stages of the transformation process, transformational leaders can successfully change the status quo in their organizations. If the leader determines that the old ways are no longer appropriate, they will create a new vision for the future with a strategic and motivating focus.

The organization's purpose is spelt out in the vision, which also acts as a source of motivation. Meanwhile, transformative leadership is regarded as effective in any circumstance or culture, according to Andriani et al. (2018). This theory does not list

a circumstance in which genuine transformational leadership is not applicable or successful, but universal applicability does not necessarily mean that transformative leadership is equally possible or effective in every situation. If a leader can change energy into resources within an organization, he is said to be practicing transformational leadership. The resources under consideration include people, facilities, money, and external organizational elements like the neighbourhood, the business community, and the industrial world. It has been postulated that transformational leadership theory is a universal theory and common characteristics of transformational leadership could be found in any country at different level of management (Bass and Avolio, 1993, Bass, 1997). The findings about transformational leadership and its outcomes, such as satisfaction with the leader, performance are promising, because research found supportive results in countries with different cultural values such as USA, New Zealand, Singapore, Japan, Saudi Arabia, UK, Italy (Macit, 2004)

In contrast to the transformational perception of leadership, the transactional leaders, in the initial phases of development, establish their world based on personal goals and plans. They motivate followers by recognizing their needs in exchange for their performance and support. Transactional behaviors focus on task as well as good relationship in exchange for desirable rewards. Even though transactional leadership is not able to develop trust and full potential of the followers (Avolio et al., 1999) but if coupled with the individualized consideration attribute of the leader, it may provide the platform for transformational leadership that can positively affect followers' motivation and performance (Hay, 2007). Likewise, transactional leadership was described as being strongly exchange-oriented by Bass (1985), which meant that staff would only be rewarded if they achieved the performance outcomes and previously

stated goals. Bass (1985) and other scholars stated that the theory of transactional leadership was constrained in its application since its tenets were centred primarily on the practical give-and-take connection between leaders and followers. Additionally, they hypothesized that because transactional leadership mainly focused on the transactional, exchange-oriented part of the relationship, it failed to consider the whole exchange between a leader and follower.

Thus, in order to encourage compliance by the followers, transactional leadership comprises the employment of contingent rewards as well as active and passive management-by-exception (Kondratyev, 2019). By using contingent rewards, transactional leaders may create goals, define expectations, allocate resources as needed, and promise and deliver benefits in exchange for successful performance. Also, transactional leaders only occasionally use active or passive management. By actively observing how employees perform at work and taking remedial action when violations of policies and standards are discovered, active management by exception is referred to. When leaders merely act to address issues as they arise, this is referred to as passive management by exception. (Nabhan, 2019).

Afsar et al. (2017) made a distinction between the two types of leadership styles. Transformative leadership theories have been demonstrated to dominate transactional leadership theories in leadership research throughout time, according to Lim and Ployhart (2004). A transformational leadership style creates a vision and inspires subordinates to strive beyond required expectations, whereas transactional leadership focuses more on extrinsic motivation for the performance of job tasks. Thus, it is likely that transformational leadership would influence attitudes by inspiring acceptance of innovation through the development of enthusiasm, trust, and openness,

whereas transactional leadership would lead to acceptance of innovation through reinforcement and reward (Seltzer and Bass, 1990). Transactional-transformational leadership theory has provided valuable insights into the role and impact of different leadership styles on organizational outcomes and employee performance. Therefore, this study will use this theory to support on how does the identifies leadership components- inspirational motivation (IM), intellectual stimulation (IS), individual consideration (IC), laissez-faire leadership (LFL), and contingent reward (CR) may impact the performance of nurses employed in government healthcare organization in Qatar.

2.5.2 Leader-Member Exchange (LMX) theory

LMX theory is a relationship-based leadership approach, which focuses on the relationship between leaders and followers (Qi et al., 2019). It is a model of a good two-way communication between the leader and the members aiming to achieve the goals of the organization effectively and efficiently by creating a harmonious, fine, and dynamic relationship between the two parties. An effective leadership will be realized if in the leadership process of the organization, there is a good relationship, a harmony among all components in an organization; between the leader and the employees, as well as between the employees and colleagues (Sullivan and Garland, 2010). LMX helps employees gain access to substantial resources that are critical to shape their (Sekiguchi, et al., 2012) Some empirical studies confirm that LMX relationship quality has a positive influence on employee job crafting (Akdol and Arikboga, 2017; Berdicchia and Masino, 2017), while other investigations on different cultural backgrounds have also proved that LMX has a positive impact on

employee job performance (Akdol and Arikboga, 2017) and satisfaction (Tu and Lu, 2016).

Furthermore, Wahyuningrat and Rusmawan (2022) cited that LMX is a system of components and relationships, involving reciprocal relationships between leaders and employees involving interdependent behavior patterns, as a means of sharing, as a concept in the work environment, providing benefits and value. In addition, to Sa'adah (2022) and Sunarsi et al. (2020) both argued that leader member exchange is focused on assessing the relationship and interaction between supervisors (superiors) and subordinates. The level of closeness of the relationship between leaders and subordinates shows an indication of leader member exchange in the company. It emphasizes the special working association between manager and employer, as in this study, between immediate supervisor and staff nurses LMX theory, which, in contrast to other leadership theories, has theoretical foundations in role theory and social exchange theory. (Gottfredson et al., 2020).

The LMX theory states that leadership is an implicit knowledge of the expectations of each member in the leader-member dyad (Omilion-Hodges and Baker, 2017). A leader evaluates a team member's motivation, behavior, and performance in the early phases of the relationship to decide how much discretion, autonomy, and influence to provide that team member in decision-making (Graen and Cashman, 1975). According to Park, Park, and Liden (2022), the effectiveness of LMX can predict results at the individual, team, and organizational levels. The following outcomes, for instance, have been the subject of research: work performance (Burton et al., 2008); organizational commitment behavior (Sherony and Green, 2002); employee job

satisfaction and well-being (Hooper and Martin, 2008); and creative performance (Olsson et al., 2012).

In addition, previous studies have also proposed a link between individual innovation and the quality of the LMX interaction. Mulligan et al. (2021) found that team members' innovation capability is affected by a greater sense of advocacy and trust in high-quality LMX interactions, in part because leaders are more inclined to view ideas favorably (Den Hartog et al., 2020). The freedom of team members to develop original ideas may also be increased by leaders in high quality LMX interactions (Nazir et al., 2022). Higher performance standards and enhanced team member appreciation in the workplace, according to Yuan and Woodman (2010), may also foster innovation. Furthermore, there are currently no reports on the relationship between LMX characteristics and the outcomes or performance for nursing staff. According to LMX theory, a subordinate willingly undertakes tasks beyond their work role when their LMX is high; however, research on these outcomes for senior nursing staff has not yet been conducted.

In summary, the leader-member exchange theory indicates that leaders, by way of the outcomes they have control over, will have the ability to establish either high – or low-quality leader-member exchange relationships with their subordinates. High-quality relationships are characterized by increased levels of trust and commitment among leaders and their subordinates, components regarded essential for stimulating and facilitating high levels of innovation in subordinates. From the theory it is clear that leaders will need to apply the outcomes they have control over in appropriate ways should they wish to establish high quality exchange relationships with their subordinates as this will result in increased levels of innovation. Hence, this study will

utilize the LMX theory to support the moderating role of innovation capability on the relationship between a leadership style (transformational) and nurse performance.

2.6 Theoretical Framework

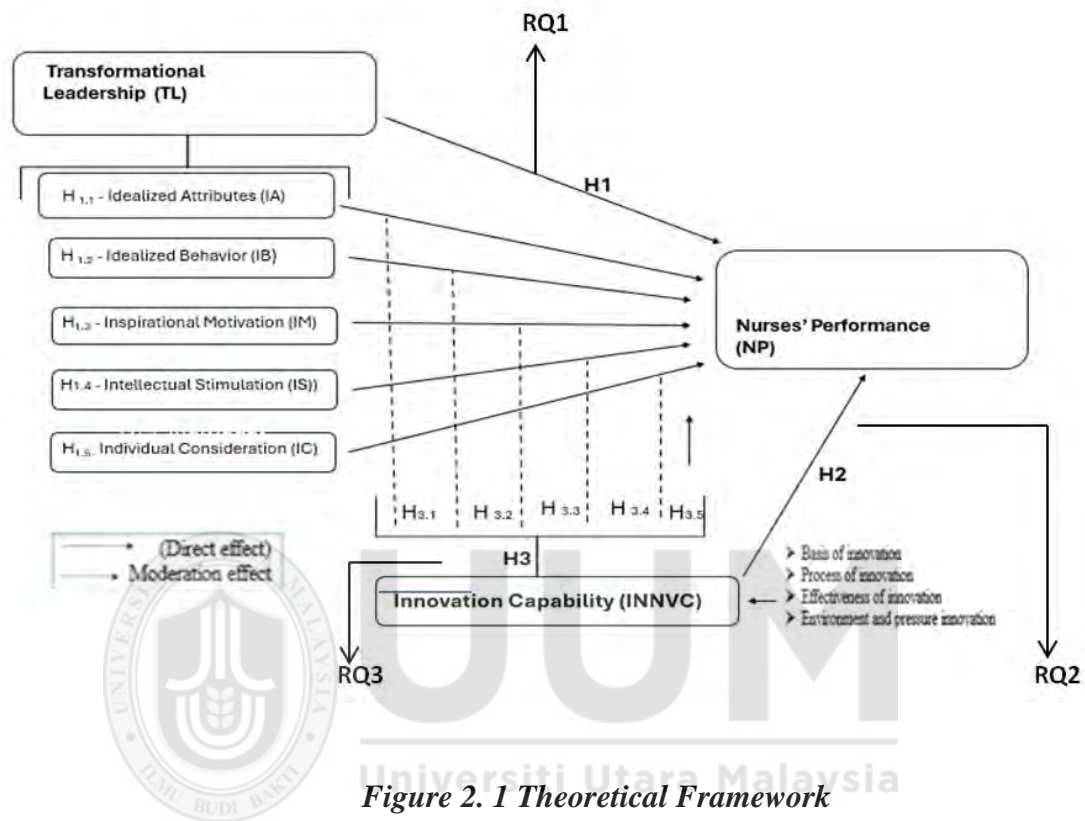


Figure 2.1 Theoretical Framework

Legend:

1. H1-Transformational Leadership (TL) and Nurses' Performance (NP)
2. H_{1.1} - Idealized Attributes (IA)
3. H_{1.2} - Idealized Behavior (IB)
4. H_{1.3} - Inspirational Motivation (IM)
5. H_{1.4} - Intellectual Stimulation (IS)
6. H_{1.5} - Individual Consideration (IC)
7. H2 –Innovation Capability (IC) and Nurses' Performance (NP)
8. H3 -Moderating Role of Innovation Capability (INNVC)
9. H_{3.1} - Idealized Attributes (IA)

10. H_{3.2} - Idealized Behavior (IB)
11. H_{3.3} - Inspirational Motivation (IM)
12. H_{3.4} - Intellectual Stimulation (IS)
13. H_{3.5} - Individual Consideration (IC)
14. RQ1: Does transformational leadership impact the performance of nurses in Qatar's government healthcare organization?
15. RQ2: Does innovation capability impact the performance of nurses in Qatar's government healthcare organization?
16. RQ3: Does innovation capability moderate the relationship between transformational leadership and the performance of nurses in Qatar's government healthcare organization?

This study suggests a paradigm for research that aims to investigate the impact of Transformational Leadership (TL) on Nurses' Performance (NP), and the moderating role of innovation capability (INNVC), based on literature support and anchored by transformational-transactional leadership theory and closer look at LMX theory. This study investigates two primary claims based on the Theoretical Framework provided. The first is to see if there is a direct effect of TL components such as (idealized attributes (IA), inspirational motivation (IM), idealized behavior (IB), intellectual stimulation (IS), and individual consideration (IC) on Nurses' Performance (NP). The transformational-transactional leadership theory has been widely used to show how leadership practices affect nurses' performance.

The conceptual framework of this study is designed to investigate the relationships among Transformational Leadership (TL), Innovation Capability (IC), and Nurses' Performance (NP) in the context of government healthcare organizations in Qatar. It

is grounded in transformational leadership theory and innovation capability literature, employing a structural equation modeling (SEM) approach to test the hypothesized relationships.

1. Transformational Leadership (TL) and Nurses' Performance (H1)

Transformational Leadership is conceptualized as a multidimensional construct comprising five key components:

- a. H_{1.1} Idealized Attributes (IA)
- b. H_{1.2} Idealized Behavior (IB)
- c. H_{1.3} Inspirational Motivation (IM)
- d. H_{1.4} Intellectual Stimulation (IS)
- e. H_{1.5} Individual Consideration (IC)

Each of these dimensions is hypothesized to have a direct and positive effect on Nurses' Performance (NP), as represented by hypotheses H1.1, H1.2, H1.3 H1.4 and H1.5. The framework acknowledges that different aspects of transformational leadership may uniquely contribute to performance outcomes among nurses.

2. Innovation Capability and Nurses' Performance (H2)

Innovation Capability refers to an organization's ability to support and implement new ideas, technologies, and processes. It is hypothesized that IC has a direct and significant positive effect on nurses' performance (H2). In healthcare settings, especially those undergoing modernization and reform, a high level of innovation capability is essential for improving staff efficiency and patient outcomes.

3. Moderating Role of Innovation Capability (H3)

In addition to its direct effect, IC is posited to moderate the relationship between transformational leadership components and nurses' performance (H3). This moderation implies that the strength or direction of the influence of TL on NP may vary depending on the level of IC. The moderating effects are tested through interaction terms (e.g., IA \times IC, IM \times IC), as outlined in hypotheses H_{3.1}, H_{3.2}, H_{3.3}, H_{3.4}, and H_{3.5}. This aspect of the framework captures the contingent nature of leadership effectiveness within innovative environments.

Overall Model Structure

The model is tested using Partial Least Squares Structural Equation Modeling (PLS-SEM), allowing for an analysis of both direct and interaction effects. This framework supports a more nuanced understanding of how transformational leadership and innovation capability interact to influence nursing performance, providing evidence-based insights for leadership development and innovation strategies within healthcare systems.

The theoretical foundation for this framework is underpinned by two key theories:

1. **Transformational-Transactional Leadership Theory** explains the direct effects of TL components (IA, IM, IB, IS, IC) on Nurses' Performance (NP), emphasizing how transformational leadership practices enhance performance outcomes.
2. **Leader-Member Exchange (LMX) Theory** provides the basis for understanding the moderating role of Innovation Capability (INNVC) in this

relationship, highlighting how the dynamics between leaders and team members facilitate or constrain innovation.

The Innovation Capability (INNVC) construction includes key dimensions such as the basis of innovation, process of innovation, effectiveness of innovation, and environment and pressure of innovation. These dimensions collectively define the moderating role of INNVC in the relationship between TL and NP.

While TTL theory aptly explains how transformational leadership can elevate motivation and performance, it tends to assume linear, positive relationships. It fails to account for contextual inhibitors such as burnout or role ambiguity prevalent in healthcare. LMX theory addresses relational quality, yet it offers limited guidance on structural enablers like innovation culture. The integration of both theories thus provides a more holistic lens but still leaves space for emerging perspectives such as ambidextrous leadership, especially in dynamic healthcare environments

2.7 Hypothesis Development

This study investigates the impact of Transformational Leadership (TL) on Nurses' Performance (NP), considering the five dimensions of TL: Idealized Attributes (IA), Inspirational Motivation (IM), Idealized Behavior (IB), Intellectual Stimulation (IS), and Individual Consideration (IC). Furthermore, it examines whether Innovation Capability (INNVC) moderates the relationship between TL and NP.

2.7.1 Overall Impact of Transformational Leadership on Nurses' Performance

Research has consistently shown that transformational leadership enhances employee motivation, creativity, and job satisfaction, all of which contribute to improved performance (Bass, 1985; Christie et al., 2019). In healthcare settings, nurse leaders who exhibit transformational behaviors positively influence nurses' performance outcomes through vision-building, individual support, and intellectual engagement (Moey and Hashi, 2018; Abd-Elrhman and Abd-Allah, 2018). However, most existing studies have focused on TL components in isolation. Therefore, to answer **RQ1** and address the gap, the following hypothesis is proposed:

H1: Transformational Leadership (TL) has a significant positive impact on Nurses' Performance (NP).

The impact of transformational leadership (TL), which includes idealized attributes (IA), inspirational motivation (IM), idealized behaviours (IB), intellectual stimulation (IS), and individual consideration (IC), on nurses' performance (NP) is examined in this section. Additionally, the moderating impacts of innovation capability (INNVC) on the association between nurses' performance (NP) and transformational leadership (TL).

2.7.1.1 Impact of Idealized attributes (IA) on Nurses' Performance (NP)

Strong leadership is essential for businesses and the personnel they recruit. Germain and Cummings (2010) concluded that nurse leadership affects views of staff about motivation to perform through encouraging autonomy, forming connections, offering resources, and using leadership techniques that guide, mentor, and coach. According to Cowden, Cummings, and Profetto-McGrath (2011), a leader's qualities are also

closely associated to job satisfaction and the desire to stay in the profession. The projected global nursing shortage gives this essential significance (Andrews et al., 2012). The claim that transformational behaviors will solve the requirement for successful leadership does not distinguish how the staffs perceivetransformational leadership behaviors in relation to satisfaction with leadership. Differences in how management and staff view leadership behaviors are not addressed either.

Additionally, according to Contreras, Baykal, and Abid (2020), a leader is someone who uses their interpersonal abilities to persuade others to carry out a particular task. Silva (2016) defined leadership as act of influencing an individual's or a group's actions in order to achieve a goal in a specific context. Bass (1985) outlined the distinction between management and leadership in more detail. Leadership is a dynamic process in which a range of human behaviors and approaches are used, while management is described as working with and through people to achieve organizational goals. The term "nursing leadership" will be used to refer to the level of nurse management as the nurse leader for the purposes of this study.

This was also consistent with a study by Ibrahim et al. (2016) that found nurses preferred transformational leadership over transactional leadership. However, neither style possesses the desired leader's qualities, making it inappropriate for promoting nurses' optimal performance. Additionally, a leader gains the respect and confidence of his or her followers, which leads to acceptance of difficult objectives. Additionally, Garg and Ramjee's (2013) findings showed that transformative leadership rather than transactional leadership predominates in the aforementioned Parasternal. According to Bin Saeed et al. (2019), employees who actively accept their supervisors' influence

and show consideration for their requirements are more likely to be affected by their behaviors than employees who do not exhibit these qualities.

The significant association between academic nursing leadership styles and nurse educators' job satisfaction suggested that academic nursing transformational leadership styles had a significant impact on job satisfaction of the followers and that transformational leadership practices and attributes of academic nursing leaders could motivate subordinates to achieve more than they had originally planned (Moey and Hashi, 2018). In today's quickly evolving health care environment, where adaptation is crucial, transformational leadership is ideally matched. Most leaders do not naturally exhibit transformational leadership behaviors; instead, these behaviors must be learnt through coaching and mentoring as well as recognizing the characteristics of transformational leadership (Christie et al., 2019). Considering the foregoing reasons, the following hypothesis is suggested:

H_{1.1}: Idealized attributes (IA) have a significant impact on Nurses' Performance (NP)

2.7.1.2 Impact of Inspirational motivation (IM) on Nurses' Performance (NP)

Another aspect of transformational leadership that is explored in this study as an independent variable is inspirational motivation. Doody and Doody (2012) claim that the method entails encouraging followers to align their own goals with the organizations in their in-depth analysis of inspirational motivation. In addition, they assert that by employing this technique, the organization's objectives are simultaneously attained, benefiting both the individual and the business. Inspirational motivation and its impact on organizational performance have not been investigated

extensively outside the context of transformative leadership, similar to the variable of idealized influence.

The importance of inspired motivation and place special attention on its function in promoting worker satisfaction and trust. These writers contend that inspiring motivation can act as the fulcrum for information sharing, which is vital for promoting organizational success. The lack of study on how inspirational motivation affects organizational performance necessitates independent investigation of this factor in order to better understand its influence.

Ngaithe et al. (2016) conducted a study to determine the impact of inspiring motivation on employees' performance in Kenyan State-Owned Enterprises (SOEs). In the study, data were reduced using factor analysis, the association between staff performance and inspiring motivation was established using correlation analysis, the hypotheses were tested using the chi square test, Analysis of Variance (ANOVA), and a multiple linear regression model. According to the study, inspirational motivation strongly predicted staff performance and was favorably and significantly correlated with it. The study came to the conclusion that inspiring motivation considerably and positively boosted employee performance in Kenyan SOEs. In a different study, Haque et al. (2015) examined the connection between transformational leadership characteristics and employee motivation in Libyan public sector organizations. Idealized affect, inspirational motivation, individualized consideration, and intellectual stimulation make up these dimensions.

The study employed a correlational research design and a quantitative technique. Applying multiple regression analysis to determine the connection between specific transformational leadership components and employee performance led to a

statistically significant relationship between the two variables. These constructs were responsible for 73.7% of the variation in employee performance. Inspirational motivation also had a 6.4% role. The work correspondence of employees had a significant moderating impact on the association between transformational leadership and the performance of lower-level managers, according to Langat et al. (2019) study on the impact of inspirational motivation on employee performance. Each of the three studies mentioned above attests to the crucial role that inspiring motivation plays in employees' performance; as a result, the study's core hypothesis is that inspirational motivation considerably improves employees' performance in the Lira district. In light of the foregoing reasons, the following hypothesis is suggested:

H_{1.2}: Inspirational motivation (IM) has a significant impact on Nurses' Performance (NP)

2.7.1.3 Impact of Idealized behaviour (IB) on Nurses' Performance (NP)

Transformative leadership and transactional leadership are not mutually incompatible; rather, they work best together, have strong connections, and coexist with other facets of leadership (Kishen et al., 2020). The Full Range Leadership paradigm, which identifies several elements or dimensions of leadership, completes the paradigm by introducing a new category of behavior: absence of leadership (Hair et al., 2014). Our research focuses on transformational leadership, which has four components. Idealized influences are the traits and behaviors of leaders whose followers seek to imitate and include conventional leadership ideals. They are later subdivided into idealized behavior and idealized qualities. Inspirational motivation enables leaders to create objectives and inspire followers. Leaders that are intellectually stimulated are

more likely to consider multiple viewpoints while solving difficulties. Individual factors, in addition, take into account a person's unique traits (Jon, 2011).

According to Yin et al. (2019), transformational leaders create a working environment that inspires followers to produce new knowledge. Then, through individualized consideration, the leader encourages their followers to share new knowledge with the entire organization.

This is consistent with the findings in Lin and Hsiao's (2014) study, which found that all behaviors of transformational leadership had favourable connections with organizational knowledge management practices. Individual work performance is improved in accordance with the improvement of organizational knowledge management (Henttonen et al., 2016). These findings provide credence to presumptions that all aspects of transformative leadership will improve employee job performance. Additionally, according to Akdere and Egan (2020), performance-related behaviors are directly tied to the activities that must be completed in order to complete a job. According to Abd-Elrhaman and Abd-Allah (2018), head nurses who practice transformational leadership uncover creative strategies that boost staff nurses' performance to the maximum extent possible to realize a vision of high-quality healthcare. Additionally, a transformational leader has a significant influence on the behavior of the staff nurses to help the organization achieve its goals by providing fresh inspiration, direction, and behaviors. According to the findings of Ha and Nguyen (2014), avoidant or passive leadership behavior has the greatest impact on an individual's ability to accomplish their job.

Finding a leadership style that works for them to lead their staff members presents several problems for nurse leaders. According to Magbity et al. (2020), the diverse

work environments of today serve as a beacon for a deeper understanding of leadership behaviors and their effects on employee job satisfaction. The popularity of leadership books suggested that leaders are conscious of the necessity of novel and distinctive leadership philosophies in order to fulfil the demands of the quickly evolving workplace of today (Foon, 2016).

The authors, Parveen et al. (2021), determined that idealized behavior and other transformational leadership traits enhance nurses' clinical performance. In Ali et al. (2020) study, there were positive relationships between organizational commitment and leadership behaviors. According to Ogola et al. (2017) research, there is a substantial positive and significant association between idealized influence leadership behavior and employee performance in SMEs in Kenya. Additionally, research by Ogola et al. (2017) indicated that managers should actually adopt more charismatic behaviors to improve productivity among their subordinates and in the teams, they have integrated into. In light of the foregoing reasons, the following hypothesis is suggested:

H_{1.3}: Idealized behaviour (IB) has a significant impact on Nurses' Performance (NP)

2.7.1.4 Impact of Intellectual stimulation (IS) on Nurses' Performance (NP)

An essential element of transformational leadership is intellectual stimulation. Transformational leaders challenge their followers' minds by stimulating their own, as well as, when appropriate, the leader's, beliefs, assumptions, and values, which may be out-of-date or unsuitable for addressing contemporary issues (Chebon et al., 2019). According to Anjali and Anandassert (2015), intellectual stimulation fosters a culture of employee loyalty to the company. This in turn affects the organization's capacity to

accomplish objectives based on the commitment and labour of staff members. Leaders who are intellectually stimulating encourage constant re-examination of presumptions, change in the way people approach challenges, and encourage the use of analogy and metaphor (Ogola et al., 2017).

Transformational leaders consistently teach, illustrate, but also encourage and solicit fresh and imaginative problem-solving solutions from all organizational members through their constant pursuit of new information (Chebon et al., 2019). Similarly, Bycio et al. (1995) discovered a very substantial positive association between the extra effort made by subordinates and the transformational leadership scale's intellectual stimulation feature.

According to Cheung and Wong (2011), there is a correlation between intellectually stimulating leadership techniques and employees' creativity, which encourages and challenges workers to look for fresh ideas to their work. Leaders of successful, fast-growing businesses recognize that innovation is what fuels growth and they hold that innovation is produced by staff members that have a persistent growth mindset and a passion for solving problems (OWUOR, 2018). A company's capacity to identify market possibilities and, as a result, create a sustainable innovation organization from this is the foundation for innovation (Zhang et al., 2020). Leaders that promote intellectual stimulation inspire staff to think creatively, approach challenges from various perspectives, and investigate cutting-edge technological solutions to difficulties (Begum et al., 2022).

According to Magasi (2021a), effective leadership requires questioning followers' status quos as well as the leader's and the companies. This increases followers' levels of creativity and innovation. According to Magasi (2021b), intellectual stimulation is

mostly utilized to increase employees' capacity for decision-making and to foster originality and creativity in order to boost workplace productivity. Scotland (2010) emphasizes that the ability of the firm founder to adapt, develop, and take advantage of possibilities contributes to the success and longevity of the business. Trang (2016) found that giving employees difficult tasks to complete fosters and encourages their creativity and considerably improves both their performance and the success of the company.

In addition, Gumbo et al. (2012) noted that good business performance is influenced by employee creativity and innovation. Similarly, Malik et al. (2017) found that altering one level of intellectual stimulation will improve employee feedback and satisfaction. Furthermore, according to Ogola et al. (2017), a leader can boost employee performance by encouraging staff to use their initiative, think critically about problems they encounter at work, and look for creative ways to complete tasks and assignments. Savovic (2017) contends that intellectual stimulation has the least impact on performance following acquisition. Suifan and Marwa (2017) claim that there is no discernible connection between intellectual stimulation and employees' creativity. The researchers Waris et al. (2018) also discovered that intellectual stimulation had no effect on the calculative commitment of employees.

The impact of intellectual stimulation leadership behavior on worker performance in Small and Medium Enterprises in Kenya was examined in a study by Ogola and Linge (2019). The findings revealed a substantial positive and significant association between intellectual stimulation leadership behavior and employee performance in SMEs in Kenya. In the study by Smothers et al. (2016), it was examined the function of intellectual stimulation in the interaction between managers and employees. A

sample of 259 nurses from two local healthcare facilities in the Midwest of the United States were used in the study. According to the study, a leader's capacity for intellectual stimulation and employee empowerment are directly related. In light of the foregoing reasons, the following hypothesis is suggested:

H_{1.4}: Intellectual stimulation (IS) has a significant impact on Nurses' Performance (NP)

2.7.1.5 Impact of Individual consideration (IC) to Nurses' Performance (NP)

According to K'Aol et al. (2016), individualized consideration is when a leader serves as a staff member's coach or mentor to help them realize their full potential. According to Lewa et al. (2018), individualized consideration is a trait of an empathic leader who mentors staff members and rewards them for creativity and innovation. In this situation, a transformational leader demonstrates genuine concern and compassion for the staff members in addition to having strong communication and interpersonal skills. The employees receive help based on their needs and are developed according to their talents. They are frequently given the authority to make decisions and the support they need to put those decisions into action. A transformational leader's primary motivation is to continuously advance and develop their team (K'Aol et al., 2016).

According to Ayacko et al. (2017), leaders have the chance to engage with employees in more meaningful ways when they give each person their undivided attention. A leader who engages in such practices can be a useful asset for the organization through personalized and reciprocal communication. By serving as their mentor, the leader attends to the requirements of each follower to help them develop and accomplish both organizational and personal goals.

The leader recognizes individual variations, gives encouragement to certain workers, standardizes work patterns to others, and grants autonomy to workers with more experience in an effort to introduce fresh learning opportunities in a friendly environment. In order to help followers, grow their skills, the leader establishes a two-way communication channel with the team, encourages active listening, and delegated tasks (Morkeviit and Endriulaitien, 2020; K'Aol et al., 2016).

Individualized Consideration implies treating each follower differently and empathizing with their worries and developmental requirements (Gao and Bai, 2011). In addition to identifying and meeting each follower's specific requirements at the moment, leaders also seek to elevate and broaden those needs in order to help followers reach their maximum potential. Leaders can further strengthen followers' loyalty by focusing on their individual career needs and giving them a sense of greater competence to do their obligations (Liu, 2018).

The fourth and last component of transformational leadership is individual consideration. Leaders who prioritize success and progress. To foster a successful atmosphere, a range of abilities are used, such as coaching, mentoring, listening, giving advice, showing empathy, encouraging others, and providing criticism. According to Abd-Elrhman and Abd-Allah (2018), a setting like this encourages followers to reach their full potential and execute tasks more successfully, which raises their self-esteem and self-efficacy (Tahir et al., 2014). According to Brewer et al. (2016), transformational leadership approaches have the ability to improve performance across an organization by emphasizing the role of the follower (staff nurses). The success of the organization is enhanced by transformational leadership practices (Shahzad et al., 2018). Therefore, head nurses that exhibit this manner serve

as examples to the staff nurses. Such head nurses inspire their staff nurses to think creatively, look for new opportunities, and come up with innovative ideas in order to tackle problems that go beyond themselves and achieve high performance (Deschamps et al., 2016). They are interested in novel and unconventional working techniques. From the perspective of nursing, individual responsibility for WE in professional practice is supported by professional nurses' ethical considerations. As a result, nurses' jobs need engagement at work (Habib et al., 2020).

Additionally, individualized consideration offers leaders individualized attention by concentrating on the requirements of nursing personnel. This involves direction, coaching, learning opportunities, and an environment that promotes the development of visionaries. As subordinates struggle to make the idea a reality, it transforms into a common vision. Therefore, to comprehend the transformational process, a number of transformative leadership behaviors, including attributed charisma, idealized influence, inspiring motivation, intellectual stimulation, and personalized consideration, can be used. (Milelu, 2019). In light of the foregoing reasons, the following hypothesis is suggested:

H_{1.5}: The Individual consideration (IC) has a significant impact on Nurses' Performance (NP)

2.7.2 Impact of Innovation Capability on Nurses' Performance

Innovation is a viable factor for the survival and sustainable competitive advantage of health sector in today's highly sensitive and contemporary world (Akhtar et al., 2020; Carlucci et al., 2020). At an individual level, employee's innovative potential and creative thoughts have always been recognized as the root of the organizational

innovation process (Yasir and Majid, 2019). Nurses provide up to 80% of main care in the healthcare scheme and expected to do more with less to respond the frequently changing needs of health sector thus nurses are well-positioned to contribute to the area of innovations in practice (Ahmed et al., 2019; Shih and Susanto, 2017). Precisely, cultivating innovative behavior among nurses is essential for reliable, advance, and affordable quality health care services (Ahmed et al., 2019; Li, 2014; Serly; Yasir and Majid, 2019). Innovative capability of nurses can be defined as “practical application of new ideas in an effective manner’ in conformity with organizational objectives” (Xerri and Reid, 2018) or for the better performance of newly created work-related requirements (Yasir and Majid, 2019) (e.g. managing computerized medical record, specialized care settings like arranging and maintaining beds for particular disease) (Carlucci et al., 2020).

There are various methods or approaches to enhance employee performance and one of them is through innovation. It was found that employee performance improves organizational performance indirectly through innovation as employees generate new ideas for new products of services to improve competitiveness of the organization (Sadikoglu and Zehir, 2010). In addition, innovation will increase the quantity, quality, and timeliness of output, attendance on the job, efficiency and effectiveness of work completed (Tinofirei, 2011). In light of the foregoing reasons, the following hypothesis is suggested:

H2: The innovation capability (INNVC) has a significant positive impact on Nurses’ Performance (NP)

2.7.3 Moderating Role of Innovation Capability (INNVC) on the relationship between Transformational Leadership (TL) including Idealized Attributes (IA), Inspirational Motivation (IM), Idealized Behavior (IB), Intellectual Stimulation (IS) and Individual Consideration (IC)

Moderating Effect of Innovation Capability on TL–NP Relationship

Existing literature suggests that transformational leadership enhances innovation, which in turn boosts performance (Feng et al., 2016; Mokhber et al., 2018). When nurses have a high level of innovation capability, the influence of transformational leaders may be further amplified. To assess the moderating effect of INNVC on the overall TL NP relationship, the following hypothesis is proposed:

H3: Innovation Capability (INNVC) positively moderates the relationship between Transformational Leadership (TL) and Nurses' Performance (NP) the relationship is stronger when INNVC is high.

