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# Model of the Influence of Attitude and Motivation on Safety Culture with Compliance as an Intervening Variable on Healthcare Professional

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A R T I C L E I N F O

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A B S T R A C T

Safety Culture is essential for reducing workplace incidents. At Dr. D Hospital, its five dimensions remain unmet, reflecting poor attitudes and motivations in pre-survey results. This study examines their impact on safety culture and incident reporting compliance using a cross-sectional design with 105 respondents and SEM-PLS analysis. The F Test showed a strong positive relationship, confirming that attitudes and motivations significantly influence safety culture through compliance as an intervening variable. However, attitudes and motivations have a stronger direct effect than compliance. Compliance also significantly impacts safety culture, with motivation playing a key role. Strengthening attitudes, motivations, and reporting compliance fosters a robust safety culture. Developing a reporting system encourages Healthcare Professionals to report incidents, enhancing overall safety.

## INTRODUCTION

Patient safety is a crucial issue in global health services. The World Health Organization (WHO) reports that approximately 42.7 million adverse events occur in inpatients worldwide each year, making patient safety incidents the 14th leading cause of global morbidity and mortality (Mcmullan et al.,2021). In Indonesia alone, the number of patient safety incidents showed a significant increase from 2015 to 2019 (Novianti & Ramli, 2024). This phenomenon emphasizes the importance of building and strengthening a safety culture in health care institutions. A strong safety culture plays a vital role in reducing the incidence of accidents and injuries in the workplace (WHO, 2022). Adopting a good safety culture, organizations can prevent many accidents that could have been avoided. Further, the impact of safety culture on quality in 626 U.S. organizations revealed that better working methods and reduced absenteeism have contributed to improved organizational performance, while also affecting product quality (Jedwab, 2023).

In Indonesia, Law Number 44 of 2009 concerning Hospitals, requires hospitals to implement patient safety standards (Permenkes No. 30, 2022). Patient safety is defined as the process that ensures safer hospital services, including risk assessment, patient risk identification and management, incident reporting and analysis, and the implementation of solutions to reduce risk (Franco, 2004). Law Number 17 of 2023 further emphasizes that patient safety is a mandatory obligation that must be fulfilled by all health services as a form of improving service quality internally. Previous research by Curtis (2023) shows that safety management systems, attitudes, and commitments affect safety behavior and performance. Research from Liana (2021) revealed that leadership factors and safety attitudes and their interactions predict safety motivation and knowledge, which in turn affects safety participation and compliance.

This study is expected to contribute a significant influence model in understanding the factors that affect safety culture in hospitals, as well as provide an empirical basis for the development of more effective strategies to improve patient safety.

## THEORETICAL REVIEW

A high level of compliance with safety procedures will support and strengthen the safety culture in health organizations. Understanding and managing attitudes, motivation, and compliance are key to creating a safe and supportive environment for patients and medical personnel (Borghi, 2018 & Purwaningrum, 2018).

A good attitude towards incident reporting and high motivation to contribute to safety create a work environment based on trust and collaboration. Health workers feel more comfortable sharing experiences, learning from mistakes, and collaborating in improving safety practices. Compliance with safety rules is a collective commitment to creating a safe and supportive work environment for all individuals involved in the organization's activities (Ayi & Hon, 2018).

Research Hypothesis

H1: Attitude, motivation influences safety culture with compliance as an intervening variable
H2: Attitude influences Safety Culture with Compliance as an intervening variable
H3: Motivation influences safety culture with compliance as an intervening variable
H4: Attitude influences incident reporting compliance
H5: Motivation influences incident reporting compliance
H6: Attitude influences safety culture
H7: Motivation influences safety culture
H8: Incident reporting compliance influences safety culture

Based on the literature review above, this study develops a conceptual framework that describes the relationship between attitude and motivations with compliance on safety culture on healthcare professional.

