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## THE EFFECT OF INTERPROFESSIONAL COLLABORATION AND TRANSFORMATIONAL LEADERSHIP ON PATIENT SAFETY WITH WORK MOTIVATION AS INTERVENING VARIABLES

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### ABSTRACT

The purpose of this study was to obtain empirical evidence of the role of work motivation in mediating the relationship between interprofessional collaboration and transformational leadership on patient safety in inpatient installations using a cross-sectional study design. Moreover, make 250 inpatient installation nurses with civil servant status as the unit of analysis. The study's results prove that interprofessional collaboration and transformational leadership positively and significantly affect work motivation and patient safety. Work motivation has a positive and significant direct effect on patient safety, and work motivation has a positive role in mediating interprofessional collaboration and transformational leadership on patient safety. The importance of patient safety culture will be of value to hospital performance in patients' eyes so that maximum results are formed on implementing patient safety culture. Not only talking about the effectiveness of interprofessional collaboration and transformational leadership of the head of the room but the importance of implementing work motivation in the form of encouragement to nurses. Will create satisfaction that impacts the effectiveness of interprofessional collaboration and transformational leadership in improving patient safety culture in inpatient installations.

**Keywords:** Interprofessional collaboration, Transformational leadership, Work motivation, Patient safety

## INTRODUCTION

Because the Covid-19 pandemic became a major epidemic that hit the world at the end of 2019, and Indonesia was one of the countries affected by the pandemic, hospitals and health workers became facilitators in dealing with these cases and attempting to provide health services for sufferers in the Covid-19 pandemic era. According to a survey conducted by the medical faculty of the University of Indonesia on the subject of health workers during the pandemic, 83 percent of health workers in Indonesia are experiencing work stress syndrome at moderate to high levels, and 41 percent are experiencing moderate to severe emotional fatigue. Additionally, 22 percent have lost empathy, and 52 percent have a moderate to severe lack of self-confidence. From our point of view, the percentage of health workers who experience work stress clearly shows that as many as 83 percent have work stress syndrome. Handling health cases for patients in hospitals is hazardous because work stress causes health workers to lose concentration and accuracy in providing safe services, with the most significant impact being patient safety (Halbesleben et al., 2012).

The problem of patient safety is a complex thing to implement because patient safety is related to the concept of clinical governance, which seeks to provide quality medical services by prioritizing patient safety standards. This concept will organize health professionals to deliver quality medical services, safe and focused on patient safety (Gottwald & Lansdown, 2014). Patient safety is a governance system that makes patient care in hospitals safer. This system prevents injuries due to errors in providing health services through action or not taking action. Moreover, patient safety is related to a culture of openness, fairness, reporting, learning, and information between sections (Donaldson et al., 2021).

Concerning the ability of health workers to provide safe services and focus on patient safety, expertise in the world of nursing is needed, namely professional international collaboration (Montano, 2021). Interprofessional collaboration involves various professional healthcare providers working with patients, families, caregivers, and communities to consider and communicate each other's unique perspectives in providing the highest quality care. The measurement of interprofessional collaboration is based on the ability to establish partnerships, cooperation, coordination, and joint decision-making (Slusser et al., 2018). It further said that interprofessional collaboration comprises health workers from different professional backgrounds providing comprehensive services. The interprofessional collaborative model of health care delivery is essential to increase access to patient-centered health care (Thomas et al., 2014).

In addition, efforts to form nurses who can implement a patient safety culture require a transformational leader who can become an agent of change and bring his members across boundaries without violating applicable norms to help the organization achieve its goals (Seljemo et al., 2020). Transformational leadership is often defined by its impact on how leaders strengthen attitudes of cooperation and trust, collective self-efficacy, and team learning (Yukl & Gardner, 2019). Transformational leaders make followers more aware of the importance and value of work and persuade followers not to put personal interests above the organization. Transformational leadership relates to how leaders pay attention to the development needs of individual followers and problems by helping them look at old problems in new ways. Furthermore, they can excite, excite, and inspire followers to expend extra effort to achieve group goals (Shields & Hesbol, 2020).

