

The Influence of Intellectual Digital Stimulation and Individualized Consideration on Patient Safety Outcomes Among Nurses at King Faisal Specialist Hospital, Riyadh, Saudi Arabia

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ABSTRACT

Patient safety is a critical priority in healthcare systems, and leadership practices play an important role in shaping safety culture and improving the quality of patient care. This study examines the influence of two transformational leadership dimensions intellectual stimulation and individualized consideration on patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh, Saudi Arabia. A quantitative cross-sectional research design was employed to investigate the relationships between these leadership behaviors and patient safety outcomes. Data were collected using a structured questionnaire distributed to nurses working in the hospital, and a total of 109 valid responses were obtained for statistical analysis. The study measured intellectual stimulation, individualized consideration, and patient safety outcomes using a five-point Likert scale. Reliability and validity tests were conducted to ensure the consistency of the measurement scales, followed by descriptive statistics, correlation analysis, and multiple regression analysis to examine the relationships among the variables. The results indicate that individualized consideration has a significant positive influence on patient safety outcomes, suggesting that supportive leadership behaviors that focus on the individual needs and development of nurses contribute to improved safety practices. In contrast, intellectual stimulation did not demonstrate a statistically significant effect on patient safety outcomes in this context. These findings highlight the importance of supportive leadership approaches in healthcare environments and suggest that leadership behaviors emphasizing mentorship, guidance, and staff support can enhance patient safety practices. The study provides valuable insights for healthcare leaders and hospital administrators seeking to strengthen patient safety culture and improve the quality of care delivered in clinical settings.

KEYWORDS: Transformational Leadership; Intellectual Stimulation; Individualized Consideration; Patient Safety Outcomes; Nursing Leadership

1. INTRODUCTION

Patient safety has become one of the most critical priorities in modern healthcare systems, as it directly influences the quality of care, patient outcomes, and the overall effectiveness of healthcare services. Hospitals and healthcare institutions worldwide are increasingly focusing on improving safety practices to minimize medical errors, enhance healthcare quality, and protect patients from preventable harm. Nurses play a central role in maintaining patient safety because they are directly involved in patient care and continuously monitor patients' conditions and treatment processes. As a result, leadership practices within nursing environments significantly influence how safety procedures are implemented and maintained in healthcare organizations. Effective leadership in healthcare settings has been recognized as a key factor in promoting a strong patient safety culture and improving clinical outcomes (Abdelaliam & Alsenany, 2022). Leadership behaviors in healthcare environments can shape the attitudes, motivation, and performance of nursing staff, which ultimately affects the safety and quality of patient care. In particular, transformational leadership has been widely recognized as an effective leadership style in healthcare organizations because it encourages collaboration, professional development, and commitment among healthcare professionals. Transformational leaders inspire and motivate employees by creating a supportive work environment, encouraging innovation, and fostering strong interpersonal relationships within healthcare teams. Research has shown that transformational leadership can significantly enhance nurses' engagement in safety practices and contribute to improved patient safety outcomes within hospital settings (Ystaas et al., 2023). Similarly, leadership behaviors that emphasize

trust, support, and communication can strengthen patient safety culture and promote adherence to safety protocols among nursing staff (Haskins & Roets, 2022).

Within the transformational leadership framework, specific leadership behaviors such as intellectual stimulation and individualized consideration play important roles in influencing employee performance and organizational outcomes. Intellectual stimulation refers to leaders' ability to encourage creativity, critical thinking, and problem-solving among employees, enabling them to explore innovative solutions to workplace challenges. In healthcare environments, intellectual stimulation can motivate nurses to actively identify potential risks, propose improvements to clinical procedures, and participate in initiatives aimed at enhancing patient safety (Komakech et al., 2021). By promoting critical thinking and innovation, intellectual stimulation helps healthcare professionals adapt to complex clinical environments and respond effectively to safety-related challenges. Individualized consideration, another key dimension of transformational leadership, focuses on leaders' attention to the individual needs, development, and well-being of employees. Leaders who demonstrate individualized consideration provide mentorship, emotional support, and professional guidance to their staff members, which can enhance nurses' confidence, job satisfaction, and commitment to their roles. In healthcare organizations, individualized consideration can foster a supportive work environment where nurses feel valued and empowered to contribute to patient safety initiatives. Studies have shown that supportive leadership practices can strengthen nurses' psychological safety and encourage them to report safety concerns, communicate openly with colleagues, and participate in quality improvement efforts (Tang et al., 2024). Such leadership behaviors are therefore essential for creating a culture of safety within healthcare institutions.