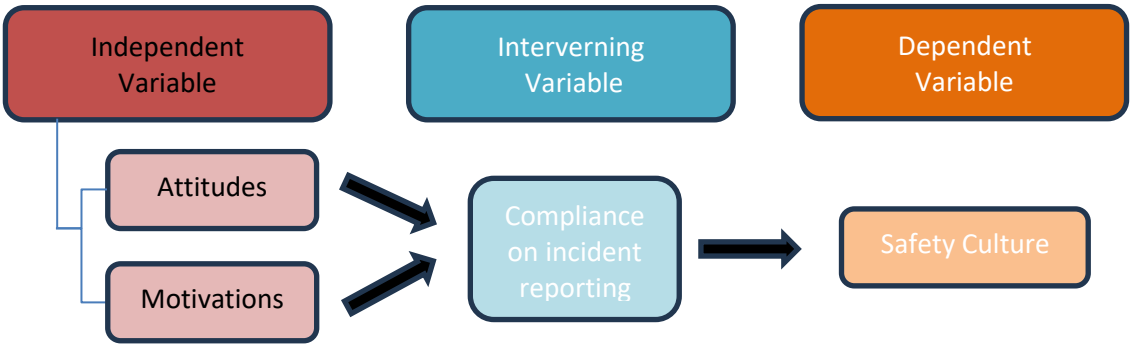


**Figure 1. Conceptual Framework**

This diagram shows the relationship between independent variables which are attitude and motivations that influences incident reporting compliance on intervening variables that affect safety culture on dependent variable.

## METHODOLOGY

### *Study Location*

Location and Time of Research The research was carried out at the Class B Hospital, Serang, Banten, which is a regional referral hospital in Banten Province.

### *Study design*

This study uses a quantitative approach with a cross-sectional design. The purpose of the study was to model the influence of attitudes and motivations on safety culture, with adherence as an intervening variable, in caregivers in hospitals.

***Types and Sources of Data***

The research instrument in the form of a questionnaire is adapted from validated sources, such as Cooper's theory, AHRQ 2022, Sexton 2006, and Ajzen's theory. The use of this validated instrument increases the validity of the research construct. The 4-point Likert scale was chosen to measure all variables, an effective strategy to avoid the tendency of respondents to choose a central tendency bias that often occurs on scales with an odd number of points.

***Population and Sample***

This study adopts a quantitative approach with a cross-sectional design, which is the right choice to test the causal relationship between variables at a specific time point (Sarstedt, 2017). The selection of Class B Hospital as the location of the study ensures the availability of adequate and representative samples, considering its status as a regional referral hospital. The purposive sampling method was used to select respondents who met the research criteria, increasing the internal validity of the study. The determination of the sample size follows the recommendation of Hair (1998) for SEM-PLS analysis, ensuring the adequacy of statistical power in the analysis to be carried out.

***Data Collection***

The data collection lasted for 1 month, namely July-August 2024. The study population is all caregiver professionals (doctors, nurses, pharmacists) working in Class B hospitals, totaling 105 people. Sampling uses a purposive sampling technique with predetermined inclusion and exclusion criteria. The determination of the number of samples using the Hair (1998) method was 5 times the number of indicators, so that a sample of 105 respondents was obtained.

***Data Analysis***

Testing the validity and reliability of the instrument follows the criteria recommended in the current SEM-PLS literature (Sardtedt, 2017). Convergent validity with the loading factor criterion of >0.7 was used for the validity test, while composite reliability (CR>0.7), average variance extracted (AVE>0.5), and Cronbach's alpha (>0.7) were used for the reliability test. This approach guarantees the quality of the measurements before further analysis is carried out.

The selection of SEM-PLS as a data analysis technique is very appropriate considering the complexity of the research model involving latent variables and mediation effects. SEM-PLS has the advantage of handling complex models with relatively small sample sizes (Sardtedt, 2017). The stages of the analysis described, from model conceptualization to measurement and structural model evaluation, reflect best practices in the application of SEM-PLS (Hair, 2017). The use of bootstrapping for resampling improves the stability of parameter estimation, especially for sample sizes that are not too large.