A transformational leader is identical to the character (1) Idealized influence. A leader's behavior provides a vision and mission, creates a sense of pride, and gains the respect and trust of subordinates. (2) Inspirational motivation. It is the behavior of a leader who can communicate high expectations, attractively convey a shared vision and inspire subordinates to achieve goals that result in substantial progress for the organization. (3) Intellectual stimulation. A leader's behavior can increase subordinates' intelligence to increase their subordinates' creativity and innovation, increase rationality and solve problems carefully. (4) Individualized consideration. It is the behavior of a leader who gives personal attention and treats each subordinate individually as an individual with different needs, abilities, and aspirations, as well as training and providing advice (Robbins, 2016).

To encourage the creation of effective interprofessional collaboration and the effectiveness of transformational leadership, carried out by the head of the room in a nursing organization, a work motivation is needed that will encourage the effectiveness of these two aspects in presenting nursing care that focuses on patient safety culture (Espinoza et al., 2018). Motivation is a process that describes the intensity, direction, and persistence of individuals to achieve their goals (Robbins & Judge, 2017). Supporting Robbins and Judge's opinion, it is said that with work motivation, a person can generate, direct and maintain behavior related to the work environment (Reeve, 2015). Herzberg put forward the fundamental component of work motivation on the two-factor theory. Individual work motivation is based on intrinsic factors, which are impulses from within the individual that make him want to work. Some aspects are responsibility, progress, interest, achievement, and recognition. The next factor is the extrinsic factor which is a work motivation that comes from outside the individual who is related to the context of his work, several aspects of which are company policies, working conditions, compensation, interpersonal relationships, and quality of supervision.

The problems faced by a regional general hospital in Serang district are about the dynamics of service quality that occurred in the 2020 period. The following can be seen as the problems faced by the hospital regarding the dynamics of the quality of inpatient care installation nurses:

**Table 1. Dynamics of Service Quality in Inpatient Rooms for the 2020 Period**

| Case  | Amount     |
|---|------------|
| Nosocomial infection  | 53         |
| Delay in changing intravenous fluids  | 19         |
| Near injury incident  | 21         |
| Delay in handling patients in the inpatient room that causes death          | 7          |
| Delay in the discharge of inpatients  | 19         |
| Complaints about the friendliness of service by patients                    | 43         |
| Complaints about food delays for inpatients                                 | 19         |
| Information delays in the availability of inpatient rooms, so patients wait | 8          |
| Incidents of patients falling in the inpatient room                         | 5          |
| Error writing prescription not according to formulary                       | 7          |
| <b>Total Cases</b>  | <b>201</b> |

Source: Internal Hospital, 2020

Each case in the table indicates a problem regarding work motivation. The possibility faced is the severity of the risks faced in that year because they were in the

covid-19 pandemic. It was not comparable to what they received from the organization as a reward. Even if the organization can provide the best support to nurses, it will be a driving force for them to provide nursing care that focuses on patient safety (Chaghari et al., 2017; Moon et al., 2022; Zeller et al., 2021).

From the table, it can be seen that the problem of patient safety through the delivery of nursing services is a serious problem, where 201 cases were occurring throughout 2020. When referring to the ability of individuals to work together or collaborate with other departments, the 201 cases that occurred illustrate a Weakness. If interprofessional collaboration is done well, patient safety management can be implemented (Abdurrouf & Pandin, 2021; Busari et al., 2017; Hennis et al., 2021). Moreover, if interprofessional collaboration can be implemented effectively, it will be an impetus for nurses to provide effective nursing care (Dongen et al., 2016; Nygren et al., 2021; Visser et al., 2020; Yune et al., 2020). Because of the ability to work together, individuals can avoid fatal work risks in a safe and quality health delivery system (Campo et al., 2018).

In addition, it can be seen in the table that several unexpected events repeatedly occurred during the 2020 period. These incidents should not be repeated if the head of the room can form integrated risk management so that his charisma will have an impact on increasing work motivation. The nurse's work pattern will be more intense in checking things that can cause unexpected events (Boamah & Tremblay, 2019; Collins et al., 2020; Gülkaya & Duygulu, 2020; McCaffrey & Reinoso, 2017). The importance of transformational leaders in health organizations is to prevent unexpected events. The basic concept of transformational leaders will come down directly to finding out the obstacles for their members so that they make operational errors. Moreover, their charismatic spirit can influence the work patterns of their members towards improvement. Capable of delivering nursing care that focuses on patient safety (Khan & Tidman, 2021; Mistry et al., 2020; Seljemo et al., 2020; Tangatarova & Gao, 2021).

