FACTORS INFLUENCING QUALITY NURSING CARE AT HOSPITALS IN INDONESIA

Mr. I Gede Juanamasta

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ปัจจัยที่มีอิทธิพลต่อคุณภาพการพยาบาลในโรงพยาบาล ประเทศอินโดนีเซีย

นายไอ จีดี ฮวนมัสตา

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรดุษฎีบัณฑิต
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By	Mr. I Gede Juanamasta
Field of Study	Nursing Science
Thesis Advisor	Associate Professor Police Captain YUPIN AUNGSUROCH, Ph.D., RN.
Thesis Co Advisor	Professor Mary Fisher, Ph.D., RN.

Accepted by the FACULTY OF NURSING, Chulalongkorn University in Partial Fulfillment of the Requirement for the Doctor of Philosophy

..... Dean of the FACULTY OF NURSING
(Professor RATSIRI THATO, Ph.D., RN.)

DISSERTATION COMMITTEE

..... Chairman
(Professor Wipada Kunaviktikul, RN., FAAN.)

..... Thesis Advisor
(Associate Professor Police Captain YUPIN AUNGSUROCH, Ph.D., RN.)

..... Thesis Co-Advisor
(Professor Mary Fisher, Ph.D., RN.)

..... Examiner
(Associate Professor SUREEPORN THANASILP, D.N.S., RN.)

..... Examiner
(Associate Professor AREEWAN OUMTANEE, Ph.D., RN.)

..... External Examiner
(Associate Professor Pisamai Orathai, Ph.D., RN.)

ไอ จีดี ฮวนมัสตา : ปัจจัยที่มีอิทธิพลต่อคุณภาพการพยาบาลในโรงพยาบาล ประเทศอินโดนีเซีย. (FACTORS INFLUENCING QUALITY NURSING CARE AT HOSPITALS IN INDONESIA) อ.ที่ปรึกษาหลัก : รศ.ร.ต.อ.หญิง ดร.ยุพิน อังสุโรจน์, อ.ที่ปรึกษาร่วม : ศ. ดร.แมรี่ ฟิชเชอร์

การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาอัตราส่วนผู้ป่วยต่อพยาบาล จำนวนชั่วโมงการทำงานของพยาบาล สมรรถนะวิชาชีพพยาบาล สภาพแวดล้อมในการทำงาน ความพึงพอใจในการปฏิบัติงานพยาบาล และความตั้งใจที่จะลาออกจากงาน ที่มีอิทธิพลต่อคุณภาพการพยาบาลผู้ป่วยในประเทศอินโดนีเซีย โดยใช้โมเดลของ Aiken ร่วมกับข้อมูลเชิงประจักษ์เป็นกรอบแนวคิดในการวิจัยครั้งนี้

การศึกษาครั้งนี้เป็นงานวิจัยแบบภาคตัดขวาง โดยมีผู้เข้าร่วมเป็นพยาบาลวิชาชีพที่ทำงานในแผนกผู้ป่วยในจำนวน 550 คน ที่ได้มาจากตัวอย่างแบบหลายขั้นตอน และเก็บข้อมูลระหว่างเดือน มิถุนายน ถึง เดือน ตุลาคม พ.ศ. 2565 ผู้เข้าร่วมในการศึกษาทุกคนตอบแบบสอบถามจำนวน 1 ชุด ประกอบด้วย 7 แบบสอบถาม ได้แก่ แบบสอบถามลักษณะประชากร แบบประเมินอัตรากำลังเจ้าหน้าที่พยาบาล แบบประเมินการปฏิบัติการพยาบาลที่ดี แบบประเมินสมรรถนะวิชาชีพของพยาบาล แบบประเมินสิ่งแวดล้อมการปฏิบัติการพยาบาล แบบวัดความพึงพอใจในงาน และแบบประเมินความตั้งใจในการลาออกจากงาน โดยแบบสอบถามทั้งหมดผ่านการตรวจความตรงตามเนื้อหา ความตรงเชิงโครงสร้างและความเที่ยง ได้ค่าที่อยู่ในเกณฑ์ยอมรับได้ ความสัมพันธ์เชิงสาเหตุ โมเดลสมการโครงสร้างใช้ทดสอบเส้นทางสมมติฐานของคุณภาพพยาบาล

ผลการศึกษาพบว่า โมเดลสมมติฐานที่สร้างขึ้นมีความสอดคล้องกับข้อมูลเชิงประจักษ์ สามารถอธิบายความผันแปรของคุณภาพการพยาบาลได้ 67 เปอร์เซ็นต์ (χ^2 = 975.50, df = 351, χ^2/df = 2.78, p-value = .00, GFI = .88, AGFI = .86, RMSEA = .06, SRMR = .03, and CFI = .99, NFI = .98) โดยผลของโมเดลสมการโครงสร้างพบว่า สมรรถนะวิชาชีพของพยาบาล สภาพแวดล้อมในการทำงาน และความพึงพอใจในการปฏิบัติงานพยาบาลมีอิทธิพลทางตรงด้านบวกต่อคุณภาพการพยาบาล (γ = .51 and .31, β = .12, p < .05 ตามลำดับ) สภาพแวดล้อมในการทำงานมีอิทธิพลทางอ้อมด้านบวกต่อคุณภาพการพยาบาลผ่านตัวแปรความพึงพอใจในการปฏิบัติงานการพยาบาล อย่างไรก็ตาม อัตราส่วนผู้ป่วยต่อพยาบาล และจำนวนชั่วโมงการทำงานของพยาบาลไม่มีอิทธิพลต่อคุณภาพการพยาบาล นอกจากนั้น ความตั้งใจที่จะลาออกจากงานปฏิเสธสมมติฐาน

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2565 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

ลายมือชื่อ อ.ที่ปรึกษาร่วม .....

6278803036 : MAJOR NURSING SCIENCE
KEYWORD: PATIENT TO NURSE RATIO, WORKING HOUR, NURSE COMPETENCE, JOB CHARACTERISTICS, ENVIRONMENT, NURSE SATISFACTION, TUNOVER INTENTION, QUALITY NURSING CARE

I Gede Juanamasta : FACTORS INFLUENCING QUALITY NURSING CARE AT HOSPITALS IN INDONESIA. Advisor: Assoc. Prof. Pol. Capt. YUPIN AUNGSUROCH, Ph.D., RN. Co-advisor: Prof. Mary Fisher, Ph.D., RN.

The study investigated whether patient-to-nurse ratio, working hours, nurse competence, environment, nurse satisfaction, and turnover intention influence inpatient quality nursing care in Indonesian hospitals. Aiken's model and empirical evidence were adapted to construct the framework. A cross-sectional design and multistage sampling were employed. Five hundred-fifty registered inpatient department nurses from June to October 2022. They were involved in completing the seven-part questionnaires, include a demographic questionnaire, nurse staffing measurement form, Good Nursing Care Scale, Nurse Competence Scale, Practice Environment Scale, McCloskey/Mueller Satisfaction Scale, and Anticipated Turnover Scale. All questionnaires had acceptable psychometric properties, which included content validity, construct validity, and internal consistency reliability. Structural equation modeling was used to find out the predictors of quality nursing care.

The results specified that the model fits the empirical data and explained 67% of the variance about nursing care quality (χ^2 = 975.50, df = 351, χ^2/df = 2.78, p-value = .00, GFI = .88, AGFI = .86, RMSEA = .06, SRMR = .03, and CFI = .99, NFI = .98). The structural equation modeling results showed nurse competence, work environment, and nurse satisfaction had a significant positive direct impact on quality nursing care (γ = .51 and .31, β = .12, $p < .05$ respectively). The environment had a significant indirect effect positively on quality nursing care through job satisfaction. However, the patient-to-nurse ratio and working hours had no impact on nursing care quality. Additionally, the turnover intention is against the hypothesis.

Field of Study:	Nursing Science	Student's Signature .....
Academic Year:	2022	Advisor's Signature .....
		Co-advisor's Signature .....

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My deep gratitude goes to my senior Dr. Joko Gunawan, RN and all the experts for their thoughtful suggestions through the validation processes of the research instruments. I also owe my entire doctoral classmates for the knowledge, experience, assistance, and particularly friendship they shared with me during their stay in the program.

This dissertation would not have been possible without the willing participation of Indonesian nurses in the research activities that made it possible. Importantly, this dissertation is dedicated to my mother, who passed away in November 2018. In addition, I would like to thank the entire staff of the inpatient departments of 18 hospitals for their participation in the study.

Last but not least, my dissertation would not have been achievable without my closest friend Jutharat Thongsalab, and my beloved family members' unconditional love, understanding, encouragement, and tremendous support. My thanks go to all other people whose name I have not mentioned here for their assistance and support that have become the wind beneath my wings to complete this dissertation.

I Gede Juanamasta

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CHAPTER I
Introduction

Background and significance of the study

The hospital has a very strategic role in accelerating the development of the status of public health as a health institution that offers health care to the city. One aspect that defines the reputation of health care facilities in the public's eyes is the quality of health services. In nearly every aspect of a person's treatment and health needs, nurses are involved, and quality nursing care remains essential for nurses and patients. This is because nursing is the most significant number of specialist organizations, the forefront and nearest to the trauma, discomfort, and misery endured by patients and their families (Ananda, 2019).

The term of quality nursing care has been used interchangeably with the terms nursing care quality and quality of nursing care. Quality nursing care has a massive effect on clients' well-being, impacting their feelings, and health outcomes, and is essential for nurses' work satisfaction. From nurse and patient experiences, numerous studies have investigated the significance of quality nursing care. Elayan and Ahmad (2017) identified the impressions of quality nursing care by nurses who witnessed hospitalization experience. Most recently, the study from Mongolia explored nurse-patient perceptions and factors predicting related to quality nursing care (Gaalan, Kunaviktikul, Akkadechanunt et al., 2019; Tsogbadrakh, Kunaviktikul, Akkadechanunt et al., 2021). The recently qualitative study conducted by Lusmilasari, Aungsuroch, Widyawati et al. (2020) showed that quality nursing care in nursing services is the

number two of the top ten research priorities in Indonesia. It needs to measure quality nursing care and solve the problem that could improve quality nursing care.

In some studies, patient satisfaction was used as a measurement of quality nursing care. Patient satisfaction was believed as the most robust prediction for overall hospital prediction (Laschinger, Hall, Pedersen et al., 2005). On the contrary, the study from Eriksen (1987) showed patient satisfaction could not represent quality nursing care. Moreover, patients and nurses have a different perspective of quality nursing care (Suhonen, Efstathiou, Tsangari et al., 2012; Zhao, Akkadechanunt, & Xue, 2009). Patients focus on interpersonal care and the whole technical aspect, while nurses concentrate on process and technical as well as the context of nursing care (Lynn, McMillen, & Sidani, 2007; Stolt, Katajisto, Kottorp et al., 2019; Zhao, Akkadechanunt, & Xue, 2009). The present study focuses on the quality nursing care process. Thus, it refers to nurses.

Nurse perception is essential for the quality nursing care process because they stay longer than the other healthcare and closely with the patients (Abuosi, 2015; Koy, Yunibhand, Aungsuroch et al., 2017; Koy, Yunibhand, Aungsuroch et al., 2020). Moreover, Aiken, Clarke, and Sloane (2002) described nurses as informants due to their proximity to patients and the fact that their work brings them into contact with managerial policies and practices because they are in constant contact with patients and hospital administration, as well as physicians and other clinicians and the majority of hospital support services.

Furthermore, Complex factors ranging from upper-level management to patient outcomes are related to inpatient quality nursing care (Juanamasta, Kusnanto, & Yuwono, 2018). Unlike the inpatient nurse, the outpatient nurse majority working for

the morning shift and meeting with the patient on the day check-up only makes frequency between nurses and patients in outpatient lesser than inpatient (Sandianto, Tualeka, & Indriani, 2018). Inpatient nurses spend a long time with their patients (Nuryani, Wati, & Juanamasta, 2020). They provide caring to fulfill patients' needs, including physiological, psychosocial, and extra care needs during hospitalization (Association of Women's Health, 2014). Thus, it is crucial to see inpatient quality nursing care.

Undoubtedly, quality nursing care is a critical factor in adverse events (Labrague, De los Santos, Tsaras et al., 2019), patient outcomes (Boonpracom, Kunaviktikul, Thungjaroenkul et al., 2019), and patient safety (Stimpfel, Djukic, Brewer et al., 2019). Besides, that influences nursing job satisfaction (Spence Laschinger, Zhu, & Read, 2016) that indirectly affects nursing turnover (Dewanto & Wardhani, 2018), intention to stay (Van Bogaert, Wouters, Willems et al., 2013), and intention to leave (Spence Laschinger, Zhu, & Read, 2016). In addition, quality nursing care also had a significant role in patient satisfaction, hospital commitment, and revisit intention (Jung & Sung, 2018; Karaca & Durna, 2019). In other words, if the problem is not fixed, it would lead to poor nursing care and patient outcomes. Thus, the significance of this study is expected to add the body of knowledge in nursing, especially in the nursing management and administration. For nursing science, nursing care is the core of nursing science because the concept of care depends on the quality nursing care.

Indonesia Nursing Act defined nursing care as a set of interactions between nurses and patients to fulfill the patient's needs and encourage patients' independent self-care (Indonesia, 2019; Indonesia, 2014). Meanwhile, quality is the degree of

excellence of something (Press, 2020). Thus, quality nursing care can be defined as the degree of excellence of caring conducted by the nurses to meet patients' needs (Juanamasta, Aungsuroch, & Gunawan, 2021). A former study found the dimension that based on the quality nursing care process combining nurse and patient perception (Istomina, Suominen, Razbadauskas et al., 2012; Leino-Kilpi, 1991; Leino-Kilpi, 1992; Leinonen, Leino-Kilpi, Stahlberg et al., 2003). Leino-Kilpi (1992) found that the quality nursing care process has several attributes during they taking care of the patients, including staff characteristics, care-related activities, preconditions, environment, progress of the nursing process, patients' coping strategies, and cooperation with relatives (Istomina, Suominen, Razbadauskas et al., 2012). A study by Stolt, Katajisto, Kottorp et al. (2019) revealed quality nursing care can be measured through these dimension by using Good Nursing Care Scale (GNCS).

The local studies in Indonesia showed several quality nursing care problems in inpatient ward that aligns with the attributes of quality nursing care process above. Ananda (2019) study at the local hospital in West Sumatra, Indonesia, showed 65.1% expressed discontent with the quality nursing care. In addition, another local hospital study in Surakarta, Indonesia, conducted by Setyowati, Sulisetyawati, and Saelan (2019), revealed the quality nursing care was low. The problem of quality nursing care, including nurses less carefully performing nursing duties 54%, rarely give sufficient information related to care and treatment to the patient and relatives 69.4%, rarely give sufficient knowledge of matters to the patient related to their care and treatment 63,3%. Thus, it shows nurse could not fulfill their character during giving the treatment, help patients' coping strategies, and cooperation with relatives.

Another problem that nurses infrequently maintained the overall safety of the nursing environment for patients 79.6% and 63.3% seldom encouraged the patient and family to give mental support during care and treatment (Pardede, Hasibuan, & Hondro, 2020; Rizkianti & Haryani, 2020). Moreover, the recent qualitative study (Islamy & Sulima, 2020), supported that nurses did not give important information about patient needs. Besides, the nurse response made the patient feel disappointed and led to worse progress in nursing process. Therefore, there are problems in inpatient quality nursing care in Indonesia shown by those previous studies.