Model evaluation includes measurement aspects (outer model) and structural (inner model), ensuring the validity and reliability of the construct as well as the significance of the relationship between variables. The use of R-square to assess the predictive power of the model and the significance test to test the hypothesis according to the recommendations of SEM-PLS experts (Hair, 2017).

The formulation of six clear statistical hypotheses facilitates the interpretation of the results and the conclusion of the research.

Although the research methods used show a systematic and scientific approach, some limitations need to be noted. The cross-sectional design used cannot capture temporal changes in the variables studied. This limits the researcher's ability to draw strong causal conclusions. In addition, the use of self-reported data through questionnaires opens up the possibility of common method bias and social desirability bias (Sardtedt, 2017). To address this, future research may need to consider longitudinal design or combine self-report data with objective measurements.

Overall, the research methods used show a comprehensive approach and follow quantitative research standards in the field of health management. The use of SEM-PLS allows for the analysis of complex relationships between latent variables, while rigorous validation procedures guarantee the quality of the data and analysis results. However, the interpretation of the results must take into account the existing limitations, and the generalization of the findings must be done carefully, considering the specific context of the study in Class B hospitals.

## RESEARCH RESULT

### *Characteristics of Respondents*

The majority of respondents were women (61.9%), aged 25-35 years (35.2%), educated in S1 (58.1%), and had a working period of >15 years (43.8%).

### *Descriptive Analysis of Research Variables*

Descriptive analysis was carried out using the three box method technique (Ferdinand, 2014). The results show that all variables are in the high category, with the following details:

**Table 1. Results of Descriptive Analysis of Research Variables**

| It | Variable | Index Value | Category |
|---|---|---|---|
| 1 | Attitude | 76.4 | High |
| 2 | Motivation | 78.99 | High |
| 3 | Incident reporting compliance | 76.4 | High |
| 4 | Safety culture | 79.4 | High |

The safety culture variable had the highest index value (79.40), while attitude and compliance in incident reporting had the lowest index value (76.40).

### *Evaluation of Measurement Model (Outer Model)*

Based on the results of the evaluation of the measurement model, the research instrument showed good validity and reliability. The convergent validity analysis revealed that all indicators in each variable had a loading factor value above 0.700, indicating good convergent validity in accordance with the criteria recommended by Ghozali (2016) and Borghi (2018). Discriminant validity testing is carried out through three complementary methods. First, the

Heterotrait-Monotrait Ratio (HTMT) analysis showed that the values between variables were below the threshold of 0.9, confirming the validity of good discrimination. Second, the evaluation using the Fornell-Larcker Criterion shows that the root value of AVE is higher than the correlation between constructs, meeting the criteria of discriminatory validity. Third, the cross loading check shows that the correlation value of the construct with its own indicator is greater than with other constructs, once again confirming the validity of good discrimination. Overall, the results of this evaluation confirm that the research instrument has adequate measurement quality, providing a solid foundation for further analysis in this study.

***Evaluation of Structural Model (Inner Model)***

To find out whether the hypothesis is accepted or not, we can compare the t-count with the t-table, assuming that the t-count is greater than the t-table. The t-table value for a significance level of 5% is 1.96. The following table shows the results of the influence test between variables using Partial Least Square analysis.

**Table 2.Results of the Hypothesis Testing**

| | Hypothesis | Coef | T-statistics | p-value | Result |
|---|---|---|---|---|---|
| H1 | Attitude, motivation influences safety culture with compliance as an intervening variable | $R^2$ = 0,732<br>F count = 91,955<br>F table = 2,695 | | | Accept |
| H2 | Attitude influences Safety Culture with Compliance as an intervening variable | 0.167 | 2.070 | 0.039 | Accept |
| H3 | Motivation influences safety culture with compliance as an intervening variable | 0.191 | 2.309 | 0.021 | Accept |
| H4 | Attitude influences incident reporting compliance | 0,415 | 3,988 | 0,000 | Accept |
| H5 | Motivation influences incident reporting compliance | 0,475 | 5,049 | 0,000 | Accept |
| H6 | Attitude influences safety culture | 0,286 | 2,128 | 0,033 | Accept |
| H7 | Motivation influences safety culture | 0,241 | 2,113 | 0,035 | Accept |
| H8 | Incident reporting compliance influences safety culture | 0,402 | 2,471 | 0,014 | Accept |