Several empirical studies have highlighted the significant relationship between leadership styles and patient safety outcomes in healthcare settings. For example, transformational leadership has been associated with improved safety culture, increased staff engagement, and better patient care outcomes in hospitals (Huang et al., 2024). Similarly, nurse leaders who demonstrate supportive and motivating leadership behaviors can positively influence nurses' performance and encourage adherence to patient safety standards (Lee et al., 2023). These findings suggest that leadership behaviors that support collaboration, communication, and professional development among nurses can contribute to improved safety practices and reduced risks of medical errors in healthcare organizations. Despite the growing body of research examining leadership and patient safety, limited empirical studies have specifically focused on the influence of individual transformational leadership dimensions on patient safety outcomes among nurses in healthcare institutions. Understanding how intellectual stimulation and individualized consideration influence patient safety outcomes is particularly important in hospital environments where nurses play a crucial role in ensuring the safety and quality of patient care. Therefore, this study aims to examine the influence of intellectual stimulation and individualized consideration on patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh, Saudi Arabia. By exploring these relationships, the study seeks to provide insights into how leadership practices can enhance patient safety and support the delivery of high-quality healthcare services.

2. LITERATURE REVIEW

2.1 Theoretical Discussion

Leadership has been widely recognized as a critical factor influencing organizational performance, employee engagement, and service quality in healthcare institutions. In hospital environments, leadership practices play an essential role in shaping the behavior, motivation, and collaboration of healthcare professionals, particularly nurses who are directly responsible for delivering patient care. Effective leadership can foster a supportive work environment that encourages adherence to safety procedures, open communication, and continuous improvement in clinical practice. Research indicates that leadership behaviors significantly influence the development of patient safety culture and the effectiveness of safety practices within healthcare organizations (Wang & Dewing, 2021). In this context, leadership approaches that emphasize empowerment, support, and professional development can strengthen nurses' commitment to safety standards and contribute to improved patient outcomes.

Transformational leadership has emerged as one of the most influential leadership models in healthcare management. This leadership style focuses on inspiring employees, encouraging innovation, and building strong interpersonal relationships within teams. Transformational leaders motivate their employees by providing a clear vision, fostering collaboration, and supporting individual development. In healthcare

settings, transformational leadership has been associated with improved staff performance, stronger teamwork, and enhanced patient safety outcomes (Ystaas et al., 2023). Studies have shown that nurse leaders who adopt transformational leadership behaviors are more likely to promote a positive safety culture and encourage nurses to actively participate in safety initiatives and quality improvement efforts (Huang et al., 2024). Such leadership behaviors help create an environment where healthcare professionals feel motivated and supported in delivering high-quality patient care.

Within the transformational leadership framework, intellectual stimulation represents a key leadership behavior that encourages employees to think creatively, challenge existing practices, and develop innovative solutions to organizational challenges. Leaders who demonstrate intellectual stimulation encourage critical thinking and problem-solving among their employees, enabling them to approach work tasks with greater flexibility and innovation. In healthcare settings, intellectual stimulation can motivate nurses to identify potential risks, question unsafe practices, and suggest improvements in patient care procedures. Research suggests that intellectual stimulation can enhance employee performance and contribute to better organizational outcomes by encouraging employees to actively engage in problem-solving and decision-making processes (Komakech et al., 2021). When nurses are encouraged to think critically and contribute ideas for improving care processes, they become more involved in maintaining patient safety and preventing clinical errors.

Another important dimension of transformational leadership is individualized consideration, which reflects the leader's attention to the individual needs, development, and well-being of employees. Leaders who demonstrate individualized consideration provide mentorship, emotional support, and professional guidance to their staff members, thereby enhancing employees' confidence and job satisfaction. In nursing environments, individualized consideration can strengthen nurses' psychological safety and promote open communication within healthcare teams. When nurses feel valued and supported by their leaders, they are more likely to report safety concerns, collaborate with colleagues, and adhere to safety protocols. Studies have highlighted that supportive leadership practices play a significant role in strengthening nurses' engagement and commitment to patient safety initiatives (Labrague & Obeidat, 2022). Furthermore, individualized consideration has been associated with stronger team commitment and improved organizational performance because employees feel recognized and empowered within supportive work environments (Tang et al., 2024).