Previous studies revealed that is influenced by many factors to understand the quality nursing care. Based on local studies, there are several factors, including nursing care delivery model (Mendrofa & Sagala, 2019), accreditation (Avia & Hariyati, 2019; Sari, 2017), high workload, tasks out of the nursing roles, and the pace of nurses to finish their job (Roro Lia Chairina, Andi Sularso, Sulianti K Tobing et al., 2019). However, based on the literature review, others factors are not included in the local study such as nurse practice environment, organizational support, nurse work characteristics, hospital management, work engagement, personal accomplishment, emotional exhaustion, and workload (Van Bogaert, Peremans, Van Heusden et al., 2017; Van Bogaert, van Heusden, Timmermans et al., 2014).

Meanwhile, based on the Aiken's theory, the quality nursing care factors include working conditions (Aiken, Sloane, Bruyneel et al., 2013), inexperience nurse (Kanai-Pak, Aiken, Sloane et al., 2008), nurse practice environment, nurse-patient ratio, and nursing staffing (Aiken, Clarke, & Sloane, 2002). Moreover, nursing care is a dynamic process (Gastmans, 2013; Shewangizaw & Mersha, 2015). Therefore, in knowledge of factors related to quality nursing care understanding in Indonesia, there is a gap. The

study will focus on the gap in which the factors can be modified, including organizational support, nursing staffing and medical staff qualification. The specific variable is explained on the theoretical framework.

Aiken developed the middle-range theory model that focused on quality nursing care in the hospital (Aiken, Clarke, & Sloane, 2002). The structure consists of hospital organizations that influence organizational support of nursing care, nurse-patient ratio/staffing skill mix, and medical staff qualification. Nurse patient ratio/staffing skill mix influences organizational support and surveillance. The process of care describes the process. That was influenced by organizational support, surveillance, and medical staff qualification. Outcomes are explained by nurse and patient outcomes. Nurse outcomes were influenced by organizational support, while patient outcomes were influenced by organizational support, the process of care, and medical staff qualification (Aiken, Clarke, & Sloane, 2002).

The empirical studies of Aiken found that the nursing work environment and nurse staffing, which is a part of the structure, have a relationship with quality nursing care, job satisfaction, nurse burnout, turnover intention, and patient mortality (Aiken, Clarke, & Sloane, 2002; Aiken, Clarke, Sloane et al., 2002). Then, Multiple studies by Aiken investigated the impact of hospital structure on patient outcomes, allowing the researcher to draw conclusions about the model's potential (Aiken, Clarke, Cheung et al., 2003; Aiken, Clarke, Sloane et al., 2008; Brooks-Carthon, Kutney-Lee, Sloane et al., 2011; Heede, Clarke, Sermeus et al., 2007; Kanai-Pak, Aiken, Sloane et al., 2008; Lucero, Lake, & Aiken, 2009; Lucero, Lake, & Aiken, 2010; Nantsupawat, Srisuphan, Kunaviktikul et al., 2011; Poghosyan, Clarke, Finlayson et al., 2010; Rafferty, Clarke, Coles et al., 2007; Rogers, Hwang, Scott et al., 2004; Vahey, Aiken, Sloane et al., 2004).

The hospital's priorities and policies have an impact on the nurse staffing and the nurse work environment, according to the Nurse Work Environment-Nurse Staffing-Outcome Models (NEW-NS-OM). Working conditions for nurses could be affected by staffing levels. Environment of work and number of nurse incluence care process. Nursing outcomes and patient outcomes are mutually influenced by the nurse's practice setting and the number of nurses on staff. Based on Aiken's previous study (Aiken, Clarke, & Sloane, 2002), she considered quality nursing care as an outcome and measured it with single-handed question. Lack of study explore the quality nursing care as a process. Thus, those reasons encourage this study to confirm the quality nursing care as a process of care to give a better outcome.

Meanwhile, nursing staffing have been proofed for many years as the important factors related to quality nursing care. Two studies from China were found that nursing staffing with low patient to nurse ratio would contribute 10% to increase quality nursing care (Liu & Aungsuroch, 2018; You, Aiken, Sloane et al., 2013). Others from South Korea support that nurse staffing had significant impact to quality nursing care (Cho, Lee, You et al., 2020; Cho, June, Kim et al., 2009). Moreover, a qualitative study found that reduced working hours would increase sustainable working and quality nursing care. (Gyllensten, Andersson, & Muller, 2017). Another impact, long working hours would increase nurses dissatisfaction and turnover intention (Kunaviktikul, Wichaikhum, Nantsupawat et al., 2015) because they feel tired, increase their strees and error.

Medical staff qualification is qualified professional healthcare, including physician, nurse, pharmacy, nutrionist, etc. Nurse competence is the important part of nurse qualification. A former study found nurse competence have a significant to job

satisfaction and turnover intention (Ahn, Jang, & Park, 2018). Another study revealed it has negative impact to turnover intention an positive impact to job satisfaction (Gillet, Fouquereau, Coillot et al., 2018).

Aiken, Clarke, and Sloane (2002) theoretical model was explained that people who worked in a hospital practice environment that was good environment often brought a higher level of nurse work satisfaction (Aiken, Clarke, Sloane et al., 2002), lower level of turnover intention (Aiken, Clarke, Sloane et al., 2002; Cimiotti, Aiken, Sloane et al., 2012), and higher perceptions of quality nursing care (Aiken, Clarke, Sloane et al., 2008; Cimiotti, Aiken, Sloane et al., 2012; Van Bogaert, Clarke, Roelant et al., 2010; Van Bogaert, Clarke, Willems et al., 2013; Van Bogaert, Clarke, Wouters et al., 2013; Van Bogaert, Kowalski, Weeks et al., 2013; Van Bogaert, Meulemans, Clarke et al., 2009). Additionally, job satisfaction has significant impact to turnover intention (Alsaraireh, Quinn Griffin, Ziehm et al., 2014; Laschinger, 2012) and quality nursing care (Aiken, Sermeus, Van den Heede et al., 2012; Sloane, Smith, McHugh et al., 2018; White, Aiken, & McHugh, 2019). However, turnover intention would bring negative impact to quality nursing care (Huang, Wong, Shyu et al., 2021).

Research questions

1. What are the levels of patient to nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention, and quality nursing care in Indonesian hospitals.

2. How patient to nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention influencing inpatient quality nursing care in Indonesian hospitals.

Objectives of study

1. To explain the average levels of nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention and quality nursing care Indonesian hospitals.

2. To confirm how nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention influence quality nursing care in Indonesian hospitals.

Conceptual framework of the study

Aiken's model is used due to the basics of the model (Aiken, Clarke, & Sloane, 2002). This middle-range theory helped determine the taxonomic quality nursing care and the importance of the process of care as the mediator between hospital and nurse and patient outcomes. To get a good outcome of this model, prepare a good hospital organization and give a fair process. It shows the critical role of the process in this model.

Consequently, Aiken, Clarke, and Sloane (2002) study are used to derived all of the variables in this study. the study follows that hospital organization, as shown in Figure 1.1, includes process of care, medical staff qualification, nursing staffing and organizational support. Process of care is derived into quality nursing care (Aiken, Clarke, & Sloane, 2002; Kanai-Pak, Aiken, Sloane et al., 2008; Nantsupawat, Srisuphan, Kunaviktikul et al., 2011). As mentioned above, nurse is responsible for direct patient care, indirect patient care, variable communication, and cleaning and specimens (Lucero, Lake, & Aiken, 2009). The important roles of nurse make huge

impact to quality nursing care and, then, the patient and nurse outcomes (Aiken, Clarke, & Sloane, 2002; Aiken, Clarke, Sloane et al., 2002).

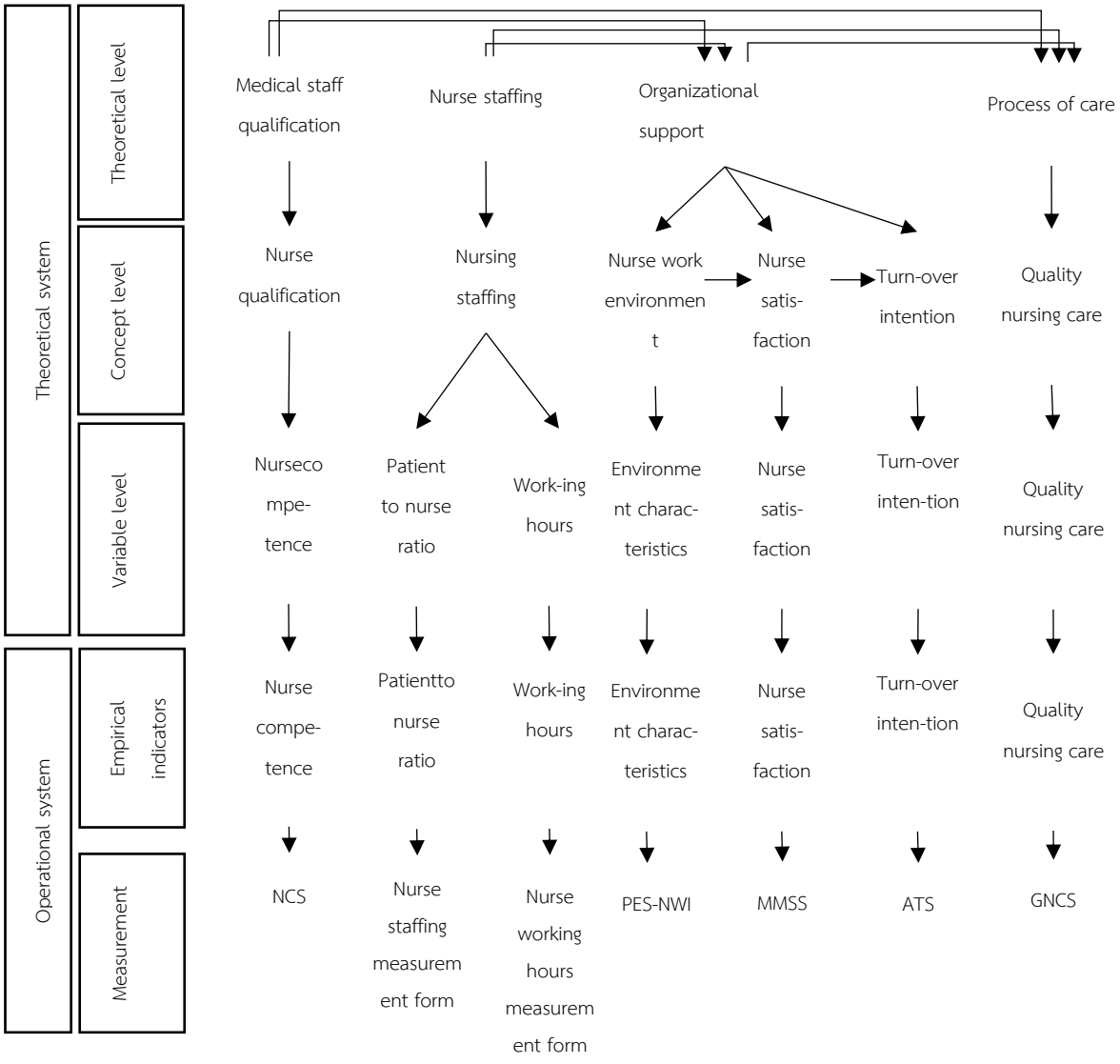

Figure 1.1 Theoretical substruction quality nursing care: NCS–Nurse Competence Scale, PES-NWI–Practice Environment Scale-Nursing Work Index, Mueller and McCloskey Satisfaction Scale, Anticipated Turnover Scale, GNCS–Good Nursing Care Scale

Nursing staffing is derived into patient to nurse ratio (Aiken, Clarke, & Sloane, 2002) and working hours (Heede, Clarke, Sermeus et al., 2007; Rogers, Hwang, Scott et al., 2004; Stimpfel & Aiken, 2013). Those can have a major impact on quality nursing care (Aiken, Clarke, & Sloane, 2002).

Meanwhile, nurse work environment is derived from organizational support. Work environment is considered part of organizations that could influence quality nursing care. Besides, Aiken's clearly stated that using nursing practice environments to measure organizational support in the hospital (Aiken & Patrician, 2000; Aiken, Clarke, & Sloane, 2002). Therefore, environment characteristics are vital factors to investigate further.

Based on the Aiken studies over than 20 years, she found nurse satisfaction (Aiken, Clarke, Sloane et al., 2002; Aiken, Sermeus, Van den Heede et al., 2012; Kanai-Pak, Aiken, Sloane et al., 2008; White, Aiken, & McHugh, 2019) and turnover intention (Heijden, der, Peeters et al., 2018; Wan, Li, Zhou et al., 2018) as the impact of poor work environment (Sabei, Labrague, Miner Ross et al., 2020), and those would influence quality nursing care (Breau & Rhéaume, 2014; Mrayyan, 2006; Shin & Lee, 2016; Siddiqui, 2013). Many studies in Asia prove that poor work environment would impact nurse satisfaction (Liu & Aungsuroch, 2018; Lukman & Bachtiar, 2018; Nantsupawat, Srisuphan, Kunaviktikul et al., 2011). Based on Aiken's study, the study subtract nurse satisfaction and turnover intention from organizational support.

Meanwhile, a meta-analysis study found that nursing staffing, including patient to nurse ratio and working hours, influence nurse satisfaction and turnover intention (Shin, Park, & Bae, 2018). Nurses' turnover intention was increased 1.05 times when nurse to patient ratio was increased by 1 and 8% increase in odds of nurse dissatisfaction

(Shin, Park, & Bae, 2018). Moreover, those conditions would lead to low quality nursing care. Therefore, nurse satisfaction and turnover intention is considered as mediating variable between hospital organization and process of care.

The process denotes that what nurses have been done. It is related to the quality nursing care and the nurse's degree of excellence of caring to meet the patients' needs. Good quality nursing care would impact the nurses, patients, and hospital. Therefore, Aiken' theoretical framework (Aiken, Clarke, & Sloane, 2002) guides this study are followings (1) patient to nurse ratio (nurse staffing), (2) working hours (nurse staffing), (3) nurse competency (medical staff qualification), (4) environment characteristics (organizational support), (5) nurse satisfaction (organizational support), (6) turnover intention (organizational support), and (7) quality nursing care (the process of care). The hypotheses of the causal model should be established based on the original theory, which was popular amount researchers who were interested in quality nursing care to explain how the factors influence quality nursing care in Indonesia.

Research hypothesis with rationale

1. Patient to nurse ratio has a negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

2. Working hour has a negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

3. Nurse competence has a positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

4. Work environment has a positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

5. Nurse satisfaction has a positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

6. Turnover intention has a negative direct effect on quality nursing care.

Hypothesis one, when the number of nurses could not coverage the amount of admitted patient, a single RN should carry a heavier load. Higher patient-to-nurse ratios will exhaust nurses, leading to dissatisfaction and a greater propensity to seek leave their workplace (Aiken, Cimiotti, Sloane et al., 2011; Cho, June, Kim et al., 2009; Cimiotti, Aiken, Sloane et al., 2012; Needleman, 2015). A study by Cho, June, Kim et al. (2009) that ratio 2 nurses and 8 patients was impacted 1/3 nurses felt dissatisfaction and a quarter of nurses had turnover intention. A study by Aiken showed higher ratio would increase job dissatisfaction 15% (Aiken, Clarke, & Sloane, 2002). Further, Higher patient-to-nurse ratios was reported three times low quality nursing care (Aiken, Clarke, & Sloane, 2002), as there is no sufficient time to complete the duties (Cho, June, Kim et al., 2009). Otherwise, lower ratio has positively influence to nurse satisfaction and turnover intention and that would impact to quality nursing care. A study by Boamah, Read, and Spence Laschinger (2017) found higher ratio make nurse feel burnout ($\beta = 0.14$, $p < .01$) and its make them job dissatisfaction ($\beta = -0.76$, $p < .001$) and low quality nursing care ($\beta = 0.17$, $p < 0.001$).