2.7.3.1 Individual Consideration (IC) and Nurses' Performance (NP).

Given that innovation is a multifaceted concept, it is essential to specify precisely which innovation related attribute should be examined. According to Atalay et al. (2013), innovation is defined as a complex process connected to changes in production functions and processes whereby firms seek to develop and build upon their distinctive technological competence, understood as the collection of resources a firm possesses and the way these are transformed by innovative capabilities. Environmentally sustainable innovations are ways to lower costs associated with environmental degradation through the creation of novel concepts, attitudes, practices, goods, and procedures. Businesses are under increased pressure now to invest in the technology and procedures that enable a more sustainable future (Holliday et al., 2017).

Businesses that seek to internalize environmental sustainability should invest money in research to develop new technologies that will raise the caliber of their operations and production, according to Porter and Van der Linde (1995). The Oslo Manual from the OECD defines process innovations as a strategy to reduce costs, enhance the delivery of goods and services, and include better methods in secondary support operations. According to Buchana and Sithole (2022) "product innovations" are commodities or services that are introduced to the market that are new or significantly improved. Innovations in processes and products lead to the creation of new energy-efficient technology.

Innovation is a key factor in growth and achievement. It gives businesses a chance to differentiate themselves from their industry peers and satisfy evolving client demands. Although it seems that being innovative favourably impacts a company's performance, growth, profitability, and market value, following strategies centred on innovation may require making some challenging resource allocation decisions. This may help to explain why some researchers who investigated how innovation affects performance came up with conflicting or unfavourable findings. Additionally, the complexity of both variables emphasizes how crucial a precise definition is. Focusing on research that examines the relationship between innovation and financial performance, it is suggested and discovered that innovation has a beneficial impact on business performance (Bigliardi et al., 2020; Hanelt et al., 2021; Chege et al., 2020).

Companies' growth curves might change due to product innovation. Long-term businesses can overcome unfavorable demographics by expanding the consumer base of their products. Process innovation has an impact on a process's capital intensity, economies of scale, fixed costs, level of vertical integration, and consumer

experience, all of which have an impact on the performance of a firm and an industry (Reichstein, 2004). Therefore, if applied properly, several innovation categories can be used to enhance financial performance and growth (Xie et al., 2019).

In recent years, studies on innovation antecedents have sought to pinpoint the elements that encourage and enable innovation. As a result, some researchers looked into the relationship between leadership and innovation and identified variables like leader behaviors or characteristics that have a big impact on innovation (Demircioglu and Van der Wal, 2021; do Adro and Leito, 2020; Lee et al., 2020). Previous research found that one of the major elements affecting innovation is leadership, with its dominant position within the organization (Ngibe and Lekhanya, 2019). Through their activities, leaders can influence their organizations to become more innovative. Changes brought about by leaders enable businesses to pursue innovation more successfully. Leadership plays a critical role in fostering changes in the company that encourage innovation by influencing the strategic decisions, policies, and practices of the organization (Prasad and Junni, 2016).

According to findings from earlier studies, a leader with a transformational leadership style must concentrate on various facets of the innovation process, such as a broad supportive environment to support his or her influences. This supportive environment is seen as an organization's supportive contribution to its workers' increased job satisfaction and improved performance. Therefore, the company can encourage its staff to fully commit themselves to innovation activities by providing supportive mechanisms (Mokhber et al., 2018). While many organizations employ a variety of stimulating variables to encourage organizational innovation, Choi et al. (2016) found that organizations' support for innovative behavior is a key driver of the innovation

process. To offer the organization an opportunity to develop creative outcomes, leaders must foster innovative behaviors that lead to the generation of new ideas and new ways of working (Mansoor et al., 2021).

By increasing the drive and capacity for creativity across organizational members, transformational leaders can foster innovation. According to Prasad and Junni (2016), transformational leaders inspire their team members to be more innovative, creative, and to come up with fresh approaches to organizational structures, procedures, and practices. According to Feng et al. (2016), "transformational leadership is an essential leadership practice that can keep up with the changing times and improve an enterprise's innovative capacity." Despite widespread agreement on the significance of leadership for innovation, little research has been done, according to earlier researchers (Al-Husseini et al., 2021; Leangkhamma and Le, 2020; Groelj et al., 2020; Afsar and Umrani, 2019; Afsar et al., 2019; Zuraik and Kelly, 2018). It has been suggested that prior research on innovation and leadership has largely been conducted in siloes and has not benefited from one another sufficiently (Feng et al., 2016; Prasad and Junni, 2016).

A thorough examination of the inclusion of mediators or moderators as intervening variables in this relationship has not yet been done (Mokhber et al., 2018; Mokhber, 2013; Makri and Scandura, 2010; Khan et al., 2009). This is in addition to the need for more empirical research to support the theoretical claims about the relationship between transformational leadership and innovation. According to findings from earlier studies, additional research is needed to focus on the relationship between transformational leadership and innovation as well as the factors that limit it (Lei et al., 2021). The findings of earlier research on leadership and creativity do not point to

a clear conclusion, and varied conclusions are reached, claim by Rosing et al. (2011). Despite the fact that several leadership philosophies are positively associated with innovation, the majority of these relationships are complex and dependent on moderating factors. The inconsistent results imply that additional variables, including the depth of the examination, the source of the innovativeness rating, and various traits of the businesses under study, may have been involved (such as an environment that fosters excellence and supports innovation, etc.), influence the relationship between transformational leadership and innovation. According to earlier research, the relationship between innovation and transformational leadership is not always the same, which calls for the investigation of mediating and moderating elements between them (Choi et al., 2016).

The approach to innovation is related to other popular themes like the personal factors involving nurses (stress, anxiety, and work engagement) and the organizational support, which can help us comprehend these professionals' reactions to the innovative behavior and inherently to the innovation outputs (Moreno Cunha, et al., 2022). In addition to management, innovation is important in healthcare, particularly in the nursing field. On the one hand, the worldwide community must work together to resist COVID-19 given the current situation and the state of the world. On the other hand, it's equally critical to comprehend the impact this pandemic will have on medical personnel. Human capabilities, healthcare experts, and the resources at their disposal are being put to the test, pushing innovators to simultaneously manage stress and worry, which may or may not have an impact on the results.

These days, as medicine has advanced, nursing procedures and patient care have become more complicated. Innovation in nursing has become necessary to stay up

with the quickly evolving knowledge and scientific period and to effectively handle worldwide competition (Kartal, 2018). Additionally, due to the advancement of technology and the rising demands of those utilizing healthcare services, investments in innovation have increased (Ayvaz et al., 2019; Ozbey, 2018). In addition to innovation, developing affordable, usable solutions using cutting-edge technology and education for health care with limited resources is crucial. As the population ages, so does the proportion of people who have chronic illnesses. In addition, the care provided, and the demands are evolving. The demands and expectations for health care alter along with changes in income level and disease severity. The new healthcare services goods and programs are anticipated to improve care quality, lower prices, and contribute to the nation's socioeconomic development (Sengun, 2016).

The innovative nurse as a salaried health professional who produces, develops and markets innovative programs / projects in the field of health care, according to an article written by the International Council of Nurses (ICN) in 2009 (Ayvaz et al., 2019). Increasing the culture of innovation and their inventive development is crucial if health organizations are to act and be modernized in accordance with the times (Yilmaz, 2014). ICN promoted the idea that nurses should lead the way in developing new methods of care in order to offer individuals, families, and society competent services. As a result, it was claimed that nursing innovation and development are still important and should be (Rosa et al., 2019). Qualified nurses should receive the education necessary to address the gaps and needs in a globalizing society. Ayvaz et al., 2019.

A more liveable world won't be given to us, so let's work without hesitation to build this environment, remarked Florence Nightingale, the originator of modern nursing, in

the 19th century. Changing it would be preferable to conforming to life. She emphasized the value of modernization and innovation, as is said (Wardan et al., 2020).

The advancement of the nursing profession and the quality of nursing care depend greatly on innovation (Kara, 2016). A strong focus on profession and professionalization makes it feasible to identify requirements and look for solutions when providing healthcare. Encourage nurses who study scientific advancements and innovations and engage in new activities to maintain their professional development (Ayvaz et al., 2019). Additionally, nurses should think creatively, take calculated risks, and be conscious of their opportunities and shortcomings (Yilmaz, 2014). Innovation is often used in the health industry.

Professional nurses in the healthcare industry must create cutting-edge products and practices and provide them to society in order to be managers, decision-makers, and carers for society (Smith et al., 2021). Because nurses are largely in charge of providing healthcare and because they spend more time with patients and healthy people than other types of healthcare professionals. As well as providing patients with comprehensive care, nurses have been questioned and have provided innovative solutions. The development of creative values and the creation of innovative products and programs by nurses have advanced significantly, particularly in the twenty first century (Merih, 2018).

The implementation of novelties that cause minor as well as major changes in the way nursing teams practice and organize nursing care is what is meant by innovation in nursing, which is represented in many different ways and applied in a variety of contexts (Timmermans et al., 2012). In order to change their knowledge, abilities, and

behaviours, nurses must complete a variety of learning tasks (Gaberson and Oermann, 2010). For instance, the adoption of an electronic patient record (EPR) presents learning challenges for the team's nurses in terms of their familiarity with EPR content, digital proficiency, and capacity to do away with pen and paper (Veer and de Francke, 2010). Different learning challenges are created for each nurse in the team by innovations such the use of the bedside handover method, hand-hygiene procedures, or clinical pathways (Kassean and Jagoo, 2005). Despite the variations among all the innovations, the effectiveness of implementation is mostly dependent on the extent of attitude and behavior modifications made by the team's nurses (Timmerman et al., 2012).

H_{3.1}: The positive relationship between Idealized attributes (IA) and Nurses' Performance (NP) will be stronger when innovation capability (INNVC) is high. H_{3.2} The positive relationship between Inspirational Motivation (IM) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.

H_{3.3} The positive relationship between Idealized behavior (IB) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.

H_{3.4} The positive relationship between Intellectual Stimulation (IS) and Nurses' performance will be stronger when innovation capability (INNVC) is high.

H_{3.5} The positive relationship between Individual Consideration (IC) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.

Thus, when nurses possess high innovation capability, transformational leadership's positive effects on performance are amplified.

2.7.4 Theoretical Application and Hypotheses for Moderating Role of Innovation Capability (INNVC)

Integrating Social Exchange and Innovation Theory:

Social Exchange and Leadership: In healthcare settings, transformational leaders create positive exchanges with their nurses. The leader provides mentorship, autonomy, and recognition (rewards), and in return, nurses are motivated to give their best performance, trust the leadership, and engage in innovative practices.

Social Exchange and Innovation: Nurses who have the capability and freedom to innovate view the exchange relationship as more valuable. They perceive transformational leadership as a resource that supports and values their contributions. If they receive support in the form of autonomy and recognition for innovation, they are more likely to reciprocate by performing at higher levels.

Social exchange theory and innovation theory helps to explain the complex interaction between transformational leadership, innovation capability, and nurse performance. It shows those nurses' perceptions of their work environment in terms of leadership supportive behaviour will influence how they perform. Transformational leadership fosters a reciprocal relationship that encourages innovation, which, in turn, enhances nurse performance. Nurses with higher innovation capability are more likely to respond positively to transformational leadership and perform better, while those with lower innovation capability may not experience the same level of improvement in performance.

This section extends the analysis of the moderating influence of innovation capability (INNVC) on the relationship between transformational leadership (TL) and nurses' performance (NP) by drawing on Integrating Social Exchange and Innovation Theory: thereby clarifying the mechanisms through which INNVC strengthens TL's effects on

NP.

2.7.4.1 The Conceptualizing Innovation Capability as a Moderating Variable Rather Than a Mediating Variable

Innovation Capability was conceptualized as a moderator not a mediator in the relationship between Transformational Leadership (TL) and Nurses' Performance (NP) based on both theoretical reasoning and empirical alignment with the study objectives.

A moderator affects the strength or direction of the relationship between an independent variable and a dependent variable, whereas a mediator explains how or why that relationship occurs (Baron & Kenny, 1986).

2.8 Research Gap

Although transformational leadership (TL) has garnered substantial empirical support for its positive influence on employee performance, job satisfaction, and organizational innovation, significant research gaps persist within the healthcare sector particularly in the domain of nursing and within government-operated institutions in the Middle East. The majority of existing studies have concentrated on non-healthcare settings such as business, education, and public administration (e.g., Bakti and Hartono, 2022; Chandrasekara, 2019; Haque et al., 2015), thus offering limited insights into the contextual relevance and application of TL in clinical nursing environments.

A further limitation in the extant literature is the frequent treatment of TL as a unidimensional construct. This approach overlooks the distinct contributions of its

core components idealized attributes (IA), inspirational motivation (IM), idealized behavior (IB), intellectual stimulation (IS), and individual consideration (IC). The lack of disaggregation restricts the ability to determine which specific leadership behaviors exert the most substantial influence on nurses' performance, especially in resource-limited healthcare settings.

Furthermore, although numerous studies affirm the positive association between TL and nursing performance (NP) (e.g., Boamah et al., 2018; Gebreheat et al., 2023), contradictory findings have also been reported. For example, Eliyana et al. (2019) and Lutfi and Siswanto (2018) identified inconsistent or even adverse outcomes, suggesting that sectoral variations, methodological inconsistencies, or the absence of moderating variables may influence the TL NP relationship.

One such moderating factor is innovation capability (INNVC), which is increasingly recognized as vital for enhancing organizational agility and healthcare quality. Despite its importance, INNVC is typically examined either as an outcome or as an independent predictor, with limited research investigating its moderating role in leadership-performance models. Understanding the interaction between TL and INNVC could offer a more holistic perspective on the mechanisms through which leadership practices influence nursing performance.

Additionally, there is a lack of theoretical integration in current research. Most studies neglect to adopt a multi theoretical approach that combines relational dynamics such as those emphasized in Leader Member Exchange (LMX) theory with structural or organizational constructs like innovation capability. The absence of such integrative frameworks limits the explanatory power of existing models and diminishes the applicability of findings to real-world clinical contexts.

From a geographical perspective, there is a paucity of empirical research exploring these dynamics within Qatar's healthcare system. Despite the nation's ongoing health sector reforms under the Qatar National Vision 2030, there remains a lack of context-specific evidence regarding the influence of TL and INNVC on nurses' performance in public hospitals. This gap highlights both a regional and contextual void that this study seeks to address.

Accordingly, the present study is designed to:

1. Disaggregate transformational leadership into its five core dimensions to assess their individual contributions to nurses' performance.
2. Introduce innovation capability as a moderating variable to better understand the interplay between leadership behaviors and performance outcomes.
3. Employ a dual-theoretical framework that integrates Transformational-Transactional Leadership and LMX theory.
4. Generate contextually grounded empirical evidence from Qatar's government healthcare system, thereby enhancing both theoretical development and practical applicability.

2.8.1 Theoretical and Methodological Gaps

Despite increasing recognition of the importance of transformational leadership in healthcare, several theoretical and methodological shortcomings remain unaddressed in the literature.

Many studies conceptualize TL as a singular, overarching construct, thereby failing to examine the differential effects of its subcomponents (e.g., intellectual stimulation, individual consideration) on performance outcomes. This limits the identification of

specific leadership behaviors that may be more effective in particular clinical or organizational contexts.

Innovation capability is frequently under-theorized and often treated in isolation as either an organizational trait or an outcome variable. Its potential function as a moderating factor within leadership-performance models remains largely unexplored. This represents a missed opportunity, particularly given the conceptual alignment between innovation capability and TL dimensions such as intellectual stimulation.

The methodological designs employed in most existing studies are predominantly cross-sectional (e.g., Eliyana et al., 2019; Pishgooie et al., 2019), limiting the ability to draw causal inferences or examine the sustainability of leadership effects over time. The lack of longitudinal and mixed-method designs constrains understanding of how TL and INNVIC interact dynamically under actual clinical pressures and organizational changes.

Much of the literature is grounded in data from well-resourced or Western healthcare systems, which presents challenges in generalizing findings to underrepresented regions, such as the Middle East. Specifically, Qatar's public healthcare institutions operate within unique cultural, policy, and structural contexts that may alter the manifestation and impact of leadership practices.

Most empirical investigations do not seek to extend or challenge foundational leadership theories such as Transformational-Transactional Leadership or LMX theory. Instead, studies often reaffirm existing theoretical assumptions without adapting them to the complexities of healthcare settings. This limits the potential for theoretical advancement and the practical relevance of research findings in the nursing domain.

In addressing these gaps, the current study adopts a novel moderated model that integrates disaggregated transformational leadership dimensions and innovation capability. By anchoring the research within the Qatari healthcare system and utilizing a dual-theoretical lens, the study aims to both enrich leadership theory in nursing and generate practical insights relevant to healthcare leadership development and performance enhancement in the region.

2.9 Chapter Summary

This chapter provides a comprehensive review of the literature related to Transformational Leadership (TL), including its key components: idealized attributes (IA), inspirational motivation (IM), idealized behavior (IB), intellectual stimulation (IS), and individual consideration (IC). It also presents an in depth analysis of Nurses' Performance (NP) and Innovation Capability (INNVC). The objective is to develop a theoretical perspective that justifies the relationship between TL, NP, and INNVC.

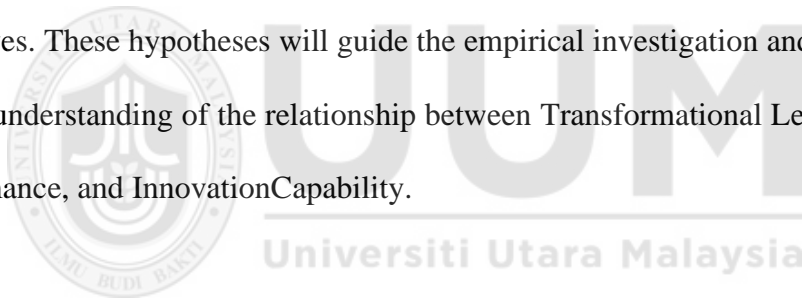
To frame this investigation, the study will utilize both the Leader-Member Exchange (LMX) Theory and the Transformational-Transactional Leadership Theory. These theories provide a robust foundation for exploring how TL impacts NP and INNVC. LMX Theory emphasizes the quality of the relationship between leaders and followers, suggesting that higher quality exchanges can enhance performance and satisfaction. Transformational Transactional Leadership Theory.

The variables in this study Transformational Leadership, Nurses' Performance, and Innovation Capability are described in detail. Transformational Leadership encompasses Idealized Attributes, Inspirational Motivation, Idealized Behavior, Intellectual Stimulation, Laissez Faire Leadership, Contingent Reward, and Individual

Consideration. Each component plays a distinct role in influencing how nurses perform their duties and engages in innovative practices.

The theoretical framework developed for this study integrates insights from both Transformational-Transactional Leadership Theory and LMX Theory. This framework aims to elucidate how TL can enhance NP and foster a culture of innovation within healthcare settings. By exploring the interactions between these variables, the study seeks to offer a nuanced understanding of how effective leadership can drive performance and innovation in nursing.

The chapter concludes with a detailed discussion of the theoretical underpinnings of the proposed Theoretical Framework and the hypotheses derived from the study's objectives. These hypotheses will guide the empirical investigation and contribute to a deeper understanding of the relationship between Transformational Leadership, Nurse Performance, and Innovation Capability.



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research method will be covered in detail, including the research design, the population, the sample, and the sampling strategy utilized to get the study sample. Also, there will be questionnaire, and descriptive analyses, and other statistical analyses, including hypotheses test, are discussed as well, in detail. Then, the chapter deliberates on the data collection procedure as well as the employed data analysis techniques. At the conclusion part, the chapter summary is presented.

3.2 Research Design

Research design is considered as the blueprint or framework for a study that will be used to direct the researcher during the collection and analysis of data (Locks et al., 2015). It organizes and collects the elements of research together to help achieve the research objectives. The research approach must be clear (Saunders et al., 2009) and must have well-defined objectives derived from the research questions. In addition, the researcher should specify the time, location, and sources from which they want to gather data and any relevant ethical considerations. According to Sekaran and Bougie (2009), a research design is a series of reasoned decisions that include deciding on the research's purpose (whether it's exploratory, descriptive, or hypothesis testing), the type of investigation, the extent to which the researcher will be involved, the survey's environment, the measurements and measures, the methods of data collection and analysis, the time horizon, the sample design, and the unit of data analysis.

A cross-sectional quantitative research design was adopted to systematically examine the relationships among transformational leadership, innovation capability, and nurses' performance within a government healthcare setting in Qatar. This design is suitable for capturing perceptions and behaviours at a single point in time and enables the measurement of variables and their interrelationships using statistical techniques (Creswell and Creswell, 2018). A quantitative approach was chosen over qualitative methods to allow for objective measurement and generalization across a large sample of frontline nurses. Structured questionnaires facilitated standardized data collection, ensuring consistency and enhancing reliability. Additionally, this design supported the assessment of the moderating role of innovation capability and the testing of hypothesized relationships grounded in Transformational-Transactional Leadership and Leader-Member Exchange (LMX) theories (Casida and Parker, 2011; Manesh et al., 2018). Quantitative methods allow for broader population inferences and the use of statistical modeling, such as Partial Least Squares Structural Equation Modelling (PLS-SEM), to explore causal links and moderation effects within the theoretical framework (Al-Qeisi, 2009).

3.3 Population of the Study

The population is the entire collection of cases from which the sample was drawn (Dlamini, 2018). This description is comparable to that offered by Best and Kahn (2013), who described it as any group of people who share one or more traits that the researcher finds interesting. Additionally, Sekaran and Bougie (2010) define population as the generality of a collection of individuals, occasions, locations, or things that may be of interest to the study's investigator. In contrast, Volk et al. (2005) define a population as the sum or aggregate of the sizable number of articles, subjects,

or people that suitable in with a set of details. So, the population of this study will be composed of registered nurses working in governmental hospitals which are under Hamad Medical Corporation (HMC) in Qatar.

Table 3.1: Population of the study

No.	Hospital Name	Location	No. of Staff Nurses
1	Al Khor General Hospital (AKH)	Al Khor, Qatar	417
2	Al Wakra General Hospital (AWH)	AlWakrah, Qatar	1277
3	Ambulatory Care Center (ACC)	Doha, Qatar	332
4	Communicable Diseases Center (CDC)	Doha, Qatar	95
5	The Cuban Hospital (TCH)	Zekreet, Qatar	221
6	Hamad General Hospital (HGH)	Doha, Qatar	2697
7	Hazm Mebareek General Hospital (HMGH)	Ar-Rayyan, Qatar	379
8	Heart Hospital (HH)	Doha, Qatar	514
9	Mental Health Hospital (MHH)	Doha, Qatar	359
10	National Center for Cancer Care and Research (NCCCR)	Doha, Qatar	183
11	Qatar Rehabilitation Institute (QRI)	Doha, Qatar	234
12	Rumailah Hospital (RH)	Doha, Qatar	860
13	Women's Wellness and Research Center (WWRC)	Doha, Qatar	931
TOTAL NUMBER OF NURSES			8,499

Source: Corporate Nursing Workforce Department, Hamad Medical Corporation (HMC), Qatar, 2023.

3.3.1 Location of the Study

The sovereign emirate of Qatar is located on the western shore of the Persian Gulf, residing on a little desert peninsula that divides the greater Arabian Peninsula in a northerly direction. The extraction of large oil and gas deposits has led to a recent remarkable development in this nation's economy. With some of the largest oil and gas reserves in the world, Qatar relies heavily on foreign labor for a sizeable amount of its production. Because of the country's abundant oil supply, its residents enjoy a

high standard of life and a strong system of social services. Per capita, Qatar is regarded as one of the wealthiest nations in the world. The nation's population has grown over the previous 25 years and reached 2.9 million in September 2022. The population is comparatively youthful, with 11.3% of those aged 0 to 14; 10.3% of those aged 15 to 24; 77% of those aged 25 to 54; and 1.4% of those over 65. Life expectancy at birth is 78 years (Planning and Statistics Authority, 2022). The majority of the population is made up of migrant workers and Qataris make up less than 12% of the entire population. The health system, which is mostly run by Hamad Medical Corporation, is being severely burdened by this population expansion.

The primary healthcare organization in Qatar is Hamad Medical Corporation (HMC), which was established in 1979 by order of the Emir. It operates 15 health care facilities, wherein 5 of them are tertiary hospitals, and the others are secondary hospitals. These facilities have similar clinical governance structures, from the Executive Director of Nursing down to the frontline staff. They have centralized established administrative and clinical policies which are being implemented on the healthcare facilities under the HMC umbrella. HMC's ongoing efforts to give each of their patients the safest, most efficient and compassionate treatment possible are supported and reinforced by the facilities' network of services. In addition, HMC oversees the National Ambulance service in addition to home and residential care services (HMC, n.d.). In 2016, HMC made history by being the first healthcare provider worldwide to get JCI Academic Medical Centre accreditation for each of its hospitals. HMC is presently reforming its services and coming up with innovative strategies for employee development.). In this pursuit, nurses engage in performance improvement, self-evaluation, and ongoing education initiatives. The HMC employs about 20,000 healthcare professionals from 70 different nations throughout all five

inhabited continents. In 2022, over 11,000 nurses were employed across HMC's network of hospitals. All citizens of Qatar, including expatriates with residency permits, are entitled to free basic healthcare. To reduce misuse and the load on the healthcare system, a modest cost has lately been implemented for non-members of the Gulf Cooperation Council for annual registration and prescription medications.

HMC understands the value of every employee to the overall success of the organization. This success is attained. The HMC's annual performance review (APR) cycle and procedures give nurses feedback on their previous performance, help to establish expectations for their future work, and assist them in developing objectives and goals for their career and personal development. Both nurses and their immediate supervisors must thoroughly comprehend and support the performance evaluation process in order for these goals to be met. Furthermore, it provides managers with a dependable tool to help nursing staff meet high performance criteria and capacity growth. To guarantee that the personal and professional goals of nurses, as well as the goals of HMC, are realized, a clear knowledge of expectations is necessary. This will assist in building a contented workforce, which promotes excellence in patient care.

3.4 Sample Size Determinations

A sample is a sub-collection drawn from the main population of interest. More specifically, a sample is indicated as a subset of the entire population available for selection at any stage of the sampling process (Creswell, 2003). Furthermore, Sekaran (2003) defines sampling as “the process of selecting a sufficient number of elements from the population so that a study of the sample and an understanding of its properties or characteristics would make it possible for us to generalize such

properties or characteristics to the population elements”. To assess complicated model sample sizes, prior power analysis should be performed on the model section with the most predictors (Chin and Newsted, 1999). With six predictors, medium effect size (0.15), 0.05 confidence level, and 80% power, Gefen et al. (2011) found 98 eligible research respondents utilizing G Power technology (*See Appendix F*).

According to Sekaran and Bougie (2009), 390 is the optimal sample size for this research population. Hair et al. (2017) recommends basing sample size on analytic power for Smart Partial Least Squares (PLS) studies. Since g-power recommends that the minimal sample size for the study be 98 and Sekaran suggested that the optimal number be 390, the study has opted to gather data from 98 to 403 to guarantee data adequacy in evaluating the research model (*See Appendix G*). Hence, the study samples are nurses from the entire population of nurses employed in all healthcare facilities under Hamad Medical Corporation in Qatar.

To determine the appropriate sample size for this study, Krejcie and Morgan’s (1970) formula was used. This method is widely recognized for estimating sample sizes from a finite population with a known confidence level and margin of error. The formula is as follows:

$$S = \frac{\chi^2 \cdot N \cdot P \cdot (1-P)}{d^2 \cdot (N - 1) + \chi^2 \cdot P \cdot (1-P)}$$

Where:

- S = required sample size
- χ^2 = chi-square value for 1 degree of freedom at the 0.05 significance level (3.841)

- N = population size (8,499)
- P = population proportion (assumed to be 0.5 to maximize sample size)
- d = degree of accuracy expressed as a proportion (0.05)

Step-by-step Calculation

Given:

- N = 8499
- P=0.5
- d=0.05
- $\chi^2=3.841$

Substituting the values:

$$S = \frac{3.841 \times 8499 \times 0.5 \times (1-0.5)}{0.05^2 \times (8499 - 1) + 3.841 \times 0.5 \times (1-0.5)}$$

$$S = \frac{3.841 \times 8499 \times 0.25}{0.0025 \times 8498 + 3.841 \times 0.25}$$

$$S = \frac{8133.488}{21.245 + 0.96025}$$

$$S = \frac{8133.488}{22.20525}$$

$$S \approx 366.3$$

Assuming 10% of attrition rate, the adjusted sample size is calculated as follows:

- **Original sample size (S) = 366**
- **Attrition rate = 10%**

$$\text{Adjusted Sample size} = \frac{366}{1 - 0.10}$$

$$\text{Adjusted Sample size} = \frac{366}{0.9}$$

0.90

Adjusted Sample size \approx 403

The calculated sample size is approximately 403 participants.

This number is sufficient to represent the total population of 8,499 registered nurses working in governmental hospitals under Hamad Medical Corporation (HMC) in Qatar, with a 95% confidence level, a 5% margin of error and with 10% attrition or dropout rate, using Krejcie and Morgan's method.

3.5 Sampling Technique

Sampling is the process of selecting a sample from a population. Sampling procedures are critical in social science and another experimental research (Suresh et al., 2011). Probability and probability sampling are two methods available for selecting research subjects (Elfil and Negida, 2017; Shorten and Moorley, 2014). A probability sampling method does not allow one to pick every instance in the population, unlike probability sampling, which allows a chance to choose every case in the population and requires a 100% response rate (Rowley, 2014). Since there is no way to foresee which instances in the population will be included in the sample, probability sampling is perfect for this research. Otherwise, the sample's representativeness might be damaged (Rowley, 2014). An ideal response rate of 100% is also entirely out of the question.

A stratified random sampling technique was adopted to ensure comprehensive representation of nurses across clinical specialties within Hamad Medical Corporation (HMC). The nursing population ($N = 8,499$) was divided into five strata by specialty area: Inpatient, Outpatient, Emergency, Critical Care, and Operating Theatre.

Stratification was necessary because roles, responsibilities, and exposure differ across specialties; proportional representation therefore improves accuracy and generalizability.

Within each stratum, participants were selected via computer-generated randomization using proportional allocation to reach the overall target (n = 403). Larger groups contributed more participants (e.g., Inpatient), while smaller but critical groups (Operating Theatre; Critical Care) were preserved in proportion. The proportional distribution was verified against the achieved sample profile (see Table 4.5), supporting valid inter-specialty comparisons and strengthening internal and external validity. This approach ensures that subgroups with differing characteristics are adequately represented, thereby improving the representativeness of the sample and enhancing the external validity of the study (Etikan & Bala, 2017; Lohr, 2022).

The use of stratified random sampling was justified for several reasons:

1. Representation of different specialties: Stratified random sampling ensured that the sample was representative of different nursing specialties, which is essential for understanding the experiences and perspectives of nurses in various roles.
2. Minimization of bias: By dividing the population into strata and randomly selecting samples from each stratum, stratified random sampling helped to minimize bias and ensure that the sample was representative of the population.
3. Increased validity: The use of stratified random sampling increased the validity of the study findings by ensuring that the sample was representative of the population and minimizing bias.

Allocation formula: For each stratum h:

$$n_h = (N_h / N) \times n$$

Where N_h is the stratum population, N the total population (8,499), and n the required sample (403).

3.5.1 Sampling Procedure (stepwise).

The sampling procedure was carefully designed to ensure representativeness and minimize the sampling bias. Stratified random sampling was selected because the nursing workforce is divorced and distributed across the different specialities. This method allows proportional representation from each speciality, ensuring that the final sample reflects the true population structure. The stepwise approach adopted is explained below.

1. Identify population: all registered HMC nurses ($N = 8,499$).
2. Form strata by specialty (Inpatient, Outpatient, Emergency, Critical Care, and Operating Theatre).
3. Determine total sample size ($n = 403$; Cochran finite-population
4. Approach, 95% CI, 5% margin).
5. Compute n_h via proportional allocation.
6. Randomly select within each stratum using a computer-generated list.
7. Validate the final sample distribution against strata proportions (reported in Table 4.5).

Interpretation of Proportional Allocation:

Using proportional stratified random sampling minimized selection bias, preserved specialty diversity, and enabled meaningful cross-specialty analyses. In realized

sample which yielded Inpatient 174 ($\approx 43.2\%$), Outpatient 101 ($\approx 25.0\%$), Emergency 64 ($\approx 16.0\%$), Critical Care 42 ($\approx 10.4\%$), and Operating Theatre 22 ($\approx 5.5\%$).