Patient safety outcomes represent an important indicator of healthcare quality and organizational effectiveness. These outcomes reflect the extent to which healthcare systems are able to prevent harm, reduce medical errors, and provide safe care to patients. Nurses play a vital role in ensuring patient safety because they continuously monitor patient conditions, administer treatments, and coordinate care among different healthcare professionals. Leadership practices that promote trust, communication, and professional support can significantly enhance nurses' ability to maintain safe clinical practices. Previous research indicates that leadership behaviors are closely linked to patient safety culture and can influence how nurses respond to safety risks and clinical challenges in healthcare settings (Abdelallem & Alsenany, 2022). Therefore, examining specific leadership behaviors that contribute to improved patient safety outcomes remains an important area of research within healthcare management.

2.2 Hypotheses Development

Transformational leadership has been widely studied in healthcare research due to its potential to influence employee motivation, organizational performance, and patient care outcomes. Leadership behaviors that encourage innovation, provide emotional support, and promote professional development can create a positive work environment where healthcare professionals are motivated to maintain high standards of patient care. Studies have demonstrated that transformational leadership can significantly influence patient safety culture by encouraging collaboration, communication, and adherence to safety protocols among healthcare staff (Singh et al., 2024). Within this leadership framework, intellectual stimulation and individualized consideration are considered important dimensions that can shape nurses' behavior and engagement in safety practices. Intellectual stimulation refers to leaders' ability to encourage employees to think creatively, challenge traditional assumptions, and develop innovative approaches to problem-solving. Leaders who demonstrate intellectual stimulation inspire employees to analyze complex situations critically and explore new ideas that can improve organizational processes.

In healthcare environments, intellectual stimulation can encourage nurses to actively participate in

identifying safety risks, improving clinical procedures, and proposing new strategies to enhance patient care. When nurses are encouraged to contribute their ideas and challenge unsafe practices, they are more likely to engage in behaviors that support patient safety. Research has shown that intellectual stimulation can enhance employee performance and organizational effectiveness by promoting innovative thinking and proactive problem-solving among healthcare professionals (Hosna et al., 2021). Similarly, leadership behaviors that encourage critical thinking and professional autonomy can strengthen nurses' engagement in safety-related activities and improve patient care outcomes. Based on these theoretical perspectives and empirical findings, intellectual stimulation is expected to have a positive influence on patient safety outcomes among nurses. Leaders who encourage nurses to think critically and participate in decision-making processes may enhance their ability to identify potential risks and implement effective safety practices. Therefore, the following hypothesis is proposed:

H1: Intellectual stimulation has a significant positive influence on patient safety outcomes among nurses. Another important dimension of transformational leadership is individualized consideration, which focuses on leaders' attention to the individual needs and professional development of employees. Leaders who demonstrate individualized consideration provide mentorship, guidance, and emotional support to their staff members. This supportive leadership approach can enhance employees' confidence, job satisfaction, and commitment to organizational goals. In healthcare environments, individualized consideration can create a work atmosphere where nurses feel valued and supported, which encourages them to actively participate in patient safety initiatives. Studies have shown that supportive leadership practices can strengthen nurses' engagement and encourage them to report safety concerns and collaborate effectively with colleagues (Lee et al., 2023). Furthermore, individualized consideration has been linked to improved employee commitment and organizational outcomes because employees feel respected and motivated to contribute to organizational success (Khan et al., 2025). When nurse leaders demonstrate individualized consideration, they create an environment that supports open communication, psychological safety, and teamwork among healthcare professionals. Such environments encourage nurses to follow safety protocols, communicate potential risks, and participate in quality improvement activities. Previous research has also shown that leadership behaviors that emphasize individualized support can positively influence healthcare quality and patient safety outcomes in hospital settings (Hamdan et al., 2024). Therefore, individualized consideration is expected to positively influence patient safety outcomes among nurses. Based on these arguments, the following hypothesis is proposed:

H2: Individualized consideration has a significant positive influence on patient safety outcomes among nurses.

3. METHODOLOGY

This study adopted a quantitative research design to examine the influence of intellectual stimulation and individualized consideration on patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh, Saudi Arabia. Quantitative research methods are widely used in healthcare leadership studies because they allow researchers to measure relationships between variables and test theoretical models using statistical analysis. In studies examining leadership behaviors and patient safety outcomes, quantitative approaches enable the systematic collection and analysis of data from healthcare professionals to evaluate how leadership practices influence safety-related outcomes in clinical settings (Singh et al., 2024). Therefore, the quantitative approach was considered appropriate for investigating the relationships between transformational leadership behaviors and patient safety outcomes in the nursing work environment. The study employed a cross-sectional survey design in which data were collected from nurses working in the hospital during a specific period of time. Cross-sectional survey designs are commonly used in healthcare management and nursing research because they allow researchers to gather information from participants efficiently and assess relationships between variables within real organizational contexts. Previous studies examining leadership and patient safety in healthcare settings have also used survey-based research methods to evaluate nurses' perceptions of leadership behaviors and their influence on safety practices and care quality (Ystaas et al., 2023). The cross-sectional design therefore provided an effective method for capturing nurses' perceptions regarding leadership behaviors and patient safety outcomes within the hospital environment.