Hypothesis two, when the nurse extend working shifts and overtime will increase the risk of error. The study by Rogers, Hwang, Scott et al. (2004) found When shifts lasted more than 12 hours (OR = 329, $p < .001$), when nurses worked overtime, or when they put in more than 40 hours of work in a week, the likelihood of making a mistake increased dramatically. The previous study found the risk of error begin when shift durations exceeded 8.5 hours (OR = 1.85, $p < .06$) (Rogers, Hwang, Scott et al.,

2004). Nurses feel fatigue when they work over 8 hours, this condition will lead nurse to make mistakes. Unpredictable and long hours will turn the nursing into poor working condition that will threats the patient. Moreover, another study found that working shifts 10 hours or longer reporting poor quality nursing care with odds ratio from 1.21 to 2.25 compare than below ten hours shift (Stimpfel & Aiken, 2013). In addition, Ruggiero (2005) found shift work hours influence nurse satisfaction (Kuo, Lin, & Li, 2014). Positive feeling of working hours will make nurse feel satisfied. If the negative feeling arose, it will become decrease satisfaction (β = -0.65, $p < .001$), and impact nurse turnover (β = -0.36 $p < .001$) (Kuo, Lin, & Li, 2014).

Hypothesis three, nurse competence might influence the way of the nurse taking care to provide high quality nursing care. Competence is a dynamic component to improve nursing performance by ensuring that nurses are competent to perform safe and quality nursing care (Fentianah, 2012). Rationally, the nurse competence could influence the skills and abilities, such as how they work following the standard and use personal protective equipment (PPE). When nurses feel more competence will bring positive impact to nurse satisfaction (β = 0.18, $p = .000$ (Liu, Chao, Kain et al., 2019), β = 0.23, $p = .000$ (Wu, Li, Liu et al., 2018)), and effect size 0.27 (Gunawan, Aungsuroch, Fisher et al., 2020)) and quality nursing care (β = 0.48, $p < .00$ (Gaalan, Kunaviktikul, Akkadechanunt et al., 2019) and OR = 0.93, $p < .01$ (Sloane, Smith, McHugh et al., 2018)). However, it gives directly positive impact $r = 0.18$ ($p < .01$) (Park & Ahn, 2015) and indirectly negative impact to turnover intention through burnout β = -0.40 ($p < .001$) (Takase, Teraoka, & Kousuke, 2015).

Hypothesis four, the environment characteristics positively predicted quality nursing care. The environment characteristics has a significant influence on nurse

performance to provide good quality nursing care. A good work environment will give a good atmosphere, and nurses can practice effectively and efficiently. Environment is related to nurse involvement for policy, control over practice, staffing adequacy, and nurse-physician relationship. If all those conditions can work well, good working environment will realize. The literature review supported that the good nurse working environment was significantly positively influenced quality nursing care (nurse-pyshician relationship OR = 2.92 ($p < .001$) (Van Bogaert, Timmermans, Weeks et al., 2014), OR = 1.40 ($p < .01$) (Kanai-Pak, Aiken, Sloane et al., 2008), OR = 2.44 (Aiken, Clarke, & Sloane, 2002), and $\beta = 0.23$-0.82 (Sloane, Smith, McHugh et al., 2018)), nurse satisfaction (nurse-pyshician relationship OR = 1.39 ($p < .05$) (Kanai-Pak, Aiken, Sloane et al., 2008) and overall environment OR = 2.02 ($p < .001$) (Aiken, Clarke, & Sloane, 2002)). However, if good work environment will be significantly negatively influence turnover intention OR = -0.49 ($p < .01$) (Wan, Li, Zhou et al., 2018) and indirectly positively impact through job satisfaction (OR = 0.89, $p = .03$ (Sabei, Labrague, Miner Ross et al., 2020)) and participation in hospital to turnover intention through satisfaction was high (OR = 0.47, $p < .05$).

Hypothesis five, nurse satisfaction negatively influences turnover intention and positively influence quality nursing care. The previous study by Sabei, Labrague, Miner Ross et al. (2020) supported that higher nurse satisfaction would less turnover intention. Positive feelings will impact nurse motivation, and they will enjoy their workplace. Feeling satisfied will reduce turnover intention that will make nurse prefer to stay in their workplace. Moreover, the positive feeling increase nurse performance to provide good quality nursing care (Aiken, Sermeus, Van den Heede et al., 2012). Maghsoud, Rezaei, Asgarian et al. (2022) found job satisfaction influence quality nursing care

(β = 0.34, p < .001) and unsatisfy nurse would impact turnover intention 2.55 times (Gebregziabher, Berhanie, Berihu et al., 2020).

Hypothesis six, turnover intention negatively influences quality nursing care. The previous study by Huang, Wong, Shyu et al. (2021) supported that turnover intention negatively influenced nurse perceived quality nursing care (β = -0.22 to -0.30, p < .05). When nurse feel uncomfortable in their workplace, they will consider leaving their job or find another workplace. Uncomfortable feeling is related to work environment (Dewanto & Wardhani, 2018). Nurse turnover intention will lead to low performance or higher workload when nurse leave the hospital.

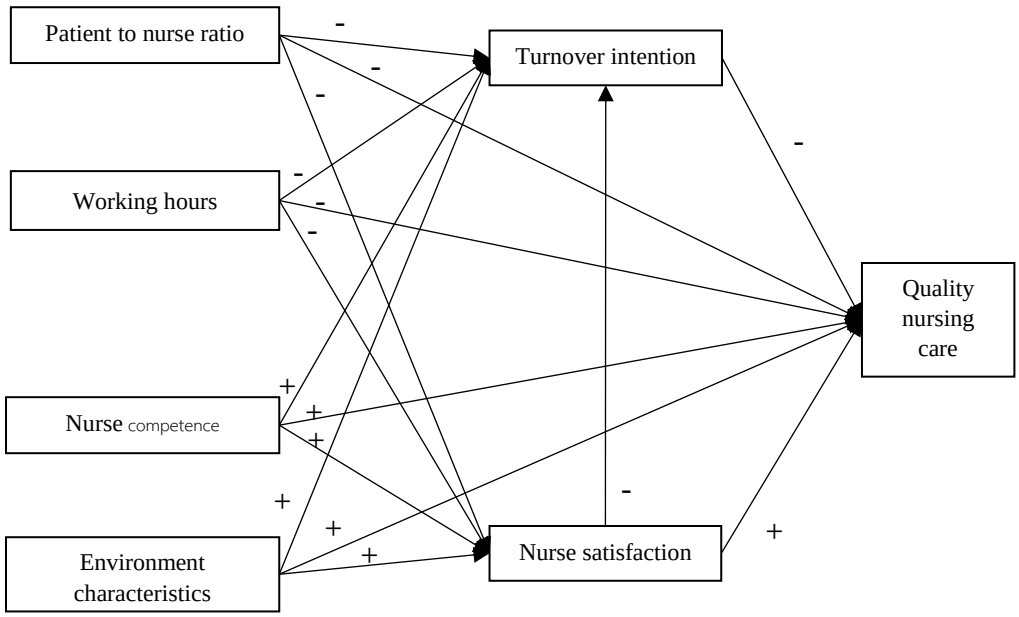

Figure 1.1 Hypothesized model of quality nursing care

Scope of the study

The sample of this study is a nurse working in inpatient department wards in public and private hospitals type A, B, and C in Indonesia. The dependent variable is quality nursing care, and the independent variables are patient to nurse ratio, working

hours, nurse competence, environment characteristics, nurse satisfaction, and turnover intention.

Operational definition of concepts

Quality nursing care refers to the degree of excellence of caring that conducted by nurses to fulfill the patients' need that perceived by Indonesian nurses, which measured by Good Nursing Care Scale for Nurse (GNCS-N) (Istomina, Suominen, Razbadauskas et al., 2012; Leino-Kilpi, 1992).

Patient to nurse ratio refers to is the average number of patients per shift that an Indonesian nurse on a nursing unit cared for during the previous shift (day, evening, night). Nurse staffing instrument will be adapted from Aiken, Clarke, and Sloane (2002).

Working hours refers to is the average duration of Indonesian nurse last shift by the shift's start time and end time. This measurement was following from Stimpfel and Aiken (2013).

Nurses' competence refers to the Indonesian nurse ability or skill possessed by a person in carrying out a job or task in a particular field, in accordance with the nurse profession he/she holds. The ability includes work role, research oriented, managing situation, diagnostic function, mentoring function, and patient education. It measured by Nurse Competence Scale (NCS) (Juntasopeepun, Turale, Kawabata et al., 2019; Meretoja, Isoaho, & Leino-Kilpi, 2004).

Environment characteristics refers to factors that enhance or attenuate the Indonesia nurse's ability to practice nursing skillfully and deliver high quality care, including nursing foundations for quality care; nurse participation in hospital affairs;

nurse manager ability, leadership and support of nurses; collegial nurse-physician relations; and staffing and resource adequacy, which measured by Practice Environment Scale-Nursing Work Index (Lake, 2002; Lake, Sanders, Duan et al., 2019).

Nurse satisfaction refers to result of Indonesian nurses' evaluation of the value or fairness of their work experience, they have positive feelings in response to work conditions that support their desired needs. It was measured by Mueller and McCloskey Satisfaction Scale (MMSS) (Mueller & McCloskey, 1990). This instrument contained eight dimensions, including scheduling, rewards, co-workers, family/work balance, professional opportunities, interaction, control/responsibility, and praise/recognition.

Turnover intention refers to the perception or viewpoint of Indonesian nurses regarding the probability of leaving voluntarily their current positions. It was measured by Anticipated Turnover Scale (ATS). ATS was developed by Hinshaw and Atwood (1982).

Expected benefits

The outcome of this study will provide a clear concept and strength of the study design to provide good evidence of factors influencing quality nursing care in Indonesia hospitals. The factors will provide the support for better management in understanding and explaining factors influencing quality nursing care. The influencing factors are expected to build the awareness of stakeholders, including top nursing managers and hospital upper-level management in enhancing quality nursing care. The findings of study will also suggest top managers to strengthen nursing staffing and work environment.

CHAPTER II
Literature Review

Integrative literature review of nursing care is presented in this chapter, covering topics such as Indonesia situation of quality nursing care, models of theoretical, concepts of research, empirical evidence, and the structural equation model (SEM) in nursing.

Situation Quality Nursing Care in Indonesia

Theoretical models related to quality nursing care

Concept of Quality Nursing Care

Factors related to quality nursing care

The relationship among patient to nurse ratio, working hour, nurse competence, environment, nurses' satisfaction, turnover intention, and quality nursing care

Structural Equation Model (SEM) in nursing research

Situation Quality Nursing Care in Indonesia

Quality nursing care in Indonesia hospitals encompasses administration, patients, nurses, and environmental aspects. Based on previous studies, Indonesia's quality nursing care has a low level (Ananda, 2019; Ariyanth & Somantri, 2007; Azizah, 2015; Efendy, 2017; Hartati, 2010; Nugraha, 2012; Trimumpuni, 2009). In line with low-quality nursing care in Indonesia, a systematic review studying in ASEAN countries showed that most service failures were medical errors. However, there were also shortcomings in the treatment of patient grievances as a result of those errors.

Inadequacies have been reported in patient evaluation and availability of necessary supplies (Harrison, Cohen, & Walton, 2015).

The timeline evolution of quality nursing care evidence in Indonesia was divided become four eras. In 2005, nursing shortage, low standard of nursing education, and nursing care delivery standards were related to the quality nursing care (Shields & Hartati, 2003). The next era (2006-2010) indicated competence, training need, work environment, nursing roles, central registration of nurses, burnout, and nurse satisfaction were needed to reconstruct to increase the quality nursing care (Hennessy, Hicks, Hilan et al., 2006, 2006). Nursing documentation, nursing care delivery models, workload, supervision, the inadequacy of patient evaluation, necessary supplies, and case management were the problems 2011-2015 (Efendy & Purwandari, 2012; Harrison, Cohen, & Walton, 2015; Panjaitan, 2013; Sitorus, Hamid, Azwar et al., 2012). Finally, in the last five years, 2016-2020, the actual situation of nursing in Indonesia are common interest or nurse-physician relationship, nursing rounds, nursing documentation, nursing competence, knowledge, ability or skills, gender, training needs, critical thinking, caring behavior, nursing care delivery models, turnover, and managerial function (Anggarawati & Wulan Sari, 2016; Azizah, Widayati, & Rachmania, 2017; Deniati, Anugrahwati, & Suminarti, 2016; Dewanto & Wardhani, 2018; Kusmiran, 2018; Mendrofa & Sagala, 2019; Rahayu, Hartiti, & Rofi'i, 2016; Rohita & Yetti, 2017; Saraswasta & Hariyati, 2018; Sebayang, 2019; Setyowati, Sulisetyawati, & Saelan, 2019; Tuasikal, Margawati, & Dwiantoro, 2017; Yani, Wahyuni, & Priscilla, 2019). Moreover, based on the narrative review related to nursing development in Indonesia found that Indonesia have a complex problem related to quality nursing care and there is limitation study related to factors influencing quality

nursing care (Juanamasta, Iblasi, Aungsuroch et al., 2021). Those problems were grown from the hospital needs and the standard became broader, including nurse competence.

Nevertheless, those conditions might not accurately describe the situation quality nursing care in Indonesia because there is no study have been conducted which is directly measures factors related to quality nursing care in Indonesia. Therefore, this study is urgently needed to confirm the situation the inpatient quality nursing care in Indonesia.

1. Health care system in Indonesia

Indonesia is committed to establishing successful decentralization, which has been applied to the district level since 2001. Decentralization is the process by which central government authority is delegated to local government. Decentralization takes the form of regional autonomy, which is frequently granted to the local administration of a regency or city. As stated in Law No.32 of 2004 on Regional Government in Indonesia, decentralization is supposed to improve health care and community welfare. (WHO, 2012). In Indonesia, health care system is divided into three stages, including primary, secondary, and tertiary. First stage is called community health care center or *Puskesmas*. This primary health care is focused on community-based health care. One sub-district would be covered one to three *Puskesmas*, it depends on the size of the area and the number of citizens. Each *Puskesmas* is supposed to be headed by a doctor or nurse and supported by one or two sub-head. *Puskesmas* promote health through illness prevention, family planning, maternal and child health, community nutrition, minor emergencies, and sanitation (Mahendradhata, Trisnantoro, Listyadewi et al., 2017).

Secondary health care is hospital type B, C, and D. Type D hospital is established to support Type C hospital because the location in the rural area that could

not covered by type C hospital. Besides, Type D hospital is underdeveloped or transition into Type C. It has less than 50 beds that provide basic secondary care at sub-district level with general physician and dentist. Type C hospital serves secondary and tertiary care for a district with more than four specialists and provides 50-100 beds. Type B hospital serves more advanced referral care at the district and provincial level with up to 400 beds that provide various specialists, but are limited to subspecialists (PERSI, 2021).

The highest stage is tertiary health care that is type A hospital with up to 1,500 beds. This hospital is designed to provide a broad range of specialist and subspecialist medical services. Also, to be the top referral care or national level or central hospital.

However, given the various types of hospitals, there is no difference in the level of practical nursing skill. The investigation will take place in hospital types A, B, and C. Type D hospitals are removed because they are in the process of transitioning to become type C hospitals, with all of their infrastructure underdeveloped.

2. Nurses in Indonesia

Indonesia has many backgrounds of nurses that may be different from other countries, such as Thailand and Philippine. To become an RN, you need to go to school for at least four years. Nurses can earn their Nursing Certificate after two semesters or one year of study. In addition, a three-year nursing program prepares an associate nurse or vocational nurse for the licensing exam. (Juanamasta, Iblasi, Aungsuroch et al., 2021).