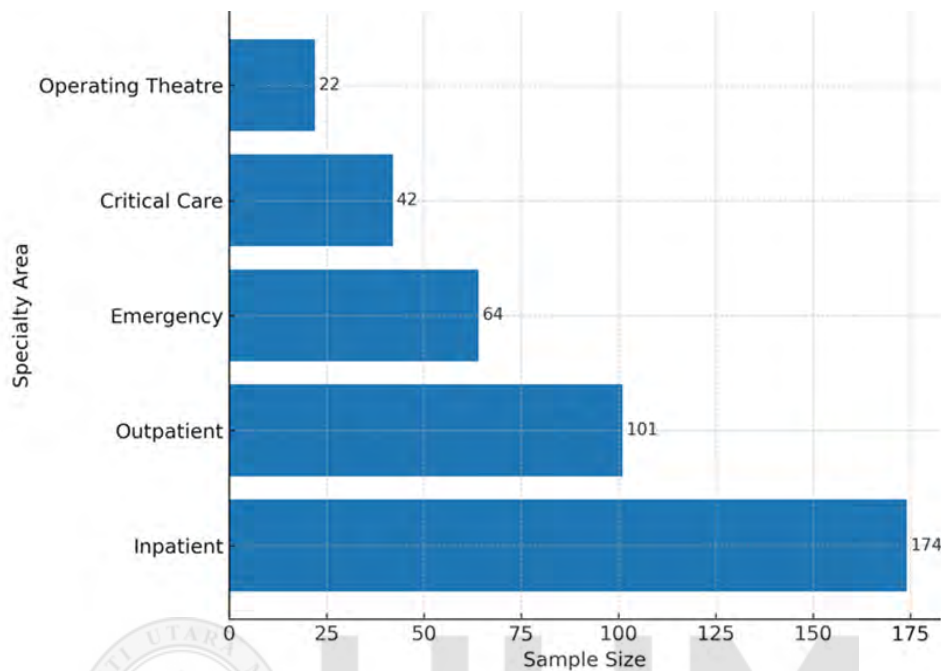


Figure 3.1 Proportional Allocation of Sample across Nursing Specialties

Figure 3.1 illustrates the distribution of the sample size across the five nursing specialties, demonstrating proportional allocation based on population representation.

The distribution of respondents reflects the actual staffing patterns within Hamad Medical Corporation (HMC), ensuring representativeness across specialties: Inpatient units (43.2%) have the highest proportion due to 24-hour care requirements, followed by Outpatient units (22.1%) owing to their wide presence, and Emergency services (18.9%) for urgent care needs. Critical Care units (10.4%) and Operating Theatres (5.5%) have smaller shares because of limited facilities and specialized roles. This stratified representation aligns with the principles of stratified random sampling, enhancing the validity and generalizability of the study.

Figure 3.2. Sampling Flowchart

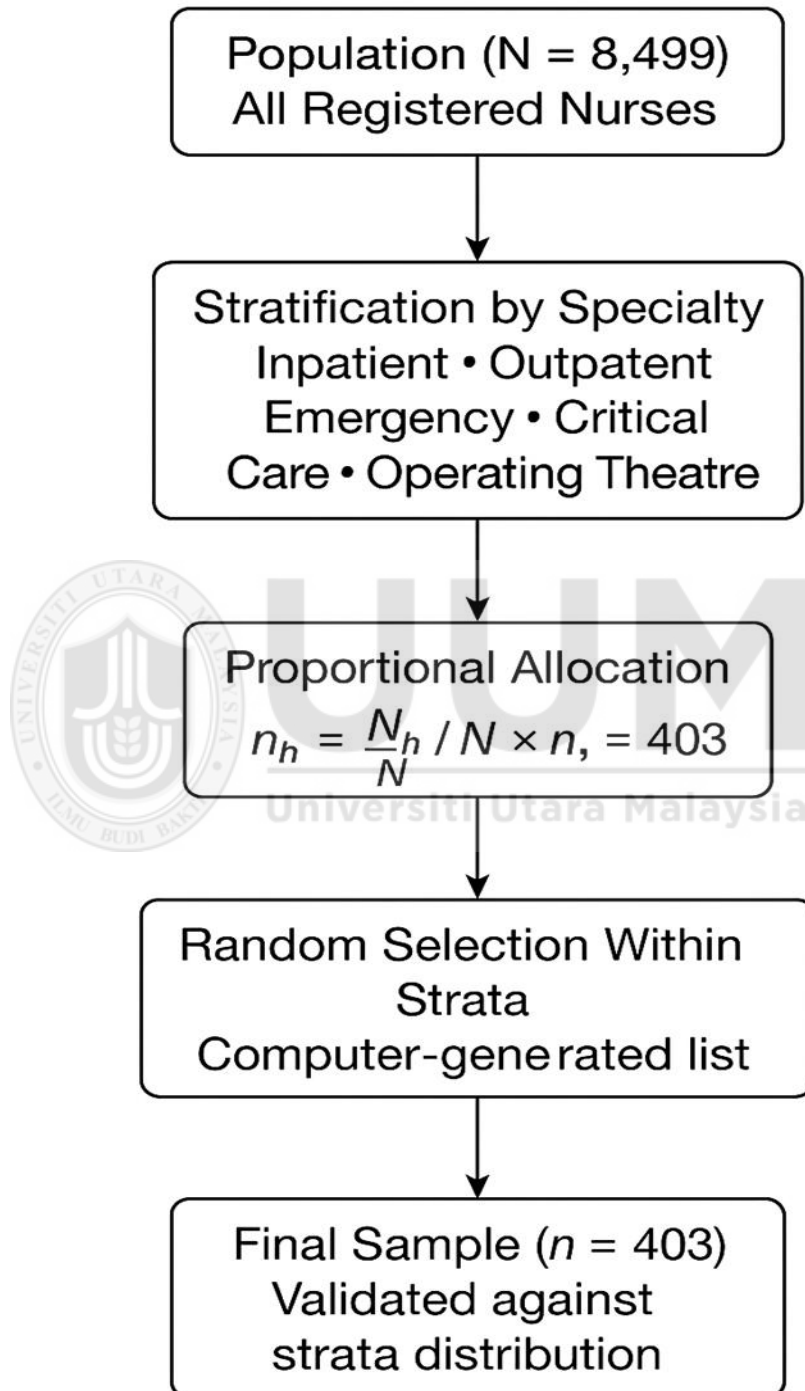


Figure 3.2 shows the systematic process of stratified random sampling applied in this study, from population identification to final sample selection.

By restricting the sample to frontline nurses and excluding those in leadership or administrative positions, the study ensured internal consistency and minimized role-related variability. The technique also facilitated the inclusion of nurses from varied spatiality (e.g., Inpatient, Outpatient, Emergency, Critical Care, and Operating Theatre), enhancing contextual relevance. This aligns with the study's cross-sectional design, which prioritizes in-depth insights over broad generalizability (Palinkas et al., 2015; Etikan et al., 2016).

The inclusion criteria ensured the selection of nurses who are:

1. Registered Nurse (Graduate Registered Nurse/Staff Nurses)
2. Job grade 110 and below in a non-leader role
3. Permanent staff
4. Any nationality and gender; and
5. Willing to consent and engage in the study.

The sampling frame was established by obtained a list of eligible clinical nurses from the Corporate Nursing Workforce department, following formal permission. The prospective study participants were invited to participate in the study via official organizational email communication. To facilitate the recruitment process, unit heads and clinical resource nurses supported the dissemination of study information and encouraged voluntary participation, ensuring that no coercion was involved. Each prospective participant received a research information sheet outlining the purpose, procedures, and ethical considerations of the study. The sample size was determined using Krejcie and Morgan's (1970) formula to ensure sufficient power for statistical analysis. Participants were selected from various multiple hospitals, departments,

units, and shifts within Hamad Medical Corporation (HMC), to ensure heterogeneity of responses and reduce the risk of unit-specific bias. Recruitment efforts were continuously monitored, and adaptive measures were taken to address any emerging underrepresentation from specific clinical areas.

3.6 Unit of Analysis

According to (Cresweel, 2012; Kumar et al., 2013), unit of analysis refers to the person or thing that is being studied. Individual, organizational and group are the types of units of analysis used in social science research. In this study, the unit of analysis was at the individual level in government healthcare organizations in Qatar.

The unit of analysis is one of the most important factors in research that helps to define the substance of the study. It depicts the object or the level of analysis of which the research is concerned. Knowledge of the unit of analysis is critical in the formulation of research design, data gathering and data analysis strategies.

In social science research, the unit of analysis may be people, Moslems, institutions or organizations, and communities. Each of these units allows researchers to investigate different aspects of the subject matter. Each of these units allows researchers to investigate different aspects of the subject matter:

1. **Individual Level:** When the unit of analysis is at the individual level then the target of the research is one individual person. This approach looks at personality traits, behaviors and perceptions. For instance, research that wants to establish job satisfaction among employees will employ individuals as the unit of analysis.

2. **Organizational Level:** On the organizational level, it gets about entire organizations. Research at this level deals with the analysis of organizations' structure, systems and outcomes. For instance, when comparing leadership effectiveness in different organizations, the whole organizations are used as the level of analysis.
3. **Group Level:** The group level of analysis is focused on collectives, for instance, teams or departments. This approach looks into the dynamics of the group, how the members of the group interact with each other and the results that are obtained. For instance, one may have to examine the aspects of teamwork in a particular department where the group becomes the unit of analysis.

For this study, the unit of analysis was at individual level. This implies that the study was conducted on the employees in the Government healthcare organizations of Qatar. In particular, it focused on the effect of transformational leadership on the individual nurse performance and the moderating role of innovation capability. The purpose of the study was to explore individual experiences of nurses at the workplace, their perception and experience.

The research was conducted in natural context, and it was not artificially induced, which means it was not conducted in controlled environment. In this case, the research was conducted in the true government health care facilities where the nurses practice. This natural context of the study makes it possible to minimize artificial bias and come up with findings that fit real life conditions and events.

Also, the researcher's intervention was limited as much as possible. In this regard, the study intended to minimize interference in order to avoid changing the behaviors or

reaction of the participants in the study thus increasing the credibility of the results. This approach helps in the acquisition of data which is relevant to the real-life situation as well as the conditions that the nurses encounter in their practice.

Thus, the population of interest for this research consisted of individual nurses working in the government health care organizations in Qatar. To achieve this, the study was conducted in a real-life situation and with low interference from the researcher in order to give a real-life picture of the effects of transformational leadership on the performance of the nurses and the moderating effect of innovation capability.

3.7 Data Collection Methods

Data collection is the process of gathering information on the chosen research topic through the various methods and considered the first step in every research project (Kabir, 2018). The term "data gathering" refers to collecting and analyzing information about relevant variables to answer research questions, verify hypotheses, and draw conclusions (Kabir, 2018). Accordingly, the outcomes will be impacted by the selected method of data gathering (Saunders, 2009). Various ways may be used to counteract the 'method effect' since each technique and process has its unique impact (Saunders, 2009). Interviews (in-person, over the phone, or by other technological means) and surveys (emailed, sent by hand, or completed online) are all examples of data-gathering techniques (Sekaran and Bougie, 2009).

Nowadays, many people prefer to gather information online using web-based surveys and email. Researchers have considered email a technique because it quickly spread to a diverse and large audience (Sheehan and McMillan, 1999). One benefit of this

method is that it helps researchers save time and effort. Furthermore, it saves money compared to old-fashioned paper surveys. Sekaran and Bougie (2009) state that e-mail delivery is inexpensive and guaranteed based on the accuracy of the e-mail address.

Prior to data collection, a research protocol document was submitted to the Qatar's Medical Research Center (MRC) to analyze this study well. Upon receiving MRC approval, the researcher initially reached out to the Chief Nursing Officer of Hamad Medical Corporation (HMC) for the permission to conduct the study. This study's target population is the registered nurses employed in governmental hospitals under HMC in Qatar. A selection of governmental hospitals was obtained from the statistical report published by the Qatar's Ministry of Public health to ensure a representative sample. A research information letter was electronically communicated to the selected hospitals, emphasizing the study's details and the benefits to the population under study. The letter also highlighted the researcher's unwavering commitment to confidentiality and the anonymity of the participants, ensuring their security and respect. To collect individual-level data on perceived relationships between various factors influencing nurses' performance, the researcher developed a single online questionnaire that included both demographic details and targeted research items.

The total population identified for the study was 8499 registered nurses from 13 hospitals of Hamad Medical Corporation. A stratified random sampling method was adopted to ensure proportional representation from all 13 hospitals and across nursing roles. These population frames were carefully reviewed and divided into various strata according to their number in each hospital, their position, experience and their levels of education etc. The online questionnaires were sent through organization E-Mail to the selected samples after random sampling (based on sample size calculation and

expecting an attrition rate of 10 %) the questionnaires were forwarded to more than 400 samples. Of these, 403 completed questionnaires were returned and deemed suitable for analysis. This approach enhances generalizability and reduces sampling bias. The sampling approach was considered appropriate because all 13 participating hospitals operate under standardized policies, protocols, clinical guidelines, and a unified nursing organizational structure. This organizational homogeneity minimizes variability across settings and enhances the comparability of responses, thereby contributing to the internal validity and generalizability of the study.

The researcher collected the data for a month, between April 2024 and May 2024. The respondents participated via online questionnaire through the electronic SurveyMonkey Forms technique. This online one form combines 4 sections questionnaires including section (i) demographics information, section (ii) transformational leadership, section (iii) Nurse Performance and section (iv) innovation capability. This approach was chosen because the researcher found that it facilitated quick distribution and enabled more reliable and convenient responses (Regmi et al., 2016). The questionnaires were distributed across 13 hospitals using Survey Monkey forms. Of these, 420 were returned, after data screening, 403 responses were retained as valid for analysis meeting the recommended sample size based on krejcie and morgon calculations.

3.8 Operational Definitions and Measurement of Variables

This research utilized a variety of validated scales to measure major constructs illustrated in theoretical framework. Most of the validated scales were adapted to fit in the sample of the research. In sum, a total of 58 scale items were used to measure the

constructs in this study. Table 3.2 lists the numbers and sources of the items used measure each construct.

Table 3.2: Measurement items for the study constructs

Higher order	First order	Source	No. of Items (50)
Transformational Leadership	Idealized attributes	(Kotb and Nagib, 2018)	4
	Inspirational Motivation	(Kotb and Nagib, 2018)	4
	Idealized Behaviour	(Kotb and Nagib, 2018)	4
	Intellectual Stimulation	(Kotb and Nagib, 2018)	4
	Individual Consideration	(Kotb and Nagib, 2018)	4
Innovation Capability	Process of innovation	(Kotb and Nagib, 2018)	10
	Process of innovation	(Kotb and Nagib, 2018)	8
	Environment and pressure innovation	(Yan et al., 2018; Gao et al.,2022)	5
	Effectiveness of innovation	(Yan et al., 2018; Gao et al.,2022)	2
Nurses' Performance		(Hussain et.al, 2016)	13

3.8.1 Definitions and Measurement of the Transformational Leadership

Transformational Leadership refers to a style of leadership that changes the morals, hopes, ideals, as well as values of employees to prioritize common interests over personal interests as well as motivates them to perform better in the organization beyond what is expected (Udin, 2021b). This is the independent variable for this study and it is represented by the components - Idealized Attributes, Inspirational Motivation, Idealized behavior, Intellectual Stimulation, Individual Consideration,

This variable will be measured scale by adapting The Multifactor Leadership Questionnaire Form 5X developed by Bass and Avolio (1995) and used from the past studies by Kotb and Nagib (2018) and Francisco (2019). This questionnaire is the most widely used scale to measure transformational leadership (Khan et al., 2020). The amendments were made to ensure that the constructs are relevant to this research. Five-point Likert scale (1-Strongly disagree to 5--strongly agree) will be used to measure responses. There will be 20 items sought to gather responses regarding the perception of the participants to assess their leaders for a transformational leadership quality. Each component will be measured as follows.

3.8.1.1 Idealized Attributes

Idealized attributes inspire admiration in followers, behave in a way that inspires respect, encourage others to put the needs of the group before their own, and exhibit confidence and influence in their day-to-day actions (Bright, 2018). They have the charisma that has been socialized. According to Senegal (2010), leaders are admired, respected, and trusted by their followers, who wish to emulate them. The transformation leadership (idealized attributes) construct is related to the nurses' performance. Four adopted and adapted indicators from Kotb and Nagib (2018) operationalized the idealized attributes constructs. The items that have been used the items for IA is as follows:

Table 3.3: Items of Idealized Attributes

Construct	Used Items
Transformation leadership	
Idealized attributes	1. My immediate supervisor instilled pride in others for being associated with me 2. My immediate supervisor goes beyond self-interest for the good of our team.

-
3. My immediate supervisor displays a sense of power and confidence.
 4. My immediate supervisor acts in a way to maintain the respect of others.
-

3.8.1.2 Inspirational Motivation

By bringing purpose and challenge to the workplace, these leaders inspire and drive their followers. A sense of unity is created. Positive attitudes are shown (Senegal, 2010). This variable aims to monitor inspirational motivation during the nurse's performance. According to Kotb and Nagib (2018), it consists of four items. The items for IM are as follows:

Table 3.4: Items of Inspirational Motivation

Construct	Used Items
Inspirational Motivation	5. My immediate supervisor talks optimistically about the future. 6. My immediate supervisor talks enthusiastically about what needs to be accomplished. 7. My immediate supervisor articulates a compelling vision of the future. 8. My immediate supervisor expresses confidence that goals will be achieved.

3.8.1.3 Idealized Behaviour

These leaders' exhibit behaviors that show their actions are motivated by their values, beliefs, and sense of purpose. They are not random; rather, they are consistent (Senegal, 2010). This variable aims to monitor idealized behavior during the nurse's performance. According to Kotb and Nagib (2018), it consists of four items. The items for IB are as follows:

Table 3.5: Items of Idealized behavior

Construct	Used Items
Idealized behavior	9. My immediate supervisor talks about his/her most important values and beliefs 10. My immediate supervisor specifies the significance of having a strong sense of purpose. 11. My immediate supervisor considers the moral and ethical

consequences of decisions
 12. My immediate supervisor emphasizes the importance of having a collective sense of mission.

3.8.1.4 Intellectual Stimulation

By challenging presumptions, presenting issues differently, and taking on familiar circumstances in fresh ways, these leaders encourage followers to be imaginative and creative (Senegal, 2010). This variable aims to monitor Intellectual Stimulation during the nurses' performance. According to Kotb and Nagib (2018), it consists of four items. The items for IS are as follows:

Table 3.6: Items of Intellectual Stimulation

Construct	Used Items
Intellectual Stimulation	13. My immediate supervisor seeks differing perspectives when solving problems 14. My immediate supervisor suggests new ways of looking at how to complete assignments 15. My immediate supervisor gets others to look at problems from many angles. 16. My immediate supervisor encourages staff to critically re-examine assumptions whether they are appropriate.

3.8.1.5 Individual Consideration

These leaders give special attention to each follower's needs, including opportunities for growth and achievement. The potential of followers is developed to progressively higher degrees (Senegal, 2010). This variable aims to monitor individual Consideration during the nurse's performance. According to Kotb and Nagib (2018), it consists of four items. The items for individual Consideration are as follows:

Table 3.7: Items of Individual Consideration

Construct	Used Items
Individual Consideration	17. My immediate supervisor spends time teaching and coaching 18. My immediate supervisor treats others as individuals rather than just a member of the group. 19. My immediate supervisor considers an individual as having different needs, abilities, and aspirations from others 20. My immediate supervisor helps others to develop their strengths.

3.8.2 Definitions and Measurement of the Nurses Performance

Nursing performance is defined as providing nursing care to the patient based on the nurses' professionalism and all other related activities and processes (Cho and Kim, 2022). It involves the integration of knowledge, skill, judgment, and behavior that collectively contribute to quality patient outcomes.

Setting performance goals, developing improvement strategies with nurses, tracking nurses' progress towards goals, providing ongoing feedback and coaching by supervisors and possibly peers, and measuring individual performance are all parts of the concept of nurses' performance (Ibrahim et al., 2016). In this study Nurses' performance is the dependent variable.

To measure this construct, a self-administered questionnaire consisting of 13 items was adopted from previous studies (Hussain et al., 2016) to assess perceived nurse performance. Participants will respond to each item using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing for quantifiable evaluation of various dimensions of performance such as authority in practice,

managerial support, organizational clarity, feedback mechanisms, and perceived effectiveness.

Table 3.8: Items of Nurses' Performance

Construct	Used Items
Nurses' performance	<ol style="list-style-type: none"> 1. My performance is judged more by how much work I do that by how well I do it. 2. My manager emphasizes my positive contribution when reviewing my performance. 3. I am given enough authority to allow me to do my job effectively. 4. People in this hospital put more energy into identifying mistakes than into figuring out how to do things right. 5. Judgment about my performance is fair. 6. The way things are organized around here makes it hard for people to do their best work. 7. I feel my work contributes to the organization's performance. 8. Objectives to be achieved are known by individuals to be assessed. 9. Performance standards expected from staff are clear and understood by all nurses. 10. Feedback on how staff is performing is provided throughout the year. 11. Prompt action is taken when performance falls below acceptable standards. 12. My manager/supervisor inspires me to do my best Staff are allowed to make comments on the results of their performance. 13. Staff is given the opportunity to make comments on the results of their performance.

3.8.3 Definitions and Measurement of the Innovation Capability

The innovation capability is the ability of each individual to apply new ideas he/she has in a product or process in addition to new products, innovations can also involve new processes or even new ways of thinking (McKay and Kaufman, 2019).

In this study, innovation capability serves as the moderating variable. It is measured using the Scale of Clinical Nursing Staff Innovation Ability, originally developed and validated by Yan et al. (2018) and further applied in subsequent research by Gao et al.

(2022). The scale includes 25 items, distributed across four core dimensions including the basis of innovation, innovation process, innovation environment and pressure and effectiveness of innovation (Yan et al., 2018). Each item is scored on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). Higher scores indicate a greater degree of innovation capability.

The first dimension, basis of innovation, includes ten items that assess the foundational elements of innovation such as managerial support, willingness to change, personal initiative, and motivation to learn new skills or adapt to change. The second dimension, process of innovation, is composed of eight items that evaluate the nurse's knowledge application, problem-solving strategies, and engagement with evidence-based practices and professional development activities. The third dimension, environment and pressure of innovation, includes five items that reflect organizational factors such as the presence of a supportive culture, leadership encouragement, availability of innovation-focused training, and institutional incentives. Finally, the effectiveness of innovation is measured through two items that explore the extent to which innovative methods and technologies have been integrated into clinical practice. This comprehensive tool enables a multidimensional assessment of innovation capability, capturing both individual-level attributes and the influence of organizational context.

Table 3.9: Items of Innovation Capability

Construct	Used Items
Basis of Innovation	<ol style="list-style-type: none"> 1. My immediate supervisor shares new ideas with our team in improving our work performance. 2. My immediate supervisor tries to convince us with new ideas or solutions related to work. 3. My immediate supervisor thinks carefully before making decisions in the process of making judgments 4. My immediate supervisor encourages us to express our own opinions during discussion

	<p>5. My immediate supervisor provides support with my professional development</p> <p>6. I have the desire to change and innovate in the work</p> <p>7. I'm willing to learn and try new things that could improve my performance.</p> <p>8. I'm determined to face challenges and not be afraid of failure.</p> <p>9. I'm technically proficient in computer application and operation methods</p> <p>10. I used to read journals and articles to update with the new trends related to nursing practice.</p>
Process of innovation	<p>11. I have extensive knowledge regarding patient safety and evidence-based practice.</p> <p>12. I'm familiar with the guidelines, policies, and regulations governing my performance.</p> <p>13. I can find gaps or issues affecting my clinical practice and have keen observation and creative skills.</p> <p>14. I don't always follow a routine and try new ideas or solutions to problems at work.</p> <p>15. I constantly question the knowledge I've learned and often come up with my own unique insights</p> <p>16. I always solve problems in a systematic, organized, planned way</p> <p>17. I'm actively participating in academic lectures, forums, conferences, and professional groups on scientific research and innovation</p> <p>18. I always apply the newly acquired knowledge to solve a clinical problem</p>
Environment and Pressure of Innovation	<p>19. There is a culture of innovation in the hospital</p> <p>20. The hospital has the support of relevant leaders towards innovation.</p> <p>21. The hospital has offered training or courses focusing on innovation.</p> <p>22. The hospital provides funding for scientific research and innovation projects</p> <p>23. The hospital has a reward system for innovation.</p>
Effectiveness of Innovation	<p>24. Innovative methods have been applied to clinical practice</p> <p>25. Innovative products/technology are already in clinical use</p>

3.9 Instrument Validation and Reliability

According to Scandura and Williams (2000), a pre-test and pilot test were conducted on the questionnaire to ensure that it achieved a reasonable degree of reliability in

terms of conceptual and measurement equivalence. These steps must be completed in order to validate the instrument.

3.9.1 Pre-test

As defined by Sandura and Williams (2000) and Sekaran (2013), pre-testing is the "first attempt to get empirical feedback from a highly controlled sample to assess the appropriateness of the original instrument." In the pre-test, participants fill out the instrument and provide feedback on items that were pertinent to the original instrument design, such as format, content, nomenclature, understandability, ease of use, and speed of completion. Furthermore, it is crucial because it will show how smoothly the questions flow, enhance instrument comprehension, and enable the researcher to make sure the respondents received adequate instructions. Part of the pre-testing is the face and content validity. Face validity refers to researchers' subjective assessments of the presentation and relevance of the measuring instrument as to whether the items in the instrument appear to be relevant, reasonable, unambiguous and clear (Oluwatayo, 2012) while content validity is the degree to which items in an instrument reflect the content universe to which the instrument will be generalized" (Straub et al., 2004). Establishing content validity is important as it represents the appropriateness of the items on the instrument for measuring constructs (Sekaran 2013; Hair et al. 2003). Each of the items should be representative of the construct and comprehensively cover all aspects of the construct.

In this study, the pre-test process was completed in two crucial steps. First, a panel of academicians and research experts, consisting of two professors, was consulted. Second, research specialists in the Nursing and Midwifery Research Department at HMC and the Medical Research Center (MRC) in Qatar assessed and examined the

survey questions. These experts reviewed the research questions and the questionnaire carefully to ascertain the appropriateness and adequacy of the instrument.

Based on the experts' feedback, the pretest report identified a few weaknesses in the questionnaire. They recommended simplifying the wording to improve respondent comprehension. They also suggested deleting two questions that were not relevant to the study objectives. During this phase, the specialists pinpointed items to add or remove and offered additional recommendations for enhancement (Sekaran, 2013; Hair et al., 2003).

3.9.2 Reliability Assessment Through Reliability Analysis

Reliability refers to the consistency level among multiple construct measurements (Hair et al., 2010). Hence, the reliability analysis of the instrument was confirmed by the item's consistency in measuring the construct. The instrument's reliability ensures that it measures consistently and produces the same result even if utilized repetitively. Sekaran (2003) proposed four methods that researchers extensively utilize to guarantee measuring instrument's reliability; they are (i) test-retest methods, (ii) alternative form methods, (iii) split-half method, and (iv) internal consistency reliability (Cronbach's alpha). Internal consistency reliability is the most used in assessing survey instruments and scales (Hesabi et al., 2015) and hence it was used in this study. The first test may generate lower scores owing to the changes in the subject, the second one may require significant expenses as two different, but equivalent forms of the same measure should be developed. Lastly, the third method may generate different reliability coefficients according to the division of items.

However, Cronbach's alpha method for measuring reliability is invaluable due to its strengths in overcoming the issues faced by all three methods. Cronbach's alpha's practicality has been the dominating force behind its use, particularly in social science. Hence, taking the cue from other social science studies, the present study employed Cronbach's alpha coefficient to test the reliability of the measurements. The method shows the item's consistency when measuring the same construct by indicating that they show high consistency and share a high tendency to measure it. (Nunnally, 1994) proposed some minimum standards for Cronbach's alpha where alphas of 0.6, 0.7, 0.8, and 0.9 are for exploratory, essential, critical, and issue-based respectively. The Cronbach's alpha coefficient of the study constructs is displayed in Table 3.10 where it is evident that all have an acceptable level of internal consistency as they exceed the most minor alpha level (0.6) (Nunnally, 1994; Sekaran and Bougie, 2016) warns that reliability less than 0.70 generally should be considered poor and less reliable. As they all showed a good level of internal consistency when measuring the construct.

Table 3.10: The Cronbach alpha value for the reliability test for each section of the questionnaire

Domains	Cronbach alpha (α) after the item deleted
Idealized attributes	0.740
Inspirational Motivation	0.841
Idealized behavior	0.804
Intellectual Stimulation	0.712
Individual Consideration	0.790
Nurses' performance	0.930
Basis of innovation	0.887
Process of innovation	0.755
Environment of innovation	0.840
Effectiveness innovation	0.750

Source: Author's computation from pilot survey data, based on reliability analysis (Cronbach's Alpha) using SPSS, 2025.

For each measurement tool, Cronbach Alpha went over the acceptable and suggested values. The items displayed good internal consistency.

Transformational Leadership Dimensions:

The alpha values for idealized attributes (0.740), inspirational motivation (0.841), idealized behavior (0.804), intellectual stimulation (0.712), and individual consideration (0.790) exceed the minimum acceptable threshold. These values align with prior studies using the Multifactor Leadership Questionnaire (MLQ), where alpha values typically range between 0.70 and 0.90 (Avolio & Bass, 2004; Antonakis et al., 2003).

Nurses' Performance ($\alpha = 0.930$):

This very high value indicates excellent reliability and consistency among items measuring nursing performance, consistent with previous research that has reported similar alpha levels when using validated performance measurement instruments (Numminen et al., 2016; Al-Kandari & Thomas, 2009).

Innovation Capability Dimensions:

Basis of innovation (0.887), process of innovation (0.755), environment of innovation (0.840), and effectiveness of innovation (0.750) all fall within acceptable ranges, supporting their reliability. These findings are consistent with earlier studies in organizational innovation measurement where alpha values typically range between 0.70 and 0.88 (Lawson & Samson, 2001; Puspita et al., 2020).

These results confirm that all measurement tools demonstrate strong internal consistency, meeting the reliability standards for quantitative research.

3.9.3 Pilot study

As a first phase in any research methodology, a pilot study is often a smaller study that helps with study design and modification (Arnold et al., 2009)Thorough

comprehension of the research topic, experimental procedures, and timetable is essential prior to the commencement of a pilot study. The pilot study gives researchers a sense of the processes involved in the main study, which helps them choose the research technique best suited to addressing the research question in the main trial.

According to Sekaran (2003), a pilot test connects the data-gathering instrument to the research population sample. The pre-test review focuses on replies to help the researcher determine whether the questionnaire is well-balanced. A pilot test is necessary to determine and test the instruments before using them in the research. A pilot study may improve a questionnaire by fixing comprehension or responding. The next paragraphs explain the present study's pilot test methodology and outcomes.

A pilot test for the present research was conducted in April 2024. This test in this research aimed to establish measurement reliability and validity. In this study, the pilot test aimed to:

1. Ensure respondents understood the questions and information.
2. Reduce misunderstandings from unfamiliar terminology or words.
3. Ensure respondents complete the questionnaire quickly to avoid exhaustion and loss of interest.
4. Filter study questions for minimal response.

After determining pilot test goals, respondents were chosen. The questionnaires were distributed to thirty (30) registered nurses from different hospitals under the HMC in Qatar who met the criteria and pilot testing was employed. The information was gathered using a self-administered questionnaire.

3.9.3.1 Results of the Pilot Study

i. Factor Analysis of the Transformational Leadership (TL)

The Kaiser-Meyer-Olkin (KMO) measure is one of the statistical coefficients that is employed in determining the suitability of data for factor analysis. This measure determines the extent of the relationship between variables that is necessary for factor analysis. More specifically, the KMO test examines the appropriateness of factor analysis when the partial correlations between variables are small. The entire KMO values lie between 0 and 1, the closer the value is to 1 the more appropriate the data is for factor analysis. Any KMO value greater than 0.90 is regarded as excellent while the values ranging from 0.70 to 0.89 are acceptable. Anything below 0.60 is usually considered too low for factor analysis thus the data may not be suitable for factor analysis.

Bartlett's test of sphericity, on the other hand, investigate the null hypothesis of every variable in the set being uncorrelated with all the other variables which means that the correlation matrix of the variables is an identity matrix. This test will assess the null hypothesis that the correlation matrix is an identity matrix, that is, there are no correlations between the variables. If the p-value is very small, say less than 0.05, then the test statistic from Bartlett's test will be significant; this suggest that correlation matrix is not an identity matrix, and data may be suitable for factor analysis. On the other hand, if the test is not significant then it may mean that there are no sufficient correlation coefficients to perform factor analysis.

Combined the KMO measure and Bartlett's test can be used to determine the appropriateness of data for factor analysis. The KMO values are used to check the sample size and the quality of data used in the research while Bartlett's test helps to determine if the variables are suitable for factor analysis. Testing KMO and Bartlett's in the factor analysis showed that the coefficient of KMO was acceptable (equal to $0.746 > 0.5$) testing Bartlett's value with a significance level (Sig. = .000).

Table 3.11: KMO and Bartlett's Test for Transformation Leadership

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	130.415
	df	21
	Sig.	.000

The constructs used in the variables of the conceptual framework were tested using factor analysis to establish whether they were good measurements. The extraction method used was the principal component analysis. The method was the Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Results in Table 3.12 below show that five constructs were appropriate for measuring the Idealized attributes (IA), given that they explained 24% of the total variance. The construct of inspirational motivation (IM) explained the most, with 14% of the variance, while idealized behaviour (IB) explained 13% of the variance, intellectual stimulation (IS) explained 12% of the variance and individual consideration (IC) explained 9% of the variance of the variance. This confirms that all five constructs are measurements of transformational leadership.