From some of the previous studies above, there seems to be no integration in a study on interprofessional collaboration, transformational leadership, and work motivation that can affect patient safety, so this research is a novelty. The problems regarding the dynamics of service quality above indicate problems regarding patient safety. The ineffectiveness of interprofessional collaboration systems causes it. Moreover, transformational leadership and nurses lack solid work motivation in providing services that focus on patient safety. So on that basis, this study aims to empirically reveal the effect of interprofessional collaboration and transformational leadership on patient safety with work motivation as a mediator.

Interprofessional collaboration involves various professional healthcare providers working with patients, families, caregivers, and communities to consider and communicate each other's unique perspectives in providing the highest quality care. The measurement of interprofessional collaboration is based on the ability to establish partnerships, cooperation, coordination, and joint decision-making (Slusser et al., 2018). The description above describes a causal relationship, where interprofessional collaboration will make patient care efforts easier for nurses to carry out because there is a collaboration that seeks to prevent nurses from making mistakes. With this cooperative system, nurses will be more eager to provide effective nursing care. Several relevant studies have proven that interprofessional collaboration can increase work motivation (Dongen et al., 2016; Nygren et al., 2021; Visser et al., 2020; Yune et al., 2020), so it can be assumed that the research hypothesis:

#### H1: Interprofessional collaboration affects work motivation

The degree to which a leader is called transformational. It is mainly measured in terms of the effect of leadership on followers. Followers of a transformational leader feel trust, admiration, loyalty, and respect for the leader, and followers are motivated to do more than initially expected (Yukl & Gardner, 2019).

The opinion above defines a situation, whereas a leader, the head of the room, will be a nurse's role model, as evidenced by trust, admiration, and loyalty. The head of the room has prepared by supporting the achievement of organizational goals through the implementation of the mission. Several relevant studies have proven that transformational leadership can increase work motivation (Boamah & Tremblay, 2019; Collins et al., 2020; Glkaya & Duygulu, 2020; McCaffrey & Reinoso, 2017), so it can be assumed the research hypothesis:

#### H2: Transformational leadership affects work motivation

Patient safety is a governance system that makes patient care in hospitals safer. This system prevents injuries due to errors in providing health services through action or not taking action. Patient safety is related to a culture of openness, fairness, reporting, learning, and information between sections (Donaldson et al., 2021).

The description clearly illustrates that interprofessional collaboration seeks to combine the abilities of health workers with different backgrounds. It will further ease the work between departments because, in interprofessional collaboration, each with a different educational background will be responsible for aspects of patient health and inform each other. Following the science, that patient safety can be guaranteed. It has been proven through research (Abdurrouf & Pandin, 2021; Busari et al., 2017; Hennis et al., 2021) that interprofessional collaboration has a positive and significant effect on patient safety, so it can be assumed that research hypothesis:

#### H3: Interprofessional collaboration affects patient safety

Transformational leadership relates to how leaders pay attention to the development needs of individual followers and problems by helping them look at old problems in new ways. Moreover, they can excite, excite, and inspire followers to expend extra effort to achieve group goals (Shields, 2016).

The theory clearly explains that the primary goal of transformational leaders is to change old work patterns towards new, better work patterns by relying on innovation and accuracy to avoid mistakes in delivering services so that patients are safe in their nursing care. Furthermore, it has been empirically proven that Transformational leadership influence can improve nurses' ability to implement patient safety (Khan & Tidman, 2021; Mistry et al., 2020; Seljemo et al., 2020; Tangatarova & Gao, 2021). So, it can be assumed that the research hypothesis:

#### H4: Transformational leadership affects patient safety

Motivation is a process that describes the intensity, direction, and persistence of individuals to achieve their goals (Robbins & Judge, 2017). A person's work motivation can generate, direct and maintain behavior related to the work environment (Reeve, 2015).