The degrees of nurse specialist or advance practice nurse can be earned in two ways: by bachelor's degree-holding registered nurses or by master's degree-holding registered nurses. They should complete a three-semester clinical residency in their

specialist area. The nursing specialist graduate is expected to assume consulting, supervisory, and preceptorship roles. Additionally, nurse specialists are zealous about growing the profession based on their experience (Juanamasta, Iblasi, Aungsuroch et al., 2021).

In 2010, the Indonesian National Nurses Association (INNA) formed the Association of Indonesian Nurses Education Center (AINEC) to guide bachelor and nurse professional institutions of higher education toward improving the quality of nursing education in Indonesia. (Indonesia, 2011). Additionally, in the year, the Association of Nurses Vocational Education Indonesia (Asosiasi Institusi Pendidikan Vokasi Keperawatan Indonesia, abbreviated AIPViKI) was established. 2011 (Indonesia, 2019). Since 2013, these groups have been responsible for developing the national curriculum standard and competency exam. If a candidate's overall exam score is higher than the minimum threshold established by the National Nursing Council, the candidate will be awarded a certificate valid for five years. (Indonesia, 2014; Suba & Scruth, 2015). In order to work as a nurse in Indonesia, applicants must first pass a certification exam. For a period of 5 years, Indonesia will employ foreigners who have nursing credentials.

In the recapitulation of the Health Human Resources Development and Empowerment Agency in 2021, there are a total of 460,267 nurses in Indonesia (Juanamasta, Iblasi, Aungsuroch et al., 2021), and 65.37% working in the hospital. It consists of Specialist 5.64%, bachelor’s degree with Ns. 18.49%, diploma III and bachelor without Ns. 68.39%, nursing assistant (SPK) 4.88%, and not identified 2.6%. However, there is no different responsibility between these groups of nurses in the

hospital because Indonesian nurse is still shortage (Juanamasta, Iblasi, Aungsuroch et al., 2021).

3. Nurse inpatient ward in Indonesian Hospital

Nurse job status in the hospital

According to the Republic of Indonesia State Civil Apparatus Act Number 5/2014, articles 7 points 1 and 2 state that civil servants or *Pegawai Negeri Sipil* (PNS) are *Aparatur Sipil Negara* (ASN) (government officer/employee) employees appointed as permanent employees by staffing officers and have national registration numbers. Otherwise, *Pegawai Pemerintah dengan Perjanjian Kerja* (PPPK) (contract), often referred to as Non-PNS, are ASN employees who are appointed as employees with a work agreement by the Staffing Officer in accordance with the needs of Government Agencies and the provisions of the Act that recruited by following national procedure. In addition, the *honorer* is non-contract and drafted based on the agency's needs and procedures (Saputro, 2015). All of those employment status is used in public hospitals.

Meanwhile, in private hospital, they only use two categories for the employment status, including permanent and contract. The contract is for the new employee who passes the training process six months after the test. They will become permanent nurses after one to three-year experience as a contract nurse, depending on the hospital's regulations and needs. However, there is no significant difference in the nursing roles between the public hospitals (civil servants, contract or non-contract) and private hospitals (permanent and contract).

When comparing the two work statuses, the most significant distinctions are connected to fringe benefits and professional advancement. At the start of their first year of work, the salaries of the two types of nurses differ. As the number of years spent

working increases, the wage disparity between the two categories of nurses will narrow. Furthermore, there is a significant discrepancy between public (civil servants, contract, and non-contract nurses) and private retirement payment systems in Indonesia (permanent and contract). Furthermore, because contract nurses can leave their jobs more efficiently than permanent nurses, this may impact professional advancement during one's working years.

The employment status might influence quality nursing care (Wu & Lee, 2006). This variable is not investigated for this study because there are no different roles among them. In addition, based on Aiken's model, nursing staffing focuses on the patient-to-nurse ratio and working hours. Thus, employment status and promoting quality nursing care are still challenges in Indonesia.

Nurse shift in the hospital

Indonesia Employment Act No. 13/2003 (Indonesia, 2003) explains that working hours is the time to do work. It can be carried out during the day or at night. Working hours within an agency is a maximum of seven hours per day, and accumulatively, each shift may not exceed 40 hours per week for six working days in one week. In addition, nurses on duty in hospitals include workers who work continuously, including on official holidays. This is then regulated in Decree of Minister Employment and Transmigration Number Kep-233/Men/2003 (Indonesia, 2003) concerning Types and Characteristics of Continuously Performed Work. In practice, this continuous work is carried out by dividing work time into shifts.

Eight hours working time is the ideal working time for each shift is 8 hours i.e., 07:00 -15:00, 15:00 - 23:00, 23:00 - 07:00. However, based on the previous study, working hours is vary on each hospital. One study found in the type C hospital that use

working time, as follows 08:00 -15:00, 15:00 - 21:00, 21:00 - 07:00 (Harlina, 2018); 07:30 -14:00, 13:30 - 20:00, 20:00 - 08:00 . In another study, type B hospital use: 07:00 -13:00, 13:00 - 19:00, 19:00 - 07:00 (Firdaus, Jurusan, Industri et al., 2018); 07:00 - 14:00, 14:00 - 21:00, 21:00 - 07:00 (Latief & Lestari, 2019; Putra, 2021). Based on those studies, it can be seen night shift is the longest time around 10 to 12 hours.

Furthermore, nurse shift or working hours is close to workload and patient-to-nurse ratio. The former study found that the number of patients per registered nurse was highly influenced the quality nursing care and patient safety (Ball, Murrells, Rafferty et al., 2014). Aiken's theory also supports this statement that the patient-to-nurse ratio and working hours influences nurse workload and quality nursing care directly (Aiken, Sloane, Bruyneel et al., 2014; Cimiotti, Aiken, Sloane et al., 2012; McHugh, Aiken, Sloane et al., 2021; Stimpfel & Aiken, 2013). Therefore, this study would investigate the number of the patient to nurse ratio towards quality nursing care.

Nurse role in the hospital

Indonesian nurse role is explained by Regulation of The Minister of State Application Utilization and Bureaucracy Reform of The Republic of Indonesia Number 35/2019 Concerning the Functional Position of Nurse (Indonesia, 2019).

Based on the standard nursing roles, the problems of those nursing roles are clearly stated on the background and quality nursing care situation in Indonesia. Then, quality nursing care is urgently needed to investigate in Indonesian hospitals. In particular, the modifiable factors can help the nurse to improve their quality nursing care.

In conclusion, the above sections briefly introduce the background and significance of the quality nursing care situation in Indonesia, Indonesia's healthcare

system, the nurses working in inpatient wards in Indonesian Hospitals (nurses' employment status, nurses' shift, and nurses' roles).

Theoretical models related to quality nursing care

Nurse Work Environment, Nurse Staffing, and Outcome Model (NWE-NS-OM) was developed by Aiken's. (Aiken, Clarke, Cheung et al., 2003; Aiken, Clarke, & Sloane, 2002; Aiken, Clarke, Sloane et al., 2008; Aiken, Clarke, Sloane et al., 2002; Aiken, Sloane, Bruyneel et al., 2013). According to the NWE-NS-OM, the staffing levels and working conditions of nurses are affected by the priorities and policies of hospitals. Staffing levels can affect the work environment of nurses. Both the nurse practice environment and the number of nurses on staff can have an impact on the care process, which in turn affects nursing outcomes and patient outcomes. The assumption was made that nursing outcomes had additional effects on patient outcomes.

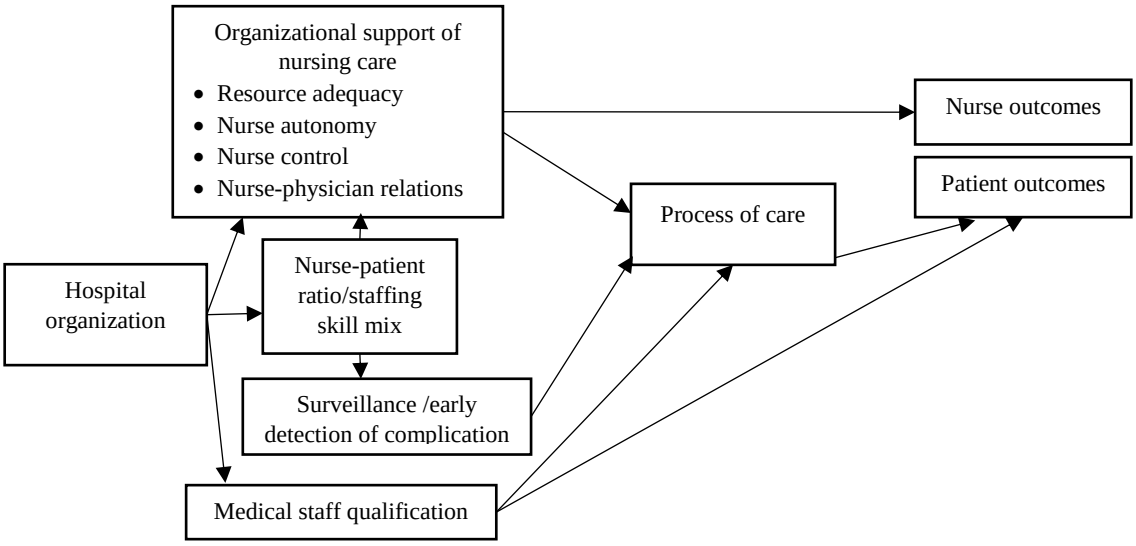

Figure 2.1 Theory development from middle range theory of Aiken's Model (Aiken, Clarke, & Sloane, 2002).

In addition, the benefits of working in a magnet-designated hospital practice environment, such as increased nurse job satisfaction, were outlined using Aiken's theoretical model. (Aiken, Clarke, Sloane et al., 2002), lower level of nurse burnout (Aiken, Clarke, Sloane et al., 2002; Cimiotti, Aiken, Sloane et al., 2012), and higher perceptions of quality nursing care (Aiken, Clarke, Sloane et al., 2008; Cimiotti, Aiken, Sloane et al., 2012; Van Bogaert, Clarke, Roelant et al., 2010; Van Bogaert, Clarke, Willems et al., 2013; Van Bogaert, Clarke, Wouters et al., 2013; Van Bogaert, Kowalski, Weeks et al., 2013; Van Bogaert, Meulemans, Clarke et al., 2009).

Adequate resources, nurse-physician relationships, and administrative support are the subcategories that make up the concept of the nursing practice environment. After investigating the all-important context in which magnet hospital nurses work, (Lake, 2002), The term "nursing practice environment" was used to describe "organizational characteristics of a work environment that facilitated or constrained the RNs practice." Using factor analysis, it was broken down into five critical domains: (1) participation in hospital affairs, (2) nursing foundations for quality of care, (3) nurse manager ability, leadership, and support of nurses, (4) adequate staffing and resources, and (5) collegial nurse-physician relations.

The NWE-NS-OM was developed based on the observation that nurse resources and the practice environment have a significant impact on patient outcomes (Aiken, Clarke, & Sloane, 2002). Moreover, interactions between concepts were described in this model. Nonetheless, the model lacked definitions for associated concepts. In addition, researchers could define nursing outcomes and patient outcomes based on the objectives of their own studies. Similarly, only a subset of the relationships between concepts derived from the NWE-NS-OM could be supported by empirical studies.

In hospitals, nurses serve as the primary early detection system for adverse events, complications, and errors. Nurse-to-patient ratios and the diversity of nursing skills have an impact on early detection (the proportion of nursing personnel who are registered professional nurses). When a potential problem is discovered, organizational characteristics impact how quickly the institution will intervene to fix it. The smaller the risk of a bad outcome, the earlier the problem is discovered and handled. In order to understand the extent to which organizational elements other than staffing affect patient outcomes, there has been a dearth of research. The model goal has been to help people better comprehend the relationship between an organization structure and its results (Aiken, Clarke, & Sloane, 2002). Therefore, the study uses this theory because want to investigate the modifiable factors nursing staffing and organizational support in Indonesian hospital.

This study will be focused on process of care, nursing staffing, medical staff qualification and organizational support because the researcher want to investigate the modifiable factors that impact quality nursing care (in the process of care). However, surveillance or early detection was not used because it involves complex factors, including patient characteristics and diseases that make measurement could not be generalized.

1) *Process of care.* The process of care has been identified as critical to ensuring the quality of therapy. The term 'nursing process' refers to the process of identifying care processes. The clinical history and physical examination are used to evaluate, plan, coordinate, and monitor care (i.e., measure progress towards desired health integrity or quality of life). A pioneering study of nursing care discovered that when nurse staffing was increased, only a fraction of patients received up to 60% more direct attention.

However, the survey found that the majority of nursing responsibilities are still performed by RNs. The nurse is responsible for direct patient care (e.g. washing, comforting, and interacting with patients), indirect patient care (e.g. nourishment, treatments, and procedures), cleaning and specimens (e.g. student teaching, rest periods and surveillance of comatose patients) and variable communication (e.g. charting and information exchange) (Lucero, Lake, & Aiken, 2009).

2) *Nurse staffing.* The nursing staffing is derived from hospital organizations. Aiken, Clarke and Sloane (2002) relate to the details on the last shift (day, evening, or night) they had worked, including the number of patients they were assigned. Nurses were used to compute nurse staffing ratios based on the number of patients and the number of nurses each nurse reported being present on their last shift. Low staff-to-patient ratios and working hours suggested better staffing (Aiken, Sloane, Bruyneel et al., 2014).

3) *Nurse qualification.* Nursing staff is one of medical staff, in particular nurse qualification is a factor related to quality nursing care. A previous study from Aiken, Clarke, Cheung et al. (2003) found that higher proportions of nurses educated at the baccalaureate level or higher, surgical patients experienced lower mortality, and failure-to-rescue rates. Another previous study in Europe also found that education qualification influence quality nursing care. Those studies showed the important of nurse qualification in providing care.

4) *Organizational support.* Hospital organizational climate reflects managerial decisions that shape the context in which nursing care takes place. The extent of organizational support for nursing care in the hospitals was the primary explanation for higher patient satisfaction and better nurse outcomes, including lower rates of

needlestick injuries. Organizational support as operationalized in these models included two components: staffing adequacy and managerial support for nurses' decisions. The key to model on the effects of organizational attributes on the process of care and outcomes was the development of a method and instrument for empirically quantifying organizational variation (Aiken, Clarke, & Sloane, 2002).

Concept of Quality Nursing Care

1. Definition of Quality Nursing Care

All fields make use of the word "quality" in various contexts. The term "quality of care" is widely used in the healthcare industry and can refer to any aspect of healthcare delivery, from clinical medicine to nursing to pharmacy to nutrition. The term "quality of nursing care" refers only to nursing in its strict sense (Juanamasta, Aungsuroch, & Gunawan, 2021). A variety of themes connected to quality nursing care have been described by nursing researchers. Care quality, nursing outcomes, nursing-sensitive outcomes, uncompleted care, and care gaps are all examples. Researchers, on the other hand, have considered quality nursing care as a complex and ambiguous notion with numerous definitions, and the topic has sparked numerous heated debates. As a result, despite the similarities in their experiences, a consensus idea may not be naturally achievable due to the differing viewpoints of nurses and patients and their differing understandings of treatment. The idea based on this similarity would be incomplete, as it would not take "quality" into account holistically (Juanamasta, Aungsuroch, & Gunawan, 2021).

