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VALIDITY AND RELIABILITY TEST OF THE THEORY OF PLANNED BEHAVIOR-BASED INSTRUMENTS FOR MEASURING PATIENT SAFETY PRACTICES IN HOSPITALS

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ABSTRACT

There is a connection between patient safety and the Theory of Planned Behavior (TPB). The three components of TPB are perceived behavioral control, subjective norm, and attitude toward the conduct—Are believed to influence health professionals' intentions to adopt actions that promote a patient safety culture. This study is to evaluate the validity and reliability of the questionnaire instrument utilized for implementing the idea of planned behavior in hospital patient safety. This research methodology employs a descriptive quantitative approach with a cross-sectional design. The research samples is 104, comprised of health and non-health workers at Wonosari Regional Hospital in May 2025, and was a random sampling. The instrument items tested consisted of 30 items from 3 variables; the analysis technique used was Pearson correlation and Cronbach's alpha, processed using SPSS software. The results of the study stated that the questionnaire for the attitude toward the behavior variable was valid and reliable, with a Pearson correlation value of r count (0.40 – 0.957) > r table (0.195) and a Cronbach's alpha value of 0.979. The results of the study stated that the questionnaire for the Subjective Norm variable was valid and reliable, with a Pearson correlation value of r count (0.405 – 0.924) > r table (0.0195) and a Cronbach's alpha value of 0.932. The results of the study stated that the questionnaire for the Perceived Behavioral Control variable was valid and reliable, with a Pearson correlation value of r count (0.675 – 0.910) > r table (0.0195) and a Cronbach's alpha value of 0.944. In conclusion, 30 items of the theory of planned behavior-based instruments for measuring patient safety practices in hospitals were declared valid and reliable. This instrument has potential for application in future research endeavors.

Keywords: Theory Of Planned Behaviour; Patient Safety; Validity; Reliability.

Introduction

The primary milestone in the operationalization of patient safety in Indonesian hospitals is Regulation of the Minister of Health Number. 11 of 2017 regarding Patient Safety in Hospitals, which was issued by the Government of Indonesia in recognition of the significance of patient safety (Kemenkes RI, 2017). In order to reduce the number of patient safety incidents, the hospital implements patient safety goals and other factors that may have an impact. One crucial element in initiatives to lower hospital patient safety events is the establishment of a patient safety culture (Karmila, 2022).

In order to minimize and avoid the occurrence of unforeseen occurrences, collaboration and group efforts are essential. Patient safety necessitates the cooperation of all stakeholders involved in the process of delivering and receiving health services. (Ronda G Huges, 2008). In addition, healthcare workers are expected to respond immediately after a patient safety incident, which includes of adverse events and medical errors (Campbell et al., 2020). To create patient safety security, health workers pay

attention to factors that can affect the implementation of patient safety such as leadership, teamwork, effective communication, incident reporting and the implementation of a patient safety culture (Ningsih et al, 2020). Previous research explains that there is a relationship between the leader who supervises and the implementation of patient safety goals in hospitals, that the implementation of supervision and the implementation of patient safety culture indicators can be the initial foundation towards comprehensive patient safety (Park & Kim, 2019)(Kalsum et al, 2022). Efforts to involve all human resources in hospitals in the culture of patient safety can also be said to be a preventive effort in preventing patient safety incidents. Preventive efforts are an activity that prioritizes health promotion in prevention before the occurrence of disease (Hulu et al, 2020).

Health promotion, according to the 2005 Global Health Promotion Conference in Bangkok, is a process that gives people more control over their health and its determinants, which can lead to better health. It is a strategy for mediation between people and the environment that combines social responsibility for health with personal choices (Sulaeman, 2023)(Yaghoubi et al., 2016). Health promotion is a proactive initiative that aims to disseminate information and raise awareness within a community, group, or individual (Putri et al., 2024). The theory of health promotion, namely the Planned Behavior Theory, serves as the basis for the application of the theory in this investigation. There is a connection between patient safety and the Theory of Planned Behavior (TPB). It is thought that health professionals' intentions to take activities that advance patient safety are influenced by the three components of TPB: attitude toward the behavior, subjective norm, and perceived behavioral control.