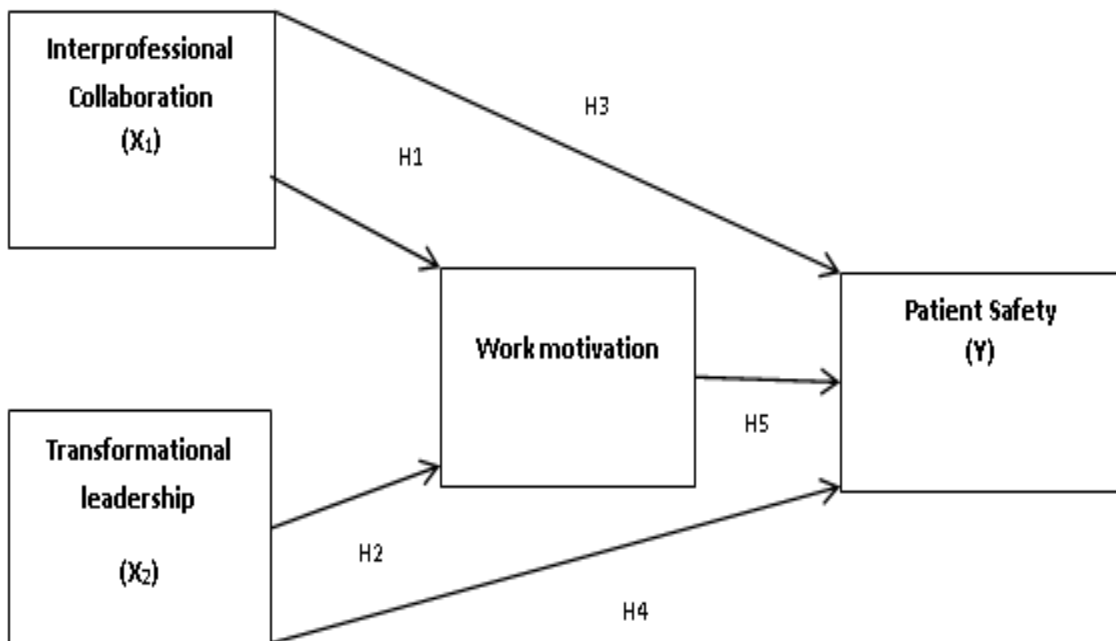
The opinion above means that with his work motivation, someone in the organization can provide outstanding work results because his work motivation encourages the individual to make maximum sacrifices to help achieve organizational

goals. So the work motivation of nurses will bring them to be able to implement a patient safety culture in their nursing care. Several relevant studies have shown that work motivation can lead to an increase in patient safety culture (Chaghari et al., 2017; Moon et al., 2022; Zeller et al., 2021), so it can be assumed that the research hypothesis:

H<sub>5</sub>: Work motivation affects patient safety.

## METHOD

This type of research is included in quantitative research using statistically valid numbers to measure the causal relationship between exogenous and endogenous variables, with the research design included in the cross-sectional study. This study consists of 2 endogenous variables: interprofessional collaboration (X<sub>1</sub>) and transformational leadership (X<sub>2</sub>). Whose effect will be measured on the exogenous variable, namely patient safety (Y), and will also analyze the mediating effect of work motivation on interprofessional collaboration and transformational leadership on patient safety. The following is a constellation of research that describes the research flow:



**Figure 1. Research Constellation**

Source: Data Processed

This research was conducted at a regional general hospital in Serang district, type C, with an analysis unit of inpatient installation nurses with civil servant status with a population of 681 personnel. Sampling was carried out using a purposive sampling technique in which only nurses in inpatient installations with the status of civil servants were used as samples. The sample calculation uses the solving formula with an error rate of 5% with the following calculation:

$$n = \frac{N}{1 + Ne^2}$$

The calculation results are worth 249.91, and the number of research samples is determined to be 250 respondents. It concluded that the sample used is 250 respondents

with the probability sampling method, where all populations have the same opportunity to be respondents. The distribution is done randomly without any specific classification.

The data used in this study were sourced directly from respondents, with the type of data included in primary data. This study consists of 2 exogenous variables: interprofessional collaboration ( $X_1$ ) and transformational leadership ( $X_2$ ). One intervening variable, namely work motivation ( $Z$ ), and one exogenous variable, namely patient safety ( $Y$ ), will be measured in the form of a questionnaire using a Likert scale points 1 – 5.

**Table 2. Quality Interval Three Box Method**

| Index           | Category  | Code |
|-----------------|-----------|------|
| 50 – 116.67     | Low       | L    |
| 116.68 – 183.34 | Currently | M    |
| 183.35 – 250    | High      | H    |

Source: Ferdinand, 2014

This study uses path analysis in answering the research hypothesis and is also supported by a causality test with a significance level of 5%, as well as a determination test that will reveal the ability of exogenous variables to contribute to endogenous variables.