Quality nusing care can be defined from multiple perspectives, including those of management, nurse managers, nurses, and patient and family, (Redfern, 1993). This

study focused on the micro-level, examining how hospital nursing staff could make a significant and distinctive contribution. According to previous research, a nurse typically employs two terms or sets of terms to describe quality nursing care. The terms "meet", and "need" are associated with addressing the patient's needs. According to one study, quality nursing care is provided when patients' needs are met with "caring, empathy, and respectful interactions," with accountability, intention, and advocacy serving as the study's essential, integral foundation (Burhans & Alligood, 2010). According to Williams (1998), providing quality nursing care means meeting the patient's physical, psychosocial, and extra care needs. Another investigator reported that referred to the degree of excellence in nursing care delivered for patients that meets the patient's spiritual, mental, social, physical environmental needs (Leino-Kilpi, 1991; Leino-Kilpi, 1992).

The term "standard" was used by some researchers to define high-quality nursing care. Nursing care that meets professional standards protects patients and makes them happy (Kunaviktikul, Anders, Srisuphan et al., 2001). Quality nursing care (QNC) was defined by an Iranian study to be "nursing care delivery based on nursing standards with safety," both of which are critical to patient satisfaction (Tafreshi, Pazargadi, & Abed Saeedi, 2007).

Another definition used the term "degree". Lynn, McMillen, and Sidani (2007) defined as the highest level of performance in all aspects of the nursing process. These aspects include communication, observation, assessment, intervention, advocacy, working conditions, teamwork within the unit, the nurse's own personality, and the patient's emotional state. In addition, another defined The extent to which nurses considered the staff characteristics, care activities, physical environment, preconditions

for care, and nursing process when providing care to patients (Leino-Kilpi, 1992; Leinonen, Leino-Kilpi, Stahlberg et al., 2003).

In conclusion, quality nursing care of this study refers to the degree to which an activity fulfills environment, staff characteristics, preconditions for care, care-related activities, course of the nursing process, patient coping strategies, and collaboration with relatives as perceived by Indonesia RNs

2. Dimensions of Quality Nursing Care

Many studies use different dimension on their studies. These occurrences occur due to the multifaceted and complex nature of providing high-quality nursing care. These factors are associated with how professional nurses themselves view the quality of their patients' care:

A study investigated the perceptions of nurses on perioperative quality care using the Good Nursing Care Model had different five classifications including staff characteristics, nursing activities, preconditions, the progress of nursing process, and environment (Leinonen, Leino-Kilpi, Stahlberg et al., 2003). Another study identified five primary categories of good nursing care, including good nurse, activities of a good nurse, nature of activities, prerequisites for good nursing care, and goals of good nursing care (Leino-Kilpi, 1991). In addition, a study reported six essential themes of NCQ were including advocacy, caring, empathy, respect, intentional and responsibility (Burhans & Alligood, 2010).

Another two researchers categorized nursing care quality as two dimensions: first dimension was prerequisites included routines, staffing, and attitudes and elements of performance. Second dimension was the elements of performance, which was

included detecting, acting on behalf of the patients, and acting on signs and symptoms (Idvall & Rooke, 1998).

In conclusion from previous studies provided different dimensions as followings: staff characteristics, nursing activities, preconditions, the progress of nursing process, environment, prerequisites, elements of performance, competence, communication, confidentiality, dignity of patients, cleanliness and hygiene, expertise and judgment, safety, discharge procedures, information and education, staff morale, and continuity of care, nurses' perceptions of caring behaviors, barriers to caring, ways to overcome the barriers, advocacy, caring, empathy, respect, intentional and responsibility, psychosocial relations, commitment, work satisfaction, openness/closeness, competence development, security/insecurity, timeless activities, and patient outcomes.

In this study researcher selects only the practical and fitted to Indonesian context, which is mainly focused on staff characteristics, care-related activities, preconditions for care, environment, course of the nursing process, patient coping strategies, and collaboration with relatives (Leino-Kilpi, 1992). These seven dimensions were defined as followings:

1) Staff characteristics refers to as perceived by professional nurses, the degree of excellence in providing a clean ward environment to meet patients' needs is correlated with a concern for politeness, kindness, protection of patient rights, and participation in solving moral issues.

2) Care-related activities is outlined services that are empathetic, respectful, uplifting, and psychologically supportive to meet the needs of patients.

3) Preconditions for care refers to have current knowledge, practice skills, experience, participation, and the willingness to provide nursing care to meet patients' needs.

4) Environment refers to as the concern about safety environment for patients to meet patients' needs.

5) Course of the nursing process refers to flexible cooperation between nurse and patient to meet patients' needs.

6) Patients' coping strategies refer to nursing action that help patients' coping during treatment to meet patients' needs.

7) Collaboration with relatives is defined as interaction with patients' relatives related to care and treatment to meet patients' needs.

3. Measurement of nursing care quality

Furthermore, many ways are used to measure quality nursing care, including using indicators, questionnaires, or single questions, instead of measuring patient perceiving. Several studies used indicators or patient outcomes, including Heede, Clarke, Sermeus et al. (2007), Cimiotti, Aiken, Sloane et al. (2012), Carthon, Kutney-Lee, Jarrin et al. (2012), Aiken, Sloane, Bruyneel et al. (2014), McHugh, Aiken, Sloane et al. (2021), and Aiken, Simonetti, Sloane et al. (2021). Meanwhile, many studies measure quality nursing care by a single question that focuses on quality nursing care as an outcome (Aiken, Clarke, & Sloane, 2002; Aiken, Clarke, Sloane et al., 2002; Aiken, Sermeus, Van den Heede et al., 2012; Aiken, Sloane, Bruyneel et al., 2013; Brooks-Carthon, Kutney-Lee, Sloane et al., 2011; Nantsupawat, Srisuphan, Kunaviktikul et al., 2011; Sloane, Smith, McHugh et al., 2018). However, this single item could not measure the psychometric properties. Besides, two studies used self-

administered questionnaires, including Liu and Aungsuroch (2018) and Koy, Yunibhand, Aungsuroch et al. (2020).

On another side, Lucero, Lake, and Aiken (2010) measured quality nursing care as a process. They measured using unmet nursing care needs based on RNs' reports of necessary nursing care left undone. Moreover, some studies use the "Good Nursing Care Scale" (Leino-Kilpi, 1992), as follows Gaalan, Kunaviktikul, Akkadechanunt et al. (2019), Gröndahl, Muurinen, Katajisto et al. (2019), and Istomina, Suominen, Razbadauskas et al. (2012). In addition, Tsogbadrakh, Kunaviktikul, Akkadechanunt et al. (2021) developed the quality nursing care scale instrument in Mongolia. Meanwhile, regardless of the process or outcome measurement reference. Some studies developed and measured psychometric properties their instrument to fit norms, cultures, and beliefs. They construct the questionnaire to make it appropriate within their country's condition (Koy, Yunibhand, Aungsuroch et al., 2017; Liu, Aungsuroch, Gunawan et al., 2021; Tsogbadrakh, Kunaviktikul, Akkadechanunt et al., 2021). Several existing instruments are explained below.

1) Quality of Nursing Care Process

We found Haussmann, Hegyvary, Newman et al. (1974) was the first time self-administered questionnaire related to nursing care process that based on nursing care activity. Haussmann, Hegyvary, and Newman (1976) breaking down more, and the final instrument become 6 dimensions, 28 subdimensions, 257 items. The dimensions are including 1) Formulating plan of nursing care; 2) Attending patients’ physical needs 3) Attending non-physical (psychological, emotional, mental, and social) needs; 4) Evaluated achievement of nursing care objective; 5) All patients' safety is ensured by adhering to unit procedures; 6) Administrative and managerial services support the

provision of nursing care in a variety of ways. However, there is no validity and reliability test recorded related this instrument can be found online.

2) Good Nursing Care Scale for Nurse (GNCS-N)

Good Nursing Care Scale was developed by Leino-Kilpi (1992). The main categories of good nursing care are actor, characteristics of the actor, task-oriented and human-oriented activities, modes of activity, pre-conditions and aims. After three times modification, the total number of items become 40 that load into 7 dimensions, including 1) Staff characteristics; 2) Task-oriented activities (Physical activities, Education activities, and Supporting initiative); 3) Human-oriented activities (Respect, Caring, and Encouragement); 4) Preconditions; 5) Progress of nursing care; 6) Environment (Physical environment and social environment); and 7) Cooperation with relatives. GNCS-N have been widely used and translated into several languages. The latest validity test showed GNCS-N provides evidence of unidimensionality with an adequate goodness-of-fit to the Rasch model (Stolt, Katajisto, Kottorp et al., 2019). Person-separation validity was acceptable and misfit was reasonable with Rasch-equivalent Cronbach α was 0.88 (nurse data).

3) The Good Perioperative Nursing Care Scale (GPNCS)

The Good Perioperative Nursing Care Scale (GPNCS) was used by Leinonen, Leino-Kilpi, Stahlberg et al. (2003) to compare the perceptions of patients and nurses on perioperative quality nursing care in Finland hospitals. It was a five-point Likert Scale. The total of 37 items was divided into five categories as 1) physical environment (6 items); staff characteristics (8 items), 2) preconditions for care (7 items), 3) Task oriented activities (6 items), 4) Human oriented activities (5 items), and 5) process of nursing process (5 items). Alpha cronbach of GPNCS was 0.71. for patients and ranged

from .50 to .84 for nurses. This instrument's internal consistency and reliability were evaluated and found to be acceptable for use. The construct validity of GPNCS was not reported, however. In addition, GPNCS was utilized in surgical operating rooms, which may not be suitable for an inpatient ward.

4) Assessment of Quality Scale-Acute Care Version (AQS-ACV)

Assessment of Quality Scale-Acute Care Version (AQS-ACV) was developed by Lynn, McMillen, and Sidani (2007), which comprised 923 nurses for the analysis. This was an exploratory factor analysis, which grouped into 77 items were taken with eight factors were included 1) interaction (19-item), 2) vigilance (10-item), 3) individualization (6-item), 4) advocate (10-item), 5) work environment (12-item), 6) unit collaboration (9-item), 7) personal characteristics (7-item), and 8) mood (4-item). The inter-item correlations were 0.43-0.57 and reliability 0.74-0.94 (Lynn, McMillen, & Sidani, 2007). The instrument had been tried in South Korea (Lee, Yu, Kim et al., 2020) and Bangladesh (Mondal, Chontawan, & Akkadechanunt, 2014). However, there is no construct validity result was reported.

5) Quality Nursing Care Scale in Intensive Care Unit (ICU-I-QNCS)

The instrument developed by La Sala, Galfre, Bertani et al. (2017) based on Doran's Nursing Role Effectiveness Model (Doran, Sidani, Keatings et al., 2002). Three dimensions of this instrument including, 1) independent role, 2) medical care-related role; and 3) interdependent role. The total of 63 items has achieved an average score CVI equal or greater than 0.90. Five items reached an optimal average CVI score (=1), 23 showed an average CVI score between 0.90-0.94, and last 35 were between 0.95-0.99. The ICU-I-QNCS has obtained an acceptable CVI level and it reflects the underlying theoretical model of Doran, Sidani, Keatings et al. (2002). However, the

questionnaire was only tried on the ICU, and the item refers to situation in the ICU. Thus, ICU-I-QNCS could not be used in the inpatient ward generally.

In sum, Good Nursing Care Scale for Nurse (GNCS-N) showed the appropriate condition to adopt. In addition, several studies in Indonesia were found that use GNCS-N, but there are no studies showed related to translation and measurement properties. Therefore, it is necessary to translate the GNCS-N with appropriate method, and check all psychometric properties, the validity, and reliability.

Factors related to quality nursing care

High-quality nursing care was found to be most strongly predicted by variables related to the patient, the individual (nurse), the job, and the work environment. The initial implied variables were patient demographic variables (Lucero, Lake, & Aiken, 2009), including characteristics of patient and severity condition (Lucero, Lake, & Aiken, 2010). Characteristics of nurse (Lucero, Lake, & Aiken, 2009; Van Bogaert, Kowalski, Weeks et al., 2013), such as age (Heede, Clarke, Sermeus et al., 2007), education (Liu, You, Chen et al., 2012), experience (Anzai, Douglas, & Bonner, 2014), knowledge (Gunther & Alligood, 2002), and competence (Charalambous & Beadsmoore, 2009; Idvall & Rooke, 1998; Kieft, de Brouwer, Francke et al., 2014), and all of these are related to personal situations.

Job variables were the third category. Aspects, such as task assignments, are typical of nursing work, (Idvall & Rooke, 1998; Lucero, Lake, & Aiken, 2009), nurse staffing (Anzai, Douglas, & Bonner, 2014; Carthon, Kutney-Lee, Jarrin et al., 2012; Idvall & Rooke, 1998; Kieft, de Brouwer, Francke et al., 2014; Koy, Yunibhand, & Aungsuroch, 2015; Liu, You, Chen et al., 2012), role tension (Doran, Sidani, Keatings

et al., 2002), job autonomy (Aiken, Clarke, & Sloane, 2002; Doran, Sidani, Keatings et al., 2002), and workload (Charalambous & Beadsmoore, 2009; Van Bogaert, van Heusden, Timmermans et al., 2014; Williams, 1998).

The final factor was environmental factors, which indicate whether nurses are employed in a supportive environment. These elements include, but are not limited to, the working conditions of nurses, (Aiken, Clarke, & Sloane, 2002; Anzai, Douglas, & Bonner, 2014; Lucero, Lake, & Aiken, 2009; Rochefort & Clarke, 2010; Van Bogaert, Meulemans, Clarke et al., 2009; Weldetsadik, Gishu, Tekleab et al., 2019), empowerment (Laschinger & Grau, 2012), and engagement (Van Bogaert, Peremans, Van Heusden et al., 2017; Van Bogaert, van Heusden, Timmermans et al., 2014).

Meanwhile, based on the Aiken's model, the hospital organization factors are very crucial. The nursing shortage will impact nurse's workload. Workload significantly affects nurses' performance, explicitly providing ample time between patient and administration tasks (Asmirajanti, Hamid, & Hariyati, 2019; Panjaitan, 2013; Siswanto, Hariyati, & Sukihananto, 2013). Overload of work and lack of staff would decrease their quality nursing care and efficiency. They would also improve the feeling of burnout, and the nurses became turnover. When nurses experience burnout, their performance will go down before nurses want to leave their job (Zaman, 2007). The nurses' turnover will affect the quality nursing care and hospital losses (Dewanto & Wardhani, 2018). Therefore, this study is focused on the hospital organization, including nursing staffing (patient to nurse ratio and working hours), medical staff qualification (nurse competence), organizational support (environment characteristics), nurse satisfaction and turnover intention.

1. Patient to nurse ratio

Definitions of patient to nurse ratio

Patient to nurse ratio defined as “the management of the number and types of workers needed in an organization” (Press, 2020). The process of assigning the right number of nurses to each shift, or patient, in a nursing organization or unit is called patient-to-nurse ratio (Sullivan, 2013). A study by Liu and Aungsuroch (2018) described nursing staffing as the average number of patients they took care of in each shift. In addition, patient to nurse ratio as each nurse is given a certain number of patients (Nantsupawat, Srisuphan, Kunaviktikul et al., 2011). The purpose of patient to nurse ratio is to match actual or expected patient care demands (patient care hours) with the appropriate quantity and type of nursing staff (nursing care hours) (Sullivan, 2013). That also supported by American Nurse Association stated “appropriate nurse ratio is a number of registered nurse expertise with the needs of the recipient of nursing care services in the context of the practice setting and situation” (ANA, 2019). Patient-to-nurse ratio was theoretically defined in this study as the number of patients in a nursing unit who were declared to be cared for by a single RN.

Measurements of patient to nurses ratio

There are a number of indicators of nurse staffing that have been identified in the literature. These include the nurse-to-patient or patient-to-nurse ratio (Aiken et al., 2002), the number of registered nurses on staff (Sasichay, 2001), the number of nursing work hours per patient day and the skill mix ratio (Chitpakdee, 2006), and the nurse-to-bed ratio (Guo, 2008). The nurse-to-patient ratio on the previous shift was chosen as a proxy for nurse staffing in Indonesian hospitals in accordance with the NWE-NS-OM theory subconstruction provided by Aiken (2002).