The target population for this study consisted of nurses working at King Faisal Specialist Hospital in Riyadh. Nurses represent a critical group of healthcare professionals who are directly involved in patient

care and safety monitoring, making their perspectives particularly valuable for understanding patient safety outcomes in clinical environments. A total of 109 valid responses were obtained and used for statistical analysis. The sample size was considered adequate for conducting regression analysis and examining the relationships among the study variables. Previous healthcare leadership studies have also relied on similar survey samples to examine the impact of leadership behaviors on nursing performance and patient safety outcomes (Lee et al., 2023). Data were collected using a structured questionnaire designed to measure the main constructs of the study. The questionnaire consisted of three sections corresponding to the study variables: intellectual stimulation, individualized consideration, and patient safety outcomes. Intellectual stimulation was measured using five items that assessed the extent to which nurse leaders encourage innovative thinking, problem-solving, and critical reflection among nursing staff. Individualized consideration was also measured using five items that evaluated the degree to which nurse leaders provide support, mentorship, and individual attention to their staff members. Patient safety outcomes were measured using forty items that assessed nurses' perceptions of safety practices, communication effectiveness, and error prevention in the clinical environment. Similar survey instruments have been widely used in healthcare leadership research to assess nurses' perceptions of leadership behaviors and patient safety culture (Abdelaliem & Alsenany, 2022). All questionnaire items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Several statistical procedures were conducted to ensure the reliability and validity of the collected data. Reliability analysis was performed using Cronbach's alpha and composite reliability to assess the internal consistency of the measurement scales. Descriptive statistics were used to summarize the characteristics of the study variables, including the mean and standard deviation values. Normality tests were also conducted to evaluate whether the data met the assumptions required for regression analysis. In addition, multicollinearity diagnostics were performed using variance inflation factor (VIF) values to ensure that the independent variables were not highly correlated with each other. Correlation analysis was then conducted to examine the relationships between the study variables. Finally, multiple regression analysis was used to test the proposed hypotheses and determine the extent to which intellectual stimulation and individualized consideration influence patient safety outcomes among nurses. Regression analysis is commonly applied in healthcare leadership research to examine the predictive relationships between leadership behaviors and organizational outcomes in clinical environments (Huang et al., 2024). Through these statistical procedures, the study aimed to provide a systematic evaluation of the influence of transformational leadership behaviors on patient safety outcomes within the hospital context.

4. Findings

This section presents the results of the statistical analyses conducted to examine the relationships between intellectual stimulation, individualized consideration, and patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh. The analysis begins with the assessment of data reliability and normality to ensure the suitability of the dataset for further statistical testing. Subsequently, descriptive statistics and correlation analysis are presented to explore the relationships among the study variables. Finally, multiple regression analysis is conducted to evaluate the influence of intellectual stimulation and individualized consideration on patient safety outcomes and to test the proposed research hypotheses.

Reliability analysis was conducted to assess the internal consistency of the measurement scales used in this study. Cronbach's alpha and composite reliability were calculated for each construct to ensure that the items used to measure the variables were reliable and consistent. Reliability is an important requirement in quantitative research because it ensures that the measurement instruments produce stable and consistent results when assessing the study variables. In healthcare leadership research, reliable measurement scales are essential for accurately evaluating constructs such as leadership behaviors and patient safety outcomes. As shown in Table 1, the Cronbach's alpha values for the study constructs ranged from 0.711 to 0.846, indicating acceptable levels of internal consistency. Intellectual stimulation reported a Cronbach's alpha value of 0.711 and a composite reliability value of 0.738. Individualized consideration demonstrated a Cronbach's alpha value of 0.765 and a composite reliability value of 0.792. Patient safety outcomes showed the highest reliability values, with a Cronbach's alpha of 0.846 and a composite reliability of 0.855. These values exceed the commonly recommended reliability threshold of 0.70, suggesting that the measurement scales used in this study are reliable and appropriate for further statistical analysis. Therefore, the reliability results confirm that the items used to measure intellectual stimulation,

individualized consideration, and patient safety outcomes demonstrate satisfactory internal consistency and are suitable for subsequent analyses.