Data from WHO shows that there are 134 million cases of patient safety incidents in hospitals in low- and middle-income countries, which are estimated to contribute to around 2.6 million deaths annually, and result in cost losses for patients reaching US$ 1 trillion to US$ 2 trillion per year (World Health organization, 2021). There is an increase in the number of adverse event in hospitals every year, both in Indonesia and in the world, the incidence rate of adverse event in the world has experienced significant fluctuations, especially in inpatient adverse event by 3% to 16% in New Zealand, while in the UK of adverse event is reported to be around 12.9% of the number of inpatients, and in Canada the adverse event rate is around 10.8%. The JCI (Joint Commission International) reported that of adverse event was around 10% and in the United Kingdom, while in Australia it was 16.6%. In 2021, the Patient Safety Committee in hospitals across several provinces reported 145 patient safety incidents in Indonesia: 0.68% in the Sabang Indonesia or Aceh region, 0.69% in South Sulawesi, 1.4% in Bali, 2.8% in West Java, 6.9% in South Sumatra, 11.7% in East Java, 13.8% in the Special Region of Yogyakarta, 15.9% in Central Java, and 37.9% in Jakarta. According to the report's findings, local government hospitals have a greater percentage of 16% compared to private hospitals' 12%, according to data collected during the third quarter of 2010 about hospital ownership status (Wahyuda et al., 2024).

The large incidence of adverse events in hospitals can be attributed to ineffective implementation of patient safety behavior by hospital staff. As a result, relevant and trustworthy research tools must be developed to investigate the factors that influence patient safety behavior, particularly among hospital employees. The purpose of this study is to assess the validity and reliability of a questionnaire instrument for using the theory of planned behavior in hospital patient safety.

Methods

This research approach is descriptive quantitative and uses a cross-sectional design (Sulaeman, 2017). The research samples is 104, comprised of health and non-health workers at Wonosari Regional Hospital in May 2025, and was a random sampling, with inclusion criteria: health and non-health workers at Wonosari Regional Hospital, Willing to be respondents and fill out the questionnaire completely, Can communicate well. Exclusion criteria: Health and non-health workers at Wonosari Hospital who have structural positions, Workers who have leave status, and intern workers. The

instrument used was in the form of a questionnaire. The instrument items tested consisted of 30 items from 3 variables from theory of planned behavior, namely variable attitudes, variable subjective norms and variable percived behavioral control. The questionnaire used to obtain information from the respondents in this study was developed based on existing theories and modified existing instruments. The questionnaire that will be tested is in the form of closed questions or statements that are favorable and unfavorable. This test is an instrument construction test. The analysis technique this research used was Pearson correlation and Cronbach's alpha, processed using SPSS software (Sugiono, 2017), but other researchers can also analyze validity and reliability with SmartPLS (Kamis et al., 2020)

Results

Table 1.

Results of the Attitude Variable Validity Test (r table 0.195).

No.	Statement	Correlation Values(r)
1	Implementing patient safety behaviors is the main responsibility of health workers and non-health workers.	0,855
2	I feel that patient safety is a top concern for all hospital services.	0,917
3	Prioritizing patient safety is a key step in improving hospital services.	0,957
4	I believe that implementing patient safety measures can help to reduce unnecessary losses for patients.	0,949
5	I believe that patient safety behavior should be a work culture in every hospital.	0,955
6	It is important for me to always practice patient safety behaviors in every action.	0,944
7	Improving patient safety is a long-term investment for the success of the hospital.	0,944
8	Adhering to patient safety standards helps create a safer work environment.	0,920
9	I believe that all decisions and actions in services at hospitals must always prioritize patient safety without exception.	0.840
10	I believe that all decisions and actions in services at hospitals must always prioritize patient safety without exception.	0,899

The study's findings indicated that the questionnaire for the attitude toward the conduct variable was valid and reliable, with a Pearson correlation value of r count (0.840 - 0.957) > r table (0.195).

Table 2.

Results of the Subjective Norm Variable Validity Test (r table 0.195).