## RESULTS

### Respondent Profile

Based on data collection results through surveys, the highest number of respondents was female at 65.62%, and the lowest was male with a percentage of 34.8%. In respondents based on age, it is known that the highest number is in the range of 26-35 years with a percentage of 39%. Furthermore, the lowest is in the age range of 46-55 years with a percentage of 9%. For respondents based on years of service, it is known that the highest number is in the range of 6-10 years with a percentage of 35%. Moreover, the lowest is in the range of tenure of <1 year with a percentage of 0%. Based on salary/month, the highest number of respondents ranged from 3 -5 million with a percentage of 44%, and the lowest was in the range > 9 million with a percentage of 8%. In respondents based on the last education, the highest was S1 with 58%. In contrast, the lowest was in the last education, Ph.D., with a percentage of 0%.

### Description of Research Instruments

The following is the Research Instrument Analysis Matrix:

**Table 3. Research Instrument Analysis Matrix**

| Variable                        | Description | Score  |
|---------------------------------|-------------|--------|
| Interprofessional collaboration | H           | 185,87 |
| Transformational leadership     | H           | 184,5  |
| Work motivation                 | H           | 195,5  |
| Patient safety                  | H           | 185,1  |

Source: Data processed

Based on the table above, it is known that interprofessional collaboration is at a high index. Nurses' perceptions of interprofessional collaboration in handling hospital patients are effectively established. The transformational leadership variable is in the high category, which means that the nurse's perception of the effectiveness of the head nurse as an agent of change in inpatient installations runs effectively. The work motivation variable is at a high index, meaning that nurses consider the organizational support provided by management to motivate them in carrying out their duties in inpatient installations. Patient safety is at a high index, which means that nurses can implement a patient safety culture well in inpatient installations.

### Hypothesis testing

Path analysis was carried out at the hypothesis testing stage with the help of the SPSS 2.1 program. Following is the summary of the path analysis results, which are divided into substructures 1 and 2:

**Table 4. Analysis of Sub Structure 1**

| Equality     | Coefficient | t-test       | Ad RSquare | Information             |
|--------------|-------------|--------------|------------|-------------------------|
| $\rho_{zx1}$ | 0,786       | 0,000 < 0,05 | 0,831      | H <sub>1</sub> Accepted |
| $\rho_{zx2}$ | 0,171       | 0,000 < 0,05 |            | H <sub>2</sub> Accepted |

Source: Data processed

Simultaneous path analysis results show that  $\rho_{zx1}=0.786$  and  $\rho_{zx2}=0.171$ , which means that interprofessional collaboration and transformational leadership are simultaneously increased by 1 unit. At the same time, work motivation will increase by 0.786 through interprofessional collaboration and 0.171 through transformational leadership. The simultaneous significance test shows a comparison of probability values of  $0.000 < 0.05$ , which means that interprofessional collaboration and transformational leadership have a significant direct effect on work motivation and are included in the H<sub>1</sub> acceptance category.

The partial significance test knew that the effect of X<sub>1</sub> on Z has a probability value comparison of  $0.000 < 0.05$ , which means that interprofessional collaboration has a significant direct effect on work motivation and is included in the H<sub>2</sub> acceptance category. In the test of the significance of the effect of X<sub>2</sub> on Z, it is known that the comparison of probability values is  $0.000 < 0.05$ , which means that transformational leadership has a significant direct effect on work motivation, which is included in the acceptance of H<sub>3</sub>. The determination test shows a coefficient of determination of 0.831, which means that interprofessional collaboration and transformational leadership contribute 83.1% to increasing work motivation. The residual value was obtained through the following calculation:  $\epsilon = \sqrt{1 - 0,831} = 0,411$ . The residual value means that there are other factors outside the research variables that can increase work motivation by 0.411, so the path equation is found:  $0,786(X_1)+0,171(X_2)+0,411(\epsilon_1)$ .