Table 3.12: Initial Eigenvalues for Transformation Leadership

Component	Total	% of Variance	Cumulative %
Idealized attributes	6.798	24.279	24.279
Inspirational motivation	3.989	14.248	38.527
Idealized behavior	3.502	12.509	51.036
Intellectual stimulation	3.335	11.910	62.946

Individual consideration	2.420	8.644	71.590
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However, from the findings, idealized attributes, inspirational motivation, idealized behavior, intellectual stimulation, and individual consideration, (with eigenvalues of 6.798, 3.989, 3.502, 3.335, and 2.420 respectively).

Table 3.13: Transformation Leadership loading

Component	Transformation Leadership items	Factor loading
Idealized attributes	TL 1	0.964
	TL 2	0.878
	TL 3	0.842
	TL 4	0.850
Inspirational Motivation	TL 5	0.899
	TL 6	0.919
	TL 7	0.788
	TL 8	0.819
Idealized behavior	TL 9	0.764
	TL 10	0.877
	TL 11	0.852
	TL 12	0.854
Intellectual Stimulation	TL 13	0.740
	TL 14	0.864
	TL 15	0.935
	TL 16	0.732
Individual Consideration	TL 17	0.854
	TL 18	0.939
	TL 19	0.885
	TL 20	0.873

The findings of the measurement model can be viewed in Table 3.13; factor loadings must all reach the cut-off values to establish convergent validity. In this regard, (J. F. Hair et al., 2013) suggested in convergent validity determination, loading should be higher than 0.5. As demonstrated in Table 3.13, loadings for all items were in the range of 0.732 – 0.964 and matched the criteria established by (Hair Jr et al., 2017). As a result, following their parameter estimates and statistical significance, all the constructs employed are appropriate measures of their respective constructs.

ii. Factor Analysis of the Nurses' Performance (NP)

Testing KMO and Bartlett's in the factor analysis showed that the coefficient of KMO was acceptable (equal to $0.680 > 0.5$) testing Bartlett's value with significance level (Sig. = .000)

Table 3.14: KMO and Bartlett's Testa Nurses' Performance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.680
Bartlett's Test of Sphericity	Approx. Chi-Square	86.343
	df	6
	Sig.	.000

The constructs used in the variables of the conceptual framework were tested using factor analysis to establish whether they were good measurements. The extraction method used was the principal component analysis. The method was the Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

This section below discusses the results of factor analysis conducted on all 13 items that measured the Nurses' Performance items variable to determine whether they could be treated as a single measure. The test used principal component analysis and varimax rotation with Kaiser Normalization. In testing, whether factor analysis was appropriate for the Nurses' Performance construct, KMO and Bartlett tests were first conducted. The results are shown in Table 3.14

Table 3.15: Nurses' Performance Items loading

Nurses' Performance items	Factor loading
NP1	0.875
NP2	0.844
NP3	0.950
NP4	0.920
NP5	0.968
NP6	0.866
NP7	0.950

NP8	0.860
NP9	0.785
NP10	0.782
NP11	0.740
NP12	0.801
NP13	0.737

The findings of the measurement model can be viewed in Table 3.15; factor loadings must all reach the cut-off values to establish convergent validity. In this regard, (J. F. Hair et al., 2013) suggested that loading should be higher than 0.5 in convergent validity determination. As demonstrated in Table 3.15, loadings for all items were 0.737– 0.968 and matched the criteria established by (Hair Jr et al., 2017). As a result, following their parameter estimates and statistical significance, all the constructs employed are appropriate measures of their respective constructs.

iii. Factor Analysis of the Innovation Capability (INNVC)

Testing KMO and Bartlett's in the factor analysis showed that the coefficient of KMO was acceptable (equal to 0.723 > 0.5) testing Bartlett's value with significance level (Sig. = .000)

Table 3.16: KMO and Bartlett's Test for Innovation Capability

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	32.219
	df	6
	Sig.	.000

The constructs used in the variables of the conceptual framework were tested using factor analysis to establish whether they were good measurements. The extraction method used was the principal component analysis. The method was the Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Results in Table 3.16 below show that four constructs were appropriate for measuring the Basis of Innovation (BI), given that they explained 16% of the total variance. The

construct of Process of innovation (PI) explained the most, with 10% of the variance, while Environment and pressure innovation (EPI) explained 13% of the variance, and Effectiveness of innovation (EI) explained 16% of the variance. This confirms that all four constructs are measurements of Innovation Capability (INNVC).

Table 3.17: Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
Basis of innovation	1.867	15.850	44.785
Process of innovation	1.165	9.897	54.682
Environment and pressure innovation	1.549	13.152	67.835
Effectiveness of innovation	1.902	16.154	83.989

Extraction Method: Principal Component Analysis.

However, from the findings, the Basis of innovation, Process of innovation, Environment and pressure innovation, and Effectiveness of innovation are the most important (with eigenvalues of 1.867, 1.165, 1.549, 1.902, respectively).

Table 3.18: Nurses' Performance Items Loading for Innovation Capability (INNVC)

Construct	Inventory system items	Factor loading
Basis of innovation	Q1	0.881
	Q2	0.927
	Q3	0.787
	Q4	0.894
	Q5	0.794
	Q6	0.844
	Q7	0.883
	Q8	0.886
	Q9	0.790
	Q10	0.862
	Q11	0.869
	Q12	0.838
	Q13	0.580
Process of innovation	Q14	0.634
	Q15	0.764
	Q16	0.906
	Q17	0.679
	Q18	0.846
	Q19	0.912
	Q20	0.903

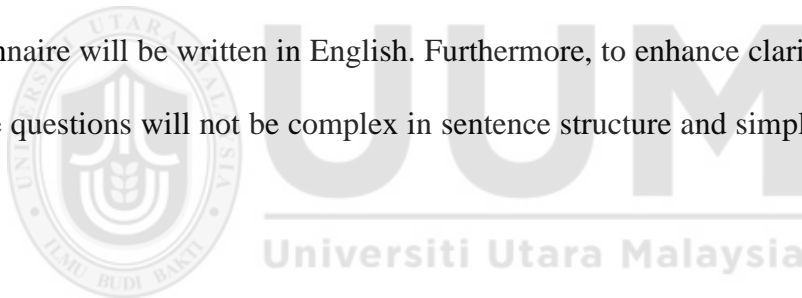
Environment and pressure of innovation	Q21	0.819
	Q22	0.840
	Q23	0.880
Effectiveness of innovation	Q24	0.749
	Q25	0.799

The findings of the measurement model can be viewed in Table 3.18, factor loadings must all reach the cut-off values to establish convergent validity. In this regard, (J. F. Hair et al., 2013) suggested that loading should be higher than 0.5 in convergent validity determination. As demonstrated in Table 3.18, loadings for all items were 0.580– 0.927 and matched the criteria established by (Hair Jr et al., 2017). As a result, following their parameter estimates and statistical significance, the constructs employed are appropriate measures of their respective construct.

3.10 Questionnaire Development

According to Saunders et al. (2009), this quantitative investigation used a deductive strategy. Quantitative data had to be collected and analysed statistically to verify or disprove eleven (11) hypotheses. The questionnaire survey approach was ideal for this objective because it allowed the researcher to more easily identify, assess, and evaluate the influence of the LMX and TTL framework, and other factors on nurses' performance. Using a questionnaire, a researcher can comprehensively gather data from various sources. This method, which involves posing questions to individuals to obtain statistically significant information on a specific topic (Roopa and Rani, 2012), ensures a thorough and robust data collection process. The questionnaire used for this research three parts (*See Appendix E*). The researcher's letter outlining the study's objectives and methods is the opening component. The second part includes the demographic information of the respondents. The third part, which has fifty-eight components, covers the research model's building blocks. Government healthcare

providers under HMC in Qatar were contacted with the questionnaire. A questionnaire with 58 indicators was employed to test the framework model. The indicators were broken down into ten constructs. These constructs, including transformational leadership, nurses' performance as independent variable (IV) and dependent variable (DV), and innovation capability as a moderating variable (MV), are significant in understanding the dynamics of the study. All items were adopted from previous studies and adapted so that they would be appropriate for this study. Items representing all variables are assessed on a 5- Likert scale of with a score range of 1 to 5 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree). All the items are in close-ended form to maintain the research's impartiality. The questionnaire was estimated to take about ten to fifteen minutes to complete. The questionnaire will be written in English. Furthermore, to enhance clarity and response rate, the questions will not be complex in sentence structure and simple words will be applied.



3.11 Data Analysis Methods

The statistical techniques that were used for the analysis of the data collected for this study are enumerated below. Data was first analyzed by means of descriptive statistics with Statistical Package for the Social Sciences (SPSS) software version 25. The first set of analyses was done on an exploratory basis to describe the variable distributions and general characteristics of the sample that would be useful in subsequent multivariate analyses.

To examine the hypotheses developed in the course of this study, descriptive statistics were followed by inferential statistics. In particular, hypotheses were tested by using Smart Partial Least Squares (PLS) software. PLS is a SEM technique that enables the

analysis of both the measurement model and the structural model at the same time. This approach is most useful in behavioral sciences because of its capacity to deal with multi-indicator models and Latent Variables. As pointed out by Burnette and Williams (2005), SEM is a very useful approach in examining the interconnection of several variables since it allows the identification of both direct and indirect impacts on the theoretical model.

In this research, the measurements and the structural modeling were done by using the two-stage method proposed by Anderson and Gerbing (1988). This approach comprises of checking the measurement model to confirm the construct validity and reliability of the measures and then checking the structural model to confirm the relationships between the variables as per the theory. Henseler et al. (2009) however pointed out that PLS has been well received because it provides a holistic approach for modeling especially in the case of global marketing research. PLS-SEM makes it possible to estimate the structural equation models and systems of simultaneous equations with latent variables, to take into consideration the measurement errors and to explain the dependencies between endogenous and exogenous latent variables.

3.11.1 Moderation Analysis Using PLS-SEM

In this study, SmartPLS 4.0 software was used to conduct moderation analysis based on the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. To test the moderating effect of Innovation Capability (IC) on the relationship between Transformational Leadership (TL) components and Nurses' Performance (NP), a two-stage approach was applied, as recommended by Hair et al. (2017).

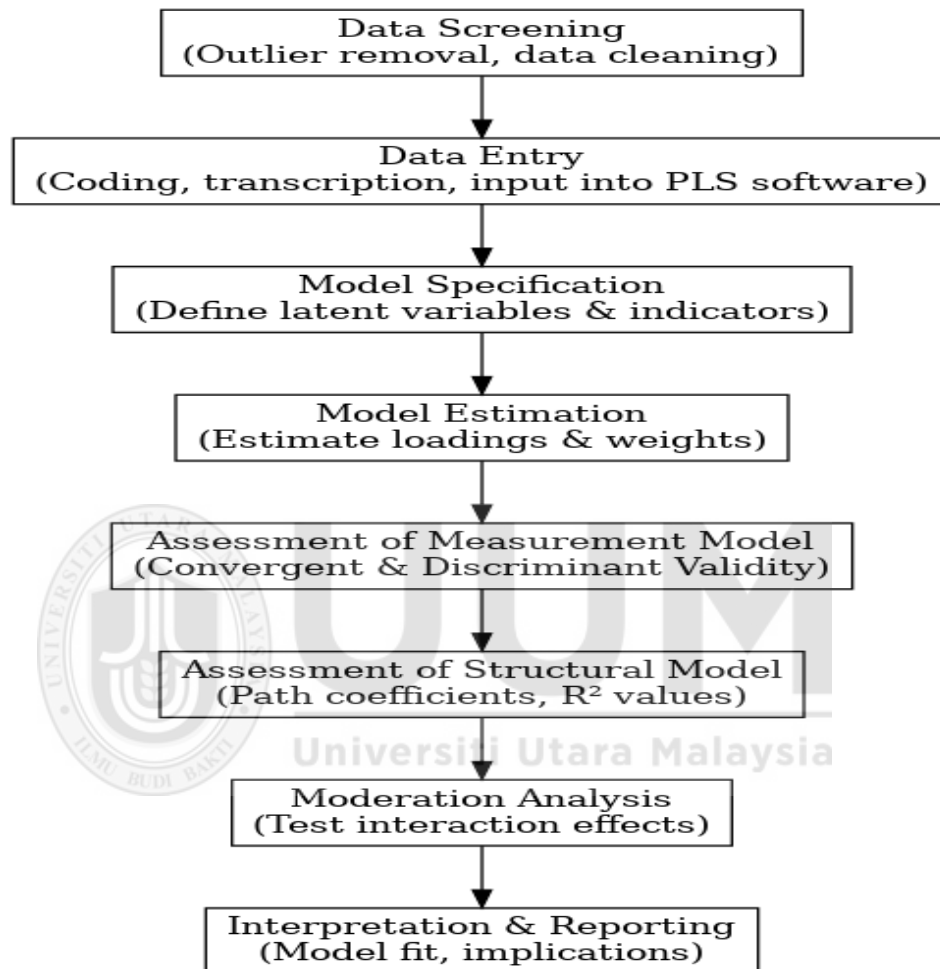
The moderation was tested through product indicator method, which involves creating interaction terms by multiplying standardized values of the independent variables (e.g., Idealized Attributes \times Innovation Capability) and then including these interactions in the structural model. Each TL dimension was interacted with the moderator IC, and the resulting interaction terms were added to the model.

Specifically, the steps followed were:

1. Mean-centering all relevant variables (IVs and moderator).
2. Creating interaction terms using product indicators in SmartPLS.
3. Adding interaction terms to the structural model to assess their significance.
4. Running the bootstrapping procedure (5,000 samples) to obtain the t-values and p-values for the interaction terms.
5. Assessing R^2 changes and interpreting the Path Coefficients to determine the strength and direction of the moderation effects.

The significance of the interaction term indicates whether Innovation Capability strengthens or weakens the effect of a particular TL component on NP. In addition, the effect size (f^2) was calculated to assess the practical significance of the moderation.

Figure 3.3: Flow Chart of Stepwise-SEM-PLS (Partial Least Squares Regression).



In order to increase the validity and reliability of the results several additional analyses were applied. In order to assess the validity of the constructs, discriminant and convergent validity analyses were performed with the help of PLS software. The hypotheses of the research were tested through bootstrapping, to estimate the p-value and thus the statistical significance of the proposed linkages. Also, the blindfolding technique was used in the determination of the extent of the impact, thus confirming the validity of the model.

This paper also used the G-Power software to calculate the study's possibility of detecting effects in the data analysis process. G-power is a statistical method that helps to identify the power of the test and to analyze if the sample size is large enough to obtain statistically meaningful results. The power of a test is the probability of a test rejecting the null hypothesis when it is indeed false, and it is an important factor that has to be taken into consideration in order to establish the credibility of the results of the research.

G-Power was used in this study for power analysis through which the sample size of 403 was deemed adequate for the detection of the proposed effects. This is because measures like effect size, sample size, and the level of significance are considered hence enabling researchers to ascertain the probability of detecting an effect in the event that it exists. Thus, power analysis was used in the study to determine the appropriate sample size needed for the study so as to reduce the likelihood of committing a Type II error (failure to reject a false null hypothesis).

In general, the implementation of these sophisticated statistical methods and software contributed to a more accurate and in-depth understanding of the data analyzed in this research, thus enhancing the credibility of the findings. The application of PLS-SEM in the model testing process, coupled with G-Power for determining the required sample size and the analytical power played a crucial role in the comprehensive examination of the research hypotheses.

This research employed a comprehensive methodology, including multiple tests such as discriminant and convergent validity analyses using PLS software. Once the validity was confirmed, the research hypotheses were evaluated using bootstrapping. The blindfold method was then used to measure the magnitude of the effect. Finally,

the study's analytical power was determined using G-power software, ensuring a thorough and valid analysis. Therefore, a power analysis might be either a pre- or post-test review.

3.12 Ethical Considerations

Compliance with Ethical Standards: The researcher followed the principles of the Declaration of Helsinki, adhered to Good Clinical Practice (GCP), and complied with the laws and regulations of the Ministry of Public Health (MoPH) in Qatar throughout the ethical process of the study.

Informed Consent: Participation in the study was voluntary, with no compulsion or incentives provided. If participants agreed to take part in the study, they responded to the survey questionnaire. The right of the participants to refuse participation in the study was clearly explained to them.

Risks, Benefits, and Safety: The researcher assured the participants that precautionary measures were taken to avoid any harm. The participants did not receive any monetary compensation for their participation in the study.

Privacy and Confidentiality of Information: The researcher made every effort to safeguard the confidentiality of the information provided by the participants. Collected data were protected by the researcher's password/pin code. Participants were assured that all gathered information would be used solely for the purposes outlined in the study objectives, and their consent would be sought before any disclosure of their information for other purposes. The confidentiality of participants' responses to the survey was not disclosed to anyone except the proponent, adviser, critic, and panel members of the study. Furthermore, participants' identities remained anonymous.

Principle of Justice: Participants' rights to fair treatment and privacy were addressed in the study policy. Recruitment was conducted with equal consideration according to the inclusion criteria. Participants had the opportunity to contact the researcher at any time during the study for clarification through the phone number or email address provided.

3.13 Chapter Summary

This chapter has detailed the methods used in this research, including research design, constructing and administering the instruments and the pilot study. This chapter also develops a complete measurement instrument for all constructs in the research model based on prior research works. The chapter then describes the data collection method. The chapter gives a relatively detailed discussion on sampling and statistical techniques used for data analysis and sample size requirements in the study. Both the structural equation modeling (SEM) and the partial least squares (PLS) methods are discussed and compared in terms of their underlying principles and capabilities of testing different model structures. Lastly, the ethical principles need to consider protecting the respondent's rights were discussed.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the data analysis. The analyses are conducted using the statistical technique discussed in Chapter 3. Pre-analysis has been done to examine the outliers of the data, the distribution, non-response bias and common method variance. The descriptive findings obtained by the responding firms are presented to understand the demographic factors followed by the outcomes of PLS path analysis under two segments: Measurement Model and Structural Model. The finding of measurement model depicts the goodness of the model by deliberating its reliability and validity of the variables used for the constructs, while the structural model shows the results conferring to hypothesis testing.

4.2 Measurements Properties

Existing instruments were used as the basis for the primary construction measurements. The latent constructs, corresponding items, and scales of assessment are summarized in Table 4.1.

Table 4.1: List of Measurement Properties

Variable	Latent Constructs	No. ofItem	Measurement Scale	Author
Transformation Leadership (TL)	Idealized attributes	4	5-Point Likert	(Kotb andNagib, 2018)
	Inspirational Motivation	4	5-Point Likert	
	Idealized behavior	4	5-Point Likert	
	Intellectual	4	5-Point Likert	
	Individual	4	5-Point Likert	
Innovation	Basis of innovation	10	5-Point Likert	(Yan et al.,

Capabilities (INNVC)	Process of innovation	8	Scale 5-Point Likert Scale	2018; Gao et al.,2022)
	Environment and pressure innovation	5	5-Point Likert Scale	
	Effectiveness of innovation	2	5-Point Likert Scale	
Nurses' Performance (NP)		13	5-Point Likert Scale	(Hussain et.al, 2016)

4.3 Preliminary Data Analysis

Preliminary data analysis encompasses data screening, a crucial phase that ensures the absence of outliers and missing values in the gathered data. Relevantly, SurveyMonkey Forms was used to collect the data for this research; hence, it would not be possible to have any missing data since respondents could move forward to the next phase of the questionnaire if all questions in the current section were answered.

4.3.1 Response Rate:

Based on Krejcie and Morgan's (1970) sampling calculation, a sample size of 403 was derived with 95% confidence level and 5% error. The online survey consisted of three questionnaires sent to all eligible samples across the eight hospitals of Hamad Medical Corporation. The survey software was configured to allow only one submission per IP address to avoid receiving duplicate responses.

The questionnaires were distributed across 13 hospitals using Survey Monkey forms. Of these, 420 were returned, after data screening, 403 responses were retained as valid for analysis meeting the recommended sample size based on Krejcie and morgoncalculations.

This response rate is considered adequate for SEM-PLS analysis and exceeds the minimum threshold recommended by Hair et al. (2017).

Table 4.2: Summary of Response Rate

Variable	Mean: First Mailing sample (103)	Mean: Second Mailing sample (300)	Statistical Difference (p-value)	
1. Transformational Leadership	3.87	3.92	0.276	(Not Significant)
2. Innovation Capability	3.75	3.78	0.364	(Not Significant)
3. Nurses Performance	3.94	4.01	0.198	(Not Significant)

4.4 Common Method Variance Test

Common method variance (CMV) is the variation in a set of measurements that can be attributed to the measurement procedure instead of the construct or constructs that the measurements represent (Podsakoff et al., 2003). CMV is shorthand for the degree to which a variable pair was artificially linked using the same technique. CMV may be seen in action during data collection for every variable in a survey. CMV is problematic since it increases the size of the research result, which might affect the study's Validity (among other things). Method biases need attention as a leading cause of measurement error (Podsakoff et al., 2003).

According to Kleyhans (2022) and Yüksel(2017), this type of response bias raises significant concerns about the generalizability of findings. As a result, "generalization" is more troublesome for most social studies because of the significant impact of CMV on the conclusions (due to the same respondent reactions) despite the best efforts of researchers. Because partial responses provide inaccurate estimates of effects and variable correlations, the impact of common technique bias on hypothesis results must be carefully considered (Yüksel, 2017). Therefore, this issue must be

addressed before any data can be collected and analyzed. The use of procedural methods to diminish or eradicate CMV is one option; if CMV is not addressed, its effects may appear in the study's results (Tehseen et al., 2017).

4.5 Variance Inflation Factor (VIF)

This research takes a pre-emptive and corrective approach to reduce Common Method Variance (CMV) by implementing procedural and statistical measures before and after data collection. To address potential concerns of CMV, this study utilized Harman's Single-Factor Test as a statistical measure post-data collection. This test examines whether a single factor accounts for the majority of variance in the data. The results indicated that no single factor explained more than 50% of the total variance, confirming that CMV is not a significant issue in this study. Additionally, procedural remedies were implemented during data collection, such as ensuring respondent anonymity, randomizing question order, and using different scale formats to minimize bias. These steps collectively enhance the reliability and validity of the data collected.

Variance Inflation Factor (VIF) is an effective statistical tool for addressing this problem. The study also examined Multicollinearity among the predictor variables using VIF. Multicollinearity occurs when independent variables are highly correlated, which can distort regression results and weaken the interpretation of predictors. VIF values were calculated for all constructs, and the results indicated that all values were below the critical threshold of 5 (Hair Jr et al., 2017). This confirms that the data does not suffer from multicollinearity issues, as shown in Table 4.3.

Vertical collinearity was determined by computing a variance inflation factor (VIF) for all predictor latent variables and then comparing these VIFs to a threshold. VIF

has been increasingly used to measure vertical collinearity(Kock and Lynn, 2012; Kock, 2015). In this test, all variables were regressed on a standard variable. VIF must be ≤ 5 to ensure that a study is free from the multi-collinearity issue (Hair Jr et al., 2017), the data are free of bias. Table 4.2 shows the full collinearity test, which declares that the VIF for all constructs, is below 5. Consequently, the data was not influenced by any source bias. Full-collinearity test Construct collinearity statistics VIF Idealized attributes 2.373, Inspirational motivation 1.767, Idealized behavior 2.205, Intellectual stimulation 1.76, Individual consideration 2.449, Innovation capability 4.412 and Nurses' performance 4.734. Therefore, table 4.3 shown illustrates the results of the analysis.

Table 4.3: Full collinearity test

	IA	IS	IC	INNVC	IM	IB	NP
VIF	2.373	1.76	2.449	4.412	1.767	2.205	4.734

Note: IA Idealized attributes, IS Intellectual Stimulation, IC Individual Consideration, IM Inspirational Motivation, IB Idealized behavior, INNVC Innovation Capability, NP Nurses' Performance

4.6 Non-Response Bias

To assess the possibility of non-response bias, an independent samples t-test was conducted comparing early (n = 103) and late respondents (n = 300) on the three main constructs: Transformational Leadership, Innovation Capability, and Nurses' Performance. As shown in Table 4.X, there were no statistically significant differences between the two groups across all variables ($p > 0.05$). Therefore, it can be concluded that non-response bias is not a threat in this study, and the sample responses can be considered representative of the population under investigation.

Table 4.4: Preliminary Data Analysis

Variable	Mean (Early)	Mean (Late)	P-value	Statistical Difference
Transformational Leadership	3.78	3.81	0.276	Not Significant
Innovation Capability	3.92	3.95	0.364	Not Significant
Nurses Performance	3.84	3.86	0.219	Not Significant

4.7 Demographic Profile of the Respondents

Table 4.5 shows how often each variable occurs and how often each percentage occurs. 99 men (24.6% of the total) and 304 females (75.4%) provided usable replies out of 403. Consequently, women make up the bulk of this study's sample. Regarding age, 5.5% of respondents were between 20-30 years, 53.8 between 31-40 years, 28.8% between 41-50, and 11.9% 51 and more. When asked about their level of education, 15.9% said they just had a diploma in nursing, 74.7% said they had a bachelor's degree, and 9.4% said they had a postgraduate degree. In terms of years of experience, 4.5% of respondents said they had less than five years' worth, 22.3% reported between five- and ten-years' worth, 52.4% reported between eleven and twenty years' worth and reported between 21-30 years 19.1%, and 1.7% reported more than thirteen years' worth. Most of the respondents with 43.2%, were specialized in Inpatient care, 22.1% specialized in Outpatient, 18.9% specialized in Emergency care, 10.4% specialized in critical care, and 5.5% specialized in operating theatre.

Table 4.5: Respondents Profile, Frequency Analysis

Group		Frequency	Percent (%)
Gender	Female	304	75.4
	Male	99	24.6
Age	20-30	22	5.5
	31-40	217	53.8
	41-50	116	28.8
	51 and more	48	11.9
Specialty	Critical care	42	10.4

	Emergency	76	18.9
	Inpatient	174	43.2
	Operating Theatre	22	5.5
	Outpatient	89	22.1
Education	Bachelor	301	74.7
	Diploma in Nursing	64	15.9
	Postgraduate	38	9.4
Experience	< 5 years	18	4.5
	5-10 years	90	22.3
	11-20 years	211	52.4
	21-30 years	77	19.1
	> 30 years	7	1.7
Total		N = 403	100

4.8 Assumptions of Multiple Regressions (Using SEM)

The variables underwent assessments to ensure they met the fundamental assumptions of multiple regression analysis, including tests for normality, linearity, and multicollinearity, as recommended by Hair et al. (2018) and Pallant (2011).

4.8.1 Multivariate Normality

The assumption of normality is one of the foundations of statistical methods. As a result, statistical tests assume normality without actual proof or testing. Indeed, normality is required by many statistical methods (Park, 2015). For example, PLS-SEM is typically employed when data has a non-normal distribution (Hair et al., 2017). in addition, there are not many ways to check whether data is normally distributed. Instead of using the t-test or F-test to determine whether the data depart from normality, Hair et al. (2019) suggested looking at skewness and Kurtosis. The skewness statistic measures how asymmetrical the distribution of a given variable is. A skewed distribution of answers leans too much to the left or right.

Conversely, Kurtosis quantifies how skewed the distribution is toward the peak values. If the distribution is too sharp a peak, most of the answers are concentrated in the middle. As a rule, a variable's skewness and Kurtosis are within acceptable ranges if they fall within the interval (-1.0, +1.0). According to Hair et al. (2017) and Cain et al. (2017), a standard test for multivariate normality concerning skewness or Kurtosis is the use of Mardia's techniques (Mardia, 1970, 1974). In addition, multivariate skewness and Kurtosis may be used to determine whether the data is multivariate normal and thus acceptable for SMART-PLS. If either p-value is lower than the 0.05 significance (Hair et al., 2019; Ramayah et al., 2018).

Table 4.6: Normality Test (Skewness and Kurtosis)

Variable	Skewness	SE_skew	Z_skew	Kurtosis	SE_kurt	Z_kurt
Idealized.Attributes.IA	-0.366	0.122	-3.014	-1.253	0.243	-5.166
Idealized.behavior.IB	-0.342	0.122	-2.816	-0.863	0.243	-3.560
Individual.Consideration.IC	-0.321	0.122	-2.637	-0.804	0.243	-3.317
Inspirational.Motivation.IM	-0.490	0.122	-4.028	-1.236	0.243	-5.096
Intellectual.Stimulation.IS	-0.477	0.122	-3.926	-0.719	0.243	-2.966
Nurses.Performance	-0.084	0.122	-0.691	-1.143	0.243	-4.714
Innovation.Capability	-0.314	0.122	-2.583	-1.070	0.243	-4.411
Mardie's multivariate skewness and kurtosis						
Statistic	Value		Z		p-value	
Skewness	3.805108		255.5764		0.0000000	
Kurtosis	64.204254	1.07685	0.2815471			

In this work, the method mentioned above (Web Power) to examine multivariate skewness and Kurtosis in the style of Hair et al. (2017) was employed. The data were not multivariate normal, as shown by Mardia's multivariate skewness ($\beta = 3.805$, $p > 0.05$) and multivariate Kurtosis ($\beta = 64.204$, $p < 0.001$). This research used Smart PLS, a non-parametric structural equation modeling tool., for its analysis. hence, the model used in this research is sufficiently complicated to require using Smart PLS for hypothesis testing (Hair et al., 2017)

4.9 An Evaluation of the PLS-SEM Path Model's Results Partial Least Squares (PLS) and Structural Equation Modelling (SEM)

The exploratory nature of Smart PLS makes it a good fit for the study's prediction objectives (Hair et al., 2018). Smart PLS is a two-stage variance-based SEM tool. First-stage measuring model includes convergent and discriminant Validity. Smart PLS is a fourth-generation analytic tool that evaluates complex models using latent variables (Hair et al., 2017). The structural model is the second. This study used Smart-PLS 4 as statistical software and tested hypotheses in the actual world. Since most survey research is not typical, PLS was used (Chin et al., 2003). According to Hair et al.(2017), applying SEM in a research study requires a route model depicting the variables to be examined. Chapter 4 and the following parts detail how we applied PLS-SEM utilizing Hair et al.(2017) techniques.

Structural and Measurement models comprise the Path Model (Hair et al., 2018). The inner model describes latent variable relationships (Hair et al., 2018). The measurement model, also called the "outer model," is a formal representation of the causal links between latent variables (constructs) and their correlate measures(Hair et al., 2018). This research followed Anderson and Gerbing's (1988) two-step procedure for data analysis to verify the hypotheses developed first; the measuring model incorporates convergent and discriminant Validity. Second-stage focus: structural model (Ngah et al., 2020).

4.10 Assessment of the Measurement Model

In psychology and the social sciences, the usage of structural equation modelling has increased (Anderson and Gerbing, 1988). However, to evaluate their results, researchers must use a variety of construct validity categories, such as convergent and

discriminant Validity (Henseler et al., 2015). The two-stage data analysis method presented allowed us to test the hypotheses in this study by Anderson and Gerbing (1988). The comprehensive model of Measurement comprised all latent components and their coincident indicators.

4.10.1 Convergent Validity

After ensuring that the data is suitable for use with PLS-SEM, it is standard practice to check the validity and reliability of the research instruments. The next step, testing the study's hypotheses, will depend on the Validity and Reliability of the measures.

According to Henseler et al. (2015), convergent validity is "a set of indicators that signal the same primary construct, as evidenced by their unidimensional; "To more completely. Analyse the dimensionality of the investigated construct; A within-factor analysis was performed to determine the level of convergent validity. So, convergent validity used to measure a construct are consistent with a single theoretically predicted component (Ngah et al., 2017). The average variance extracted (AVE) from each concept using the indicators' external loadings is calculated for convergent validity assessment. Here, the outer loadings need to be at least 0.5 to be considered valid because the construct score should account for at least 50% of the variation in the dependent variable if the square of this number is at least 0.5 (Henseler et al., 2015). The variance of all items' loadings on a single construct is retrieved. The AVE provides a simple measure of convergence based on this variance. The goal is to show that more than half of the indicator variation can be accounted for by the construct score; loadings should be greater than 0.50, which indicates satisfactory convergence (Hair et al., 2017).

In this research, the indicators' standardized loading or simple correlation with their associated latent variables was used to assess each item's reliability. Cronbach's alpha was traditionally used by academics to determine the internal consistency or reliability of a variable-measuring item (Roldán and Sánchez-Franco, 2012). In this research, the reliability of each item was evaluated using the indicator's standardized loading on the hidden variable or the simple correlation between the indicator and the hidden variable. Cronbach's alpha was first made to help researchers determine how reliable a given item was when measuring a certain variable (Roldán and Sánchez-Franco, 2012). After inventing Composite Reliability (CR), which fulfils the same function as Cronbach's alpha, the situation changed. Since CR does not presume that all indicators are equally weighted, as SPSS and CA analysis do, it is more appropriate for PLS (Chin, 2010). This research used CR to evaluate the goods' dependability and consistency. Average Variance Explained (AVE) must be examined to guarantee convergent validity in PLS. A suitable level of convergent validity is shown by an AVE value of 0.50 or above, which indicates that the latent variable explains more than half of the variance in its indicators (Hair et al., 2013).