No.	Statement	Correlation Values(r)
1	My coworkers did not support me to comply with patient safety procedures.	0,405
2	My leadership encourages me to prioritize patient safety in every action I take.	0,865
3	My colleagues set a good example in implementing patient safety behaviors.	0,910
4	Hospital leaders provide clear direction on the importance of patient safety.	0,885
5	I feel my work environment encourages consistent behavior towards patient safety.	0,924
6	My coworkers actively notify me if they see any actions or situations that could pose a risk to patient safety incidents.	0,851
7	My leadership appreciated my efforts in cultivating patient safety behavior.	0,841
8	Having regular meetings about patient safety incidents or potential risks helps me find solutions to improve patient safety implementation.	0,842
9	I feel supported by leadership in reporting patient safety incidents.	0,884
10	My colleagues are always encouraging and contributing to teamwork to ensure every step of our service supports patient safety.	0,819

The study concluded that the questionnaire for the Subjective Norm variable was valid and reliable, with a Pearson correlation value of r count (0.405 - 0.924) > r table (0.195).

Table 3.

Results of the Perceived Behavioral Control Variable Validity Test (r table 0.195).

No.	Statement	Correlation Values(r)
1	I feel able to control every step of my work actions to comply with patient safety procedures.	0,854
2	I am confident that I can still carry out patient safety behaviors even though working under time pressure.	0,825
3	I have access to materials that assist with the implementation of patient safety in the workplace.	0,866
4	I was able to overcome the obstacles that arise when implementing patient safety behaviors.	0,826
5	The support from my work environment makes it easier for me to implement patient safety.	0,838
6	I feel that I have an influence in encouraging colleagues to	0,811

	participate in patient safety.	
7	The hectic work schedule did not reduce my ability to adhere to patient safety principles.	0,816
8	I feel I can control any risk that could affect patient safety.	0,830
9	I am confident that I am able to enforce patient safety procedures even in the face of an imideal situation.	0,910
10	I have the freedom to make decisions that support patient safety in my day-to-day actions.	0,675

The results of the study stated that the questionnaire for the Perceived Behavioral Control variable was valid and reliable, with a Pearson correlation value of r count (0.675 – 0.910) > r table (0.195)

Table 4.
Reliability Test Results.

No.	Variable	Cornbach Alpha
1	Attitude Variable	0,979
2	Subjective Norm Variable	0,932
3	Perceived Behavioral Control variable	0,944

The Cornbach Alpha for all items of the questionnaire statement is greater than the r of the table for Alpha 5% which is 0.70.

Discussion

From the results of the validity test, All statements in the questionnaire received a correlation value greater than the r-table 0.195. Then all the above statement items are valid. From the results of the reliability test ,The Cornbach Alpha for all items of the questionnaire statement is greater than the r of the table for Alpha 5% which is 0.70. Then all of these statement items are reliable. Validity and reliability tests are important to refer to the extent to which a research instrument measures what should be measured (Magdalena et al., 2023). There are several factors that affect the results of the validity and reliability test, one of which is the number of respondents (Nur Amalia et al., 2022), The validity and reliability test will yield more generalized results as the number of respondents increases.

There are results of previous research for validity and reliability tests related to instruments for patient safety research. There is a study with the conclusion, The Patient Safety Culture Scale for Chinese Primary Health Care facilities revealed high reliability and acceptable validity, indicating that it may be utilized as an evaluation tool for patient safety culture in Chinese primary healthcare facilities (Cheng et al., 2021).

The findings of the validity and reliability test for patient safety culture have also been extensively distributed. A research is being conducted to examine the reliability and validity of the original version of the HSOPSC, which has been translated into Portuguese for use in the Brazilian setting and distributed to hospital workers as a patient safety reference tool. Although the findings of reassessing the validity and reliability of the version of the HSOPSC translated and modified for use in the Brazilian setting were better than the initial evaluation, they still require more examination. It is unclear if this is attributable to the translation process, the scope of this study, Brazilian features and cultural variety, or more general issues with the instrument's construction. (Reis et al., 2019). The Patient Safety Culture Scale for Chinese Primary Healthcare Institutions: Development, Validity, and

Reliability The study develops the first quantitative evaluation scale for patient safety culture in China, with a focus on primary health-care facilities. With seven categories and 32 questions, the PSCS-PC has demonstrated high reliability and validity, making it a useful instrument for investigating the current state of patient safety culture. It may also assist identify patient safety hazards, establish focused improvement strategies, assure medical quality, and create a safer atmosphere for Chinese primary health care facilities (Cheng et al., 2021).

Another study aimed to obtain a valid and reliable Indonesian language version of the HSOPSC questionnaire, so that it can be used to assess the picture of patient safety culture in various hospitals. The conclusion of the study is that the Indonesian language version of the HSOPSC Questionnaire resulting from linguistic adaptation is valid and reliable in psychometric tests and is suitable for use in assessing patient safety culture (Tambajong monica, 2022).