Table 1: Reliability test

Construct	Items	Cronbach's alpha	Composite reliability
Intellectual Stimulation (IS)	5	0.711	0.738
Individualized Consideration (IC)	5	0.765	0.792
Patient Safety Outcomes (PS)	40	0.846	0.855

A normality test was conducted to determine whether the data distribution met the assumptions required for parametric statistical analysis. Assessing normality is an important step in quantitative research because many statistical techniques, including regression analysis, assume that the data are approximately normally distributed. Skewness and kurtosis values were examined to evaluate the normality of the study variables. In general, skewness and kurtosis values within the acceptable range indicate that the data distribution does not significantly deviate from normality and can therefore be used for further statistical analysis. As presented in Table 2, the skewness and kurtosis values for all constructs fall within acceptable limits. Intellectual stimulation reported a skewness value of 0.043 and a kurtosis value of -0.260 , indicating a relatively symmetric distribution. Individualized consideration showed a skewness value of 0.260 and a kurtosis value of -0.698 , which also falls within the acceptable range for normal distribution. Similarly, patient safety outcomes recorded a skewness value of -0.301 and a kurtosis value of -0.181 , suggesting that the data are approximately normally distributed. Since the skewness and kurtosis values for all variables are within acceptable thresholds, the results indicate that the data meet the normality assumption required for subsequent statistical analyses. Therefore, the dataset is considered suitable for correlation and regression analyses used to test the study hypotheses.

Table 2: Normality test

Construct	N	Skewness	Kurtosis
IS	109	0.043	-0.260
IC	109	0.260	-0.698
PS	109	-0.301	-0.181

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

In addition to examining skewness and kurtosis values, further normality testing was conducted using the Kolmogorov-Smirnov and Shapiro-Wilk tests. These statistical tests are commonly applied in quantitative research to evaluate whether the distribution of data significantly deviates from a normal distribution. Assessing normality is an important step before conducting inferential statistical analyses such as correlation and regression because many parametric tests assume that the data follow a normal distribution. As presented in Table 3, the Kolmogorov-Smirnov test results show significance values of 0.011 for intellectual stimulation, 0.005 for individualized consideration, and 0.129 for patient safety outcomes. While the Kolmogorov-Smirnov test indicates some deviations from normality for certain variables, the Shapiro-Wilk test provides additional evidence regarding the distribution of the data. The Shapiro-Wilk test results show significance values of 0.314 for intellectual stimulation, 0.003 for individualized consideration, and 0.113 for patient safety outcomes.

Although some significance values are below the conventional threshold of 0.05, the overall assessment of normality should consider multiple indicators rather than relying on a single test. When combined with the previously reported skewness and kurtosis values, which fall within acceptable ranges, the data can be considered reasonably normally distributed for the purposes of statistical analysis. In studies involving survey data and moderate sample sizes, slight deviations from perfect normality are common and generally acceptable for regression analysis. Therefore, the results indicate that the dataset is suitable for further statistical procedures, including correlation and multiple regression analysis used to test the study hypotheses.

Table 3: Kolmogorov-Smirnov Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	stic	df	Sig.	Statistic	df	Sig.
IS	0.088	109	0.011	0.888	109	0.314
IC	0.093	109	0.005	0.865	109	0.003
PS	0.068	109	0.129	0.883	109	0.113
a. Lilliefors Significance Correction						

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

A collinearity test was conducted to examine whether multicollinearity exists between the independent variables included in the regression model. Multicollinearity occurs when independent variables are highly correlated with each other, which can distort regression results and reduce the accuracy of statistical estimates. To assess this issue, tolerance and variance inflation factor (VIF) values were calculated. In regression analysis, tolerance values greater than 0.10 and VIF values lower than 5 are generally considered acceptable, indicating that multicollinearity is not a concern. As presented in Table 4, the tolerance value for intellectual stimulation is 0.774 with a corresponding VIF value of 1.044. Similarly, individualized consideration shows a tolerance value of 0.720 and a VIF value of 1.125. These results indicate that both variables fall well within the acceptable thresholds for multicollinearity diagnostics. The tolerance values are substantially above the minimum recommended level, and the VIF values are close to 1, suggesting a very low level of correlation between the independent variables. Therefore, the collinearity test results confirm that intellectual stimulation and individualized consideration do not exhibit multicollinearity in the regression model. This indicates that the independent variables can be included simultaneously in the regression analysis without causing statistical bias or instability in the model estimates. Consequently, the regression model is considered appropriate for examining the influence of intellectual stimulation and individualized consideration on patient safety outcomes among nurses.