On the basis of the aforementioned literature review and the situation in Indonesia, the number of patients that an Indonesian nurse cared for in a nursing unit on their last shift was determined to be the operational definition of nurse staffing. This instrument adopted by the researchers from the Aiken, Clarke, and Sloane (2002) nurse staffing measurement. APPENDIX E displays the form created to evaluate nurse staffing levels. (Section B).

2. Working hours

Definitions of working hours

Working hours defined as "the amount of time someone spends at work during a day" (Press, 2020). Stimpfel and Aiken (2013) described working hours as the average duration of nurse last shift by the shift's start time and end time, using whole hours. Rogers, Hwang, Scott et al. (2004) explained nurse working hours is the number of hours worked per day by nurses. Staff nurses are working longer hours with few breaks and often little time for recovery between shifts. Scheduled shifts may be eight, twelve, or even sixteen hours long and may not follow the traditional pattern of day, evening, and night shifts. Although twelve-hour shifts usually start at 7 p.m. and end at 7 a.m., some start at 3 a.m. and end at 3 p.m. (Rogers, Hwang, Scott et al., 2004). The purpose of staffing is to match actual or expected patient care hours with the appropriate quantity and nursing care hours (Sullivan, 2013). In this study, the theoretical definition of working hours was considered as the average duration of nurse last shift by the shift's start time and end time, using whole hours.

Measurements of working hours

1) Nursing working hours per patient day

Total number of hours per patient day that registered nurses, licensed vocational nurses, and licensed practical nurses on acute care units spent providing direct patient care (American Association of Colleges of Nursing, 2009).

2) Logbook

Spiral-bound logbooks were used to collect information about hours worked (both scheduled and actual hours), time of day worked, overtime, days off.

The operational definition of working hours was defined as the average duration of a nurse's last shift by the shift's start and end times, in whole hours, based on a review of the relevant literature and the situation in Indonesia as described above. APPENDIX E displayed the spreadsheet used to determine labor hours (section B). A two-stage calculation yielded the final tally that was used to represent actual hours worked. First, add up the total amount of "shift time" and "break time" for every type of shift. In the second stage, you'll determine how many hours of work per shift are on average minus how many hours of break time per shift are on average.

3. Nurse competence

Definitions of nurse competence

Competence is an ability or skill possessed by a person in carrying out a job or task in a particular field, in accordance with the profession he holds. A nurse is a profession that works in the health sector that has its own competence, namely being able to provide nursing care to patients/clients both sick and healthy for individuals, families, and communities. As a profession in the health sector, the nursing policy is under the auspices of the Ministry of Health of the Republic of Indonesia. Recently, the

Ministry of Health has just issued a KMK regulation NUMBER HK.01/07/MENKES/425/2020 concerning the Standards of the Nursing Profession (Ministry of Health, 2020). This rule is adjusted to the mandate of Law no. 38/2014 on nursing (Indonesia, 2014) and other related regulations. In the regulation, it is explained that the competence of nurses includes knowledge, skills, and skills (soft and hard skills). Nurse competence consists of 5 competence areas, including 1) Practice based on ethical, legal, and culturally sensitive, 2) Professional nursing practice, 3) Leadership and management, 4) Education and research, and 5) Development of personal and professional qualities. Those are explained below.

1) Practice based on ethical, legal, and cultural sensitive

Nursing graduates are able to: Understand the concepts of ethics, norms, religion, culture, human rights in Nursing Services. Respect differences in religious, cultural, and social backgrounds between clients and nurses. Prioritizing the interests of clients in providing nursing services. Maintaining client's privacy rights. Keeping client's secrets obtained because of a therapeutic relationship. Maintain the health of the nurse so that it does not have an impact on the client. Avoid conflicts of interest with clients in providing health services. Demonstrate an attitude of empathy and care (caring) in the provision of Nursing Services. Maintain and build professional relationships among nurses and with other professions for quality nursing services. Protect clients from poor quality health services. Actively participate in professional development to maintain the quality of Nursing Services. Understand the provisions of laws and regulations relating to health and nursing services. Carry out professional nursing practice in accordance with the laws and regulations relating to health and nursing services. Demonstrate a legal awareness in health and nursing services. Using

a cultural approach to improve the quality of nursing services. Encouraging community independence based on local culture to improve community health status.

2) Professional nursing practice

Nursing graduates are able to: Apply the latest biomedical sciences, humanities, nursing sciences, and public health sciences to manage nursing problems in a holistic, integrated, and continuum including: Health promotion services for individuals, families, groups, communities, and Public. Prevention of general and specific health problems for individuals, families, groups, communities and societies. Formulation of Nursing Diagnosis and analysis of Nursing problems in accordance with Nursing Practice standards as a basis for preparing intervention plans and evaluating the results of Nursing Care. Nursing interventions according to problems and nursing diagnoses in all service settings in primary, secondary, tertiary, and special health care facilities. Health recovery services for individuals, families, groups, communities, and communities to achieve better health status. Understand the quality standards used in Nursing Services to protect Clients in meeting the needs for health services, including Formulation of inputs, processes, and outcomes in the provision of Nursing Services for individuals, families, groups, communities, and communities. Able to adapt to the availability of resources without compromising the quality of nursing services for individuals, families, groups, communities, and society.

3) Leadership and management

Nursing graduates are able to: Apply the concepts of leadership and management in the management of individual, family, group, community and community nursing care. Community health programs for the purpose of promotion and prevention of health problems. Health facilities to support Nursing Services. Human

resources, facilities and infrastructure, and finance for quality Nursing Services. Organization of personal, collaborative, institutional nursing services that are effective, efficient, accountable and affordable. Health problems and Government policies in the field of health and Nursing with the formulation of problems and the selection of effective and efficient intervention priorities.

4) Education and research

Nursing graduates are able to: Understand the role and function of clinical educators (Preceptors) in Nursing education. Understanding educational needs and clinical skills in Nursing education. Designing and carrying out simple research in the field of Nursing. Applying research results to improve the quality of Nursing Care.

5) Development of Personal and Professional Qualities

Nursing graduates are able to: Recognizing the need to maintain and improve Nursing competence through continuous professional development programs. Follow the development of science and technology in the field of Nursing to support the quality of Nursing Services.

Measurement of Nurse Competence

Based on the literature review, we found three instruments that measure nurses competence, including Nurses Competence Scale (Meretoja, Isoaho, & Leino-Kilpi, 2004), Nurse Professional Competence (Nilsson, Johansson, Egmar et al., 2014), and Clinical Competence Questionnaire (Liou & Cheng, 2013).

1) Nurse Competence Scale

Nurses competence scale has 73 items scale distributed into seven categories: 1) helping role, 2) teaching–coaching, 3) diagnostic functions, 4) managing situations, 5) therapeutic interventions, 6) ensuring quality, and 7) work role (Meretoja, Isoaho, &

Leino-Kilpi, 2004). This instrument has been used in various studies. However, only one study is found in the South-East Asia country (Juntasopeepun, Turale, Kawabata et al., 2019). The study found the Thai version of the NCS consisted of 36 items comprising six components: 1) research oriented, 2) work role, 3) diagnostic functions, 4) managing situations, 5) patient education, and 6) mentoring functions.

2) Nurse Professional Competence

Nurse Professional Competence (NPC) (Nilsson, Johansson, Egmar et al., 2014) consist of 88 items and covering eight factors: 1) Nursing care, 2) Value-based nursing care, 3) Medical/technical care, 4) Teaching/learning and support, 5) Documentation and information technology, 6) Legislation in nursing and safety planning, 7) Leadership in and development of nursing care, and 8) Education and supervision of staff/students. Further, Nilsson, Engstrom, Florin et al. (2018) made the short form of NPC that includes 35 items with six dimensions: 1) Nursing Care, 2) Value-based Nursing Care, 3) Medical and Technical Care, 4) Care Pedagogics, 5) Documentation and Administration of Nursing Care, and 6) Development, Leadership, and Organization of Nursing Care.

3) Clinical Competence Questionnaire

Clinical Competence Questionnaire (Liou & Cheng, 2013) contains four main competence components with corresponding and specific competencies required for nursing pregraduates: 1) nursing professional behaviors, which includes 16 competencies; 2) general performance, which includes 12 competencies; 3) core nursing skills, which includes 12 competencies; and 4) advanced nursing skills, which includes 6 competencies. However, this instrument tends to use pre-graduate or nursing student, so this study could not consider this instrument.

This study considers adapting NCS by Juntasopeepun, Turale, Kawabata et al. (2019) because the content of the questionnaire following Indonesia Standard of Nursing Profession. Cronbach's alphas for the six factors that make up NCS are all above.82, and four of them are above.88, indicating that the reliability of NCS is high enough.

4. Environment characteristics

Definitions of environment characteristics

Environment of workplace could be defined numerous ways. Hoffart and Woods (1996) stated “a system that supports registered nurses controlled over the provision of nursing care and the environment in which care was delivered”. Likewise, another study described the meanings of practice environment as “a set of concrete or abstract psychological features, such as autonomy, and advancement opportunities perceived by necessary job who compared these opinions against a set of standards, values, or needs” (Dekeyser Ganz & Toren, 2014). In addition, the term "nurse practice environment" can be used to refer to the institutional features of a workplace that either facilitate or obstruct the delivery of competent nursing care. (Lake, 2002). Therefore, this study defined the theoretical definition of environment characteristics as an organizational element of work environments that promotes nurse influence over nursing care delivery.

Components of environment characteristics

In the 1990s, the focus switched from recruiting and retaining nurses to explaining outcomes of patients (Mitchell & Shortell, 1997). The ability of nurses to 1) develop and maintain therapeutic relationships with patients (typically through a primary nursing delivery model), 2) exercise autonomy in and influence over the

practice setting, and 3) work together effectively are all essential components of the framework for a magnet hospital, as stated by Scott et al. (1999). Later, they identified collaboration between physicians and nurses and autonomy as magnet hospital characteristics. (Aiken, Havens, & Sloane, 2000).

Aiken and Patrician (2000) recognized three components of nurse work environment, including nurse autonomy, nurse control, and nurse-physician relationship (NWI-R). This finding also supported by her theory (Aiken, Clarke, & Sloane, 2002). In addition, Erickson, Duffy, Gibbons et al. (2004) identified eight characteristics of a professional practice environment through a review of the literature: leadership and autonomy over practice, clinician-physician relationships, control over practice, communication about patients, teamwork, conflict resolution using a problem-solving approach, internal work motivation, and cultural sensitivity.

In order to create the Practice Environment Scale of Nursing Work Index, information from 16 magnet-designated hospitals in 1985-1986 was used (PES-NWI) (Lake, 2002). Nurse manager ability, leadership and support of nurses (leadership), nursing foundations for quality of care (nursing model of care), collegial nurse-physician relationships (RN/MD relationship), and staffing adequacy were defined in this instrument.

In Indonesia, Vranada, Lin, Hsieh et al. (2021) translated and validated quality nursing work environment (QNWE) by Lin, Lu, and Huang (2016). Vranada, Lin, Hsieh et al. (2021) identified five components for measuring the Indonesia nursing practice environment: 1) safe practice environment, 2) staff quality workload, salary, and welfare, 3) professional specialization and cooperation, 4) work simplification; information technology, professional cultivation and development, and 5) support and

caring. In another study, Kusnanto, Juanamasta, Yuwono et al. (2020) translated and validated PES-NWI that found five components. They are 1) nurse participation in the hospital; 2) nursing field for care quality; 3) nurse manager's ability, leadership and support; 4) staffing and resource skills; and 5) nurse-doctor relations.

In summary, the literature reviewer identified the following components of the environment: 1) participation in hospital affairs; 2) nursing foundations for quality of care; 3) nurse manager ability, leadership, and support of nurses; 4) staffing and resource adequacy; and 5) collegial nurse–physician relations.

Participation in hospital affairs subscale was stated "nurses were involved in hospital and nursing division affairs (internal governance, policy decision-making, and other committees), had chances for advancement, communicated openly with a responsive nursing management, and recognize a powerful, visible, and available nurse executive".

Nursing foundation for quality of care subscale was described "a high standard of patient care included a persistent nursing philosophy, a nursing (rather than a medical) model of care, and nurses' clinical competence. The quality was assured by a formal quality assurance program, as well as by cultivation of new staff and continuing professional education for all staff. Numerous nursing model indicators of care comprised continuousness of nursing care and the use of nursing diagnoses and nursing care plans".

Nurse manager ability, leadership, and support of nurses subscale was described as "being a good administrator and leader, the nurse administrator would support the nurse when there was a struggle with a physician, when nurses made errors, and by praising and acknowledging a job well done".

Staffing and resource adequacy subscale was defined as “to having enough nurses to provide quality patient care were being able to use time with patients and being able to discuss patient care problems with other nurses”.

Collegial nurse–physician relations subscale was defined as “good relationship between nurse and physician to provide good collaboration for taking care the patient”.

Measurements of environment characteristic

Nursing Work Environment Revision (NWI-R) (Aiken & Patrician, 2000) and Practice Environment Scale-Nursing Work Index (PES-NWI) (Lake, 2002) were popularly used in nursing research. More currently, Indonesian version of Practice Environment Scale-Nursing Work Index (I-PES) (Kusnanto, Juanamasta, Yuwono et al., 2020) and Quality Nursing Work Environment Index (QNWE-I) (Vranada, Lin, Hsieh et al., 2021) were used to measure nursing practice environment for Indonesian nurse.

1) Nursing Work Environment Revision (NWI-R)

Aiken and Patrician (2000) reevaluated the NWI and found that, with some tweaks, it could be used to measure elements of a professional practice environment in addition to nurses' job satisfaction and perceived quality of care. They looked at the conceptual foundations of the NWI items and picked 55 of them (with some minor tweaks and an additional item) to reflect the state of professional practice today. Organizational characteristics such as nurse autonomy, control over the workplace, and relationships with physicians are all mentioned in the literature as contributing to a healthy professional practice environment. Next, they created individual NWI-R scores by adding the items from each subscale to arrive at a total, and then we combined those

totals to create hospital-wide or unit-level averages, respectively. In general, the NWI-R had a Cronbach's alpha of 0.96. Each subscale's alpha for individual-level data was 0.75, 0.79, and 0.76 for autonomy, control, and relationships with physicians, respectively. After aggregating the scores of individual nurses within units, the alphas for autonomy, control, and relationship with physicians were 0.85, 0.91, and 0.84, respectively. The NWI-content, R's criterion-related, and construct validity were evaluatedContent validity was initially established by the researchers at the magnet hospital. Second, there is a link between the NWI-R scores that helped establish criterion-related validity and specific types of organizations that tend to produce more positive results. To this end, the NWI-R uses magnet hospitals as "know groups," and it does an impressive job of differentiating between magnet hospitals and control hospitals, as well as between dedicated AIDS units and scattered bed units within the same hospital, by using magnet hospitals as "know groups" (Aiken & Sloane, 1997a, 1997b). Researchers do not conduct the technical factor analysis required to confirm the construct validity of this instrument. The components of this instrument may therefore lack construct validity.

2) Practice Environment Scale-Nursing Work Index (PES-NWI)

Lake (2002) revised the original NWI and created the PES in order to develop a more concise, psychometrically sound scale with empirically derived subscales (PES). She defines the nursing practice environment as the organizational characteristics of a workplace that facilitate or impede professional nursing practice. Based on this definition, Lake selected 48 items from the initial pool of 65 NWI items. Then, she did an exploratory factor analysis with the 1985-1986 magnet hospital nurse data. 31 of the 48 items, using principal axis factoring with varimax rotation, identified

five factors indicating key domains in the hospital environment that support professional nursing practice: 1) collegial nurse-physician relations (3 items), 2) staffing and resource adequacy (4 items), 3) nurse manager ability, leadership, and support of nurses (5 items), 4) nursing foundations for quality care (10 items), and 5) nurse participation in hospital affairs (9 items). Cronbach's alpha was reported as.82, with all factor loadings above.40, and internal consistency coefficients for subscales ranging from.71 to.84. (Lake, 2002). There are four points on the Likert scale. The range of possible scores was from 1 (strongly disagree) to 4 (strongly disagree).