**Table 5. Analysis of Sub Structure 2**

| Equality     | Coefficient | t-test       | Ad RSquare | Information             |
|--------------|-------------|--------------|------------|-------------------------|
| $\rho_{yx1}$ | 0,310       | 0,000 < 0,05 | 0,797      | H <sub>3</sub> Accepted |
| $\rho_{yx2}$ | 0,164       | 0,000 < 0,05 |            | H <sub>4</sub> Accepted |
| $\rho_{yz}$  | 0,477       | 0,000 < 0,05 |            | H <sub>5</sub> Accepted |

Source: Data processed



Simultaneous path analysis results show that  $\rho_{yx1}=0,310$ ,  $\rho_{yx2}=0,164$ , and  $\rho_{yz}=0,477$ , which means that if interprofessional collaboration, transformational leadership. Moreover, work motivation is simultaneously increased by 1 unit. Patient safety will increase by 0.310 through interprofessional collaboration, 0.164 through transformational leadership, and 0.477 through work motivation. The simultaneous significance test shows a comparison of probability values of  $0.000 < 0.05$ , which means that interprofessional collaboration, transformational leadership, and work motivation have a significant direct effect on patient safety and are included in the acceptance category  $H_4$ .

The partial significance test is known that the effect of  $X_1$  on  $Y$  has a probability value comparison of  $0.000 < 0.05$ , which means that interprofessional collaboration has a significant direct effect on patient safety and is included in the  $H_5$  acceptance category. In the test of the significance of the effect of  $X_2$  on  $Y$ , it is known that the comparison of probability values of  $0.000 < 0.05$ , which means that transformational leadership has a significant direct effect on patient safety, is included in the acceptance category of  $H_6$ . In the significance test of the effect of  $Z$  on  $Y$ , it is known that the comparison of probability values of  $0.000 < 0.05$ , which means that work motivation has a significant direct effect on patient safety, is included in the acceptance category of  $H_7$ . The determination test shows a coefficient of 0.797, which means that interprofessional collaboration, transformational leadership, and work motivation contribute as much as 79.7% to improving patient safety. The residual value was obtained through the following calculations:  $\epsilon^2 = \sqrt{1 - 0,797} = 0,451$ . This value illustrates that there are other factors outside the research variables that can increase patient safety by 0.451, so the path equation is found:  $0,310(X_1)+0,164 (X_2)+0,477(Z)+0,451(\epsilon^2)$ .

**Table 6. Indirect Effect**

| Equality                      | Coefficient |
|-------------------------------|-------------|
| $\rho_{zx1} \times \rho_{yz}$ | 0,374       |
| $\rho_{zx2} \times \rho_{yz}$ | 0,082       |

Source: Data processed

Work motivation can positively mediate the interprofessional collaboration relationship to patient safety by 0.374. Work motivation can positively mediate the interprofessional collaboration relationship to patient safety by 0.374.

**Table 7. Total Effect**

| Equality                                   | Coefficient |
|--|-------------|
| $\rho_{yx1}+(\rho_{zx1} \times \rho_{yz})$ | 0,684       |
| $\rho_{yx2}+(\rho_{zx2} \times \rho_{yz})$ | 0,246       |

Source: Data processed

Interprofessional collaboration can increase patient safety by 0.684. If first through work motivation and more significant than if interprofessional collaboration directly affects patient safety ( $0.684 > 0.310$ ). Transformational leadership can increase patient safety by 0.246 if first through work motivation and is more significant than if transformational leadership directly affects patient safety ( $0.246 > 0.164$ ).

### **The Effect of Interprofessional Collaboration on Work Motivation**

The analysis results conclude that interprofessional collaboration has a positive and significant direct effect on work motivation, as evidenced by the path coefficient

$\rho_{zx1} = 0.786$  and the comparison of probability values of  $0.000 < 0.05$ . It means that if one unit increases interprofessional collaboration, it will impact work motivation by 0.786. These results align with previous research (Dongen et al., 2016; Nygren et al., 2021; Visser et al., 2020; Yune et al., 2020) that interprofessional collaboration can significantly increase work motivation.

These results reveal the suitability of the three-box method analysis where interprofessional collaboration and work motivation are at a high index. It means that when interprofessional collaboration based on partnership, cooperation, coordination, and joint decision-making runs effectively, it will motivate nurses to carry out their duties in inpatient installations. This result proved that there is the theory that Interprofessional collaboration is the collective involvement of various professional healthcare providers. In comparison, they were working with patients, families, caregivers, and communities to consider and communicate each other's unique perspectives in providing the highest quality care and the measurement of interprofessional collaboration based on the ability to establish partnerships, cooperation, coordination, and joint decision making (Slusser et al., 2018). It means that with an interprofessional cooperation system that controls their respective fields, there is effective communication in solving the obstacles for nurses to deliver excellent service. Then with this communication, nurses will feel more compelled to provide the best service for patients in inpatient installations.