## DISCUSSION

***The Influence of Attitude, Motivation and Compliance Simultaneously on Safety Culture***

The results of this study indicate that simultaneously, positive attitudes, high motivation, and consistent compliance in incident reporting reinforce each other to form an effective safety culture. A high level of compliance with safety

procedures will support and strengthen the safety culture in health organizations. This shows that understanding and managing attitudes, motivation, and compliance are key to creating a safe and supportive environment for patients and medical personnel (Borghi, 2018 & Purwaningrum, 2018).

A good attitude towards incident reporting and high motivation to contribute to safety create a work environment based on trust and collaboration. Health workers feel more comfortable sharing experiences, learning from mistakes, and collaborating in improving safety practices. Compliance with safety rules is a collective commitment to creating a safe and supportive work environment for all individuals involved in the organization's activities (Ayi & Hon, 2018).

### *The Influence of Healthcare Professional Attitudes on Safety Culture through Compliance*

The results of the study showed that compliance mediated the influence of attitudes towards safety culture. This means that Healthcare Professional's positive attitude towards patient safety can influence their behavior to comply with incident reporting. Strong compliance will optimize the impact of positive attitudes on sustainable safety culture (Vaishnav, 2023).

Based on the three box method analysis, it is known that the most dominant attitude indicator is individual perception (Ajzen, 1991). Healthcare Professional's perception regarding the support of colleagues and agencies in enforcing safety culture greatly influences Healthcare Professional's attitude. When Healthcare Professionals have a positive attitude, they are more likely to understand the importance of every aspect of patient safety, including the need for incident reporting (Gani, 2023). This is reinforced by Rotua (2023) explanation that safety culture is a combination of values, attitudes, perceptions, competencies, and behavioral patterns of individuals and groups that determine commitment to the style and effectiveness of an organization's health and safety program.

### *The Influence of Healthcare Professional Motivation on Safety Culture through Compliance*

The results of the study show that motivation influences safety culture through compliance mediation. This means that high Healthcare Professional motivation to prioritize patient safety can influence Healthcare Professional actions to comply with incident reporting (Darafunna, 2022). Healthcare Professional motivation towards patient safety will influence their compliance in reporting incidents, which ultimately has an impact on patient safety culture (Ehiaguina, 2024). Healthcare Professional who are motivated to provide the best service tend to be more compliant in reporting incidents, because they understand that reporting plays an important role in system improvement and error prevention (Isa, 2021).

The results of previous research by Dachirin (2020) showed that motivation simultaneously had a significant effect on the Implementation of Patient Safety in the inpatient ward of the Regional General Hospital, which

means that the higher the value of knowledge, attitude and motivation, the more disciplined the nurses are in carrying out patient safety procedures. Extrinsic motivation, such as awards or recognition for compliance, can also influence the level of compliance with safety procedures (Hackman, 1976 & Rotta, 2022). Compliance with these safety procedures will encourage Healthcare Professional to be more consistent in implementing a safety culture as a whole.

***The Influence of Healthcare Professional Attitudes on Incident Reporting Compliance***

The results of this research hypothesis test prove that attitudes have a positive influence on incident reporting compliance. If attitudes improve, Healthcare Professional compliance in reporting incidents will increase. Attitudes in this case are seen from the dimensions of individual perception, values, views, competencies, behavioral patterns can be improved both directly and through Compliance to improve Safety Culture (Ayatollahi, 2013).

The research findings show that the highest indicator based on the questionnaire results is individual perception. This means that Care Professionals (Healthcare Professional) are of the view that they receive a lot of support from other personnel in caring for patients (Hessels, 2016). The existence of support including in terms of patient safety can shape attitudes in a safety culture. As stated in the theory of "Safety Culture" (Alzahrani, 2018). A positive attitude to achieve safety can encourage the willingness and ability of Healthcare Professional to report incidents.