PES- NWI's content is comparable to that of other nursing practice environment instruments, and its length exceeds that of other existing instruments (Lake, 2007). Data from 8,597 nurses in Ontario and Alberta in 1998 (Leiter & Laschinger, 2006), staff nurses in Pennsylvania in 1999 (Lake, 2002), 243 nurses in a Quebec hospital in 2001 (McCusker, Dendukuri, Cardinal, Laplante, & Bambonye, 2004), and 2,900 nurses in 14 hospitals in Texas in 2004 (Leiter & Laschinger, 2006) have all been used to validate the PES-NWI factor structure (Peterson, Krebs, & Erspamer, 2004). The PES-NWI was included in the yearly nurse survey pooled by the National Database of Nursing Quality Indicators beginning in 2006. (Lake, 2007). The PES-NWI is a reliable and popular tool for assessing the state of nursing in western healthcare systems.

3) Quality Nursing Work Environment Index (QNWE-I)

The QNWE-I was translated and validated from the QNWE by Lin, Lu, and Huang (2016). Analytical framework for translating texts based on back translations and their comparison to the source text. There were two separate translators who spoke both languages. The QNWE was translated into Indonesian by a linguist with expertise in academic nursing and healthcare systems in Taiwan. To ensure accuracy, a second

academic English translator with experience in the field of health sciences back translated the Indonesian version into English and checked it against the source document in a blind translation. Differential changes between the English, translated, and back-translated QNWE versions were discussed by the translators. Once the translation was checked for accuracy, it was considered a first draft of QNWE in Indonesian (QNWE-I).

Two of the sixty-four items (items 43 and 61), with low scores (i.e., iCVI=0.40 and 0.37 respectively), were flagged as redundant and irrelevant by the expert and were recommended for removal. All factors of the QNWE-I showed excellent content validity, with the item-specific CVI calculated after deletions averaging between 0.86 and 1.00. After many iterations, the final scale had 62 factors. In addition, 334 nurses from two private hospitals in one region evaluated the psychometric testing to determine construct validity. The QNWE-I was subjected to CFA utilizing the entire eight-factor structure. Each item loaded onto each of the eight factors was significant, ranging from 0.50 to 0.90 (p0.05). Strong correlations were also observed between factors, ranging from 0.64 to 0.89 (p0.05). The results of the fit indices indicated an acceptable model fit (X2/df=2.60; TLI=0.95 GFI=0.93; CFI=0.96; MECVI=0.44; RMSEA=0.08; NFI=0.96; and AGFI=0.87).

QNWE-reliability Is were calculated by analyzing the model's internal consistency and stability. Among 33 respondents and 10 raters, the QNWE-I scale's ICC values of 0.90 and 0.82 from a test-retest and interrater reliability analysis, respectively, indicate that all items are highly stable and appropriate. Moreover, the QNWE-I scale has satisfactory internal consistency, as indicated by Cronbach's Alpha coefficients for the eight factors that ranged from 0.79 to 0.96.

Four of the PES-factors NWI's were very similar to those found in the PES-factor NWI's structure. Variations manifested in areas including: a secure work environment; generous compensation and benefits; and high-quality employees (QNWE-I). The QNWE-I covered work harassment, bullying, salary, welfare and information technology. This instrument might overlapping with the nurse work environment scope.

Although QNWE-I was used in Indonesian population, it is limited one region in Indonesia. Nurses in Indonesia may have varying cultural backgrounds due to regional differences in economic and social development. As a result, QNWE-I may not be applicable in all parts of Indonesia.

4) Indonesian version of the Practice Environment Scale (I-PES)

I-PES was translated and adapted from the Lake (2002) PES-NWI by Indonesian researchers (Kusnanto, Juanamasta, Yuwono et al., 2020). After translation and back translation, five experts assessed the content I-PES's validity. These five physician and nurse administration specialists served as division directors or vice directors for the nursing division. They were comprised of two professors and two associate professors. The content validity was .94. According Kusnanto, Juanamasta, Yuwono et al. (2020), I-PES had a Cronbach's Alpha of 0.91, and subscale Cronbach's ranged from 0.67 to 0.79. The reliability between tests was 0.84. The range of correlations between each subscale and the total scale was between 0.62 and 0.88. However, the study was not conducted the CFA yet. Further study to confirm the factor analysis is needed.

This instrument was chosen to measure the nurse work environment in this study for three reasons. First, this instrument was evaluated in four distinct Indonesian

regions and islands. The instrument's reliability and validity were also satisfactory. Thirdly, it was a popular instrument among the nursing population.

5. Nurse Satisfaction

Definition of nurse satisfaction

As a multifaceted and complex concept, job satisfaction has been defined in a variety of ways by a wide range of authors. Worf (1970) used Maslow's hierarchy of needs to define job satisfaction as the extent to which an individual's physiological and psychological needs were met while on the job.

Herzberg's (1959) Two-Factor Theory grew in prominence as the field of study progressed, and it came to be associated with the investigation of worker motivation. Using Herzberg's theory as a foundation, Smith, Kendall, and Hulin (1969) defined job satisfaction as employees' emotional or affective reactions to different aspects of their work. Job satisfaction, according to Price (2001), is "an employee's affective orientation toward work."

Two examples of content motivation theories are Maslow's (1954) Human Needs Theory and Herzberg's (1959) Two-Factor Theory, both of which offer frameworks for dissecting how people make sense of their own desires and goals. The process approach to motivation theory was subsequently formulated to explain how people's mental processes are influenced by their needs, which in turn affects their decisions to put in extra effort at work (Schermerhorn, 1999).

Locke (1969), using the process approach to motivation theory, defined job satisfaction as "the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values." In the future, Locke (1976) defined job satisfaction as the positive or pleasurable emotion an employee feels

when evaluating his or her job or job experience. The extent to which workers feel they were treated fairly on the job is one metric by which to assess the quality of that workplace. Furthermore, Locke and Henne (1986) argued that job satisfaction was the result of professional successes. According to the process theory of motivation, job satisfaction is best understood as the positive emotional response an employee has upon realizing he or she has contributed to the job's value or equity.

As a result of what has been discussed thus far, the following characteristics of nurses' satisfaction have been outlined: Job satisfaction can be broken down into three categories: (1) having one's needs met within the workplace, (2) experiencing positive emotions as a result of one's work environment, and (3) having one's work be valued and respected by society. Therefore, "nurses' positive feelings in response to work conditions that support their desired needs as a result of their evaluation of the value or fairness of their work experience" is the theoretical definition of nurses' job satisfaction.

Components of nurse satisfaction

Weiss, Dawis, England et al. (1964) developed the Minnesota Satisfaction Questionnaire (MSQ) based on the Work Adjustment Theory (Dawis, Lofquist, & Weiss, 1968).The short-form MSQ consists of three factors: intrinsic satisfaction, extrinsic satisfaction, and overall satisfaction.

The Job Descriptive Index (JDI) and the Job in General Scale (JIG) were developed by Smith et al. (1969) to gauge employee job satisfaction using the process approach of motivation theory. Job-related factors (JDI) include the following five elements: the tasks performed, the salary and benefits offered, the quality of management, the people one works with, and the environment.

Spector (1985) applied the process theory of motivation in developing the Job Satisfaction Survey (JSS). The purpose of the JSS was to measure contentment in social service organizations. The factor analysis of 3148 respondents yields nine components, including pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, coworkers, work, and communication.

In the nursing field, Stamps and Piedmonte (1986) conceptualized satisfaction and dissatisfaction using Herzberg's Two Factor Theory to develop the Index of Work Satisfaction (IWS). The IWS consists of six job components, including compensation, independence, professional standing, interaction, task requirements, and organizational policies.

Nurses' levels of job satisfaction in a teaching hospital in Brisbane, Australia were investigated by Finn (2001), who adapted Stamps and Piedmonte's (1986) Index of Work Satisfaction (IWS) to their research. According to Finn's research, nurses' job satisfaction is highest when they have a high degree of autonomy, followed by opportunities for social interaction, challenging work, high professional standing, and fair workplace policies.

The NDNQI-Adapted Index of Work Satisfaction was developed by Thunton et al. (2004) to assess job satisfaction on a per-patient-care-unit basis; it is based on a modified version of Stamps and Piedmonte's (1986) Work Satisfaction Index. Task requirements, nurse-nurse interaction, nurse-physician interaction, organizational policies, autonomy, professional status, and compensation are the seven factors that make up a nurse's overall job satisfaction, which can be measured with this instrument.

Another multidimensional questionnaire was developed by Mueller and McCloskey (1990) to gauge the contentment of hospital staff nurses with their jobs.

Both Maslow's (1954) Human Need Theory and Burns' (1969) Motivation Theory were used as theoretical frameworks in the creation of this tool. Eight distinct elements were broken down using factor analysis. Money and time off were examples of extrinsic rewards; others included working conditions that allowed for a healthy home/work life balance, interesting work, meaningful relationships with coworkers, opportunities to advance one's career (through things like writing and publishing or taking part in research), public recognition for one's efforts, and the ability to exercise some measure of managerial authority.

And based on Maslow's (1954) Human Needs Theory, Herzberg's (1959) Two-Factor Theory, and the process approach to motivation theory, Lu, While, and Barriball (2005) reviewed the literature on nurse job satisfaction. They determine that nine factors contribute to nurses' happiness on the job. The environment, the people you work with, the tasks themselves, the pay you receive, the opportunities you are given to learn and grow, the respect you receive from management, the degree of autonomy and accountability you are given, the stability of your position, the type of leadership you are exposed to, and the policies your company has in place are all factors.

In summary, the nursing literature identifies the following components of job satisfaction: compensation, scheduling satisfaction, family/work balance, co-workers, interaction, professional opportunities, praise/recognition, and control/responsibility. However, depending on the setting and time period, each component has been assigned a different level of significance.

Measurements of nurse satisfaction

Both unidimensional and multidimensional instruments can be used to measure job satisfaction. According to the unidimensional construct of job satisfaction proposed

by Porter and Lawler (1968), workers are either happy or unhappy in their positions. However, Smith et al. (1969) argue that job satisfaction is multifaceted, with employees reporting varying levels of contentment with their jobs, managers, salaries, and work environments. The reviewed tools can be broken down into two camps as a result of this debate: unidimensional and multidimensional gauges.

1) Single Item Nurse Job Satisfaction Questionnaire (ST-NJQ)

To determine how satisfied nurses are with their jobs, Aiken et al. (2002) developed the ST-NJS. On a scale from 1 (extremely dissatisfied) to 4 (extremely satisfied), nurses were asked to rate how happy they were with their current employment.

Despite being created with nurses in mind, the concept construct description and reliability and validity of the ST- NJS's item questionnaire were lacking (DeVellis and Thorpe, 2021). Thus, it was concluded that this was a drawback of employing such tools to gauge nurses' contentment on the job.

2) Index of Work Satisfaction (IWS)

Stamps and Piedmonte (1986) created the Index of Work Satisfaction (IWS) to assess nurses' job satisfaction based on a comprehensive review of theories of work satisfaction, which included both the content and process approach of motivation theories. The job's independence, professional standing, interaction, task requirements, and organizational policies were the six components of this instrument. There are now two individual instruments from the one that was disassembled. In the first section, we ranked the significance of the job's components using paired comparison. Each aspect of nursing work was ranked according to how often nurses said they preferred one aspect over the other in a given set of two options. The second section of the instrument

measured the actual level of job satisfaction. On a seven-point Likert scale, nurses rated their level of satisfaction with 44 attitude statements pertaining to job components, of which half were positive and half were negative. The reliability of the tool was demonstrated by its creators using a varimax rotation factor analysis (Stamps & Piedmonte, 1986). The reliability of the instrument was calculated using Cronbach's Alpha, and results between 0.52 and 0.81 were considered reliable.

Finn (2001) used the updated IWS to examine the factors that contribute to the satisfaction of nurses working in a teaching hospital in Brisbane, Australia. The pay component was left out of the analysis because in Queensland, registered nurses' salaries are set by Industrial Relations Awards and do not differ between hospitals. The reliability of the updated IWS version was calculated using Cronbach's Alpha. Overall, the Cronbach's Alpha for the happiness at work scale was.

IWS cover broad aspects of job satisfaction characteristics. However, the 44-item questionnaire was too long to complete, and there is lack of study use IWS in the Indonesian nurse context. Therefore, it is possible that this instrument is unsuitable for measuring the job satisfaction of nurses.

3) NDNQI-Adapted Index of Work Satisfaction

To assess nurses' happiness on the job, Thunton et al. (2004) adapted Stamps and Piedmonte's (1986) work satisfaction index into the NDNQI-Adapted Index of Work Satisfaction. Task requirements, nurse-nurse interaction, nurse-physician interaction, organizational policies, autonomy, professional status, and compensation were some of the seven sub-scale dimensions included in the 46-item questionnaire. The reliability of the individual measures was established with a Cronbach's Alpha spanning from.74 to.91. Overall, the reliability of the scale was.91.

NDNQI-Adapted Index of Work Satisfaction cover broad aspects of job satisfaction characteristics. However, the 46-item questionnaire was too long to complete, and there is lack of study use IWS in the Indonesian nurse context. Therefore, it is possible that this instrument is unsuitable for measuring the job satisfaction of nurses.

4) McCloskey/Mueller Satisfaction Scale (MMSS)

McCloskey and Mueller developed a multi-factor survey (the MMSS) to gauge nurses' satisfaction with their work in hospitals (Mueller & McCloskey, 1990). The theoretical position of the initial scale, according to Tourangeau, McGillis Hall, Doran, and Petch (2006), was based on Maslow's Human Need Theory (Maslow, 1954) and Burns' Motivation Theory (Burns, 1969). Exploratory factor analysis revealed that there are eight separate factors at play when measuring satisfaction using a total of 31 items. Money and time off were examples of extrinsic rewards; others included working conditions that allowed for a healthy home/work life balance, interesting work, meaningful relationships with coworkers, opportunities to advance one's career (through things like writing and publishing or taking part in research), public recognition for one's efforts, and the ability to exercise some measure of managerial authority. A five-point Likert scale was used, where 1 indicated total dissatisfaction and 5 total satisfaction. . MMSS had an internal consistency reliability of 0.89 reported by Mueller and McCloskey (1990).

MMSS cover broad aspects of nurse satisfaction characteristics. There is many studies use MMSS in the Indonesian nurse context (Arini & Juanamasta, 2020; Yudiah, Yudianto, & Prawesti, 2018). Therefore, this instrument may be appropriate to measure nurses’ satisfaction.

5) Nurse Job Satisfaction Scale (NJSS)

Using Maslow's hierarchy of needs and Herzberg's two-factor theory as inspiration, Cao (1998) created NJSS. It included 62 questions divided into nine scales measuring things like "opportunities for personal and professional growth," "recognition and praise," "achievement and responsibility," "scheduling and working conditions," "the nature of the work itself," "supervision and hospital policy," "interpersonal relationships," and "work-life balance." From 1 (very unsatisfied) to 5 (very satisfied), the Likert scale allowed for a wide range of responses. The possible range of job satisfaction ratings was from 62 to 310. The English version of the tool was validated by a group of five Thai specialists. A Chinese-English linguist was brought in to translate the document. Cronbach's Alpha for this survey instrument was 0.98, indicating its consistency and validity.