### **The Effect of Transformational Leadership on Work Motivation**

The analysis results conclude that transformational leadership has a positive and significant direct effect on work motivation, as evidenced by the path coefficient  $\rho_{zx2} = 0,171$  and the comparison of probability values of  $0.000 < 0.05$ . It means that if transformational leadership is increased by one unit, it will impact work motivation by 0.171. These results align with previous research (Boamah & Tremblay, 2019; Collins et al., 2020; Gülkaya & Duygulu, 2020; McCaffrey & Reinoso, 2017) that transformational leadership can significantly increase work motivation.

These results reveal the suitability of the three-box method analysis where transformational leadership is at a high index. It means that the unit head's leadership pattern can become an agent of change that effectively implements idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, which motivate nurses to carry out their duties in inpatient installations. This result reveals the theory's truth, which states that transformational leadership is related to how leaders pay attention to the development needs of each follower and their problems by helping them look at old problems in new ways. They can excite, arouse, and inspire followers to put extra effort into achieving group goals (Shields, 2016). With his charismatic attitude, the head nurse gives individual attention to nurses to recognize the obstacles they face in providing care to patients in inpatient installations. Then with individual attention, it will be a power for nurses to be able to provide care—the best dedication to patient's health.

### **The Effect of Interprofessional Collaboration on Patient Safety**

The analysis results conclude that interprofessional collaboration has a positive and significant direct effect on patient safety, as evidenced by the path coefficient  $\rho_{yx1} = 0,310$  and the comparison of probability values of  $0.000 < 0.05$ . It means that if one unit increases interprofessional collaboration, it will impact patient safety by 0.310. These results align with previous research (Abdurrouf & Pandin, 2021; Busari et al.,

2017; Hennis et al., 2021) that interprofessional collaboration can improve patient safety.

These results reveal the suitability of the three-box method analysis, where interprofessional collaboration and patient safety are at a high index. It means that when interprofessional collaboration is based on establishing partnerships, cooperation, coordination, and joint decision-making runs effectively. It will make nurses improve patient safety culture, where they will prioritize a culture of openness, fairness, reporting, learning, and information in delivering health services to patients as the implementation of patient safety culture in inpatient installations.

These results reveal the theory's truth, which states that patient safety is a governance system that makes patient care in hospitals safer. This system prevents injuries due to errors in providing health services through action or not taking action. Patient safety is related to a culture of openness, fairness, reporting, learning, and information between sections (Donaldson et al., 2021). It means that as health workers are more in contact with patients, nurses are at greater risk of being exposed to diseases patients suffer. With interprofessional communication, nurses will get solutions to these threats in serving patients so that these threats can be minimized based on inputs. From interprofessional and patient safety, culture can still be realized even in conditions where nurses have a risk of exposure to the disease suffered by the patient.

### **The Effect of Transformational Leadership on Patient Safety**

The analysis results conclude that transformational leadership has a positive and significant direct effect on patient safety, as evidenced by the path coefficient  $\rho_{yx2} = 0,164$  and the comparison of probability values of  $0.000 < 0.05$ . It means that if transformational leadership is increased by one unit, it will impact patient safety by 0.164. These results align with previous research (Khan & Tidman, 2021; Mistry et al., 2020; Seljemo et al., 2020; Tangatarova & Gao, 2021). Transformational leadership can improve patient safety.

These results reveal the suitability of the three-box method analysis, where transformational leadership and patient safety are at a high index. It means that the head of the room can become an agent of change that effectively implements idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Thus nursing can improve patient safety culture, where they will prioritize a culture of openness, fairness, reporting, learning, and information in delivering health services to patients as the implementation of patient safety culture in inpatient installations.