The theory of health promotion, Planned Behavior Theory, serves as the foundation for the theory's implementation in this study. Patient safety and the Theory of Planned Behavior (TPB) are connected. The three components of TPB are attitude toward behavior, subjective norm, and perceived behavioral control (Meitiana, 2017) —Are believed to influence health professionals' intentions to adopt actions that promote a patient safety (Cameron et al., 2012).

Attitude toward the behavior, Attitude refers to an individual's beliefs about the consequences of performing certain behaviors, which can be positive or negative. In the context of patient safety in hospitals, it refers to how healthcare workers perceive the importance of safety measures, such as following patient safety protocols, reporting patient safety incidents, or maintaining hand hygiene. The subjective norm Subjective norms are an individual's feeling of societal pressure to perform or not perform specific activities. In terms of patient safety in hospitals, this might refer to the influence of coworkers, leadership, or hospital rules that encourage or compel healthcare personnel to follow patient safety measures. Perceived Behavioral Control. Perceived control of activity refers to how much an individual feels they have the capacity or resources to engage in the action. Beliefs regarding the elements that enable and hinder a person from engaging in a behavior. In terms of patient safety in hospitals, this might refer to how much healthcare personnel believe they have enough knowledge, skills, or assistance to implement patient safety measures (Wibawa, 2025). The findings of this study may be utilized to identify patient safety models, which are essential for improving patient safety management (Kosiek et al., 2021).

Conclusions

The 30 items of the theory of planned behavior-based instruments for measuring patient safety practices in hospitals were declared valid and reliable.

Recommendations:

The findings of this research instrument's validity and reliability tests suggest that it be used as a research questionnaire to determine hospital workers' attitudes, subjective norms, and perceived behavioral control about patient safety behavior.

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Reference:

Cameron, R., Ginsburg, H., Westhoff, M., & Mendez, R. V. (2012). *American Journal Of Psychological Research Ajzen's Theory of Planned Behavior and Social Media Use by College Students*.

Campbell, S. M., Bell, B. G., Marsden, K., Spencer, R., Kadam, U., Perryman, K., Rodgers, S., Litchfield, I., Reeves, D., Chuter, A., Doos, L., Ricci-Cabello, I., Gill, P., Esmail, A., Greenfield, S., Slight, S., Middleton, K., Barnett, J., Moore, M., … Avery, A. J. (2020). A patient safety toolkit for family practices. *Journal of Patient Safety*, *16*(3), E182–E186. https://doi.org/10.1097/PTS.0000000000000471

Cheng, S., Hu, Y., Pfaff, H., Lu, C., Fu, Q., Wang, L., Li, D., & Xia, S. (2021). The Patient Safety Culture Scale for Chinese Primary Health Care Institutions: Development, Validity and Reliability. *Journal of Patient Safety*, *17*(2), 114–121. https://doi.org/10.1097/PTS.0000000000000733

Hulu, V. T., Pane, H. W., Zuhriyatun, T. F., Munthe, S. A., Salman, S. H., Sulfianti, Hidayati, W., Hasnidar, Sianturi, E., Pattola, & Mustar. (2020). Public Health Promotion. In *Yayasan Kita Menulis*.

Kalsum, U., Asriwati, A., & Moriza, T. (2022). Factors That Affect the Implementation of Patient Safety in the Inpatient Room of Permata Madina Panyabungan Hospital. *MIRACLE Journal*, *2*(1), 210–226. https://doi.org/10.51771/mj.v2i1.256

Kamis, A., Saibon, R. A., Yunus, F. A., & Rahim, M. B. (2020). *The SmartPLS Analyzes Approach in Validity and Reliability of Graduate Marketability Instrument*. https://www.researchgate.net/publication/348295457

Karmila, Suharni, & Alwi, M. K. (2022). The Relationship between Patient Safety Culture and Patient Safety Incident Reporting by Nurses in the Inpatient Installation of Pelamonia Kindergarten II Hospital Makassar. *Journal of Muslim Community Health (JMCH) 2023*, *4*(1), 181–189. https://doi.org/https://doi.org/10.52103/jmch.v4i1.1153

Kemenkes RI. (2017). *Regulation of the Minister of Health of the Republic of Indonesia number 11 of 2017 concerning patient safety* (Vol. 14, Issue 7, p. 450). https://tel.archives-ouvertes.fr/tel-01514176