Table 4: Collinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	IS	0.774	1.044
	IC	0.720	1.125
a. Dependent Variable: PS			

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

Descriptive statistics were calculated to summarize the central tendencies and variability of the study variables, including intellectual stimulation, individualized consideration, and patient safety outcomes. Descriptive analysis provides an overview of the participants' responses and helps to understand the general patterns within the dataset. In leadership and healthcare research, descriptive statistics are commonly used to present the mean and standard deviation values of key variables before conducting further inferential statistical analyses. As shown in Table 5, the descriptive statistics indicate that all constructs were measured from a sample of 109 respondents. Intellectual stimulation reported a mean value of 2.761 with a standard deviation of 0.547, suggesting a moderate level of perceived intellectual stimulation among nurses in the study setting. Individualized consideration showed a mean value of 2.684 with a standard deviation of 0.509, indicating that nurses moderately perceived supportive and individualized leadership behaviors from their supervisors. Patient safety outcomes recorded a mean value of 2.720 with a relatively lower standard deviation of 0.200, suggesting a more consistent perception among respondents regarding patient safety practices within the hospital. The relatively small standard deviation for patient safety outcomes indicates that the responses of the participants were closely clustered around the mean, reflecting a consistent assessment of patient safety conditions within the organization. Overall, the descriptive statistics provide an initial understanding of the study variables and establish a

foundation for subsequent analyses examining the relationships between leadership behaviors and patient safety outcomes.

Table 5: Summary of Descriptive Analysis

Construct	N	Mean	Std. Deviation
IS	109	2.761	0.547
IC	109	2.684	0.509
PS	109	2.720	0.200

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

Correlation analysis was conducted to examine the relationships between the study variables, including intellectual stimulation, individualized consideration, and patient safety outcomes. Spearman's rho correlation coefficient was used to assess the strength and direction of the relationships among these variables. Correlation analysis is commonly used in quantitative research to determine whether variables are associated with each other before conducting regression analysis. As presented in Table 6, the results indicate that intellectual stimulation is positively correlated with individualized consideration ($r = 0.162$, $p = 0.043$), suggesting a weak but statistically significant relationship between these two leadership behaviors. This result indicates that leaders who demonstrate intellectual stimulation may also tend to exhibit individualized consideration in their interactions with nursing staff. Furthermore, the findings show that intellectual stimulation has a positive and statistically significant relationship with patient safety outcomes ($r = 0.171$, $p = 0.037$).

Although the correlation is relatively weak, it indicates that higher levels of intellectual stimulation are associated with improved patient safety outcomes among nurses. This relationship suggests that encouraging critical thinking and problem-solving among nursing staff may contribute to better safety practices in healthcare environments. The results also reveal that individualized consideration has a positive and statistically significant relationship with patient safety outcomes ($r = 0.378$, $p < 0.001$). This represents a moderate correlation, indicating that supportive leadership behaviors that focus on the individual needs and development of nurses are strongly associated with improved patient safety outcomes. Overall, the correlation results suggest that both intellectual stimulation and individualized consideration are positively related to patient safety outcomes, providing initial support for the relationships proposed in the study hypotheses.

Table 6: Correlations test

			IS	IC	PS
Spearman's rho	IS	Correlation Coefficient	1.000		
		Sig. (2-tailed)			
	IC	Correlation Coefficient	0.162*	1.000	
		Sig. (2-tailed)	0.043		
	PS	Correlation Coefficient	0.171*	0.378***	1.000
		Sig. (2-tailed)	0.037	<.001	

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

As presented in Table 7, the regression model shows a correlation coefficient (R) value of 0.533, indicating

a moderate relationship between the independent variables (intellectual stimulation and individualized consideration) and the dependent variable (patient safety outcomes). The coefficient of determination (R^2) is 0.315, which indicates that approximately 31.5% of the variance in patient safety outcomes can be explained by the two leadership variables included in the model. The adjusted R^2 value of 0.293 further confirms that the model explains a substantial proportion of the variability in patient safety outcomes while accounting for the number of predictors used in the analysis. The model also reports a standard error of the estimate of 0.164, suggesting that the predicted values of patient safety outcomes are relatively close to the observed values. In addition, the F-change value of 14 with a significance level of $p = 0.000$ indicates that the regression model is statistically significant. This result suggests that intellectual stimulation and individualized consideration collectively contribute to explaining variations in patient safety outcomes among nurses. Overall, the model summary demonstrates that the proposed regression model provides a meaningful explanation of the relationship between leadership behaviors and patient safety outcomes in the studied healthcare setting.