In accordance with the results of previous research by Suchman (1997) it shows that safety attitudes affect Compliance in reporting unwanted events. Another study by Al-Busaidi (2010) found that there was a significant relationship between safety participation and safety compliance. As explained by Ellsworth (2016) a positive attitude towards patient safety and compliance with safety procedures are important factors influencing the effectiveness of a safety culture in a health service.

***The Influence of Healthcare Professional Motivation on Incident Reporting Compliance***

The proof of the hypothesis in this study shows that Healthcare Professional motivation has a positive impact on incident reporting compliance. This means that Healthcare Professional motivation, both from within (intrinsic) and from outside (extrinsic), plays a major role in increasing patient safety incident reporting compliance, which can ultimately improve the safety and quality of health services (Abate et al., 2022).

The research findings show that the highest motivation indicator is the development indicator. This means that the existence of a competency development program will provide additional knowledge for Healthcare Professional, including in the field of safety. Providing training related to the importance of incident reporting will motivate Healthcare Professional to be more compliant. When Healthcare Professional understands how to report

incidents correctly and knows that reporting can prevent more serious incidents in the future, they will be more motivated (Id, 2021).

Research by Su (2021) explains that strong motivation can reduce accidents and incidents, form positive habits related to safety, and ensure long-term compliance with safety practices in the workplace. The results of this study are supported by previous research by Solikhah (2021) that the existence of intrinsic and extrinsic motivation built in an organization will encourage individuals to be compliant in implementing a safety culture.

***The Influence of Healthcare Professional Attitudes on Safety Culture***

The results of this study report that Healthcare Professional attitudes have a positive effect on safety culture. This means that the better the Healthcare Professional's attitude towards work safety, the better the safety culture in the health care environment (Willis et al., 2008).

The most dominant attitude indicator is individual perception. Healthcare Professional has a perception of co-worker support in providing care to patients which is very helpful in implementing a safety culture. When Healthcare Professional has a collaborative attitude and is willing to listen and provide feedback to colleagues, this helps in preventing errors and handling safety risks more effectively. A positive and proactive attitude towards patient safety helps create a safe environment, supports incident reporting, and encourages continuous improvement in the quality of care, so that Healthcare Professional attitudes greatly influence safety culture in the workplace (Onler, 2019).

The results of this study are supported by previous research by Rianawati (2020) that a good attitude towards safety helps form positive habits that are an integral part of safety culture in health care. Good employee attitudes towards safety contribute to a safer, more efficient, and more productive work environment (Mathis, 2013).

***The Influence of Healthcare Professional Motivation on Safety Culture***

The results of this research hypothesis test prove that motivation has a positive influence on safety culture. This means that the better the Healthcare Professional's motivation towards work safety, the better the safety culture in the health service environment (Antonsen, 2017).

The research findings show that the highest motivation indicator is the development indicator. Development programs can increase knowledge about safety for Healthcare Professional. This has an impact on the safety culture shown by Healthcare Professional, which is the highest in the safety assessment indicator. The existence of safety knowledge forms the Healthcare Professional's attitude to comply with safety procedures. This is shown by Healthcare Professional in trying to achieve the highest level of work safety, Healthcare Professional cares more about patient safety, and makes reports if there is an error or risky situation (Al-mugheed, 2022).

Previous research by Violato (2022) showed that motivation can improve employee morale and job satisfaction, encouraging them to participate more in maintaining safety. As explained Mathis (2013) intrinsic motivation that comes

from within the Healthcare Professional, such as a sense of responsibility towards patients or motivation to provide quality services, can encourage individuals to consistently comply with safety procedures. On the other hand, extrinsic motivation, such as rewards or recognition for compliance, can also affect the level of compliance with safety procedures (Agustina, 2022).

***The Influence of Incident Reporting Compliance on Safety Culture***

The results of this study prove that incident reporting compliance has a positive effect on safety culture. This means that the higher the level of Healthcare Professional compliance with safety, the better the safety culture in the health care environment (Jacobus et al., 2022).