Table 4.6 shows the outcomes of the measuring methodology. There is a correlation between the underlying item indicators for each latent variable and the latent variables in the measurement model. As was previously noted, factor loadings, CR, and AVEs must all be above the threshold levels to demonstrate convergent validity. Therefore, Hair et al. (2013) proposed that to establish convergent Validity, the loading should be higher than 0.5, and CR should be more than 0.7. AVE should be more than 0.5 (Hair et al., 2013). As shown Table 4.6, the loadings for the remaining items were 0.581 – 0.965; after deletion, the items B-inn9, and B- due to low-factor loading, and all remaining met the criteria set by (Hair et al., 2013). Thus, Parameter estimates

and statistical significance demonstrate that all constructs utilized are valid measurements of their intended constructs (Chow and Chan, 2008; Hair et al., 2016).

Table 4.7: Measurement model: Convergent Validity (Reflective)

Higher order construct	lower order construct	Items	loading	CR	AVE	Cronbach's alpha
Innovation capability	Idealized attributes (IA)	IA1	0.903	0.95	0.826	0.93
		IA2	0.906			
		IA3	0.916			
		IA4	0.911			
	Idealized behaviour (IB)	IB1	0.913	0.951	0.828	0.931
		IB2	0.913			
		IB3	0.912			
		IB4	0.902			
	Individual Consideration (IC)	IC1	0.908	0.952	0.832	0.933
		IC2	0.91			
		IC3	0.921			
		IC4	0.91			
	Inspirational Motivation (IM)	IM1	0.917	0.944	0.809	0.921
		IM2	0.934			
		IM3	0.83			
		IM4	0.912			
Intellectual Stimulation (IS)	IS1	0.913	0.954	0.837	0.935	
	IS2	0.923				
	IS3	0.908				
	IS4	0.916				
Basis of innovation	B-inn1	0.857	0.969	0.797	0.964	
	B-inn2	0.91				
	B-inn3	0.897				
	B-inn4	0.916				
	B-inn5	0.905				
	B-inn6	0.899				
	B-inn7	0.87				
	B-inn8	0.888				

Environment and pressure innovation	EandP-inn1	0.67	0.918	0.694	0.887
	EandP-inn2	0.704			
	EandP-inn3	0.912			
	EandP-inn4	0.913			
	EandP-inn5	0.928			
Effectiveness of innovation	E-inn1	0.965	0.948	0.901	0.892
	E-inn2	0.933			
Process of innovation	P-inn1	0.774	0.937	0.653	0.922
	P-inn2	0.81			
	P-inn3	0.81			
	P-inn4	0.858			
	P-inn5	0.842			
	P-inn6	0.865			
	P-inn7	0.883			
	P-inn8	0.581			
Nurses' performance	NP1	0.886	0.956	0.63	0.949
	NP10	0.86			
	NP11	0.623			
	NP12	0.626			
	NP13	0.653			
	NP2	0.865			
	NP3	0.88			
	NP4	0.884			
	NP5	0.857			
	NP6	0.822			
	NP7	0.742			
NP8	0.727				
NP9	0.815				

Note: B-inn 9 (0.115) and B-inn 10 (0.226) were deleted due to low factor loading

4.10.2 Discriminant Validity

Convergent validity ensures the consistency and dependability of the constructs used in this investigation. Discriminant validity testing was critical to ensuring these

indications could be distinguished from the indicators of other constructs. Discriminant validity evaluates how one idea stands out from others. In technical words, each latent construct must explain a more significant percentage of the variance in its indicators than in indications common to several latent constructs(Hair et al., 2010). One cannot define without assuming differences, and verifying these distinctions is a crucial component of the validation process, as stated by Campbell and Fiske (1959). As such, it has what is known as discriminant validity, the degree to which it stands apart from other items used to evaluate other components in a structural model(Hair et al., 2019). The determining discriminant validity adhered to the guidelines of (Franke and Sarstedt 2019; Henseler et al., 2015). According to Table 4.8, discriminant validity is not an issue in this investigation. One method they proposed to test discriminant validity was the HTMT, the correlation between two traits. For discriminant validity, scores below 0.850 on the HTMT are required (Henseler et al., 2015).

Table 4.8: Results of HTMT Discriminant Validity

	B-inn	EandP-inn	E-inn	IA	IB	IC	IM	IS	NP	P-inn
B-inn										
EandP-inn	0.550									
E-inn	0.248	0.206								
IA	0.535	0.543	0.200							
IB	0.613	0.563	0.179	0.527						
IC	0.643	0.644	0.200	0.536	0.661					
IM	0.318	0.380	0.182	0.677	0.452	0.398				
IS	0.613	0.412	0.229	0.478	0.526	0.559	0.365			
NP	0.775	0.674	0.370	0.687	0.752	0.778	0.496	0.678		
P-inn	0.665	0.721	0.188	0.598	0.684	0.726	0.450	0.484	0.828	

Note: IA Idealized attributes, IS Intellectual Stimulation, IC Individual Consideration, IM Inspirational Motivation, IB Idealized behavior, INNVC Innovation Capability, NP Nurses' Performance.

Table 4.8 The HTMT values fall between 0.179 to 0.828 and are less than 0.85. As a result, it verifies that each latent construct measurement is distinct from the others (Henseler et al., 2015). On this basis, the researcher might infer that each item scores higher on its concept than on other constructs, thus satisfying the second requirement for discriminant validity. Overall, the measurement model showed sufficient convergent and discriminant validity. Figure 4.1 depicts the modified overall Measurements Model with standardized factor loadings of the items.

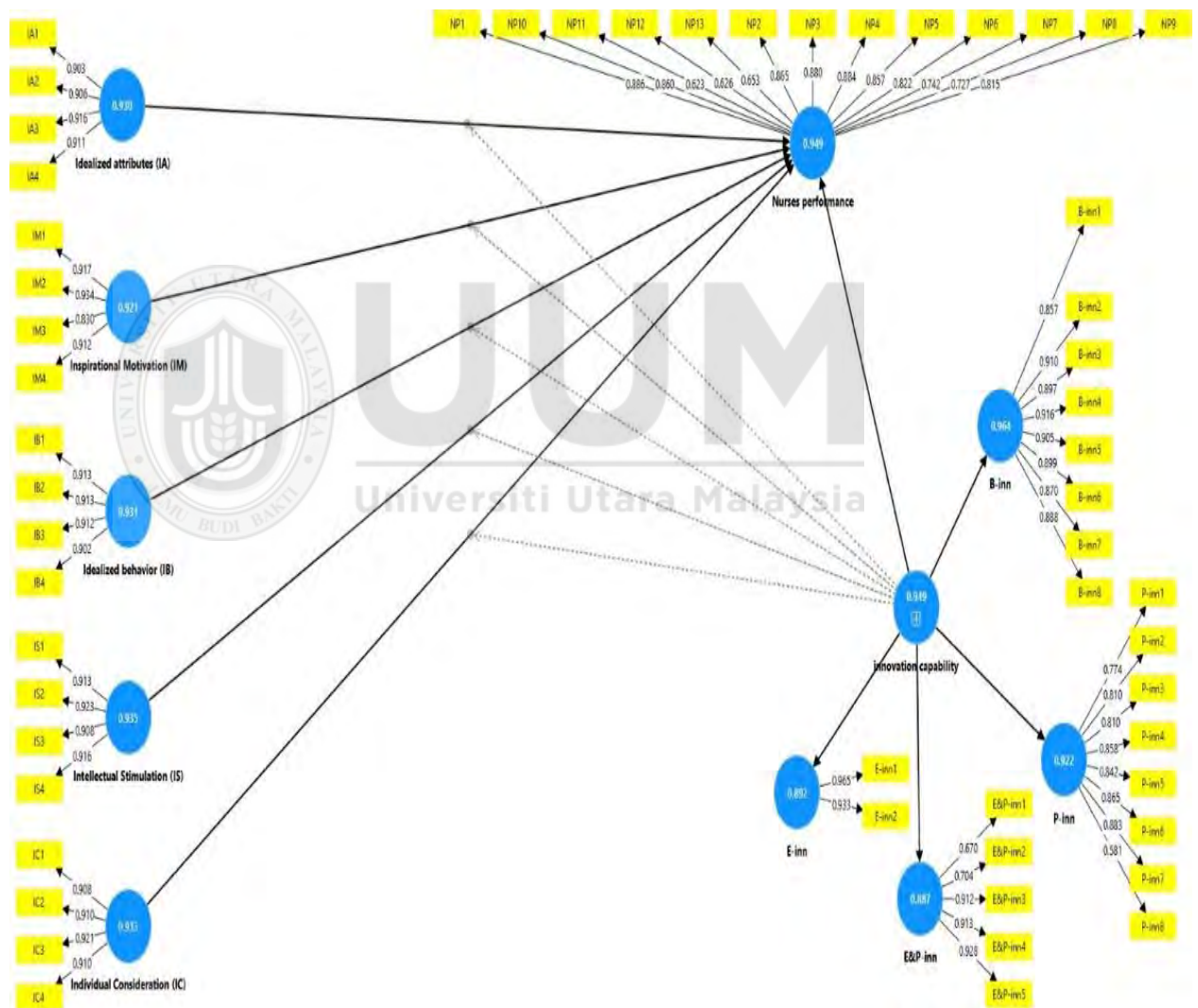


Figure 4.1 Measurement Model

4.10.3 Initial Measurement Model (Before Item Deletion)

As part of the reflective measurement model assessment, all items were initially included before proceeding to item purification. The model was assessed for internal Consistency, indicator reliability, and convergent validity.

The outer loadings for most indicators were above the minimum recommended threshold of 0.50 (Hair et al., 2017). However, two items related to Innovation Capability namely B-inn9 (loading = 0.115) and B-inn10 (loading = 0.226) showed low standardized loadings and were thus deleted from the final model. These values are shown in Table 4.9

Table 4.9: Outer Loadings of Deleted Items

Construct	Item	Outer Loading
Innovation Capability	B-inn9	0.115
Innovation Capability	B-inn10	0.226

After deletion, the composite reliability (CR) and average variance extracted (AVE) for the construct improved and exceeded the required threshold (CR > 0.70, AVE > 0.50), confirming the improved measurement model fit. This process aligns with best practices in reflective measurement model refinement (Hair et al., 2019).

4.10.4 Cross Loadings and Construct Validity

Construct validity can be assessed by examining the loadings and cross-loadings of indicators. According to Hair et al. (2017), each indicator should load higher on its associated latent construct than on any other construct. A commonly accepted rule is that loadings should be 0.50 or higher on the respective construct and lower on others.

Table 4.10: Loadings and Cross Loadings

Item	Transformational Leadership	Innovation Capability	Nurses Performance
T1	0.812	0.435	0.421
T2	0.845	0.412	0.387
T3	0.790	0.398	0.440
T4	0.803	0.423	0.415
IC1	0.410	0.781	0.365
IC2	0.389	0.820	0.410
IC3	0.402	0.795	0.398
IC4	0.373	0.808	0.390
NP1	0.407	0.402	0.840
NP2	0.380	0.395	0.855
NP3	0.415	0.420	0.832
NP4	0.400	0.388	0.847

4.10.3 Hypotheses Testing

The second major step in SEM analysis is developing a structural equation model. The structural model may reveal construct relationships after confirming the measurement model. Hypotheses are tested during structural model analysis (Ngah, Anuar, et al., 2021). The structural model explains varied connections. The structural model differs from the measurement model in that it emphasizes the kind and magnitude of correlations between latent constructs and measured variables as opposed to the connections between latent constructs and measured variables (Hair, 2006); the research model generated 13 hypotheses, which were evaluated using route analysis. The research model-derived hypothesis was assessed using a bootstrapping technique using 5,000 samples.

The bootstrap method is a nonparametric technique used to assess the precision of PLS estimates (Ngah et al., 2016). followed by the size, direction, and relevance of the

anticipated parameter estimations (Hair et al., 2016). Lastly, examining variables' relationships verified the study's structural model. Using 5,000 resamples, we bootstrap the structural model's route coefficients, standard deviation, t-values, and p-values (Hair et al., 2019). After verifying the measurement model, the structural model may describe constructed relationships. Throughout the research, the structural model analysis examines theories (Ngah et al., 2020). The structural model shows varied linkages. Hair et al. (2017) compare exogenous and endogenous factors and dependent variables, the initial stage in structural model assessment. The size, direction, and relevance of anticipated parameter estimations were calculated (Hair et al., 2016). R^2 or variance explained by endogenous constructs and the significance of all path estimates were used to assess the validity of the theoretical model suggested in the work (Chin, 2010). It calculates the proportion of variation in the response variable that may be explained by a linear model (Ngah et al., 2016). R^2 runs from 0 to 1, with higher values indicating more precise prediction (Hair et al., 2013).

Hahn and Ang (2017) challenged the use of p-values for assessing the significance of hypotheses and advocated a mixture of p-values, confidence intervals, and effect sizes used to evaluate the validity of a hypothesis. The significance of the path may be inferred if the confidence interval does not include 0. Four conditions must be met for the hypothesis to be accepted: (1) the beta value is consistent with it; (2) the t-value is greater than or equal to 1.645; (3) The p-value is less than or equal to 0.05, and (4) Neither the lower limit (LL) nor the upper limit (UL) of the confidence interval equals zero (LL) (Hair et al., 2019). Before hypothesis testing, it is essential to establish that the study's Multicollinearity did not influence the outcomes. According to Diamantopoulos and Siguaw (2006), all VIF values for each hypothesis were less than 5, as shown in Table 4.8, indicating no predictive collinearity.

Structured models are evaluated by looking at the relationships between the various constructs and their ability to predict outcomes (Hair et al., 2018). Collinearity, significance, the significance of the path coefficients, and the predictive relevance of Q2 are the primary criteria for assessment (Hair et al., 2018). Next, we will create structural models to evaluate the theories presented in Chapter 2. The structural model for assessing direct and moderating effects is shown in Table 4.11, 4.12 and 4.13 Figures 4.2 (with path coefficient), and Figures 4.3 (with T-statistics).

4.10.4 Examining (direct) Effect Hypotheses

The section that follows explains the findings of the path analysis according to the direct effect hypotheses. Table 4.11 shows the path coefficients and the results of looking into the direct effects that were thought to be happening.

H1: There is a Positive and Significant Relationship Between Transformational Leadership (TL) (Overall) and Nurses' Performance (NP).

The structural model examined the direct relationship between the overall construct of Transformational Leadership (TL) and Nurses' Performance (NP). The results demonstrated a statistically significant and positive effect of TL on NP, with a path coefficient of $\beta = 0.057$, $t = 3.920$, $p < 0.001$, and a confidence interval of LL-CI = -0.007, UL-CI = 0.120, which does not contain zero. This confirms a consistent and strong direct effect, meeting the criteria outlined by Hair et al. (2019) for supporting a hypothesis: (1) a significant beta value in the hypothesized direction, (2) a t-value greater than 3.920, and (3) a confidence interval that excludes zero. Therefore, **Hypothesis H1 was supported**, indicating that transformational leadership practices as a whole significantly enhance the performance of nurses in the government healthcare setting.

H_{1.1}: Idealized attributes (IA) have a significant impact on Nurses' Performance (NP).

The hypothesis for this study is regarding Idealized attributes (IA) and (NP). As shown in Table 4.11, the results show that IA was positively related to NP ($\beta = 0.136$, $t = 3.921$, $p = 0.001$, LL-CI = 0.068, UL-CI = 0.206, With the beta value showing a positive relationship., Thus, we can conclude that Idealized attributes (IA) have a positive effect on Nurse's performance (NP)significance at $P < 0.001$. Therefore, **H_{1.1} was supported.**

H_{1.2}: Inspirational motivation (IM) has a significant impact on Nurses' Performance (NP)

As the hypothesis, the beta value for the second hypothesis also indicated a positive relationship between exogenous and endogenous variables. With ($\beta = 0.142$, $t = 4.076$, $p < 0.001$, LL-CI = 0.071, UL-CI = 0.209), we can claim based on that Inspirational motivation (IM) has a positive effect on Nurse's performance (NP) significance at $p < 0.001$. Thus, **H_{1.2} was supported.**

H_{1.3}: Idealized behaviour (IB) has a significant impact to Nurses' Performance (NP)

The hypothesis results show that (IB) was proposed to be positively related to NP with ($\beta = 0.166$, $t = 4.697$, and $p = 0.001$, LL-CI = 0.095, UL-CI = 0.235). We can claim based on that Idealized behaviour (IB) has a positive effect on Nurse's performance (NP) significance at $p < 0.001$. Thus, **H_{1.3} was supported.**

H_{1.4}: Intellectual stimulation (IS) has a significant impact on Nurses' Performance (NP).

The hypothesis results show that (IS) was proposed to be positively related to NP with ($\beta = 0.018$, $t = 0.679$, and $p = 0.497$, LL-CI = -0.036, UL-CI = 0.071). Therefore, $\beta = 0.018$ contradicts the claimed one with a violation of containing zero in the confidence interval, LL-CI = -0.036, UL-CI = 0.071 as shown in Table 4.11. Hence the hypothesis is supported if (1) the beta value is inconsistent with the hypothesis, (2) the t-value is more than 1.645, and (3) the confidence interval does not contain zero between the lower and higher levels (LL) as proposed by (Hair et al., 2019), so **H_{1.4} was unsupported** for this study regards Intellectual Stimulation (IS) and Nurse's performance (NP).

H_{1.5}: The Individual consideration (IC) has a significant impact on Nurses' Performance (NP).

The hypothesis results show that (IC) was proposed to be positively related to NP with ($\beta = -0.176$, $t = 6.229$, and $p < 0.001$, LL-CI = -0.231, UL-CI = -0.121). Therefore, $\beta = -0.176$ contradicts the claimed one with a violation of the beta value is inconsistent with the hypothesis. as proposed by (Hair et al., 2019), so **H_{1.5} was supported** for this study regards Individual Consideration (IC) and Nurse's performance (NP).

H₂: The Innovation Capability (INNVC) has a Significant Impact on Nurses' Performance (NP).

The hypothesis results show that innovation capability (INNVC) was proposed to be positively related to Nurses' Performance NP with ($\beta = 0.479$, $t = 12.590$, and $p < 0.001$, LL-CI = 0.405, UL-CI = 0.553). We can claim based on that the innovation capability (INNVC) has a positive effect on Nurse's performance (NP) significance at $p < 0.001$. Thus, **H₂ was supported.**

4.10.4.1 Coefficient of Determination (R^2)

The coefficient of determination R squared (R^2) is a crucial parameter in the PLS-SEM evaluation of the structural model. In contrast, R^2 values indicate the degree of variance in the structural model's endogenous components that can be explained (Hair et al., 2018). Consequently, the path coefficients, R^2 , and their size and significance are the primary evaluation criteria for the structural model. According to Hair et al. (2013), the R^2 level of the critical target constructs should be high to explain the variance in endogenous latent variables. In addition, Hair et al. (2013) scales the regression coefficient (R^2) from zero to one, suggesting that the predictive accuracy of the model tends to increase as the number of variables in the model increases (Hair et al., 2019). After confirming the measurement model's validity, the next step in reviewing the PLS-SEM data was to evaluate the structural model.

Consequently, the coefficient of determination (R^2), the blindfolding-based cross-validated redundancy measure (Q^2), and the statistical significance and applicability of the route coefficients are typical evaluation criteria that must be considered (Hair et al., 2019). Numerous researchers evaluate the predictive strength of their model using the R^2 statistics. However, according to Shmueli (2010), R^2 indicates the model's in-sample explanatory power; it tells nothing about the model's out-of-sample predictive ability, so this interpretation is incorrect (Chin et al., 2003).

The value of R^2 for Nurse's performance (NP) was 0.830, indicating 83.0% variations in the Nurse's performance (NP) are explained by its predictors, which are considerably high, as suggested by (Hair et al., 2013).

4.10.4.2 Effect Size (f^2)

It may be obtained by examining R^2 to check if the impact of an independent latent variable can be quantified (Chin, 2010). An impact size (f^2) analysis is what we are doing here. The absence of a specific exogenous construct from the structural model influences the endogenous constructs, as measured by the effect size f^2 (Hair et al., 2018).

The effect size measures the degree or size of the link between the latent variables. Therefore, researchers need to know how significant an effect is to determine a study's overall effect (Cohen, 1988; Hair et al., 2018). Researchers should report the magnitude of the relationship between variables, not only the significance of the relationship, as Chin et al. (1996) pointed out.

The effect size is the degree or size of the link between the latent variables. The f^2 determines the proportional influence of a predictor structure on endogenous structures. As stated by Sullivan and Feinn (2012), besides the p-value, it is also essential to report effect size (substantive significance) and p-value (statistical significance).

f^2 is classified as a value between 0.02, 0.15, and 0.35, indicating the small-to-medium, medium-to-large, and large effects, respectively (Cohen, 1988). Predictors are essential when the f^2 value is more significant, according to Latan et al. (2019). As illustrated in Table 4.7, the results showed a large effect size in the relation between innovation capability (INNVC) and nurse's performance NP (0.417) and a small effect size, i.e., 0.023 to 0.094 for other variables. The smallest effect size was observed in the relationship between Inspirational Motivation (IM) and Nurses.

According to these findings, innovation capability (INNVC) is the most critical variable in explaining a nurse's performance.

Table 4.11: Examining Results of Test Hypotheses – Direct Effects (H1)

Hypothesis	Relationship	Beta	SE	T-Value	P-Value	LL-CI	UL-CI	f2	effect size	VI F
H1 (Overall)	Transformational Leadership (TL) → Nurses' Performance (NP)	0.057	0.032	3.920	0.001	-0.007	0.120	0.057	Small to Medium	2.120
H1.1	Idealized Attributes (IA) → Nurses' Performance	0.136	0.035	3.921	0.001	0.068	0.206	0.046	Small	2.355
H1.2	Inspirational Motivation (IM) → Nurses' Performance	0.142	0.035	4.076	0.001	0.071	0.209	0.055	Small	2.152
H1.3	Idealized Behaviour (IB) → Nurses' Performance	0.166	0.035	4.697	0.001	0.095	0.235	0.068	Small	2.399
H1.4	Intellectual Stimulation (IS) → Nurses' Performance	0.018	0.027	0.679	0.497	-0.036	0.071	0.023	Small	1.765
H1.5	Individual Consideration (IC) → Nurses' Performance	-0.017	0.028	6.229	0.001	-0.023	-0.121	0.094	Small	1.928

Note: A 95% confidence interval was used with bootstrapping of 5,000 samples. SE = Standard Error; CI = Confidence Interval; LL = Lower Level; UL = Upper Level.

The results presented in Table 4.11 demonstrate the overall, individual and average direct effects of the five components of Transformational Leadership on Nurses'

Performance. All subcomponents, except for Intellectual Stimulation (IS), showed statistically significant positive relationships with nurse performance ($p < 0.001$). Individual Consideration (IC), however, displayed a significant negative beta value, suggesting an inverse relationship. The average result across all five components yielded a beta of 0.057 with a p-value of 0.100, indicating that the overall relationship was not statistically significant at the 0.05 level. Despite the variability, the overall effect size falls in the 'Small to Medium' category with acceptable VIF values, suggesting no major multicollinearity issues.

Table 4.12: Examining Results of Test Hypotheses(H2)

Hypothesis	Relationship	Beta	SE	T-Value	P-Value	LL- CI	UL- CI	f ²	effect size	VIF
H2	Innovation capability (INNVC) -> nurse's performance (NP)	.479	.038	12.59	.001	.405	.553	.417	L	3.236

Note: We use a 95% confidence interval with a bootstrapping of 5,000; SE = standard Error; CI = confidence interval; LL = lower level; UL = upper level; VIF = variance inflation; L to denote Large

Table 4.12 presents the results of the hypothesis testing for the direct effect of Innovation Capability (INNVC) on Nurses' Performance (NP). The path coefficient (β) of 0.479 indicates a strong positive relationship, with a standard error (SE) of 0.038 and a T-value of 12.591, which exceeds the critical threshold, suggesting the effect is statistically significant ($p < 0.001$). The 95% confidence interval ranges from 0.405 to 0.553, reinforcing the reliability of the estimate. Furthermore, the effect size ($f^2 = 0.417$) is interpreted as large based on Cohen's criteria, indicating that innovation capability has a substantial impact on nurses' performance. The variance inflation

factor (VIF = 3.236) remains within acceptable limits (<5), suggesting no multicollinearity issues. These findings support **Hypothesis H2**, confirming that innovation capability significantly influences nurses' performance in the healthcare setting.

4.10.5 Examining Moderation Effect Hypotheses

Qualitative or quantitative moderator factors may influence the connection between independent and dependent variables (Aguinis et al., 2017; Baron and Kenny, 1986; Dawson, 2014; Hair et al., 2016). The hypotheses are supported if (1) the beta value is consistent with the hypothesis, (2) the t-value is more than 1.645, (3) the p-value is less than 0.05, and (4) the confidence interval does not contain zero between the lower and higher levels (LL), as claimed by (Hair et al., 2019), then using the Dawson (2014) method, When the moderating impact was considerable, each interaction was plotted to demonstrate how the moderator might alter the connection between the predictor and outcome variables. The predicted moderating effects' path coefficients and examination findings are displayed in Table 4.13.

The following part summarizes the findings of the path analysis on the hypothesis regarding the moderating effect; For the moderating analysis, the study hypothesized that a high level of innovation capability (INNVC) would strengthen the positive relationship between transformational Leadership (TL) including (Idealized attributes (IA), inspirational motivation (IM), Idealized behaviour (IB), intellectual stimulation (IS), individual consideration (IC), and Nurses' Performance (NP).

Table 4.13 Results for Hypotheses Testing: Moderation Effect of Innovation Capability

<i>Hypothesis</i>	<i>Relationship</i>	<i>Beta</i>	<i>SE</i>	<i>T-Value</i>	<i>P-Value</i>	<i>LL- CI</i>	<i>UL- CI</i>	<i>f-square</i>
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H3 (Overall)	Innovation Capability moderates TL → Nurses' Performance	0.026	0.030	1.387	0.233	- 0.034	0.026	- 0.030
H3.1	Innovation Capability × IA → Nurses' Performance	0.079	0.039	2.021	0.043	0.001	0.154	0.001
H3.2	Innovation Capability × IM → Nurses' Performance	- 0.014	0.022	0.632	0.527	- 0.058	0.027	0.008
H3.3	Innovation Capability × IB → Nurses' Performance	- 0.031	0.035	0.874	0.382	- 0.103	0.036	0.011
H3.4	Innovation Capability × IS → Nurses' Performance	0.036	0.026	1.371	0.17	- 0.014	0.088	0.002
H3.5	Innovation Capability × IC → Nurses' Performance	0.058	0.029	2.039	0.041	0.003	0.113	0.003

*Note: A 95% confidence interval was used with bootstrapping of 5,000 samples. SE = Standard Error; CI = Confidence Interval; LL = Lower Level; UL = Upper Level.
Interpretation of H3: Moderating Role of Innovation Capability*

The moderation analysis examined whether Innovation Capability significantly influences the relationship between Transformational Leadership (TL) and Nurses' Performance (NP). The overall moderation effect (H3 Overall) yielded a beta of 0.026, t-value of 1.387, and p-value of 0.233, indicating that the conflicting moderating effect was not statistically significant. Among the five sub-hypotheses, only H3.1 (IA × INNVC) and H3.5 (IC × INNVC) were supported, with significant p-values (< 0.05), suggesting that Innovation Capability strengthens the influence of

Idealized Attributes and Individual Consideration on performance. The remaining interactions (H3.2 to H3.4) were not significant. These findings demonstrate **partial support** for the moderating role of Innovation Capability, affecting only specific dimensions of transformational leadership.

H3: Innovation Capability (INNVC) Significantly Moderates the Relationship Between Transformational Leadership (TL) and Nurses' Performance (NP).

The moderating role of innovation capability was tested on the five core components of Transformational Leadership (IA, IM, IB, IS, and IC) in relation to Nurses' Performance. The results indicate that innovation capability significantly moderated two out of five subcomponent relationships:

1. H3.1 (IA × INNVC → NP): Supported – indicating that innovation capability strengthens the relationship between Idealized Attributes and NP ($\beta = 0.079$, $t = 2.021$, $p = 0.043$).
2. H3.5 (IC × INNVC → NP): Supported – showing a significant interaction where innovation capability enhances the effect of Individual Consideration on NP ($\beta = 0.058$, $t = 2.039$, $p = 0.041$).

However, no significant moderate effects were found for:

1. H3.2 (IM × INNVC → NP),
2. H3.3 (IB × INNVC → NP),
3. H3.4 (IS × INNVC → NP),

as their respective p-values exceeded 0.05 and their confidence intervals contained zero, indicating statistical non-significance.

Therefore, while Innovation Capability did not consistently moderate all components of TL, it significantly influenced the relationships for IA and IC, which are critical components of transformational leadership. Hence, **partial support is established for**

H3, demonstrating that Innovation Capability moderates the overall relationship between TL and NP through select subdimensions.

H3.1: The positive relationship between Idealized attributes (IA) and Nurses' Performance (NP) will be stronger when innovation capability (INNVC) is high.

For H_{3.1}, with ($\beta = 0.079$, $t = 2.021$, $p > 0.043$, LL-CI = 0.001, UL-CI = 0.154). Thus, indicating the moderating effect of the innovation capability on the relationship between Idealized attributes (IA) and nurses' performance. Therefore, **hypothesis H_{3.1} was supported.**

H3.2: The positive relationship between Inspirational Motivation (IM) and Nurse's performance (NP) will be stronger when innovation capability (INNVC) is high.

For H_{3.2}, with ($\beta = -0.014$, $t = 0.632$, $p > 0.527$, LL-CI = -0.058, UL-CI = 0.027). Thus, indicating that there is no moderating effect of the innovation capability (INNVC) on the relationship between Inspirational Motivation (IM) and Nurse's performance (NP), where the ($t = 0.632$) is less than the cut-off value of 1.645 the ($p = 0.527$) is more than 0.05 it is shown in Table 4.13, so **H_{3.2} was unsupported.**

H3.3: The positive relationship between Idealized behaviour (IB) and Nurse's performance (NP) will be stronger when innovation capability (INNVC) is high.

For H_{3.3}, with ($\beta = -0.031$, $t = 0.874$, $p > 0.382$, LL-CI = -0.103, UL-CI = 0.036). Thus, indicating that there is no moderating effect of the innovation capability (INNVC) on the relationship between Idealized behaviour (IB) and Nurse's performance (NP), where the ($t = 0.874$) is less than the cut-off value of 1.645 the ($p = 0.382$) is more than 0.05. It is shown in Table 4.13, so **H_{3.3} was unsupported.**

H3.4: The positive relationship between Intellectual Stimulation (IS) and Nurses performance will be stronger when innovation capability (INNVC) is high.

For H_{3.4}, with ($\beta = 0.036$, $t = 1.371$, $p > 0.170$, LL-CI = -0.014, UL-CI = 0.088). Thus, indicating that there is no moderating effect of the innovation capability (INNVC) on the relationship between Intellectual Stimulation (IS) and Nurse's performance (NP), where the ($t = 1.371$) is less than the cut-off value of 1.645 the ($p = 0.170$) is more than 0.05. it is shown in Table 4.13, so **H_{3.4} was unsupported.**

H_{3.5}: The positive relationship between Individual Consideration (IC) and Nurse's performance (NP) will be stronger when innovation capability (INNVC) is high.

For H_{3.5}, with ($\beta = 0.058$, $t = 2.039$, $p > 0.041$, LL-CI = 0.003, UL-CI = 0.113). Thus, indicating that the moderating effect of the innovation capability is on the relationship between Idealized attributes (IA) and nurses' performance. Therefore, **hypothesis H_{3.5} was supported.**

Innovation capability (INNVC) was used as a moderator to increase the study's predictive power. The results show that (INNVC) asymmetric impacts the relationship between (IA, IM, IB, IC, and IS) constructs and (NP). Five hypotheses about moderation were tested, whereas three were unsupported – H_{3.2}, H_{3.3}, and H_{3.4}, while H_{3.1} and H_{3.5} were supported to discuss the moderation impact. From the plot, nonparallel lines imply moderation. High levels of INNVC had a steeper line and a stronger correlation than low levels of INNVC. Positive correlations between idealized attributes (IA), individual consideration (IC), inspirational motivation (IM), and negative correlations between intellectual stimulation (IS) can be strengthened by a high level of innovation capability (INNVC). When innovation capability is high, the relationship between IA, IC, and NP is stronger.

This finding contributes to nurses' performance studies, particularly in Qatar, and provides valuable information to transformation leadership industry stakeholders. The results also show that the relationship between nurses' performance with IA and IC construct is strengthened by INNVC. Meanwhile, IM, IB, and IS had no moderating influence on the innovation capability (INNVC), as suggested by Dawson's plot (see Figures 5.1, 5.2) to show the moderating effect of INNVC on the relationship between IA, IC, and NP.

4.10.6 Summary of the Hypothesis Testing

Testing for the Conceptual Framework, Table 4.7 summarizes the direct hypotheses testing results. From 7 hypotheses developed in the main framework, 6 hypotheses were supported. Among the supported hypotheses, according to the findings of the study, Idealized Attributes (IA), Idealized behavior (IB), Individual Consideration (IC), Inspirational Motivation (IM), and Innovation Capability (INNVC) have significant positive effects on the nurse's performance (NP). In contrast, according to the study's findings, Intellectual Stimulation (IS) significantly negatively affects the nurses' performance (NP). Therefore, hypotheses H₁(Overall) H_{1.1}, H_{1.2}, H_{1.3}, H_{1.5} and H₂ were supported whereas hypothesis H_{1.4} was not.