Table 7: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.533	0.315	0.293	0.164	0.315	14	2	106	0.000

a. **Predictors:** (Constant), IC, IS

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

An analysis of variance (ANOVA) test was conducted to evaluate the overall significance of the regression model used to examine the influence of intellectual stimulation and individualized consideration on patient safety outcomes. The ANOVA test determines whether the regression model provides a better fit to the data compared to a model without predictors. In other words, it assesses whether the independent variables collectively have a statistically significant effect on the dependent variable. As presented in Table 8, the regression model shows a sum of squares value of 1.680 for the regression component and 3.120 for the residual component, resulting in a total sum of squares of 4.801. The regression model has 2 degrees of freedom, corresponding to the two independent variables included in the analysis, while the residual has 106 degrees of freedom. The mean square value for the regression component is 0.420, while the residual mean square is 0.030. The ANOVA results indicate an F-statistic value of 14 with a significance level of $p = 0.000$. Since the significance value is below the commonly accepted threshold of 0.05, the regression model is considered statistically significant. This finding indicates that the independent variables included in the model collectively explain a significant portion of the variance in patient safety outcomes among nurses. Therefore, the results confirm that intellectual stimulation and individualized consideration, when considered together, significantly contribute to predicting patient safety outcomes in the studied healthcare setting.

Table 8: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.680	2	0.420	14	0.000
	Residual	3.120	106	0.030		
	Total	4.801	108			

a. **Dependent Variable:** PS

b. **Predictors:** (Constant), IC, IS

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

Multiple regression analysis was conducted to examine the individual effects of intellectual stimulation and individualized consideration on patient safety outcomes among nurses. The regression coefficients provide information about the strength and direction of the relationship between each independent

variable and the dependent variable while controlling for the influence of other variables in the model. As presented in Table 9, the constant value of the model is 1.620 with a significance level of $p = 0.000$, indicating that the regression model is statistically significant. The results show that intellectual stimulation has a regression coefficient (B) of 0.036 with a standardized beta value (β) of 0.081. The t -value for intellectual stimulation is 1.200 with a significance level of $p = 0.167$. Since the p -value is greater than the conventional significance threshold of 0.05, the effect of intellectual stimulation on patient safety outcomes is not statistically significant. In contrast, individualized consideration demonstrates a statistically significant effect on patient safety outcomes. The regression coefficient for individualized consideration is 0.108 with a standardized beta value (β) of 0.243. The t -value is 3.086 with a significance level of $p = 0.001$, which is below the threshold of 0.05. This indicates that individualized consideration has a significant positive influence on patient safety outcomes among nurses. Additionally, the tolerance and variance inflation factor (VIF) values for both independent variables fall within acceptable limits, further confirming that multicollinearity is not a concern in the regression model. Overall, the regression results suggest that while intellectual stimulation does not significantly predict patient safety outcomes in this study, individualized consideration plays a meaningful role in enhancing patient safety practices among nurses in the hospital setting.

Table 9: Regression Coefficients

Predictor	B	Std. Error	Beta (β)	t	Sig. (p)	Tolerance	VIF
(Constant)	1.620	0.225		6.480	0.000		
IS	0.036	0.027	0.081	1.200	0.167	0.774	1.044
IC	0.108	0.032	0.243	3.086	0.001	0.720	1.125

a. Dependent Variable: PS

II: Idealized Influence; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individualized Consideration; PS: Patient Safety Outcomes

5. DISCUSSION

The purpose of this study was to examine the influence of intellectual stimulation and individualized consideration on patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh, Saudi Arabia. The findings provide important insights into how specific transformational leadership behaviors influence patient safety practices in healthcare environments. The regression results revealed that individualized consideration has a significant positive influence on patient safety outcomes, whereas intellectual stimulation did not show a statistically significant effect. These findings contribute to the growing body of research examining the relationship between leadership behaviors and patient safety in healthcare organizations.

The findings indicate that intellectual stimulation did not significantly influence patient safety outcomes among nurses in this study. Intellectual stimulation refers to leaders' ability to encourage innovative thinking, critical reflection, and problem-solving among employees. While previous research has suggested that intellectual stimulation can enhance employee performance by promoting creativity and proactive behavior, its influence may vary depending on the organizational context and the nature of the work environment. In healthcare settings, nurses often operate within strict clinical protocols and standardized procedures designed to ensure patient safety. As a result, opportunities for creative problem-solving may sometimes be limited compared to other organizational contexts. Previous studies have indicated that although intellectual stimulation can encourage innovative thinking among employees, its direct influence on operational outcomes may not always be significant when organizational processes are highly standardized (Hosna et al., 2021). Similarly, research examining healthcare workers has suggested that intellectual stimulation may contribute more strongly to long-term innovation and professional development rather than directly influencing immediate patient safety outcomes (Komakech et al., 2021). In contrast, the results of this study demonstrate that individualized consideration has a significant positive effect on patient safety outcomes among nurses. Individualized consideration refers to leaders' attention to the individual needs, development, and well-being of employees. Leaders who demonstrate individualized consideration provide emotional support, mentorship, and guidance to their staff