The highest indicator of compliance is subjective norms. A strong health care worker safety culture tends to form shared norms and values among all staff. When safety is considered a top priority and upheld by all team members, it creates an environment where safety practices become an integral part of every action and decision taken (Ayyad et al., 2024).

The most influential indicator on patient safety was safety compliance (Liana, 2021). High level of compliance with safety procedures can support and strengthen a safety culture in health care organizations (Nisa, 2021). A high level of compliance with safety procedures, in turn, supports and strengthens a safety culture in health care organizations (Waterson, 2018).

This study emphasizes the role of attitude, motivation, and incident reporting compliance in shaping a hospital's safety culture. These factors influence safety culture both directly and indirectly through compliance with incident reporting. The findings reveal that the lowest-scoring dimension in attitude is behavioral patterns, suggesting the need for hospital management to provide better support and timely information to healthcare professionals while encouraging proactive safety behaviors. In motivation, the weakest area is the responsibility of healthcare professionals in completing work and adhering to safety procedures, highlighting the need for a stronger organizational culture, management commitment, and incentive systems. For incident reporting compliance, the lowest index is found in individual beliefs, particularly honesty in reporting incidents, indicating the importance of fostering a non-punitive environment to promote transparency. In terms of safety culture, the weakest aspect is policy implementation, specifically staff participation in safety procedures and interdepartmental collaboration. Hospitals should focus on improving communication, teamwork, and the integration of technology to enhance patient safety. Future research should further explore psychological and systemic factors that influence safety compliance and culture in healthcare settings.

## CONCLUSION

This model can be used to build a safety culture in hospitals with attitude and motivation variables directly or indirectly through incident reporting compliance. Safety culture is simultaneously influenced by factors of attitude, motivation, and incident reporting compliance. Safety culture is influenced by Healthcare Professional's attitude and motivation through incident reporting

compliance. Incident reporting compliance is influenced by Healthcare Professional's attitude and motivation. Safety culture is partially influenced by factors of attitude, motivation, and incident reporting compliance.

## RECOMMENDATION

1. Findings on the attitude questionnaire obtained the lowest index value in the behavioral pattern dimension. For Hospital management, efforts are needed to support the daily work of Healthcare Professional, as well as provide adequate information in a timely manner. For further researchers, it can be studied more deeply regarding the factors that encourage proactive behavior in preventing safety incidents, such as preventive measures or handling of errors or safety incidents.
2. Findings on the motivation variable, it is known that the dimension with the lowest index value is the responsibility of Healthcare Professional in completing work and good achievements in carrying out safety procedures. Suggestions for Hospital management are to build a comprehensive organizational culture, especially increasing knowledge, perceptions of safety values and risks, management commitment to safety and the existence of an incentive and reward system for Healthcare Professional behavior that completes work and carries out good safety procedures. For further researchers, they can explore more deeply the psychological factors that influence Healthcare Professional motivation, such as a sense of belonging, organizational commitment, job satisfaction, or feelings of moral responsibility for patient safety.
3. Findings on the incident reporting compliance variable, it is known that the dimension with the lowest index value is individual beliefs and assessments, especially on the honest indicator in every situation. For the Hospital management, it is advisable to create an environment where mistakes are seen as learning opportunities, not punishments. In this culture, Healthcare Professional will feel safer to report mistakes or incidents without fear of punishment, thus increasing transparency. For further researchers, identification can be carried out through in-depth interviews regarding what factors can increase Healthcare Professional transparency in reporting incidents.

## FURTHER STUDY

In the Safety Culture variable, the lowest index value was obtained in the policy dimension, especially related to the Healthcare Professional's activeness in carrying out safety procedures and good cooperation between hospital departments in carrying out safety procedures. For management, promotion and collaboration efforts are needed between units related to safety culture. Suggestions for further researchers are that further studies are needed regarding other factors that influence Safety Culture, such as open and effective communication between departments, workload, and the use of technology that supports safety, such as computer-based drug administration systems, automatic reminders, or tracking systems, helping Healthcare Professional in maintaining patient safety more effectively.

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