Kosiek, K., Staniec, I., Godycki-Cwirko, M., Depta, A., & Kowalczyk, A. (2021). Structural equation modeling for identification of patient safety antecedents in primary care. *BMC Family Practice*, *22*(1). https://doi.org/10.1186/s12875-021-01533-6

Magdalena, I., Fitroh, A., Kurniawati Fadhilah, D., Habsah, D., & Yulia Qodrawati, R. (2023). To Discuss The Processing Of Validity And Reliability Test Data In The Context Of Educational Research. Validity And Reliability Are Two Important Aspects In The Development Of Research Instruments That Can Affect The Validity And Reliability Of Research Findings. *Jurnal Pendidikan Sosial Dan Konseling*, *01*(02), 49–53. https://jurnal.ittc.web.id/index.php/jpdsk

Meitiana, M. (2017). Consumer Purchasing Behavior: A Literature Review of Theory of Planned Behavior. *Jurnal Ekonomi Modernisasi*, *13*(1), 16. https://doi.org/10.21067/jem.v13i1.1762

Ningsih, N. S., & Endang Marlina. (2020). Knowledge of Patient Safety Implementation (Patient Safety) Pada Petugas Kesehatan. *Jurnal Kesehatan*, *9*(1), 59–71. https://doi.org/10.37048/kesehatan.v9i1.120

Nur Amalia, R., Setia Dianingati, R., & Annisaa, E. (2022). The Effect of the Number of Respondents on the Validity and Reliability Test Results of the Self-Medication Knowledge and Behavior Questionnaire. *Generics : Journal of Research in Pharmacy Accepted : 4 Mei*, *2*(1).

Park, H. H., & Kim, S. (2019). A structural equation model of nurses' patient safety management activities. *Journal of Korean Academy of Nursing Administration*, *25*(2), 63–72. https://doi.org/10.11111/jkana.2019.25.2.63

Putri, I. R. R., Yang Fajar Kurniawan, Arlina Azka, Rasniah Sarumi, Meinar Dwi Rantisari Thayeb, Roza Erda, Mk., Isna Aglusi Badri, Yona Palin, Fajrin Violita, Fatmawati Saing, Afif Alba, Elfrida

Iriyani, & Linda Puji Astutik. (2024). *Science Health Promotion Publisher Cv. Eureka Media Aksara*.

Reis, C. T., Laguardia, J., De Barros, C. G., De Araujo Andreoli, P. B., & Martins, M. (2019). Reliability and validity of the Brazilian version of the HSOPSC: A reassessment study. *Cadernos de Saude Publica*, *35*(8). https://doi.org/10.1590/0102-311X00246018

Ronda G Huges. (2008). *Patient Safety and Quality : An Evidence-Based Handbook for Nurses* (Issue 08).

Sugiono. (2017). *Policy research methods* (1st ed., Vol. 1). Alfabeta.

Sulaeman, E. (2017). *Qualitative and Mixed Research Methods in Public Health* (B. Murti, Ed.; III, Vol. 3). UNS Press.

Sulaeman, E. (2023). *Learning Theories and Models of Health Promotion and Behavior: Concepts and Applicationsi* (Rahman, Ed.; 1st ed., Vol. 1). UNS Press.

Tambajong monica, D. P. utarini adi. (2022). Research article on linguistic adaptation of the Hospital Survey questionnaire on patient safety culture to the Indonesian version. In *The Journal of Hospital Accreditation* (Vol. 04). Publication Date.

Wahyuda, O., Gede Darma Suyasa, P., Alit Adianta, K., Ayu Sastamidhyani (2024). *Analysis Of Factors Related To Patient Safety Culture In Hospitals*. http://journal.stikeskendal.ac.id/index.php/Keperawatan

Wibawa, S. R. A. W. T. N. H. A. (2025). *Optimization of nursing practice through the framework of the theory of planned behaviour*.

World Health organization. (2021). Global Patient Safety action Plan 2021–2030, Towards eliminating avoidable harm e health care. In *World Health Organization*.

Yaghoubi, M., Javadi, M., Bahadori, M., & Ravangard, R. (2016). Health Promoting Hospitals Model in Iran. In *Iran J Public Health* (Vol. 45, Issue 3). http://ijph.tums.ac.ir