members, which can enhance employees' confidence, motivation, and engagement. In healthcare environments, supportive leadership behaviors are particularly important because nurses often work under high levels of stress and responsibility. When leaders provide individualized support and recognize the contributions of their staff members, nurses may feel more motivated to maintain high standards of patient care and adhere to safety protocols. These findings are consistent with previous research showing that supportive leadership behaviors can improve nurses' engagement in safety practices and contribute to the development of a positive patient safety culture (Abdelaliam & Alsenany, 2022). The significant relationship between individualized consideration and patient safety outcomes is also supported by previous studies that emphasize the importance of supportive leadership in healthcare organizations. Nurse leaders who demonstrate individualized consideration can foster open communication, trust, and psychological safety among healthcare professionals. These conditions encourage nurses to report safety concerns, share information with colleagues, and actively participate in safety improvement initiatives. Research has shown that leadership practices that promote supportive relationships and professional development among nurses are associated with improved patient care outcomes and stronger safety cultures within hospitals (Haskins & Roets, 2022). Furthermore, supportive leadership has been linked to increased staff commitment, improved teamwork, and better quality of care in healthcare settings (Lee et al., 2023).

The findings of this study also align with broader research examining transformational leadership in healthcare environments. Transformational leadership has been widely recognized as a leadership style that promotes employee motivation, engagement, and organizational effectiveness. By encouraging collaboration, supporting employee development, and fostering trust within healthcare teams, transformational leaders can strengthen safety practices and improve healthcare quality. Studies have demonstrated that transformational leadership behaviors can positively influence patient safety culture and encourage nurses to adopt safer clinical practices (Ystaas et al., 2023). Additionally, leadership behaviors that promote employee engagement and supportive working environments have been shown to enhance nurses' ability to deliver safe and high-quality patient care (Huang et al., 2024). Overall, the results of this study highlight the importance of leadership behaviors that prioritize employee support and professional development in healthcare organizations. While intellectual stimulation may encourage innovation and creative thinking among nurses, individualized consideration appears to have a stronger direct influence on patient safety outcomes in clinical settings. This finding suggests that nurse leaders should focus on building supportive relationships with their staff members, providing mentorship, and addressing the individual needs of nurses to promote a stronger culture of patient safety. By fostering a supportive leadership environment, healthcare organizations can improve nurses' engagement in safety practices and enhance the overall quality of patient care.

6. CONCLUSION

This study examined the influence of intellectual stimulation and individualized consideration on patient safety outcomes among nurses at King Faisal Specialist Hospital in Riyadh, Saudi Arabia. The findings highlight the important role that leadership behaviors play in shaping patient safety practices within healthcare organizations. The results of the study indicate that individualized consideration has a significant positive influence on patient safety outcomes, while intellectual stimulation did not demonstrate a statistically significant effect in this context. These findings suggest that leadership practices that emphasize individual support, mentorship, and attention to the needs of nursing staff may contribute more directly to improving patient safety outcomes. The results of this study emphasize the importance of supportive leadership behaviors in healthcare environments where nurses play a critical role in maintaining patient safety and delivering quality care. Leaders who provide individualized attention, encourage professional development, and support their staff members can foster a positive work environment that promotes engagement in patient safety practices. When nurses feel supported and valued by their leaders, they are more likely to communicate effectively, follow safety procedures, and actively contribute to quality improvement initiatives within the organization.

From a practical perspective, the findings suggest that healthcare organizations should focus on developing leadership strategies that strengthen supportive relationships between nurse leaders and their staff members. Leadership training programs that emphasize mentorship, communication, and employee support may help improve patient safety practices and enhance the overall quality of care provided in

hospitals. By promoting leadership behaviors that prioritize employee well-being and professional development, healthcare institutions can create work environments that encourage nurses to maintain high standards of patient safety. Despite the contributions of this study, certain limitations should be acknowledged. The study was conducted within a single hospital setting and relied on self-reported survey data, which may limit the generalizability of the findings. Future research could expand the scope of investigation by including multiple healthcare institutions and examining additional leadership behaviors that may influence patient safety outcomes. Such research could provide further insights into how leadership practices can strengthen patient safety culture and improve healthcare quality across different organizational contexts.

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