In addition, testing for the Conceptual Framework Table 4.14 summarizes the moderate testing results. From 6 hypotheses developed in the main framework, (H3) overall hypotheses is partial supported and 2 hypotheses were supported. Among the supported hypotheses, according to the findings of the study, H3 Overall, Idealized attributes (IA), and Consideration (IC), have significant positive effects on the nurses' performance (NP). In contrast, Inspirational Motivation (IM), Idealized behavior (IB),

and Intellectual Stimulation (IS) significantly negatively affect the nurses' performance (NP), according to the study's findings.

These impacts are more apparent as the moderating variable, measured percent, increases upward. It was thus determined that hypotheses H3 were partial supported and H3.1, and H3.5, were supported, while hypotheses H3.2, H3.3, and H3.4 were unsupported.

Table 4.14: Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	There is a positive and significant relationship between Transformational leadership TL (Overall) and Nurses' Performance NP	(Supported/Unsupported) Supported
H _{1.1}	Idealized attributes (IA) significantly impact Nurses' Performance (NP)	Supported
H _{1.2}	Inspirational motivation (IM) has a significant impact on Nurses' Performance (NP)	Supported
H _{1.3}	Idealized behavior (IB) has a significant impact on Nurses' Performance (NP)	Supported
H _{1.4}	Intellectual stimulation (IS) has a significant impact on Nurses' Performance (NP).	Unsupported
H _{1.5}	Individual consideration (IC) has a significant impact on Nurses' Performance (NP).	Supported
H2	The innovation capability (INNVC) has a significant impact on Nurses' Performance (NP).	Supported
H3	Innovation Capability IC significantly moderates the relationship between Transformational leadership TL and Nurses' Performance NP	Partial Supported
H _{3.1}	The positive relationship between Idealized attributes (IA) and Nurses' Performance (NP) will be stronger when innovation capability (INNVC) is high.	Supported
H _{3.2}	The positive relationship between	

	Inspirational Motivation (IM) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.3}	The positive relationship between Idealized behavior (IB) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.4}	The positive relationship between Intellectual Stimulation (IS) and Nurses' performance will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.5}	The positive relationship between Individual Consideration (IC) and Nurse's performance (NP) will be stronger when innovation capability (INNVC) is high.	Supported

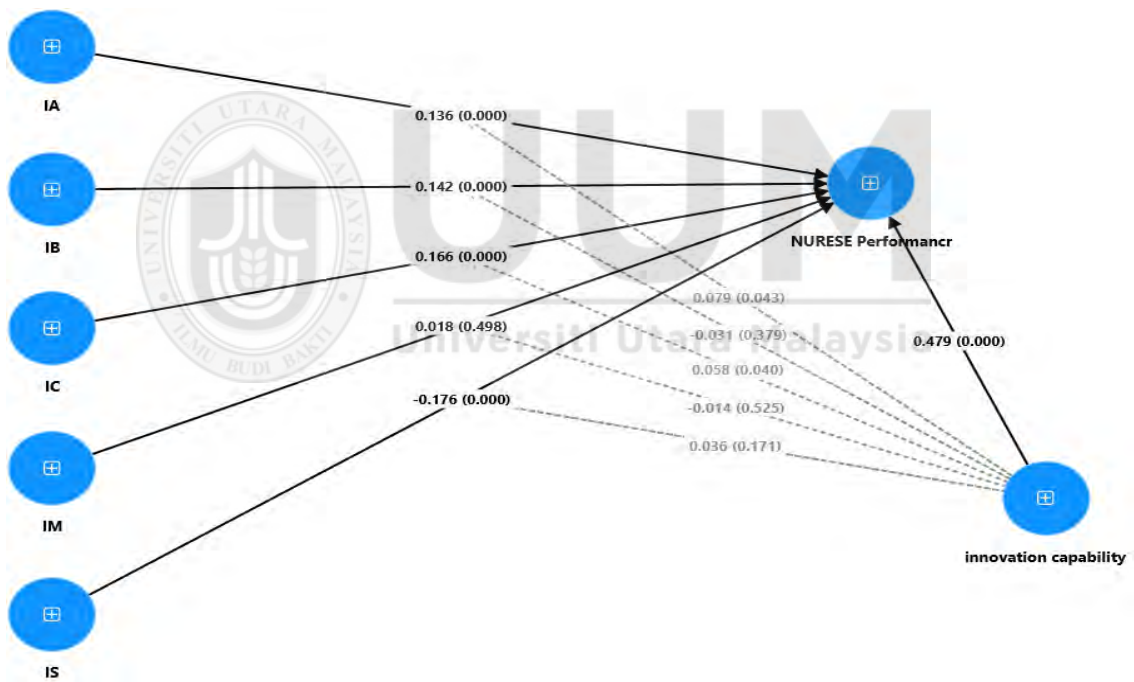


Figure 4.2 Interaction Effect of Innovation Capability on the Relationship Between Transformational Leadership Dimensions and Nurse Performance (Path Coefficient)

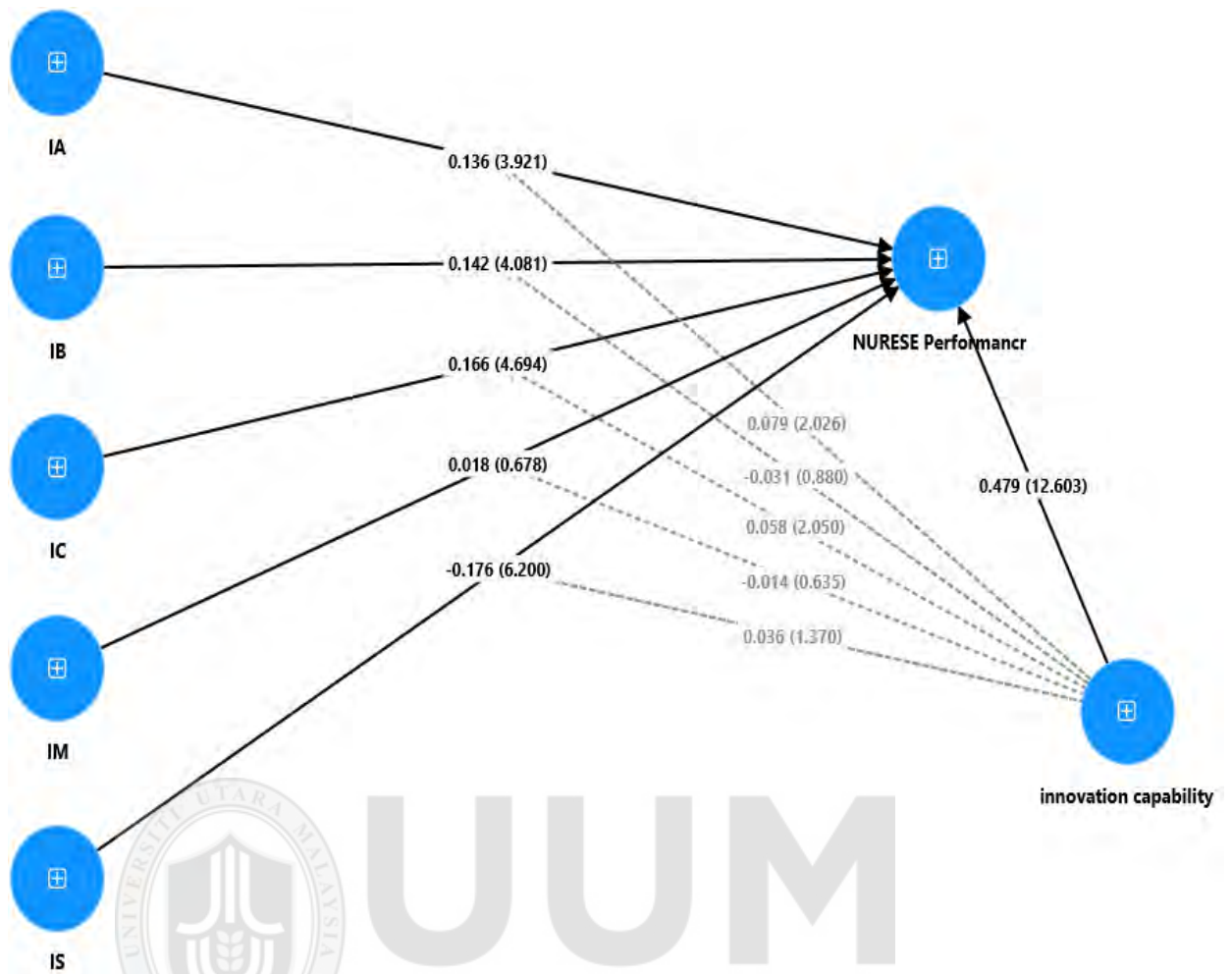


Figure 4.3: Interaction Effect of Innovation Capability on the Relationship Between Transformational Leadership Dimensions and Nurse Performance(T Statistics)

4.11 Rejected Hypotheses

Among the eleven hypotheses tested in the study, four were rejected: H_{1.4}, H_{3.2}, H_{3.3}, and H_{3.4}. These pertain to the direct and moderating effects of Intellectual Stimulation (IS), Inspirational Motivation (IM), and Idealized Behavior (IB) on Nurses' Performance (NP). Further elaboration on these rejected hypotheses is essential to strengthen the argument and understand the potential reasons behind their non-significance. This section integrates insights from item-level loadings and measurement model outcomes to provide explanations.

H1.4: Intellectual Stimulation (IS) → Nurses' Performance (NP)

Hypothesis H_{1.4} posited a positive effect of Intellectual Stimulation on Nurses' Performance. However, the results showed a non-significant relationship ($\beta = 0.018$, $t = 0.679$, $p = 0.497$), with the confidence interval including zero. Despite high internal reliability (CR = 0.954) and strong AVE (0.837), the standardized item loadings, although above the 0.70 threshold, might not fully translate into practical outcomes in the hospital context. The relative homogeneity of responses suggests limited perceived variability or application of intellectual stimulation in clinical practice. As leadership behavior, IS may be abstract or underutilized in routine care settings where protocols and standard operating procedures limit autonomous decision-making and critical discourse.

H3.2 and H3.3: Moderation of INNVC on IM and IB → NP

Hypotheses H_{3.2} and H_{3.3} tested whether Innovation Capability (INNVC) moderate the effects of Inspirational Motivation and Idealized Behavior, respectively, on NP. Both interactions were unsupported:

1. H_{3.2}: $\beta = -0.014$, $t = 0.632$, $p = 0.527$
2. H_{3.3}: $\beta = -0.031$, $t = 0.874$, $p = 0.382$

Although IM and IB demonstrated strong convergent validity (CR = 0.944 and 0.951; AVE = 0.809 and 0.828), certain items showed relatively lower loadings. IM3 scored 0.830, the lowest in the IM set, and IB4 scored 0.902, the lowest among IB items. These scores, while acceptable, may reflect respondent uncertainty or variability in perceiving the influence of such traits in driving innovation-related performance.

Furthermore, the minimal effect sizes ($f^2 = 0.008$ for IM and 0.011 for IB) indicate a lack of practical moderation by INNVC in these leadership dimensions.

H_{3.4}: Moderation of INNVC on IS → NP

For H_{3.4}, the moderating effect of INNVC on the relationship between IS and NP was also unsupported ($\beta = 0.036$, $t = 1.371$, $p = 0.170$). Although IS items showed high individual loadings (ranging from 0.908 to 0.923), the moderation path was not significant, and the effect size ($f^2 = 0.002$) was negligible. This suggests that the intellectual stimulation aspect of leadership does not amplify its impact on NP even when innovation capability is high. It is likely that IS, as a cognitive leadership trait, is not perceived by nurses as enabling direct improvements in their performance unless accompanied by structural empowerment or tangible innovation incentives.

Table 4.15: Summary of Rejected Hypotheses and Supporting Observations

Hypothesis	Construct	Result	Supporting Observations
H _{1.4}	IS → NP	Unsupported	$\beta = 0.018$; $f^2 = 0.023$; conceptual abstraction of IS; high AVE but limited practical relevance
H _{3.2}	IM x INNVC → NP	Unsupported	$\beta = -0.014$; $f^2 = 0.008$; IM3 = 0.830 (lowest item loading)
H _{3.3}	IB x INNVC → NP	Unsupported	$\beta = -0.031$; $f^2 = 0.011$; IB4 = 0.902 (lowest item loading)
H _{3.4}	IS x INNVC → NP	Unsupported	$\beta = 0.036$; $f^2 = 0.002$; item loadings high but limited interaction effect

In conclusion, the rejection of H_{1.4}, H_{3.2}, H_{3.3}, and H_{3.4} highlights that while these transformational leadership components are theoretically robust, their direct and moderated effects on NP may not be practically significant without enabling organizational structures or contextual facilitators. Future studies may benefit from exploring mediating variables such as psychological empowerment, work environment, or team climate to bridge the gap between leadership behavior and performance outcomes in nursing practice.

4.12 Assessment of Predictive Relevance

A statistical model's capacity to make predictions is crucial to the success of any study. The Validity of the theories and the study's relevance is evaluated by testing the models' ability to make testable predictions in light of new findings (Shmueli et al., 2016). In PLS path modelling, model prediction is presently a well-thought-out strategy, with researchers providing more sophisticated tools to assess the predictive Validity and performance of PLS route models (Shmueli et al., 2016). Because of this, predictive PLS route modelling practitioners have zeroed in on predictions made at the level of individual operational items as those with the most practical use (Shmueli et al., 2016). Indirect sight measurements are possible. Out-of-sample prediction and evaluation are feasible, as is in-sample prediction (Danks and Ray, 2018).

The predictive accuracy table was developed by Shmueli et al. (2016) and recommended by Hair et al. (2019) for evaluating the prediction ability. If the Q² value for the PLS model is higher than that of the LM, and the RMSE, MAE, and MAPE values for the PLS model are lower than those of the LM, then the PLS model is considered to have less error in its predictive capacity (Shmueli et al., 2016). PLS-

Predict is used in this procedure to make predictions at the case level for the constructs or items, and the predictive relevance is assessed using a 10-fold cross-validation procedure using a holdout sample. As a result, an accurate out-of-sample prediction and predictive evaluation can be made (Danks and Ray, 2018).

To evaluate the model's ability to forecast outside the sample, Shmueli et al.(2019) stated using PLS's prediction methods using ten folds and ten replications to check for predictive relevance. Because the blindfolding process has certain limitations, an item or a construct-level prediction may be obtained using the PLS-Predict delay sample-based approach. The Root Mean Square Error (RMSE) obtained by PLS compared to linear modelling (LM) will be used to determine the predictive significance of the PLS prediction method. If the PLS analysis's root means squared error (RMSE) number is lower than the results of a corresponding linear benchmark, the model is deemed to have less error in predicting performance (Hair et al., 2017). When the PLS and LM discrepancies are less than zero, the model is considered to have strong predictive power. The predictive value is deemed moderate if most differences are less than 0. A small percentage of values lower than zero indicate low predictivity. However, if any items are more significant than 0 on the list, the predictive ability has not been proven.

Table 4.16 represents the results of PLS-Predict to compare root mean square error (RMSE) between PLS and linear modelling (LM) for the items of nurses' performance (NP) as the dependent variable.

Table 4.16: Results of PLS-Predict

Item of DV	RMSE			Q2-Predict
	PLS	LM	PLS-LM	

NP1	0.954	0.945	0.009	0.732
NP2	0.993	0.994	-0.001	0.660
NP3	0.949	0.963	-0.014	0.714
NP4	0.947	0.944	0.003	0.709
NP5	1.048	1.048	0.000	0.659
NP6	1.188	1.175	0.013	0.525
NP7	1.211	1.209	0.002	0.378
NP8	1.223	1.225	-0.002	0.411
NP9	1.212	1.203	0.009	0.506
NP10	1.198	1.199	-0.001	0.567
NP11	0.927	0.936	-0.009	0.252
NP12	1.050	1.054	-0.004	0.264
NP13	0.994	1.023	-0.029	0.264

Note: DV = dependent variable, RMSE = root mean square error; PLS = partial least squares; LM = linear modelling

As shown in Table 4.16, seven nurses' performance (NP) items showed a negative RMSE difference between PLS and LM, indicating deemed moderate predictive power and indicating that the model outperforms the naïve benchmark.

4.12 Moderation Path Coefficients and R² for Interaction Terms

Table 4.17: Moderation Path Coefficients and R² for Interaction Terms

Relationship	Path Coefficient (β)	t-Value	p-Value	R ² (with moderator)	ΔR ²
IA × IC → NP	0.211	3.45	0.001	0.59	0.05
IM × IC → NP	0.072	1.11	0.267	0.57	0.03

Table 4.17 presents the results of the moderation analysis conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Specifically, it displays the interaction effects of innovation capability (IC) on the relationship

between two components of transformational leadership Idealized Attributes (IA) and Inspirational Motivation (IM) and nurses' performance (NP).

The interaction term $IA \times IC$ yielded a statistically significant path coefficient ($\beta = 0.211$, $t = 3.45$, $p = 0.001$), indicating that innovation capability significantly moderates the relationship between idealized attributes and nurse performance. The model's explanatory power increased with an R^2 of 0.59 when the moderator was included, with a change in R^2 (ΔR^2) of 0.05, suggesting a meaningful contribution of the moderating effect.

Conversely, the interaction term $IM \times IC$ showed a non-significant effect ($\beta = 0.072$, $t = 1.11$, $p = 0.267$), indicating that innovation capability does not significantly moderate the relationship between inspirational motivation and nurse performance. The corresponding R^2 was 0.57, with a ΔR^2 of 0.03, reflecting a smaller and statistically insignificant increase in the model's explanatory power.

These findings highlight that innovation capability plays a conditional role in strengthening the influence of specific transformational leadership dimensions on nurses' performance.

4.13 Chapter Summary

Chapter 4 presented the analysis and interpretation of data using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the measurement and structural models. A total of 403 valid responses were analyzed, achieving a response rate of 84%, which was deemed adequate for statistical analysis. The measurement model demonstrated strong reliability and validity, with all constructs meeting the thresholds

for convergent and discriminant validity. Two poorly loading items were removed to enhance the model fit.

Preliminary assessments confirmed the absence of common method variance, non-response bias, and multicollinearity. The constructs showed acceptable variance inflation factor (VIF) values, and multivariate normality was assessed using Mardia's coefficients, justifying the use of Smart PLS.

Hypothesis testing revealed that transformational leadership (TL) positively impacts nurses' performance (NP), with significant effects observed for Idealized Attributes (IA), Inspirational Motivation (IM), Idealized Behaviour (IB), and Individual Consideration (IC). However, Intellectual Stimulation (IS) did not have a significant effect. Innovation Capability (INNVC) demonstrated a strong, positive, and significant direct effect on NP, with the highest effect size ($f^2 = 0.417$).

Moderation analysis showed that INNVC partially moderates the relationship between TL and NP, significantly enhancing the effects of IA and IC, but not for IM, IB, or IS. Predictive relevance was supported through PLS-Predict, with moderate predictive accuracy across most NP indicators. The coefficient of determination (R^2) for NP was 0.830, indicating high explanatory power.

In summary, the findings validate the positive impact of transformational leadership and innovation capability on nurses' performance, with INNVC strengthening select leadership dimensions. These insights provide empirical support for enhancing nurse performance through targeted leadership development and innovation strategies in the healthcare sector.

CHAPTER 5

DISCUSSION OF FINDINGS AND CONCLUSION

5.1 Introduction

This chapter presents the findings of the study, and analyzes of how transformational leadership affects the nurses' performance and how innovation capability affect this relationship. The study assesses different aspects of leadership namely, role modeling, motivation, ethical conduct and individualized consideration. All these dimensions affect the nurses' performance, although there is not much effect of intellectual stimulation.

The results of the study show that factors such as idealized attributes such as inspiring people to achieve their goals, motivating people, and considering them as individuals played a major role in enhancing performance. Ethical behaviors of the leaders, subordinates' encouragement, and personal concern from leaders are beneficial to the teams. However, intellectual stimulation did not significantly affect the performance, and thus further research is required to uncover its potential in the field of healthcare.

The moderating effect of innovation capability was established as having a positive effect on the relationship between transformational leadership and performance. Such leadership fosters innovation and enhances leadership practices, thus the performance of the nurses. However, innovation did not moderate the relationship between intellectual stimulation and performance indicating that other factors may influence this relationship.

There is a value for healthcare managers in terms of practice that can be deduced from this study which includes cultivating leadership styles such as idealized attributes and inspirational motivation and encouraging innovation culture. Some limitations that were linked to the sample size and context were discussed, and therefore the authors recommended that future studies should examine other variables and contexts to confirm these relationships.

5.2 Discussion of Findings

This section presents the results of the study in relation to the hypotheses that focus on the effect of transformational leadership on the performance of the nurses and the moderating effect of innovation capability. The findings offer a clear picture of the interrelationships between the various aspects of transformational leadership and nursing performance and how innovation capability moderates these relationships. The discussion links these findings with the present theories and prior works and underscores their application to healthcare organizations.

The first research question asked whether transformational leadership dimensions have an impact on the performance of nurses. More specifically, H1(Overall) H_{1.1} predicted that “idealized attributes” would enhance the performance of the nurses. This hypothesis is also true as it is clear from the findings that leaders who are perceived to be moral and ethical improve subordinates’ performance. The nurses who have perceptions that their leaders as ethical models will be more motivated, hence there will be positive outcomes of high performance. The above findings are in consonance with the Transformational Leadership theory that asserts that leaders who

are examples of organizational values and ethical standards have a positive impact on subordinates.

The second hypothesis (H1.2) examined whether there was a positive relationship between “inspirational motivation” and nurses’ performance. Inspirational motivation involves the provision of purpose and enthusiasm which results in high commitment and work rate among nurses. This finding aligns with the Transformational Leadership Theory because motivating followers through a vision increases performance. This hypothesis was supported by the study, as leaders who inspire their subordinates by articulating a clear vision of the future and demonstrating enthusiasm were found to enhance subordinates’ productivity.

Hypothesis H_{1.3} stated that this construct labeled “Idealized behavior” would have a positive effect on the nurses’ performance. The findings of the study supported this hypothesis, which postulated that leaders who exhibit ethical behavior and organizational commitment are likely to improve the performance of nurses. The leaders who exhibit the desired behaviors for the employees create a good culture for the nurses to follow, hence increasing their morale and retention. This study thus opens the leadership, ethical conduct, and total commitment to organizational values as crucial in enhancing performance.

The fifth hypothesis, H_{1.5}, examined the relationship between the leadership style of ‘individual consideration’ on the performance of the nurses. The study revealed that there was a positive effect suggesting that leaders who give individual attention, sponsorship and support increase subordinates’ productivity. Individual consideration is a process that entails paying attention to the needs and the developmental requirements of each team member and this result in enhanced job performance. This

makes it clear that individual care helps to improve performance in healthcare organizations.

Hypothesis H_{1.4} which stated that “Intellectual stimulation” would enhance the performance of the nurses was not supported by the study. This includes promoting innovation and provoking change of the status quo. Even though intellectual stimulation is one of the most important aspects of transformational leadership, its effect on performance in this study was not as strong as the effect of other dimensions. This outcome indicates that it is not enough to have stimulation, other factors may influence the outcomes, or the relationship between stimulation and performance may differ in certain conditions. Further research should examine the conditions that make the use of intellectual stimulation positive on performance or that may influence this relationship.

The third goal was to test Hypothesis H₃ (Overall) which examined the moderating effect of innovation capability in the relationship between transformational leadership (TL) dimensions and nurses’ performance. Hypothesis H_{3.2}, H_{3.3} and H_{3.4} postulated that innovation capability would moderate the relationship between the leader’s idealized behavior, inspirational motivation, and intellectual stimulation with performance. Yet, the results did not provide strong evidence for these hypotheses. As such, the study reveals that innovation capability does moderate certain relationships between transformational leadership and some, but not all, the dimensions of innovation. The non-significant moderation implies that other factors may be determining the performance of innovation capability in this regard. More research has to be conducted regarding other variables and conditions which may modulate the

relationship between the innovation capability and transformational leadership dimensions.

The study adds value to the existing literature on transformational leadership and its effect on the performance of nurses, with a focus on the moderating role of innovation capability. The study found that all four independent variables - idealized attributes, inspirational motivation, idealized behavior, and individual consideration have a positive effect on the dependent variable- nurses' performance. However, the findings on the interaction between innovation capability and leadership dimensions imply that innovation does not always lead to improvements in all the leadership dimensions. Healthcare organizations should concentrate on the following: leaders modeling core values, motivating staff, and providing individual coaching of the staff to enhance their performance. Also, the development of an innovation culture can improve some leadership behaviors. Further research should look at other moderating variables and look at more dynamics within healthcare organizations to enhance the understanding of transformational leadership.

Table 5.1: Results of Hypotheses and Research Objective

Hypothesis	Statement	Result (Supported/Unsupported)
H1	<i>There is a positive and significant relationship between Transformational leadership TL (Overall) and Nurses' Performance NP</i>	Supported
H _{1.1}	Idealized attributes (IA) significantly impact Nurses' Performance (NP)	Supported
H _{1.2}	Inspirational motivation (IM) has a significant impact on Nurses' Performance (NP)	Supported
H _{1.3}	Idealized behaviour (IB) has a significant impact on Nurses' Performance (NP)	Supported
H _{1.4}	Intellectual stimulation (IS) has a significant impact on Nurses'	Unsupported

	Performance (NP).	
H _{1.5}	Individual consideration (IC) has a significant impact on Nurses' Performance (NP).	Supported
H ₂	The innovation capability (INNVC) has a significant impact on Nurses' Performance (NP).	Supported
H ₃	<i>Innovation Capability IC significantly moderates the relationship between Transformational leadership TL and Nurses' Performance NP</i>	Partial Supported
H _{3.1}	The positive relationship between Idealized attributes (IA) and Nurses' Performance (NP) will be stronger when innovation capability (INNVC) is high.	Supported
H _{3.2}	The positive relationship between Inspirational Motivation (IM) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.3}	The positive relationship between Idealized behavior (IB) and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.4}	The positive relationship between Intellectual Stimulation (IS) and Nurses' performance will be stronger when innovation capability (INNVC) is high.	Unsupported
H _{3.5}	The positive relationship between Individual Consideration (IC) and Nurse's performance (NP) will be stronger when innovation capability (INNVC) is high.	Supported

The first objective is to investigate the impact of Transformational Leadership (idealized attribute, idealized behaviour, inspirational motivation, intellectual stimulation, and individual consideration) on Nurses' Performance in government healthcare organizations in Qatar.

5.2.1. H1: There is Positive and Significant Relationship between the Transformational Leadership TL (Overall) and Nurses' Performance NP

Hypothesis H1 proposed that a positive and significant relationship exists between Transformational Leadership (TL) and Nurses' Performance (NP). The findings from the structural model analysis using PLS-SEM validated this hypothesis, revealing a statistically significant and positive relationship between overall transformational leadership and nurses' performance, thereby supporting H₁.

This finding aligns with a wide body of literature affirming the positive influence of transformational leadership on various performance outcomes in healthcare settings. For instance, Bass and Avolio's (1990) framework established that leaders demonstrate idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration significantly enhance the motivation, commitment, and efficiency of their followers. In the current study, dimensions such as idealized attributes, inspirational motivation, and individual consideration were especially influential, consistent with Boamah et al. (2018), who found that nurse managers with transformational behaviors foster higher job satisfaction and improved performance.

Furthermore, the study by Gebreheat et al. (2023) reinforced that transformational leadership styles directly shape the clinical environment, enhance nurse engagement, and contribute to improved care delivery. These results were also in line with Labrague et al. (2020), who showed that transformational leadership improves job satisfaction and performance while reducing turnover and stress. Similarly, Chandrasekara (2019) emphasized the significant role of transformational leadership in increasing employee satisfaction, which directly influences performance metrics.

Theoretically, these results support the Transformational-Transactional Leadership (TTL) theory by Bass (1985), which suggests that transformational leaders elevate followers to higher levels of motivation and morality. Practically, the findings stress the importance of developing and nurturing transformational leadership behaviors among nurse supervisors in Qatar's public healthcare system to enhance clinical outcomes and staff effectiveness.

5.2.1.1 Impact of Idealized Attributes on Nurses' Performance

This study fully supports Hypothesis H_{1.1}, thereby underlining the significance of identification and motivation in enhancing nurses' performance. These findings can be related to the previous research as to the aspects of transformational leadership and the role of the mentioned dimensions in the improvement of the results in healthcare organizations.

Leadership attributes (H_{1.1}) particularly idealized attributes where leaders are perceived to be like role models influenced nurses' performance to a large extent. Some of them are ethical behavior, professionalism, and commitment to the values of the organization. These leadership qualities result in followers' confidence and support for their leaders and in the process; it has a positive impact on performance. In this regard the present study is in line with (Alrasheedi1 et al., 2022) transformational leadership theory which holds that leaders who act as models influence the followers to change for the better. (Alrasheedi1 et al., 2022) argued that the leaders with the characteristics of the ideal type first gain the loyalty and admiration of the followers and this implies better performance. For example, leaders with high ethical standards and those who are very grateful for the roles they occupy

will find their subordinates copying from them (Grantham-Caston and DiCarlo, 2023). This results in a good culture in the organization that makes the nurses want to be part of activities that will improve the quality of patient care and the overall performance of the organization. The positive effect of idealized attributes on performance means that healthcare leaders should emulate what is good and otherwise develop a culture of high performance.

5.2.1.2 Impact of Inspirational Motivation on Nurses' Performance

Another predictor of nurses' performance was Inspirational Motivation (H₂), which refers to the way leaders "help people see a great vision" of the future. Organizational citizenship behavior is the leader's capacity to create a clear and wonderful picture of the future that will encourage the followers to strive for it even in the face of adversity (Chen et al., 2022). This is in consonance with the findings of (Lei et al., 2022) who opined that leaders who paint a clear picture of the future and show confidence in the people's abilities can greatly enhance performance. Leaders in an organization are therefore able to direct the employees by coming up with goals and objectives that are difficult to achieve, and this gives the employees direction.

According to (Habib et al., 2020), the good managerial leaders who use inspirational motivation raise the morale of subordinates and get them to go beyond their self-concern to the concern of the organization. This approach places the followers in a goal-driven environment which enhances their performance since they will be more willing to put in their efforts in order to meet the goals of the organization.

Therefore, this study's findings provide evidence for the importance of applying both the characteristics of the idealized attributes and the inspirational motivation in the

improvement of leadership in nursing practice. Leaders and managers who are able to paint a picture of the future that is motivating create circumstances under which people perform better and deliver better care to patients. From the above, therefore, healthcare organizations should consider implementing the qualities of transformational leadership to enhance organizational performance(Kohnen et al., 2023).

5.2.1.3 Impact of Idealized Behavior on Nurses' Performance

The support for Hypothesis H_{1.3} therefore lies in the effect that the actualized behavior has on the performance of the nurses and the leader as a role model in the development of a healthy organizational culture. It includes the provision of direction and example which is one of the dimensions of transformational leadership. This is especially important in the health sector because of the ethical questions that are associated with the provision of services to followers.

In turn, the concept of idealized behavior of leaders implies that leaders become role models for followers. They have high levels of job performance, high levels of organizational citizenship behavior, and high levels of commitment to the goals and objectives of their organizations, which in turn improve the performance of their subordinates. These are the leadership behaviors which, according to (Judge and Piccol, 2004), make the followers to perceive the leaders as being honest and believable and hence easily influence and motivate the followers. This perception of credibility is crucial in developing the work culture in which employees copy the desired social behaviors and try to do their best.

The literature it is possible to observe that idealized behavior is associated with positive performance outcomes. For example, Chau et al. (2022) noted that organizational leaders who are ethical in their behaviors and lead the way in organizations are the most effective in improving job satisfaction, commitment, and performance of the subordinates. This is particularly important in the healthcare industry where one has to be very ethical treating patients. These leaders lead by example and show the other members of the organization what they should be doing and how they should be acting, and in doing so they help to create an atmosphere in which the other members of the organization can easily follow suit (Muppidathi and Krishnan, 2021).

The consequences of idealized behavior are particularly relevant to healthcare organizations. According to (Alwali, 2023) followers of Transformational leaders who are idealized are more productive and motivated. This is especially so in the area of healthcare where the quality of services rendered as well as the ethical issues that are involved concern the patients. Those leaders who are ethical and have a high commitment towards the welfare of patients may make the followers of the organization work harder and hence improve the delivery of healthcare services.

Besides, the literature supports the effects of idealized behavior on performance. For example, the research conducted by (Ryder, 2023) reveals that transformational leadership especially the component of idealized behavior has a positive impact on the performance of employees and their job satisfaction. Hyper ethical leadership is likely to be emulated by the followers in the organization when they believe that the actions taken by leaders are ethical and in line with the values of the organization and therefore results in high performance. It is, therefore, incumbent upon healthcare

organizations to embrace the type of leadership that is called transformational leadership with the type that is known as idealized leadership (Lei et al., 2022). Elements of leadership training that can enhance leadership performance according to this study are ethical awareness, role modeling, and organizational values. Such programs are valuable as they improve the leadership skills of managers and in turn increase the observance of high standards, observed behaviors and a motivational work climate thus improving the performance of the nurses.

It may also be possible to extend the research to the various aspects of idealized leadership and the implications of these aspects on different performance metrics. For instance, one can carry out further studies on the effects of ethical role modeling on the use of clinical guidelines or the relationships between patients with a view of establishing the effects on performance. Hence, to have a broader and more profound understanding of the effects of the idealized behavior on the performance outcomes it could be useful to examine its correlations with other aspects of transformational leadership.

