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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
Patient safety and the Theory of Planned Behavior (TPB) are related. The three elements of TPB—Attitude toward the behavior, Subjective norm, and Perceived behavioral control—Are believed to influence health professionals' intentions to adopt actions that promote a patient safety culture. This study aims to test the validity and reliability of the questionnaire instrument for applying the theory of planned behavior in hospital patient safety. This research method is descriptive quantitative 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: patient safety; reliability; theory of planned behaviour; validity

INTRODUCTION
Considering the importance of patient safety, the Government of Indonesia has a Regulation of the Minister of Health Number. 11 of 2017 about Patient Safety in Hospitals which is the main milestone in the operationalization of patient safety in Indonesian hospitals (Kemenkes RI, 2017). The hospital's steps in minimizing the occurrence of Patient Safety Incidents are in the form of implementing patient safety goals and other things that can affect it. The implementation of a patient safety culture is an important factor in efforts to reduce patient safety incidents in hospitals (Karmila, 2022). Patient safety requires the cooperation of various stakeholders involved in the process of providing and receiving health services, teamwork and collective efforts are the key to minimizing and preventing the occurrence of unexpected events (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).

The 2005 Global Health Promotion Conference in Bangkok defined Health promotion as a process that allows people to increase control over their health and its determinants, and thus can improve health, it is a mediation strategy between people and the environment, synthesizing personal choices and social responsibility for health (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 reference for the implementation of the theory in this study is the theory of health promotion, the theory is Planned Behavior Theory. Patient safety and the Theory of Planned Behavior (TPB) are related. The three elements of TPB—Attitude toward the behavior, Subjective norm, and Perceived behavioral control—Are believed to influence health professionals' intentions to adopt actions that promote a patient safety.

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%. According to data from the Patient Safety Committee in Hospitals in 2021 in various provinces, Indonesia has data on 145 incidents of patient safety incidents in the Sabang Indonesia region or the Aceh region of 0.68%, South Sulawesi 0.69%, Bali 1.4%, West Java 2.8%, South Sumatra 6.9%, East Java 11.7%, Special Region of Yogyakarta 13.8%, Central Java 15.9%, Jakarta 37.9%. The results of the report are known that based on the status of hospital ownership in 2010 in the third quarter of the third quarter data was obtained that local government hospitals have a higher percentage of 16% while private hospital data is 12% (Wahyuda et al., 2024). The high number of adverse event in hospitals can occur because the implementation of patient safety behavior by staff at the hospital has not been optimal. Therefore, it is necessary to have valid and reliable research instruments to examine the factors that affect patient safety behavior, especially for the workforce in hospitals. This study aims to test the validity and reliability of the questionnaire instrument for applying the theory of planned behavior in hospital patient safety.

METHOD

This research method is descriptive quantitative with 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)

RESULT AND DISCUSSION

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 believe that patient safety is a priority in every service at the hospital.	0,917
3	Prioritizing patient safety is an important step to improve the quality of hospital services.	0,957
4	I feel that the implementation of patient safety can prevent unwanted losses to 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 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 (0.840 – 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 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 (0.195)

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 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 resources that support 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 participate in patient safety.	0,811
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

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.

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 larger the number of respondents in the validity and reliability test, the more generalized the results will be. 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 institutions demonstrated good reliability and acceptable validity; thus, it can be used as an assessment instrument for patient safety culture in Chinese primary health care institutions (Cheng et al., 2021).

The results of the validity and reliability test for patient safety culture have also been widely published. There is a study that aims to reassess the reliability and validity of the original version of the HSOPSC adapted into Portuguese for use in the Brazilian context and provided to hospital personnel as a reference in the field of patient safety. Although the results obtained from reassessing the validity and reliability of the version of the HSOPSC translated and adapted for use in the Brazilian context were better than those of the first assessment, they do need further investigation. Whether this is due to the translation process, the lim- its of this study, Brazilian particular characteristics and cultural diversity, or related to more general problems in the structure of the instrument cannot be ascertained here (Reis et al., 2019). The Patient Safety culture scale for Chinese Primary Health Care Institutions: Development, Validity and Reliability, The study constructs the first quantitative evaluation scale for patient safety culture in China, which focuses on primary health care institutions. With 7 dimensions and 32 items, the PSCS-PC

has proved to have good reliability and validity and can thus be an effective tool for the investigation of the present situation of patient safety culture. It can also help uncover patient safety risks, develop targeted improvement measures, ensure medical quality, and build a safer environment for Chinese primary health care institutions (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 reference for the implementation of the theory in this study is the theory of health promotion, the theory is Planned Behavior Theory. Patient safety and the Theory of Planned Behavior (TPB) are related. The three elements of TPB—Attitude toward the 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. Subjective Norm, Subjective norms reflect an individual's perception of social pressure to perform or not perform certain behaviors. In the context of patient safety in hospitals, this can mean the influence of co-workers, leadership, or hospital policies that encourage or require healthcare workers to follow patient safety procedures. Perceived Behavioral Control, Perceived control of behavior is how much an individual believes that they have the ability or resources to perform the behavior. beliefs about the factors that facilitate and prevent an individual from performing a behavior. In the context of patient safety in hospitals, this can have to do with how much healthcare workers feel they have enough knowledge, skills, or support to carry out patient safety measures (Wibawa, 2025). The results of this study can be used to find patient safety models, patient safety models are important to improve 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.

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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