These results reveal the theory's truth, which states that transformational leadership relates to how leaders pay attention to the development needs of individual followers and problems by helping them look at old problems in new ways. They can excite and inspire followers to expend extra effort to achieve group goals (Shields, 2016). It means that the transformational head of the room will encourage nurses to stay focused on the culture of patient safety even though nurses are more susceptible to being exposed to diseases patients suffer because they have more direct contact with patients. With individual attention to nurses, it will be a strength for nurses to remain optimally dedicated to hospitals in delivering excellent health services and focusing on patient safety culture. According to the transformational way of leading the head, nurses will find a way for nurses to stay safe in serving patients with a focus on patient safety culture.

## **The Effect of Work Motivation on Patient Safety**

The analysis results conclude that work motivation has a positive and significant direct effect on patient safety, as evidenced by the path coefficient  $\rho_{zy} = 0,477$  and the comparison of probability values of  $0.000 < 0.05$ . It means that if work motivation is increased by one unit, it will impact patient safety. These results align with previous research (Dongen et al., 2016; Nygren et al., 2021; Visser et al., 2020; Yune et al., 2020); work motivation can improve patient safety.

In addition, work motivation is able to mediate an increase in patient safety which is influenced by interprofessional collaboration and transformational leadership, as evidenced by the coefficient of total influence  $\rho_{yx1} + (\rho_{zx1} \times \rho_{yz}) = 0,684$  dan  $\rho_{yx2} + (\rho_{zx2} \times \rho_{yz}) = 0,246$  and value comparison ( $0,684 > 0,310$ ) and ( $0,246 > 0,164$ ) concluded that if first interprofessional collaboration and transformational leadership through work motivation, then the effect will be greater than if it directly affects the improvement of patient safety.

These results reveal the suitability of the three-box method analysis, where work motivation and patient safety are at a high index. Meaning management can provide organizational support based on intrinsic and extrinsic factors. The support will enable nurses to improve patient safety culture, where they will prioritize a culture of openness, fairness, reporting, learning, and information in delivering health services to patients as implementing a patient safety culture. In addition, the effectiveness of the interprofessional collaboration system applied by management and the transformational leadership pattern of the unit head has a more substantial influence on improving the patient safety culture in inpatient installations.

The ability of work motivation to mediate interprofessional collaboration and transformational leadership to improve patient safety occurs due to its direct influence. Work motivation is higher in improving patient safety, so when the reader becomes a mediator in improving patient safety, work motivation increases interprofessional collaboration and leadership abilities. Transformational in improving patient safety.

This result reveals the theory's truth, which states that motivation is a process that describes individuals' intensity, direction, and persistence in achieving their goals (Robbins & Judge, 2017). A person's work motivation can generate, direct and maintain behavior related to the work environment (Reeve, 2015). It means that work motivation is given by hospital management to nurses in the form of encouragement that aims to create job satisfaction for nurses so that nurses are willing to sacrifice their resources. Feeling afraid of work risks will be ruled out by nurses because of a strong push from the organization. So with this motivation, they will continue to focus on patient safety culture even though they have a high risk. Furthermore, make the implementation of interprofessional collaboration stronger and the transformational leadership pattern of the head of the room in shaping the improvement of nurses who work with the service delivery system by prioritizing a culture of openness, fairness, reporting, learning, and information.

## **CONCLUSION**

The proof of the two-factor theory of motivation put forward by Herzberg states that work motivation consists of two factors, namely intrinsic factors related to work. Where if these factors can be appropriately implemented by organizational

management, nurses will be more responsible and more advanced than before. They are more careful in their work because they have a goal to achieve the career path they aspire to so that the interprofessional collaboration system and transformational leadership will achieve its effectiveness for improving the patient safety culture in inpatient installations. In addition, one more factor, extrinsic factors related to individual job satisfaction, contains components of company policies and administration, working conditions, salaries, interpersonal relationships, and quality of supervision. Suppose these aspects can be effectively implemented by management in the form of organizational support. In that case, the interprofessional collaboration and transformational leadership system can effectively improve inpatient installations' patient safety culture.

Management must control nurses on the effectiveness of interprofessional collaboration based on partnership effectiveness, cooperation, and coordination, and form a nurse head. Who can become an agent of change for nurses to implement a patient safety culture always based on a culture of openness, fairness, reporting, learning, and information? In addition, management needs to motivate the form of organizational support that benefits nurses, thus making nurses more motivated to do good interprofessional collaboration and support head nurses as agents of change in their work patterns. Meaning continues to shape nurses to provide health services that focus on patient safety.

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