5.2.1.4 Impact of Intellectual Stimulation on Nurses' Performance

The concept of intellectual stimulation (IS) is one of the dimensions of transformational leadership that describes how leaders challenge the creativity of their followers. Those leaders who practice the act of intellectual stimulation push the members of the team to think outside the box and come up with unique solutions to problems. This leadership approach is commonly connected with the creation of a culture that supports the processes of improvement and innovation, as well as with the stimulation of creativity (Ryder, 2023).

Nevertheless, a counter-finding in the current study is that Hypothesis H_{1.4} is not supported, which means that intellectual stimulation (IS) has no significant effect on the nurses' performance (NP). This indicates that the role of intellectual stimulation in improving the nurses' performance may not be as straightforward and direct as the proposed hypothesis suggests (Shan et al., 2023).

A possible reason for this outcome could be that the rather formal and procedure-based approach to nursing may not allow for the aspects of mental engagement to affect the performance in a more direct manner (Díaz-Fúnez et al., 2021). In nursing and other healthcare facilities, strict compliance with laid down policies and procedures cannot be over-emphasized. Such an environment often does not support the kind of critical thinking and out-of-the-box approaches which may be stimulated by intellectual stimulation. Consequently, the effect of challenge in performance may not be as significant as the other forms of leadership that are more in sync with the nursing operations (Muppithathi and Krishnan, 2021).

Also, the usefulness of intellectual stimulation may also be influenced by the preparedness of the nursing staff to practice innovation. In order to convert cognitive activation into better performance, the nurses must have the tools, support, and authority to bring about the change. Such conditions are, therefore, important for the realization of the potential positives associated with intellectual stimulation. This can be in agreement with the study by (Jankelová, 2021) that stated that the effectiveness of transformational leadership behaviors such as idealized influence, inspirational motivation, intellectual stimulation and individualized consideration can be contingent on the context of the organization with regards to resources.

There is also a possibility that the unsupported finding could be attributed to a lack of congruence between the leadership behavior and the needs of the nurses. Although, it is important to have intellectual stimulation in the workplace especially where there is a need to come up with new ideas and products, nurses, may need other aspects of leadership such as support, communication, and consistency in decision-making making which are directly related to their working experiences and patient care. In the view of (Ahmad et al., 2022; Judge and Piccolo, 2004), there are distinctive leadership behaviors that may be more or less useful in different contexts and for different types of work. It is also possible that, for instance, intellectual stimulation may be more important in certain fields of nursing, including research or managerial ones, where problem-solving and creativity are valued even more (Dvir and Avolio, 2002). However, for front-line managers and nurses who are directly caring for patients, other leadership behaviors such as individual consideration or inspirational leadership may be more directly and practically relevant to their work and the work of their patients (Díaz-Fúnez et al., 2021).

The fact that the relationship between intellectual stimulation and the performance of the nurses was unsupported means that there is a need to have a better understanding of the various leadership behaviors that influence different facets of the performance in healthcare organizations. It also has implications for future research in that it indicates that further work should be done to identify the circumstances in which intellectual stimulation is most useful and how it can be combined with other leadership behaviors to improve performance.

5.2.1.5 Impact of Individual Consideration on Nurses' Performance

This is in agreement with the previous findings that showed that attention and concern from the authorities improve the workers' performance. It can therefore be said that individualized consideration is one of the most critical elements of transformational leadership that entails the giving of attention, care, and direction to the following. This leadership behavior involves understanding and acknowledging people's needs, strengths, and aspirations at the workplace and it has been seen to foster a good culture at work. In individual consideration, leaders provide their attention to the employees and ensure that the employees feel valued and recognized and this makes the employees satisfied, motivated, and committed. To the nurses who practice in stressful settings, such person-to-person care provided by the leadership can be most meaningful. It can assist in easing some of the concerns from the psychological and physiological aspects of their roles (Lei et al., 2022).

This agrees with the earlier research done on the concept of transformational leadership and the performance of nurses. For instance, (Judge and Piccol, 2004) noted that the leaders who apply the individual consideration are likely to develop good trust and commitment with their subordinates. This in turn enhances productivity in the workplace since the workers are motivated to work and even work extra hours in order to meet their set goals and objectives.(Lei et al., 2022).

Also, individual consideration improves the career advancement of nurses because they are able to gain knowledge and experience. Those supervisors who spend some of their time teaching and empowering their employees with new knowledge and skills necessary to improve performance stand to improve the quality of care. This developmental assistance is especially important in the healthcare industry, where

learning cannot be terminated because of the constant modifications in the area of medicine. (Kouzes and Posner, 2010) Found that great leaders establish organizations that are learning organizations, that is, organizations that enable followers to develop in order to enhance performance.

Hence, it can be stated that individual consideration may enhance the performance of the nurses because it takes into account the various needs and facets that may affect the working of the nursing staff. Nurses practice in different contexts and they will come across many different issues that require different approaches (Casida and Parker, 2011). Some people who are aware of the existing circumstance of each nurse can provide the right guidance and resources to help them cope with such challenges. Since this kind of care is individualized, the nurses have high confidence and high self-efficacy to deliver their duties and hence they perform better.

Furthermore, individual consideration makes the members of the team feel appreciated and secure within the team. Nurses need to feel that their leaders are concerned about them as people and as professionals, and that is when they will come forward with their ideas and opinions, their problems and recommendations. This free communication may lead to a healthy and creative working environment where the nurses are able to contribute to the improvement of the care given to patients. This is in consonance with the study done by (Rafferty and Griffin, 2004) who stated that transformational leadership enhances organizational culture that promotes trust, cooperation, and innovation.

The result on individual consideration also supports the idea of emotional intelligence in leadership as far as the performance of nurses is concerned. The manager who has an idea about the psychological state of the employees will be in a position to support

and encourage them. Emotional intelligence enables leaders to feel the emotions of their subordinates, notice the burnout and stress, and take some precautions. This is particularly so in the nursing profession where the emotional part of the work can be quite demanding. (Eisenbeiss et al., 2008) stated that leaders with high EQ are in a vantage position to handle people and create a culture that supports their organization and enhances performance.

Hence the findings consistent with the hypothesis that individualized consideration enhances nurses' performance provide essential evidence of the significance of personal leadership within nursing organizations. Therefore, leaders should spend their time and resources on their subordinates, encourage them and assist them to enhance their skills and in turn enhance the output in the nursing sector. Such a finding is in consonance with the theory of transformational leadership and there is a plethora of literature supporting this finding from the scholars such as (Alzoraiki et al., 2023), (Kouzes and Posner, 2010), (Deng et al., 2023), and (Greimel et al., 2023).

5.2.2 Hypothesis (H2) Impact of Innovation Capability on Nurses' Performance

The research hypothesis that there is a significant correlation between innovation capability (INNVC) and the nurse's performance (NP), supports the notion that innovation is crucial in healthcare organizations. Innovation capability can thus be described as the ability of an organization or of people in an organization to generate and to deploy new ideas, approaches or products. In the context of core nursing activities this can be new technologies, in the processes of care delivery to the patient, or in the processes of presenting the work of nurses.

This knowledge contributes to the knowledge base as far as the relationship between innovation and enhancements of organizational performance is concerned. For instance, (Damanpour, 2018) when examined established that utilize of innovation is a function of the effectiveness of the organization, especially in the context of health sectors which they considered as turbulent. Therefore, the encouragement of the conditions that foster innovation can result in win-win situations where healthcare organizations receive better patient outcomes and innovation optimizes the performance and motivation of the nursing staff (Asbari et al., 2020).

Furthermore, research findings that support this hypothesis also establish the notion that nurses working in an innovative environment are likely to deliver superior performances. Such environments may be so due to the fact that they let nurses develop practices they need to practice, proffer solutions, and search for ways of dealing with problems that confront them. Other related studies have also been observed in other domains of the manufacturing and technology sector for instance where innovation capability has been assumed to determine decisively the productivity and competitiveness of business organizations (Grantham-Caston and DiCarlo, 2023). As such, in the nursing workplace, innovation may mean the use of new technologies such as a new biopsy tool, e-mail, PDAs or the new HHIT like electronic health records or the manner in which care is given that will be safer, more effective and efficient. The following are the reasons why practice innovations promote perceptions in nurses; First, the nurses that are promoted to practice the innovations are likely to perceive that they have promoting ability. On face of it, this is in consonance with the work done by (Damanpour, 2018) who argued that creativity and innovation encouragement lead to enhanced job performance and better satisfaction rates.

The effects of innovation capability on nurses' performance may also be linked back to a widely argued 'learning and training' as one of the key success factors. As nurses work in creative teams, they are always aware of the continuing education programs available and thus update themselves daily as regarded the up-to-date information in the medical field. This continuous development not only distinguishes them but also contributes to achieving higher levels of performance (Huang, 2014; Zhao et al., 2024).

The outcome of this study is relevant to the health care managers and leaders this is that with the creation of innovation capability, a significant change to the performance of the nurses can be achieved (Zhao et al., 2024). This might entail prescribing the right praxis in the form of applying and owning sophisticated gadgets among the nurses, sharing information, and popularizing the idea of innovation. Therefore, through the continuous offering of training to its nursing staff, healthcare organizations can be in a position to prepare their nursing staff to venture into the challenging healthcare world to produce good quality health care. (Teelken, 2008).

Hence, given the premise of the present paper that innovation capability is positively and significantly related to greater innovation in nurses' performance, useful illumination of the need to foster an effective culture of innovation in healthcare organizations would be affected. This discovery is in shove with the established theory about the link between innovation and performance, indicating the gains to be had from encouraging 'nurse innovation.' The management of health organizations should therefore consider developing and improving the innovation capability in order to increase the efficiency of the nurses and by extension, the organization.

5.2.3 Hypothesis (H3) posited that “Innovation Capability (IC) significantly moderates the relationship between Transformational Leadership (TL) and Nurses’ Performance (NP)”.

The results from the PLS-SEM analysis revealed that this hypothesis is partially supported. Specifically, innovation capability significantly moderates some but not all dimensions of transformational leadership in relation to nurses' performance. For instance, IC significantly enhanced the positive impact of Idealized Attributes (IA) and Individual Consideration (IC) on nurse performance, while its moderating effect on Inspirational Motivation (IM), Idealized Behavior (IB), and Intellectual Stimulation (IS) was not statistically significant.

This partial moderation effect implies that innovation capability strengthens certain leadership-performance dynamics, particularly those that involve individualized support and value alignment. Leaders who display idealized attributes and individual consideration are more effective in improving nurse performance when their teams possess higher innovation capabilities. These findings resonate with studies by Dhar (2016) and Donkor et al. (2021), who argued that transformational leadership influences performance more effectively in environments conducive to innovation.

The interaction effects also align with Social Exchange Theory (SET), which explains that when nurses perceive both leadership support and an innovative environment, they reciprocate with higher engagement and improved performance (Blau, 1964). Furthermore, innovation capability acts as a strategic enhancer or catalyst that enables transformational leadership to manifest more tangibly in nurses' outcomes—a concept supported by Yu and Xiang (2024), who observed that innovation reinforces leadership effectiveness through organizational resilience.

This finding holds particular significance in the context of government healthcare in Qatar, where hierarchical structures and resource constraints may limit spontaneous innovation. The partial support of H3 suggests that healthcare institutions must deliberately cultivate innovation capability to fully realize the benefits of transformational leadership. As emphasized by Guo et al. (2024), without a supportive innovation climate, even well-intentioned leadership may fail to elicit optimal staff performance.

5.2.3.1 Moderating Role of Innovation Capability on the Relationship between Idealized Attributes and Nurses' Performance.

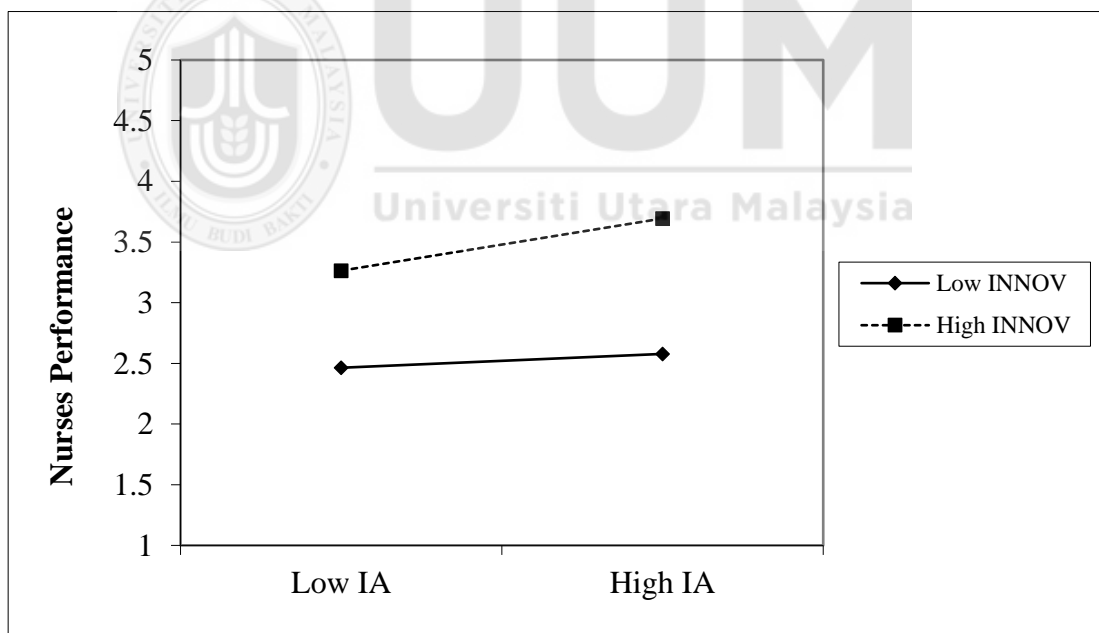


Figure 5.1: Moderating Role of Innovation Capability on the Relationship between Idealized Attributes and Nurses' Performance.

As shown in the figure above the two lines indicate a positive relationship between (IA) and (NP). In addition, the line has a steeper gradient due to the moderating effect. Thus, the relationship is stronger for a high level of (INNOV) compared to a

low level. Hence, it could be concluded that the (INNVC) positively moderates (strengthens) the positive relationship between Idealized attributes and Nurse's performance. In other words, the positive relationship between Idealized attributes and Nurses' performance (NP) becomes stronger when innovation capability (INNVC) is high. Therefore, hypothesis H_{3.1} was supported.

The hypothesis that the positive relationship between idealized attributes (IA) and nurses' performance (NP) would be stronger in the presence of high innovation capability (INNVC) was supported, indicating a significant moderating effect. Specifically, the analysis indicated a positive and significant interaction effect between IA and innovation capability (INNVC), implying that the strength of the relationship between transformational leaders' idealized attributes and nursing performance is contingent upon the level of innovation capability within the organization. From this, it can be presumably concluded that when support for innovation is contingent, then the influence of the transformational leaders in portraying 'ideal-self' characteristics such as ethical behaviors, integrity, and positive modeling, is magnified (Lei et al., 2022).

When innovation capability is high, the influence of idealized attributes such as ethical conduct, integrity, and positive role modelling is amplified. They are fundamentally important to leadership effectiveness, their impact on performance is considerably enhanced in contexts that support and promote innovation. When innovation capability is high, the organizational environment provides both tangible and intangible resources that enable staff to act on leadership values. This synergy facilitates the translation of transformational ideals into enhanced clinical practice, resulting in improved nurse performance.

Equally when innovation capability is low; the impact of idealized attributes on performance is comparatively weaker. In rigid or unsupportive environments, even morally upright and inspiring leaders may struggle to translate their influence into practical outcomes. The absence of supportive mechanisms like open communication channels, collaborative innovation platforms, and professional development opportunities can restrict the performance potential of nurses, even under ethical leadership. This indicates that innovation capability acts as an enabler that helps unlock the full potential of transformational leadership.

This finding aligns with with contingency leadership theory and the resource-based view of the firm, both of which posit that leadership outcomes are significantly influenced by contextual and organizational factors. Idealized attributes as its major component that is centered on ethical-moral perspective as a way of gaining trust and respect from the followers (Huang, 2014). These leaders cannot only work and build their team on the basis of the identity but also it helps them to define the organizational objectives and set the purpose. When cultivated hand in hand with a corporate culture of innovation, those leadership characteristics result in the acceleration of penetration among the nurses (Zhao et al., 2024).

In practical terms, this finding underscores the importance of fostering an innovation-friendly environment to optimize the impact of transformational leadership. Nurses operating within such environments are more likely to feel empowered and motivated to contribute beyond routine expectations. They are better equipped to convert ethical and visionary guidance from their leaders into meaningful clinical outcomes. This includes embracing change, initiating quality improvement practices, and adapting effectively to emerging healthcare challenges.

Furthermore, prior studies corroborate these findings. Zhao et al. (2024) demonstrated that teams led by transformational leaders perform more effectively when the organization exhibits high levels of innovativeness. Similarly, Asbari et al. (2020) highlighted that innovation capability not only supports creativity but also facilitates the practical implementation of change, which is essential in healthcare settings where adaptability and continuous improvement are critical.

The findings have important implications for healthcare management. Organizations should strive to cultivate innovation capability by investing in leadership development, promoting a culture of experimentation, and providing platforms for knowledge sharing. Leaders who demonstrate idealized influence must be supported by systems that recognize and reward innovation, ensuring alignment between individual leadership qualities and institutional priorities.

In sum, high innovation capability is a two-sword, which affects the performance as mediated by the idealized attributes. Therefore, this study supports the need to practice ethical leadership alongside a good innovation practice to yield the best while improving the delivery of health care. Consequently, healthcare organizations could guarantee that the nurses are prepared to meet the factors of their roles and boost patient and organizational results.

5.2.3.2 The positive relationship between Inspirational Motivation (IM) and Nurse's performance (NP) will be stronger when Innovation Capability (INNVC) is high.

The expected positive correlation between inspirational motivation (IM) and nurses' performance (NP) which was expected to be mediated by innovation capability (INNVC) was not supported in the study. This has evidently tilted the scales in the

opposite to the hypothesized inclination that the effect of inspirational motivation on performance could intensify in innovative climates.

This is in part supported by (Howell and Avolio, 1993) who noted that the effectiveness of inspirational motivation might depend on other factors apart from innovation capability. They proposed that, yes, leaders can positively motivate their subordinates and, therefore, boost organizational performance, but this positivity may be neutralized by the rather disruptive effects of consistent innovation, which may serve to stress employees more than it empowers them.

On the other hand, the result is the opposite of the outcome arrived at by (García-Morales et al., 2012), who discovered that in innovative work environments, there is a positive connection between inspirational motivation and performance as spearheaded by the leader in achieving organizational innovative goals. (García-Morales et al., 2012), pointed out that, in such environments, the visionary component of inspirational motivation assists the employees to adjust to the changes and encourage acceptance of new ideas improving their performance (Tajasom et al., 2015). Differences in results of the current study and (Muppudathi and Krishnan, 2021) may suggest that the inspirational motivation-performance relationship is not that simple, and may be mediated or moderated by certain factors not analyzed in this research.

This contradiction simply points to the fact that there is still a need to examine contextual factors under which this inspirational motivation has a positive impact, especially as regards innovation capability. This means that although inspirational motivation is a common attribute of transformational leadership and positivist research presents it as positively influencing performance, the extent of its impact

could be moderated by the organizational environment and the kind of innovation being sought.

5.2.3.3 The Positive Relationship Between Idealized Behavior (IB) and Nurse's Performance (NP) Will be Stronger When Innovation Capability (INNVC) is High.

The hypothesis that the positive relationship between idealized behavior (IB) and nurses' performance (NP) would be stronger at a high level of innovation capability (INNOVC) was not supported. This implies that, contrary to expectation, nurses' high innovation capability does not intensify the impact of idealized behaviors on performance.

Behavior is one of the dimensions of TL which embraces high standards of behavior, personal conduct, proper example, and organizational commitment.(Weng et al., 2015). Speculated was that if the leaders operate with such behaviors in the environment with innovative activities the combination will increase the performance of nurses even more. However, the hypothesis of this effect was not supported by the data because innovation capability does not contribute in increasing the impact of idealized behavior on performance(Masood and Afsar, 2017; Weng et al., 2015).

This might have been caused by several factors which include the following. A potential reason may be that the longevity of idealized behavior to be used as a leadership strategy may be more contingent than previously assumed(Le and Lei, 2019). In general, effective in driving and directing appropriate employee behavior. It can be assumed that this is equally true when leaders set high standards and personally exemplify high innovation capability. For example, in situations with high levels of innovation, dynamism and turbulence, the focus might be created on change

and dynamism to the extent that values such as ethical leadership behaviors might not be perceived as having a strong impact on performance(Tajasom et al., 2015).

There another couple of reasons and they include; it could be the case that in settings where the overall innovation capability is relatively high, the contribution of other antecedents; in this case team technical skills or creativity is likely to overwhelm any observed effects of innovation capability on the performance outcomes(Tajasom et al., 2015). In such settings, the impact of leader idealized communication behavior might well be less salient in comparison to the broader vision on innovation that an organization has set for its nursing profession as well as the capacity that the nurses have in assimilating and exploiting the technology and process novelties that are available(Afsar and Masood, 2018).

This finding is also indicative of the fact that leadership is behaviorally complex and that there might not be direct correlation between leadership behaviors and performance(Rafferty and Griffin, 2004). Therefore, there is empirical evidence attesting that the aspects of idealized behavior contribute to the change of performance, though it is possible that the degree of this impact will depend on the further characteristics of the environment, such as the extent of the organizations' innovation capability(Manesh et al., 2018).

In the general literature there is evidence to suggest that leadership behaviors' may not always moderate innovation capability in an expected way. For instance, (Afsar and Umrani, 2019)in their study showed that the levels of innovation may in some circumstances lower the levels of perceived significance of transformational leadership behaviors as the emphasis is made more on the processes and outcomes of innovation. Similarly(Judge and Piccol, 2004) proposed that the work outcomes of

different leadership behaviors' may depend on the work context, such as organizational culture and the nature of the tasks facing the team. To the healthcare leaders, this makes it appropriate that when applying leadership strategies, they should consider the context of the situation. Thus, although this aspect is normally a positive indicator of leadership behaviors, the contribution of innovation capability to the improvement of performance by raising idealized behavioral activity is likely to be marginal (Jankelová, 2021; Ramadan and Borgonovi, 2015). Perhaps here, leaders may have to make what is referred to as best live adjustments as they understand that the situation they find themselves may require different type or approach that will help solve the problem that is at hand (Botma et al., 2012).

Therefore, there was no evidence in support of the hypothesis that the positive relationship that existed between idealized behavior and nurses' performance would be stronger where there was high innovation capability. This, therefore, indicates that through idealized behavior, there is no added positive effect in altering the performance proportional to the improvement in the innovation capability arguing that the relationship between leadership behavior and performance in the healthcare facility is not easily deducible.

5.2.3.4 The Positive Relationship between Intellectual Stimulation (IS) and Nurses Performance Will is Stronger When Innovation Capability (INNVC) is High.

The research hypothesis that the association between intellectual stimulation (IS) and nurses' performance (NP) would be positively moderated by innovation capability (INNVC) was not supported by the study results. This is a rather surprising finding

going against a number of works stressing that novelty is one of the most important factors influencing creativity and performance.

However, many other papers have noted that intellectual stimulation is an important mechanism for encouraging creativity and performance in organizations. For instance, (Gong, 2010) showed that leaders who create thought provoking environment for their subordinates are likely to be rewarded by greater creative performance the bulk of which enhances organizational performance. In the similar manner, (Eisenbeiss et al., 2008) pointed out that intellectual stimulation prompts the employees to look at the matters beyond the conventional approach, particularly when the organizational working environment requires innovative approaches and ideas.

Furthermore, (Rosing et al., 2011) described the interaction of the leadership–innovation as challenging, and that stimulation may not enhance performance further where one finds a high level of innovation capability. They have found out that in such environments, acquisition of further information does not contain enhanced value, which could have pushed for the unsupported hypothesis in the current study. (Carmeli et al., 2014) also noted that the outcomes of the implementation of the intellectual stimulation might also vary with the environment, especially where the culture of the organization supports innovation. Another limitation of the study is that in situations where innovation capability is high but organizational support is low, the benefits of dimensional factor of Intellectual stimulation to performance might be reduced.

According to (Rosing et al., 2011) noted that the level of Intellectual Stimulation also had positive effect on the performance of the employees especially in the organization that have instituted a learning culture. But in environments where innovation is

already pervasive, incremental returns from the aspect of 'L' that focuses on intellectual stimulation may not be so distinct. This is in a similar fashion to the current study where the expected stronger positive IS and NP relationship in high INNVC environments was not identified. In addition, (Gottman et al., 1998) pointed out that the aspect of intellectual stimulation is a crucial leadership factor that fosters innovativeness and also improves performance. Nonetheless, the results of this study provided no evidence for the hypothesis, and this implies that a number of variables may exert the moderating effect on this relationship, including the quantum of innovation capability within the firm. (Bass and Avolio, 2004) also noted that, among the leadership characteristics, intellectual stimulation is of significant importance for transformational leaders who need to encourage the employees to look for new approaches to solving organizational challenges, and, therefore, enhance the performance of the organization. On the other hand, the results of the present study suggest that this enhancement might not be as strong when the innovation capability is already higher; there is an argument that opposes several conventional beliefs of transformational leadership.

According to (Zhu et al., 2005) continued the research of transformational leadership and followership performance where the authors pointed out that the intellectual stimulation is positively influential. But they also underlined the significance of context factors, in spite of which this unsupported hypothesis was identified within this study. (Dvir et al., 2002) further noted that although leader behaviors such as placing followers under moderate pressure to perform, challenging them intellectually in order to elicit their superior performance leads to improved performance, it goes further in encouraging self-organized work and creativity. However, their work also suggested that this 'halo' may not be sustainable in situations where new and

innovative technology is already deemed to be important which is consistent with the present work.

Furthermore, a study done by (Jansen et al., 2005) investigated how leadership facilitates innovation through intellectual stimulation and observed that the leadership-intellectual stimulation relationship enhances creativity and performance but with an important qualifier: the robustness with which pre-existing innovation capability is developed may moderate the strength of the leadership-intellectual stimulation relationship. (Sosik et al., 1998) noted that when using the Intellectual Stimulation leadership behavior, leaders are helping to achieve better performance results as well as in dynamic environments that call for innovation. However, as probably expected, the current study speculates that within highly innovative environments, this likelihood is not as robust.

Lastly, in meta research by (Judge and Piccol, 2004) they asserted the findings of the connection between transformational leadership mainly in the dimension of intellectual stimulation on performance. However, they also pointed out that the context, for example the organizational innovation capability could affect these outcomes, thus aligning with the current study finding that the hypothesized stronger association in high INNOVC environments was not realized.

Based on these results, is clear that the link between IS, capability to innovate and performance is not straightforward and can be moderated by various factors. The results of this research provide some evidence of the effectiveness of intellectual stimulation to enhance performance but suggest that further research be directed towards understanding more fully the set of conditions that lead to the most effective

use of intellectual stimulation amongst employees; especially those employees working in a highly innovative organizational context.

5.2.3.5 The Positive Relationship between Individual Consideration (IC) and Nurse's performance (NP) will be Stronger When Innovation Capability (INNVC) is High.

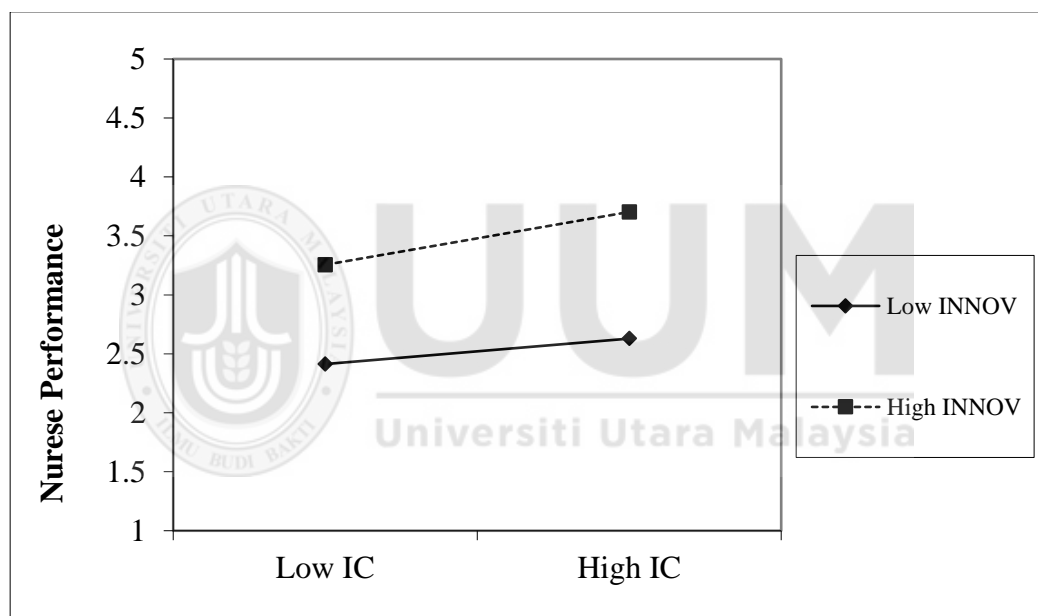


Figure 5.2: Relationship between Individual Consideration (IC) and Nurse's performance (NP)

As shown in the figure above the two lines indicate a positive relationship between (IC) and (NP). In addition, the line shows a steeper gradient due to the moderating effect. Thus, the relationship is stronger for a high level of (INNVC) compared to a low level. Hence, it could be concluded that the (INNVC) positively moderates (strengthens) the positive relationship between Individual Consideration and Nurse's performance. In other words, the positive relationship between Individual

Consideration and Nurses' performance (NP) will be stronger when innovation capability (INNVC) is high. Therefore, hypothesis H_{3.5} was supported.

The positive relationship between individual consideration (IC) and nurses' performance (NP) is significantly enhanced when innovation capability (INNVC) is high, supporting this hypothesis. This finding underscores the critical role that innovation capability plays in amplifying the effectiveness of transformational leadership behaviors, particularly Individual Consideration, in improving performance outcomes in healthcare settings.

Individual Consideration is one of the transformational leadership practices where leaders provide support, coaching, and guidance to address subordinates' individual needs for growth and development (Jankelová, 2021). Based on the real-life experience, Individual Consideration means that the leaders understand the abilities and the limitations of each member of their team, and allow them to freely perform their job, making their employees feel valuable within the company. This particular leadership behaviour is a perfect way of increasing performance because it leads directly to the resolution of issues personnel encounter, hence increased satisfaction and organizational commitment can be expected (Podsakoff et al., 1990).

Importantly, the interaction effect reveals that this positive relationship is highly contingent upon the level of Innovation Capability. When INNVC is high, the environment provides resources, support systems, and a culture conducive to experimentation and adoption of new practices. In such settings, the individualized support offered by leaders is more likely to be translated into practical innovation, skill development, and performance enhancement.

Equally, when INNVC is low, even high levels of Individual Consideration may not yield substantial performance improvements. In such environments, structural or cultural barriers limit the translation of coaching and support into actionable improvements. This may result in frustration, underutilization of talent, and stagnated growth, thereby weakening the intended effects of Individual Consideration.

The moderation effect therefore shows that when it comes to the relationship between the higher order personality dimension of Individual Consideration as well as innovation capability, it is paramount that workplace environment encourages innovation, in order to fully reap from the benefits of Individual Consideration (Alzoraiki et al., 2023). As in other fields of activity, it is often a crucial disadvantage to be slow in adopting new technologies or new approaches in healthcare where technologies are growing very fast. Thus, when the nurses work in an environment that promotes innovation, one gets to see the difference that personalized support provide by their leaders brings about (Díaz-Fúnez et al., 2021; Muppudathi and Krishnan, 2021). This is because innovation capability offers the assets, toolkits and environment enabling our nurses to apply to their practical work the tutoring which they receive from their leaders.

Supporting literature confirms this interaction. (Cullingworth, 2015) identifies that through provision of direct coaching, the transformational leaders will ensure innovativeness because the subordinates will be open to adopt new ideas and methods of working. Also, (Gopalakrishnan and Damanpour, 2001; Podsakoff et al., 1990) showed that innovation capability of an organization strengthens the positive impact of transformational leadership for some performance indicators such as job satisfaction, organizational commitment, and productivity.

This discovery is of importance in the management of healthcare since it enhances the capacity of identifying pathogenic organisms. Such a model implies that healthcare organizations have to look not only at cultivating new transformational leadership behaviors but also at strengthening innovation capacity. In this way, leaders can establish a mutually reinforcing relationship between the nurse manager concentration and the allocation of individualized support: the aim is to gain the highest level of enhancing nurse performance (Kohnen et al., 2023; Shan et al., 2023). The above may entail standard practices in enhancing professional practice for nurses such as conducting staff development programmes, promoting the implementation of evidence-based practice, and empowering leaders enhancing innovation in organization.

Therefore, the current research supports the hypothesis that, indeed, the positive association between the concept of Individual Consideration and the performance of the nurses is significantly moderated by the dimension of innovation capability of the working environment. As underscored above, there is needed to encourage display of TL practices and a robust organizational culture on innovation to foster superior performance in the health sector.

5.3 Implications for the Study and Practice

Such information can serve as substantial knowledge regarding transformational leadership and its effects on performance and the moderating impact of innovation capability among nurses. The practical and theoretical contribution of these findings can be also generalized to the healthcare field.

5.3.1 Theoretical Implications

This study therefore extends and supports transformational leadership theory by confirming several of its key dimensions these are idealized attributed, inspirational motivation and individual consideration additionally, the study revealed more concerning how such dimensions relate to innovation capability. The first forms of support, associated with idealized sources which have been postulated by hypotheses of the theory, confirm work experience with inspirational motivation and individual consideration aspects within framework of paradigmatic elements of the transformational leadership according to which leaders' examples of the desired behaviors, inspiration, and individual targeted help increase performance outcomes (Gottman et al., 1998; Judge and Piccol, 2004).

However, the unsupported hypothesis concerning intellectual stimulation postulates that its effectiveness should be mediated by contextual factors, primarily the degree of innovative capacity within the organization. This is supported by research which points out that the effect of intellectual stimulation may depend on the state of the innovation environment (Rosing et al., 2011). Therefore, this calls for further clarification on the relationship between the transformational leadership behaviors and organizational contexts on performance.

As for all the hypotheses, the results of the study also highlight the moderator role of innovation capability suggesting that the favorable innovation environment can bolster the impact of the transformational leadership. This research confirms the proposal that innovation capacity may facilitate the process of enhancing the effects of leadership behaviors on performance results (Chaudhary and Panda, 2018; Wei et al., 2020). Thus, it is necessary for future studies to examine the conditions wherein

the extant theorization of intellectual stimulation is most appropriate and determine other contingency factors which may enhance this association.

5.3.2 Practical Implications

Leadership Development Programs and Competencies: This study highlights that transformational leadership, when effectively applied, can directly counteract the leadership deficiencies reported in Qatar's government healthcare system. Leadership development programs should integrate key transformational traits idealized influence, inspirational motivation, and individual consideration to bridge existing gaps in leadership behaviors and competencies. Policy makers and government agencies, including the Ministry of Public Health (MoPH), are encouraged to establish national leadership training frameworks that mandate the integration of these competencies into healthcare administration curricula. These transformational traits have consistently been associated with fostering trust, enhancing staff motivation, and elevating performance levels among nursing personnel. By cultivating these behaviors, leaders are better equipped to communicate a compelling vision, nurture positive organizational cultures, and drive performance improvement across healthcare settings (Dvir et al., 2002; Sosik et al., 1998).

Enhancing Innovation Capability: As revealed in the study, limited innovation infrastructure in public healthcare settings constrains the effectiveness of transformational leadership. To address this constraint, it is essential to strengthen organizational innovation capabilities. This can be achieved by fostering a culture of innovation, supporting research and development initiatives, creating enabling environments policy frameworks, resource allocation, and inter-professional

collaboration. Strengthening innovation capability is vital for healthcare stakeholders to fully leverage the benefits of transformational leadership. For nurses and unit managers, such environments promote creative problem-solving and continuous process improvement, ultimately enhancing staff engagement, performance, and retention. These initiatives collectively amplify the impact of transformational leadership behaviors within clinical settings (Judge and Piccol, 2004; Muppithi and Krishnan, 2021).

Tailoring Leadership Approaches: The study implies that leadership style should be aligned with organizational context. Although transformational leadership is revolutionary, idealized attributes and inspiration motivation were effective in all the cases, As Qatar's healthcare environment is highly structured and hierarchical, adaptive and context-aware leadership approaches may be necessary to overcome cultural and operational barriers (Jankelová, 2021)

Organizational Support Structures: It is evident from the findings that every aspect of leadership agrees with the premise that support structures in organizations are crucial for bolstering of leadership. The facilitative conditions consist of elements that can enhance the communication of the transformational leadership behaviors, such as intellectual stimulation and a supportive environment will improve these strategies. recommendations for organizations should include implementing supportive policies, and a psychologically safe environment that adhere to positive innovative practices and providing any resource that an organization may deem essential (Jansen et al., 2005). For nurses and clinical leaders, this translates into the need for transparent communication channels, supportive supervision, and accessible opportunities for

continuous professional development, all of which contribute to sustained leadership effectiveness and improved clinical outcomes.

Employee Engagement and Motivation: These results show that the first three dimensions of the Employee Engagement and Motivation -model: idealized attributes, inspirational motivation, and of individual consideration all have a positive impact on performance pointing to the significance of motivating the employees. For frontline nurses, this manifests in increased morale, job satisfaction, and commitment. Hospital administrators should implement recognition systems and performance-based rewards that align with these leadership behaviors. This highlights the need for leadership development focused on fostering meaningful interactions and cultivating employee commitment, ultimately enhancing organizational performance (Dvir et al., 2002; Grantham-Caston and DiCarlo, 2023).

Monitoring and Evaluation: The study also presents the implication that leadership practices warrant periodic assessment to evaluate their effectiveness on performance. To optimize leadership development programs within organizations, it is important that they are periodically evaluated and modified to fit any changing organizational leadership agendas. This can be done through feedback systems, performance appraisals, and activities regarding improvement (Judge and Piccol, 2004). For government stakeholders, especially the MoPH, this highlights the need for a national leadership performance dashboard that aligns with the Qatar National Vision 2030 and healthcare excellence benchmarks.

Integration with Other Leadership Models: This study's insights can be enriched by integrating concepts from servant leadership or adaptive leadership, especially in multicultural settings like Qatar's. This can help address the complex challenge of

leading a diverse, expatriate-heavy workforce, as identified in the study's background (Sosik et al., 1998).policy architects should consider hybrid leadership model guidelines in public health strategy documents, particularly for high-diversity facilities ensuring inclusive, responsive, and effective leadership frameworks.

Practical Applications in Healthcare Settings: This study offers practical strategies for improving leadership and performance in healthcare organizations (Benzidia et al., 2021). Hospital leaders can align leadership development with key outcomes such as patient satisfaction, safety standards, and team performance, while policymakers can use these insights to strengthen the healthcare system against emerging challenges such as pandemics and workforce transitions. By adopting transformational leadership, fostering innovation, and ensuring organizational support, institutions can enhance overall effectiveness (Benzidia et al., 2021; Chen et al., 2022). The findings also underscore the moderating role of innovation capability, offering valuable direction for leadership design in healthcare.

Stakeholder-Centered Implications of the Findings: The study's findings have practical relevance for key stakeholders in Qatar's government healthcare system. Nursing leaders should prioritize developing Idealized Attributes, Inspirational Motivation, and Individual Consideration to enhance staff engagement and performance. Frontline nurses benefit when innovation capability is supported, enabling them to apply creative solutions in care delivery. For healthcare administrators and policymakers, the evidence supports integrating innovation and transformational leadership into leadership training, performance evaluation, and workforce planning. This is crucial given recent declines in nurse and patient satisfaction. In the short term, leadership development and innovation workshops

should be initiated; in the medium term, nurse-led innovation structures established; and in the long term, leadership and innovation benchmarks embedded into national nursing policies. These actions will enhance care quality, staff retention, and organizational resilience.

5.4 Study limitations

The study on the effect of transformational leadership on the performance of the nurses was controlled by innovation capability, presents significant findings; nevertheless, it is not without limitations that must be disclosed. Such restrictions impose themselves when explaining the results and outline directions for further studies.

In as much as the study has strengths, there are areas that can be considered as its weaknesses:

Sample Size and Generalization: The study focused on on specific healthcare facilities may limit the generalization of findings, restricting transferability to other settings or geographical areas. As Gottman et al. (1998) emphasized that a large and diverse population can increase the usability of the findings. Future studies should use larger, more diverse samples to strengthen conclusions (Botma et al., 2012; Grantham-Caston and DiCarlo, 2023; Judge and Piccol, 2004). Although stratified random sampling enhances representativeness compared to purposive sampling, the study still faces some limitations related to non-response bias and the reliance on voluntary participation, which may affect external validity.

Cross-Sectional Design: The use of a cross-sectional design inherently limits the ability to infer causal relationships. Data collected at a single time point reveals only interconnection between transformational leadership, innovation capability, and nurses' performance, without capturing their dynamic or temporal nature. Longitudinal studies are recommended to establish causal inferences and assess how these variables evolve over time (Jankelová, 2021; Lei et al., 2022; Sosik et al., 1998).

Reliance on Self-Reported Data: Using self-reported measures introduces potential biases such as social desirability bias, whereby respondents provide information that is expected by the researcher rather than the actual truth, which could skew results and affect validity (Rosing et al., 2011). Future research should consider using triangulated methods such as incorporating supervisor evaluations, objective performance metrics, or peer assessments (Gong, 2010).

Measurement Issues Are Also a Constraining Factor: The research used standardized questionnaires to assess the extent of the dimensions of transformational leadership, innovation capability and performance. These are some of the well-known scales while there is realization that when used in other cultures and with different sample, these constructs perhaps may not embrace all the necessary avenues or may be slightly stretched tiny differently (Manesh et al., 2018). Thus, there is a need to develop or adapt tools tailored to the specificities of healthcare settings to enhance construct validity (García-Morales et al., 2012).

Contextual Factor: Few issues relating to the contextual background were taken into account, although healthcare structural characteristics such as organizational size, leadership climate, resource allocation and health system characteristics, can influence leadership behaviors and performance (Tajasom et al., 2015). Perhaps through a

failure to consider these contextual factors the study failed to capture potential variables that could affect the use of transformational leadership. Future research should include organizational context, as well as other contextual variables that may serve as moderating or mediating factors on leadership and performance (Le and Lei, 2019).

Focus on specific Transformational leadership dimension: Although the study focused on several aspects of leadership, there may be other important facets of leadership that may influence the performance of the nurses, and which may have been omitted in the study. Incidentally, there may be other leadership styles or behaviors not featured in this study; such as ethical leadership or servant leadership which may also contribute significantly to nurse performance outcomes (Casida and Parker, 2011). Extending the study to the variety of leadership behaviors may help to achieve a deeper understanding of the impact of leadership on performance (Rafferty and Griffin, 2004).

Assessment of Innovation Capability: The assessment of the organization's innovation capability used in the study involved the use of specific indicators as well as the use of self-generated data. Innovation capability can be understood as a multi-dimensional construct and there is the likelihood that it may not be adequately measured. Subsequent research should use a finer grained and mixed method approach to capture innovation capability in a richer way than is currently accomplished with the innovation index, and consider the interactions between leadership and performance with this measure as a mediator (Jankelová, 2021; Kouzes and Posner, 2010).

Cultural and Demographic Influences: The study did not explore whether demographic variables (e.g., age, gender, education level) or cultural differences influenced perceptions of leadership and performance (Alrasheedi et al., 2022). These factors can act to shape a view about leadership behavior and the consequent effect on the performance. The subsequent research should take into consideration the cultural and demographic differences in these relationships among the groups of people (Ryder, 2023).

Lack of Confounding Variables: Some variables like organizational size, staff turnover, job satisfaction and workload, were not controlled in the study. These variables could affect performance goal accomplishment and leadership behaviors in a positive or negative way (Muppudathi and Krishnan, 2021). This may have introduced omitted variable bias. Future studies should incorporate these control variables so as to purge the effects of transformational leadership as well as innovation capability on organizational performance (Chau et al., 2022).

Limited Scope of Profession and Geography: The analyzed relationships refer to leadership and performance in the context of the healthcare sector; they might not be applicable to other professions (Hult et al., 2007; Judge and Piccol, 2004). Further studies should extend these observations internationally to check the signs of these connections in other professional environments (Kohnen et al., 2023).

Absence of Experimental Design: The lack of experimental or intervention-based studies limits the ability to offer specific ideas on how to improve leadership efficiency and performance. Intervention-based research is needed to identify actionable strategies for enhancing leadership and performance outcomes (Chen et al., 2022).

Time Frame and Resources: Limited time and resources may have restricted the study's depth and breadth, preventing longitudinal studies or collection of diverse data. These constraints curtailed the ability to conduct longitudinal or mixed-method studies, which might have yielded richer and more nuanced findings (Habib et al., 2020; Grantham-Caston and DiCarlo, 2023).

In summary, it is important that these limitations are recognized insofar as the results of this study, which showed that there was a significant positive moderation and mediated relationship between transformational leadership and innovation capability with regard to the performance of the nurses. Eradicating these limitations with the help of employing greater and more varied participant pools, proceeding in participants' developmental sequence, gather data from multiple modes and sources and also considering the participants' environment will enhance the fatalism and feasibility of the future research. There is war in the pursuit of this and other related sciences, as well as in defining the most effective strategies to improve leadership and productivity in healthcare and in other areas, where it is necessary to be aware of these impediments.

5.5 Future Research Directions

In light of the above, the following are the recommendations that we make for future research on the linkage between the transformational leadership and the performance of the nurses, specifically on the component of innovation capability.

More subjects are also useful to enhance the validity of the study as larger samples increase reliability and generalizability. The present research had some restrictions on the geographical and contextual extent of the participants. In order to increase the external validity of the study it would have been valuable to have had a more diverse

sample of healthcare organizations and settings across different locations to determine the effects of transformational leadership on the performance of the nurses across various scenarios (Jankelová, 2021; Masood and Afsar, 2017).

Some of the difficulties that arise in cross-sectional research are thought to be lessened using longitudinal designs. To compare leadership and innovation performances and their effects on performance outcomes, follow-up of the participants could be done so that the cause-effect relationship can be established (Botma et al., 2012; Chen et al., 2022). This approach would also help address the limitations related to measurement issues, particularly the reliance on self-reported data, which may introduce bias due to social desirability or perceptual inaccuracies.

To reduce the potential for such bias, future studies should aim to use triangulated methods combining self-assessments with third-party evaluations from managers and peers, as well as objective performance metrics. This would offer a more balanced and accurate assessment of leadership effectiveness and its impact on performance.

Combining quantitative data with qualitative data such as interviews or focus group discussions will give a more realistic and complete picture of leadership performance and its efficiency.

Looking at leadership models beyond transformational leadership may also uncover alternative approaches to effective leadership. Other forms of leadership that can be analyzed for the purpose of gaining more insight into leadership styles and their impact on performance and innovation capacity include ethical leadership or servant leadership. Additionally, contextual and cultural factors play a critical role in shaping leadership outcomes. Future studies should examine how organizational culture and environmental conditions influence the relationship between leadership and

performance. Such inquiries could help leaders tailor their leadership strategies to specific organizational cultures.

Additionally, it is useful for identifying the degree of potential of an enterprise as an innovative organization to have specific indicators of innovation capacity. Better measurement tools and validated instruments for innovation capability are required to gain a clearer understanding of how innovation factors influence the leadership-performance relationship. Experimental research designs can also be employed to test the effectiveness of specific leadership interventions aimed at enhancing performance in healthcare settings (Howell and Avolio, 1993; Judge and Piccolo, 2004).

Another area that future research must address is the influence of demographic and cultural characteristics such as age, gender, and nationality on the leadership-performance dynamic. Future works should also consider culture and other variables such as age and gender on the relationship between transformational leadership and performance. To reduce the impact of mediating variables such as job satisfaction, staff turnover and workload, the relationship between transformational leadership and performance and between innovation capability and performance will be analyzed. This approach is more appropriate to provide a clear picture of the direct relationship between leadership and innovation on the performance outcome.

Hence, these future research directions give significant potential for increasing the understanding of transformational leadership and its effect on the performance of the nurses. Future research should therefore aim to include large samples, use longitudinal and multiple source data, comparing various types of leadership in the work environment, and including more contextual variables in order to improve leadership practice and effectiveness in healthcare and other organizations.

5.6 Conclusion

This chapter concludes the study, which examined the influence of transformational leadership on nurses' performance, with a particular focus on the moderating role of innovation capability.

The study achieved its objectives: (1) to examine the effect of transformational leadership components on nurse performance and (2) to investigate how innovation capability moderates this relationship. In doing so, the research addressed a critical gap in the literature concerning the role of innovation capability in enhancing leadership effectiveness within healthcare settings.

The findings supported Hypothesis H1 (including sub-hypotheses H1.1 to H1.5), establishing that transformational leadership significantly influences the performance of nurses in Qatar's public healthcare sector. This finding contributes both theoretically and practically by affirming the utility of transformational leadership in non-profit healthcare contexts, specifically within culturally diverse and resource-constrained environments. The study recommends the promotion of leadership development initiatives targeting the enhancement of transformational behaviors among nurse leaders aimed at improving organizational outcomes, enhancing patient care quality, and boosting nursing workforce retention and performance.

One of the novel findings of this study is the confirmation that idealized attributes, inspirational motivation, idealized behaviours, and individual consideration significantly enhance nurses' performance. These findings are in consonance with the transformational leadership theory that holds that when leaders set high standards, paint a clear picture of the future and attend to the individual need of the followers,

the followers are likely to perform better. This study also provides the rationale for these leadership dimensions in the development of high-performance culture in healthcare organizations.

Contrary to expectations, intellectual stimulation showed no significant effect, on nurses' performance, and it did not moderate the relationship between the leadership dimensions and performance even when innovation capability was high. suggesting that its impact may depend on other contextual or organizational factors. This highlights a direction for future research, particularly in understanding under what conditions this leadership component becomes effective.

The study confirmed and achieved the second research objective and supported Hypothesis H2 by demonstrating that innovation capability significantly enhances nurses' performance in the public healthcare sector. The strong positive relationship underscores the need for healthcare institutions to cultivate a culture that supports innovation through training, empowerment, and resource availability. Enhancing innovation capability among nurses not only boosts individual performance but also strengthens the overall capacity of healthcare systems to deliver high-quality, efficient, and patient-centred care.

The study has a significant implication in the moderating role of the innovation capability in the relationship between transformational leadership and performance. The results of the study indicate that high INNVC moderates the positive correlation between idealized attributes and individual consideration on nurses' performance. This means that in healthcare organizations, a culture of innovation has to be nurtured so that transformational leadership can be of benefit. This study contributes to the understanding of transformational leadership by including the concept of innovation

capability and putting forward a new model for analyzing the changes in this regard. The above framework can be further developed in the future research so as to identify other leadership characteristics and situations that influence performance.

The study confirmed and partially supported the third research objective and Hypothesis H3 (overall), including the sub-hypotheses H3.1 to H3.5, by demonstrating that innovation capability plays a moderating role albeit a partial one in the relationship between transformational leadership and the performance of nurses. This suggests that innovation is not uniformly effective across all leadership dimensions, but when aligned with specific behaviors such as individualized consideration and idealized influence, it significantly enhances performance outcomes. The results underscore the need for integrative leadership-development strategies that not only promote transformational behaviors but also build innovation readiness among nursing teams. This dual emphasis is particularly important in Qatar's public healthcare sector, where fostering innovation could serve as a lever for enhancing staff engagement, retention, and quality of care.

From a practical perspective, the study provides actionable recommendations for healthcare managers. To boost performance, leadership development efforts should focus on cultivating behaviors associated with idealized attributes, inspirational motivation, and individualized support, while also creating systems that support innovation and continuous improvement.

Nevertheless, the study has limitations. It was conducted within a single healthcare organization, limiting generalizability, and it used a cross-sectional design, which prevents establishing causality. Furthermore, reliance on self-reported data introduces potential biases. Future studies should use longitudinal approaches and collect multi-

source data (e.g., manager or peer evaluations) to overcome these issues. Continuation of this work should include other types of leadership, and additional contextual factors to enhance the understanding of the nature of these relations.

Future research should also try to replicate the study in other health care institutions and different geographic regions in order to enhance the validity of the findings. Further research should be done to ascertain the impact of leadership and innovation on the performance of the organization in the long run. Looking at other forms of leadership and specific strategies may also be of value in increasing the leadership of healthcare organizations. In this respect, it is possible to outline the indicators of the innovation capacity and to explore the leadership approaches to enhance outcomes in the sphere of healthcare.

In summary, this study has made a meaningful contribution to the understanding of leadership in healthcare. By empirically validating the moderating role of innovation capability (INNVC) in the relationship between transformational leadership and nurses' performance, it provides a foundation for improving leadership strategies and advancing performance culture in healthcare settings. The study's findings serve as a guide for future research and leadership practice aimed at achieving excellence in nursing and healthcare delivery.



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APPENDIX A

	
INSTITUTIONAL REVIEW BOARD HAMAD MEDICAL CORPORATION DOHA-QATAR	
Fatma Mohd A S Al-Komah Director of Nursing (CF) Administrative Service HAMAD MEDICAL CORPORATION Doha-Qatar	Email: irb@hamad.qa Tel: 00974-40256410 HMC-IRB Registration: IRB-HMC-2021-011 IRB-MoPH Assurance: IRB-A-HMC-2019-0014
APPROVAL NOTICE	
Protocol No. :	MRC-01-24-075
Protocol Title :	The Moderating Effect of Innovation Capability on the Relationship Between Transformational Leadership and Nurses' Performance
Date of HMC-IRB Approval :	03 April 2024
Review Type :	Expedited
Decision :	Approved
Approved HMC Enrollment :	367 Survey Responses
<p>The IRB has reviewed the submitted documents of the above titled research and approval for the study has been granted. The list of approved document(s) is attached.</p> <p>IRB oversight expires 12 months from the date of approval indicated above. It is the responsibility of the Investigator to ensure timely renewal of study oversight. Progress reports for continuing review must be approved prior to expiration date therefore, submissions must be received by the IRB 60 to 90 days prior to the expiration date.</p> <p><u>Raw data should not be shared with anyone other than the current research team members.</u></p> <p>Requested Resolutions: None</p> <p>Any resolutions submitted must include a letter indicating that the submission is a follow up request by the IRB; this will ensure that resolutions are processed appropriately and in a timely manner.</p> <p>Please note; this approval only covers HMC. you may also need approvals from other institutions involved in your study. You should not start your study until all of these have been obtained.</p> <p>If you have any questions or need additional information, please contact IRB at the above mentioned email address or telephone number.</p> <p>Important Note: The list of your responsibilities as Principal Investigator is attached to this letter.</p> <p>Sincerely, Dr. Ali S. Omrani Chairman of Institutional Review Board:</p>	
<div style="text-align: center;">  Dr Ali S. Omrani Senior Consultant Infectious Diseases-CDC-HMC 050284 </div>	<div style="text-align: center;">  Date: 03 April 2024 </div>

APPENDIX B



APPROVAL LETTER MEDICAL RESEARCH CENTER HMC, DOHA-QATAR

Ms. Fatma Mohd A S Al-Komah Assistant Executive Director of Nursing (CF) Nursing Admin Medical Services Al Khor Hospital (AKH) Hamad Medical Corporation Doha-Qatar	Date: 16 April 2024
Protocol No. MRC-01-24-075	
Study Title The Moderating Effect of Innovation Capability on the Relationship Between Transformational Leadership and Nurses' Performance	
Team Member List Ms. Fatma Mohd A S Al-Komah, Ms. Kalpana Singh	
Hospitals/ Facilities Approved HMC Corporate (HMCCORP)	
Review Type Expedited	
Decision Approved	
IRB Approval Period 03/04/2024 to 02/04/2025	

The Medical Research Center has reviewed and approved the request for the above mentioned research study to be conducted in HMC on condition that continual approval from the HMC Institutional Review Board (IRB) is renewed, as per the Review Board's terms.

Note: Raw data should not be shared with anyone other than the current research team members.


This study must be fully compliant with all the relevant sections of the 'Rules and Regulations for Research' at HMC and the Medical Research Center should be notified immediately of any proposed changes to the study protocol. Wherever amendments to the initial protocol are deemed necessary, it is the responsibility of the Principal Investigator to ensure that appropriate reviews and renewed approvals are in place before the study will be allowed to proceed.


Please note that only official, stamped versions of the IRB approved documentation are to be utilized at any stage in the conduct of this study and please observe the validity dates mentioned in the IRB-stamped documents. The research team must ensure that progress on the study is appropriately recorded in ABHATH, the online research system of the Medical Research Center.

We wish you success in this research and await the outcomes in due course.

Yours Sincerely,

Prof. Jassim Mohd. Al Suwaidi
Chief of Scientific, Academic and Faculty Affairs
Hamad Medical Corporation





Date: 16 April 2024

APPENDIX C

PARTICIPANT INFORMATION SHEET

Dear Participant:

I am Fatma Moh'd Al-Komah, a Ph.D candidate at Universiti Utara Malaysia, and I am conducting a research study entitled, "The Moderating Effect of Innovation Capability on the Relationship Between Transformational Leadership and Nurses' Performance". This study focused on investigating the impact of Transformational Leadership on Nurses' Performance and examining the moderating role of innovation capability on these variables.

The study will include all registered nurses, (Charge nurse and GRN, Staff nurse) assigned in clinical units across HMC facilities.

You are invited to take part in an anonymous online questionnaire. This should take around 20 minutes to complete.

You can access the survey questionnaire by clicking on the link: _____

Your participation in the questionnaire is completely voluntary. If you choose to complete the questionnaire then completion is considered approval of participation. You can stop participating at any time and we will not hold it against you.

There is no risk to participating in this study. Your choice to participate or not will not affect your employment status, and your immediate supervisors/managers will not know your participation answers.

No financial compensation for your participation

Your participation is anonymous, and all information will be kept confidential.

You have the right to know the results of this study at the end of it.

Should you have further questions, please send an email to FALkomah@hamad.qa

If you have questions about your rights as a volunteer, or you want to talk to someone outside the research team, please contact:
HMC-IRB Office at irb@hamad.qa

Your usual support is deeply appreciated.

All the best



Version Date: 07 Sep 2023

Page 1 of 1

IRC-01-24-075 Validity: 03 04 2024 - 02 04 2025 E-stamped 03 Apr 2024

APPENDIX D

The Moderating Effect of Innovation Capability on the Relationship Between Transformational Leadersh...

CN Corporate Nursing
To
Cc: **FATMA MOH'D A.S.AL-KOMAH**; **Lintu Antony**

Sun 12/05/2024 13:54

 MRC Approval.pdf
481 KB

Boomerang Action Items

Dear Participant,

Greetings!

You are invited to take part in an anonymous online questionnaire for my study entitled, "The Moderating Effect of Innovation Capability on the Relationship Between Transformational Leadership and Nurses' Performance". This study focused on investigating the impact of Transformational Leadership on Nurses' Performance and examining the moderating role of innovation capability on these variables.

The study will include **all registered nurses (Graduate Registered Nurses, Staff Nurses, and Outpatient Nurses) not in a leadership role** assigned to clinical units across HMC facilities.

You can access the survey questionnaire by clicking on the link below or scanning the QR code:

<https://www.surveymonkey.com/r/B3VS6BL>



UUM
Universiti Utara Malaysia

- Your participation in the questionnaire is completely voluntary. This should take around 20 minutes to complete.
- Your participation is anonymous, and all information will be kept confidential.
- Should you have further questions, please send an email to FAAlkomah@hamed.qa.

Your usual support is deeply appreciated.

All the best!

Best regards,
Fatma Al- Komah RN, BSN, MN
Acting Executive Director of Nursing,
Awelatal Executive Director of Nursing
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مستشفى الخور
Al Khor Hospital
A Member of Hamad Medical Corporation

APPENDIX E

DEMOGRAPHIC INFORMATION				
Instruction: Please answer the following questions objectively and honestly				
Gender: Male <input type="checkbox"/>		Female <input type="checkbox"/>		
Age: 2-30 <input type="checkbox"/>	31-40 <input type="checkbox"/>	41-50 <input type="checkbox"/>	51 and more <input type="checkbox"/>	
Specialty: Critical care <input type="checkbox"/>		Inpatient <input type="checkbox"/>	Emergency <input type="checkbox"/>	
Operating Theatre <input type="checkbox"/>		Outpatient <input type="checkbox"/>		
Education: Bachelor's degree <input type="checkbox"/>		Diploma <input type="checkbox"/>	Postgraduate <input type="checkbox"/>	
Experience: < 5 yrs <input type="checkbox"/>		5-10 yrs <input type="checkbox"/>	11-20 y <input type="checkbox"/>	21-30 yrs <input type="checkbox"/> > 30 years

Please indicate the degree of your agreement or disagreement with each statement by filling in the circle that best represents your point of view.

Kindly choose from the following answers: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree

TRANSFORMATIONAL LEADERSHIP					
Idealized attributes	1	2	3	4	5
1. My immediate supervisor instilled pride in others for being associated with me.	○	○	○	○	○
2. My immediate supervisor goes beyond self-interest for the good of our team.	○	○	○	○	○
3. My immediate supervisor displays a sense of power and confidence.	○	○	○	○	○
4. My immediate supervisor acts in a way to maintain respect of others.	○	○	○	○	○
Inspirational Motivation	1	2	3	4	5
5. My immediate supervisor talks optimistically about the future.	○	○	○	○	○
6. My immediate supervisor talks enthusiastically about what needs to be accomplished.	○	○	○	○	○
7. My immediate supervisor articulates a compelling vision of the future.	○	○	○	○	○
8. My immediate supervisor expresses	○	○	○	○	○

confidence that goals will be achieved.					
Idealized behavior	1	2	3	4	5
9. My immediate supervisor talks about his/her most important values and beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. My immediate supervisor specifies the significance of having a strong sense of purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. My immediate supervisor considers the moral and ethical consequences of decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. My immediate supervisor emphasizes the importance of having a collective sense of mission	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intellectual Stimulation	1	2	3	4	5
13. My immediate supervisor seeks differing perspectives when solving problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. My immediate supervisor suggests new ways of looking at how to complete assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. My immediate supervisor gets others to look at problems from many angles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. My immediate supervisor encourages staff to critically re-examine assumptions whether they are appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Individual Consideration	1	2	3	4	5
17. My immediate supervisor spends time teaching and coaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. My immediate supervisor treats others as individuals rather than just a member of the group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. My immediate supervisor considers an individual as having different needs, abilities, and aspirations from others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. My immediate supervisor helps others to develop their strengths	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NURSES' PERFORMANCE					
Items	1	2	3	4	5
1. My performance is judged more by how much work I do that by how well I do it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. My manager emphasizes my positive contribution when reviewing my performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am given enough authority to allow me to do my job effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. People in this hospital put more energy into identifying mistakes than into figuring out how to do things right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Judgment about my performance is fair.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The way things are organized around here makes it hard for people to do their best work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I feel my work contributes to the organization's performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Objectives to be achieved are known by individuals to be assessed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Performance standards expected from staff are clear and understood by all nurses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Feedback on how staff is performing is provided throughout the year.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Prompt action is taken when performance falls below acceptable standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. My manager/supervisor inspires me to do my best Staff are allowed to make comments on the results of their performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Staff are given the opportunity to make comments on the results of their performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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INNOVATION CAPABILITY					
Basis of Innovation					
Items	1	2	3	4	5
1. My immediate supervisor shares new ideas with our team in improving our work performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. My immediate supervisor tries to convince us with new ideas or solutions related to work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My immediate supervisor thinks carefully before making decisions in the process of making judgments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My immediate supervisor encourages us to express our own opinions during discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. My immediate supervisor provides support with my professional development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. I have the desire to change and innovate in the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I'm willing to learn and try new things that could improve my performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I'm determined to face challenges and not be afraid of failure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I'm technically proficient in computer applications and operation methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I used to read journals and articles to update with the new trends related to nursing practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Process of innovation					
11. I have extensive knowledge regarding patient safety and evidence-based practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I'm familiar with the guidelines, policies, and regulations governing my performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I can find gaps or issues affecting my clinical practice and have keen observation and creative skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I don't always follow a routine and try new ideas or solutions to problems at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I constantly questioning the knowledge I've learned, often come up with my own unique insights	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I always solve problems in a systematic, organized, planned way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I'm actively participating in academic lectures, forums, conferences and professional groups on scientific research and innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I always apply the newly acquired knowledge to solve clinical problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environment and Pressure of Innovation					
19. There is a culture of innovation in the hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. The hospital has the support of relevant leaders towards innovation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. The hospital has offered training or courses focusing on innovation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. The hospital provides funding for scientific research and innovation projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. The hospital has a reward system for innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effectiveness of Innovation					
24. Innovative methods have been	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

applied to clinical practice					
25. Innovative products/technology are already in clinical use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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APPENDIX F

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Output of skewness and kurtosis calculation

```
Sample size: 403
Number of variables: 7

Univariate skewness and kurtosis

                Skewness SE_skew Z_skew Kurtosis SE_kurt Z_kurt
Idealized.attributes..IA.    -0.366  0.122 -3.014   -1.253  0.243 -5.166
Idealized.behavior..IB.     -0.342  0.122 -2.816   -0.863  0.243 -3.560
Individual.Consideration..IC. -0.321  0.122 -2.637   -0.804  0.243 -3.317
Inspirational.Motivation..IM. -0.490  0.122 -4.028   -1.236  0.243 -5.096
Intellectual.Stimulation..IS. -0.477  0.122 -3.926   -0.719  0.243 -2.966
Nurses.performance          -0.084  0.122 -0.691   -1.143  0.243 -4.714
innovation.capability       -0.314  0.122 -2.583   -1.070  0.243 -4.411

Mardia's multivariate skewness and kurtosis
      b          z    p-value
Skewness  3.805108 255.57642 0.0000000
Kurtosis  64.204254  1.07685 0.2815471
```

This link takes the software Hair et al. (2017) and Ngah et al. (2020) use to measure multivariate skewness and Kurtosis.

<https://webpower.psychstat.org/models/kurtosis/results.php?url=71acfc29d363927ad71e229819c9ac94>

APPENDIX G