The NJSS was designed for use in China, and its subscales assess a wide variety of factors related to job contentment in that country. But the 62-item survey was just too much work. As a result, it's possible that this survey isn't the best way to gauge nurses' happiness on the job.

6) Nursing Workplace Satisfaction Questionnaire

The NWSQ development process was group-based and founded upon an assessment of existing nursing job satisfaction instruments along with group members' views and beliefs about contributors to happiness at work among ward and unit based nurses (Fairbrother, Jones, & Rivas, 2009). Three measurement domains are intrinsic, extrinsic and relational. The Nursing Workplace Satisfaction Questionnaire (NWSQ) was intended for nurses and looking for job satisfaction as a result of a nursing care plan in a large Sydney hospital. It is short (one page) and has 15 items with a five-point

Likert scale (1 = fully agree, 2 = agree, 3 = partly agree/disagree, 4 = disagree, 5 = definitely agree). According to this questionnaire, the minimum score is 17 and the maximum is 85; 17 meaning that the participant has the highest satisfaction score, whereas a score of 85 means that the lowest satisfaction score is obtained. The tool encompasses three measurable domains: intrinsic domain (six items), extrinsic domain (seven items) and relational domain (four items). This questionnaire was valid and reliable with a Cronbach's alpha of 0.90.

The elements of the NWSQ, which were developed in an Australian setting, assess three primary facets of job satisfaction. There are, however, some items that are duplicated in other questionnaires and are rarely used in the context of nursing in Indonesia. As a result, the satisfaction of nurses in their jobs may not be adequately measured by this tool.

In conclusion, based on several instruments of nursing satisfaction that developed in nursing context that found one instrument used in Indonesia. The study by Yudiah, Yudianto, and Prawesti (2018) found MMSS translated into Indonesian language with Cronbach's alpha reliability value of 0.969. The number of items is 31 items, that is an average number of questionnaire that use in this study. In addition, there is no redundant question or dimension within variables in this study

6. Turnover Intention

Definition of turnover intention

The literature review identified the terms 'turnover intention,' 'anticipated turnover,' 'turnover intent,' 'intention to quit', and 'intent to leave' to describe the situation in which an employee plans to leave his or her job.

For Hinshaw and Atwood (1985), "intention to leave" refers to an employee's thoughts and feelings about whether or not they will voluntarily quit their current position. In a similar vein, the term "intention to leave" was coined by Rahim and Psenicka (1996) to describe an employee's plan or tendency to quit their current position. The term "nurse intent to leave" was coined by Price and Mueller (1981) to describe a registered nurse's intention to resign in the near future. The definitions of "turnover intent," "turnover intention," and "anticipated turnover" were also uncovered through the literature review. Turnover intent is the mental process by which an employee considers, plans, or desires leaving their current job, as defined by Mobley, Griffeth, Hand, and Meglino (1979). Similar to what we see here, Vandenberg and Nelson (1999) define turnover intention as an individual's expectation that they will leave their current employer permanently within the next 12 months. Moreover, "the extent to which nursing staff members believed they would leave their position in the unspecified future," was how Hinshaw, Smeltzer, and Atwood (1987) defined anticipated turnover. Thus, the terms departure intention and departure intent are synonymous with the term's turnover intention and anticipated turnover. Therefore, in this study, the theoretical definition of nurses' intention to leave their current positions was defined as nurses' perception or opinion of the possibility of leaving voluntarily.

Measurements of turnover intention

1) Single item measurement

A single item is typically used to gauge turnover intent, as determined by a survey of the relevant literature. One item with a five-point response scale was used to assess nurses' intentions to leave their positions in the study by Price and Mueller (1981): 1 = absolutely no intention of leaving, and 5 = absolutely will leave. Patients'

intent to check out of the hospital was assessed using a single-item scale in Hinshaw and Atwood's (1982) research. Scale runs from 1 (completely not) to 7 (very likely) (absolutely do). Rahim and Psenicka (1996) conducted a study in which the question, "What would you rather do if your income were sufficient?" was used to gauge job-leaving intentions. Options for responses on a four-point scale were as follows: A response of 1 indicates a desire to remain employed by the current company, while responses of 2, 3, and 4 indicate a desire to seek employment in entirely new fields. Recently, the question "How likely are you to leave your primary position within the next 12 months?" has been used to gauge a person's propensity to change jobs. The options were 1 for an extremely improbable outcome, 2 for a moderately improbable one, 3 for a fairly improbable one, and 4 for a (Aiken et al., 2012). Furthermore, the reasons for quitting were classified into three groups: "career advancement" (e.g., promotion, new position accepted, return to school), "situational" (e.g., family reasons, relocation, retirement, illness), and "job dissatisfaction" (e.g., unhappy with pay, short staffing, poor management). When respondents needed to list multiple reasons that did not fit into any of the other three categories, an "other" category was added.

The single-item questionnaire lacked concept construct description and reliability and validity. (DeVellis & Thorpe, 2021). Consequently, this was deemed to be the limitation of using these instruments to measure turnover intention among the population of nurses.

2) Turnover Intention Scale

In 2004, Roodt developed the turnover intention scale in an unpublished document and Jacobs and Roodt (2008) later published the instrument in their literature. In Jacob and Roodt's (2008) study, the Cronbach's alpha coefficient of the survey was

0.913, which was a high and acceptable reliability rating. Martin and Roodt (2008) also reported a high-reliability rating of 0.93 in their research. In analyzing the results of the data, a higher score is an indication of increased chances of turnover intentions (Taboli, 2015). The original version of the turnover intention scale, developed by Roodt (2004), contained 14 items and used a 5-point Likert scale for measurement (Martin & Roodt, 2008). However, Jacobs and Roodt (2008), in their study predicting the turnover intentions of professional nurses, listed an updated version of the turnover intention scale that included 15 items on a 5-point Likert scale. Bothma and Roodt (2013) later published a shortened version of the scale, known as TIS-6, which included six items from the 15-item scale (Bothma & Roodt, 2013).

3) Anticipated Turnover Scale (ATS)

There are 12 questions that the respondent answers in order to complete the Hinshaw and Atwood (1982) Anticipated Turnover Scale (ATS). In total, 1,597 registered nurses, licensed practical nurses, and certified nursing aides were tested with this instrument (NAs). Cronbach's alpha for the ATS was 0.84. Factor analysis was used to confirm the study's ability to establish construct validity (Hinshaw & Atwood, 1982). As reported by (Hinshaw & Atwood, 1982). Two factors were identified using principal components analysis, which together accounted for 54.9% of the total variance. Personal communication with Hinshaw led to the claim by Barlow and Zangaro (2010) that the ATS was used as a unidimensional instrument. It's a seven-point Likert scale. Possible responses ran from a 1 (strongly disagree) to a 7. (strongly agree). The greater the score, the more serious the intent to leave. With a lower score, there was less of a chance that the person would leave. Results could have been anywhere from 7 to 84. There were six optimistic statements and six pessimistic ones.

As a result of these considerations, the ATS was chosen to assess nurses' abandonment intentions in this study.

(1) ATS's psychometric properties were adequate, and the instrument's many items adequately reflected the constructs being measured. As a measurement tool, it outperforms the signal item. Based on the meta-analyses of Barlow and Zangaro (2010), twelve studies have demonstrated the ATS's acceptable reliability and validity among RNs in the United States.

(2) Since the ATS was initially developed for nurses, it was suitable for measuring nurses' in hospital settings.

(3) In Liou and Grobe's (2008) study, ATS was used to measure the intention to leave among Asian nurses. Moreover, study by Elastrina A (2012) and Rahmayani (2021) have been translated and used in Indonesian nurse. Therefore, it is appropriate for using to measure Indonesian nurses' turnover intention.

The relationships among patient to nurse ratio, working hour, nurse competence, environment, nurses' satisfaction, turnover intention, and quality nursing care

Based on Aiken, Clarke, and Sloane (2002), it has been shown that when one nurse is responsible for multiple patients, that nurse's burnout and intention to leave rises, while the satisfaction of the nurse and the quality of care they provide both fall. Depending on whether the nurse to patient ratio or the patient to nurse ratio was used, the nurse staffing influence on nurse outcomes was either positive or negative. What follows are empirical studies that lend credence to the proposed model and its explanations.

First, patient to nurse ratio has positive influence to nurse satisfaction, turnover intention and that quality nursing care. The literature supports this hypothesis that lower ratio will bring positive impact to nurse satisfaction and negative impact to turnover intention (Aiken, Cimiotti, Sloane et al., 2011; Cho, June, Kim et al., 2009; Cimiotti, Aiken, Sloane et al., 2012; Needleman, 2015). Besides, it also gives positive impact to the quality nursing care (Aiken, Sloane, Bruyneel et al., 2014; Haegdorens, Van Bogaert, De Meester et al., 2019; Koy, Yunibhand, Aungsuroch et al., 2015).

Second, working hours is a critical factor could influence quality nursing care. Higher number of working hours would increase the number of errors that directly influence quality nursing care (Rogers, Hwang, Scott et al., 2004; Stimpfel & Aiken, 2013). In addition, Ruggiero (2005) found shift work hours influence nurse satisfaction (Kuo, Lin, & Li, 2014) and working hours that is the reason of nurse turnover Strachota, Normandin, O'Brien et al. (2003).

Third, nurse competence has positive influence on work environment and that would impact to quality nursing care. The literature supports this hypothesis that more competence will bring positive impact to nurse satisfaction (Gunawan, Aungsuroch, Fisher et al., 2020; Liu, Chao, Kain et al., 2019; Wu, Li, Liu et al., 2018) and quality nursing care (Gaalan, Kunaviktikul, Akkadechanunt et al., 2019; Sloane, Smith, McHugh et al., 2018). However, it gives negative impact to the turnover intention (Park & Ahn, 2015; Takase, Teraoka, & Kousuke, 2015).

Fourth, the environment characteristics positively influence quality nursing care. The literature review supported that the environment was significantly positively influenced quality nursing care (Koy, Yunibhand, Aungsuroch et al., 2015; Lake, Hallowell, Kutney-Lee et al., 2016; Weldetsadik, Gishu, Tekleab et al., 2019), nurse

satisfaction (Aiken, Clarke, Sloane et al., 2002; Kanai-Pak, Aiken, Sloane et al., 2008). However, it was significantly negatively influence turnover intention (Sabei, Labrague, Miner Ross et al., 2020; Wan, Li, Zhou et al., 2018).

Fifth, nurse satisfaction negatively influence turnover intention and positively influence quality nursing care. The previous study by Sabei, Labrague, Miner Ross et al. (2020) supported that higher nurse satisfaction would less turnover intention.

Sixth, turnover intention negatively influence quality nursing care. The previous study by Huang, Wong, Shyu et al. (2021) supported that turnover intention negatively influenced nurse perceived quality nursing care.

Thus, the aim of this study is to examine structural relationships among patient to nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention, and quality nursing care at hospitals in Indonesia.

Structural Equation Model (SEM) in nursing research

In this section, introduced the basics of structural equation modeling (SEM), confirmatory factor analysis (CFA) models, and the goodness-of-fit (GOF) index.

1. SEM basics

Structural Equation Model (SEM) is defined as “Multivariate technique combining aspects of factor analysis and multiple regression that enables the researcher to simultaneously examine a series of interrelated dependence relationships among the measured variables and latent constructs as well as between several latent constructs” (Hair et al., 2010, p. 634).

Further, the variable under scrutiny was labeled an indicator. The observed value is used as a quantitative indicator of a latent variable. Academics have a

responsibility to identify the particular indicators that are linked to a given latent construct. Surveys, tests, and in-depth observations are all viable options for gathering this info (Hair et al., 2010). A latent construct is the same thing as a latent variable or a latent factor. In the SEM, it is not directly measurable, but it can be represented or measured by one or more variables (indictors). In multiple regression, it was crucial to separate the independent variables from the dependent ones. It is important to distinguish between exogenous and endogenous constructs when working with SEM. What constitutes an exogenous structure is determined from the outside.

No other components of the model or independent variables can account for them. Theoretically, model factors decide on the shape of endogenous structures. Those buildings rely on others to stand. (Hair, Black, Babin et al., 2018).

Typically, SEM is comprised of two components: the measurement model and the structural equation model. *The measurement model* specifies "how latent variables or hypothetical constructs depend on or are indicated by the observed variables. It describes the measurement properties of the observed variables" *The structural equation model* specifies "the causal relationship among the latent variables, describes the causal effects, and assigns the explained and unexplained variance" (Jöreskog & Sörbom, 1996, p. 1)

Generally speaking, SEM analysis entailed the following steps: (1) model conceptualization; (2) path diagram construction; (3) model specification; (4) model identification; (5) parameter estimation; (6) model fit evaluation; and (7) model modification. (Kline, 2015).

One of the advantages of structural equation modeling is that it can use nonrecursive models to infer reciprocal causation even when there is measurement

error, correlation in the residuals, or both. It can also be used to investigate causal models containing latent variables. A study on this topic was recently published (Polit & Beck, 2012). As a result, SEM was employed to ascertain the variables impacting the standard of nursing care.

2. Confirmatory factor analysis

To determine how well a smaller number of constructs are represented by a set of measured variables is the goal of confirmatory factor analysis (CFA) (Hair et al., 2010).

Both the first-order and second-order factor models are included. To "explain the covariances between measured items with a single latent factor layer" is the definition of a first-order factor (Hair et al., 2010, p. 689). Definition of Second-Order Factor Model: "Multiple first-order latent factors that cause measured variables." According to research (Hair et al., 2010, p. 754).

The following are some rules to follow when employing the second-order factor model:

1) A second-order factor should only be used in relationships with other constructs at the same general level of abstraction, and it should have theoretical backing.

2) First-order factors are assumed to have a uniform effect on second-order ones, meaning that all related concepts will be similarly influenced by them.

3) To meet the minimal requirements for identification and good measurement practice, at least three first-order constructs must be used.

The Indonesian versions of GNCS-N, NCS, PES-NWI, and MCSS did not violate the aforementioned rules in this study. These three instruments have been modified to accommodate second-order CFA.

Nonetheless, the Indonesian version of ATS was unidimensional. That's why those preceeding guidelines were disregarded. The I-ATS evaluation scheme employed a first-order CFA.

3. Assessing the overall goodness-of-fit of the hypothesized model

According to Hair, Black, Babin et al. (2018), Root Mean Square Error of Approximation (RMSEA), Chi-square (2), standardized value of RMR (SRMR), Adjusted goodness-of-fit index (AGFI), and Goodness-of-fit index (GFI), are the four statistical criteria measures that should be used to assess the model GOF.

The first set of statistical criteria to assess the model GOF is related to χ2 test.

The 2 GOF test is used to determine whether the hypothesized model fits the observed data adequately. With p >.05, the χ2 GOF test is non-significant, indicating that the hypothesized model fits the observed data. Closeness of p value to 1.00 signified the perfection of the hypothesized model. However, the χ2 test is also likely to increase with the addition of more observed variables. This issue lead to bias against large samples and increased model complexity. Additionally, the χ2 issues also impact many of these additional indices, particularly some of the absolute fit indices. This said, the χ2 value for a model does summarize the fit of a model quite well and with experience the researcher can make educated judgments about models based on this result. In sum, the statistical test or resulting p-value is less meaningful as sample sizes become large or the number of observed variables becomes large.

Therefore, Hair, Black, Babin et al. (2018) described sample size more than 250 and observed variable more than 12 is more likely to get significant p-value with a good model fit. Otherwise, insignificant p-value is expected if the observed variable less than 12. Therefore, except for p values greater than 0.05, the $\chi 2/df < 3$ ratio is recommended for SEM (Hair et al., 2010). Since $\chi 2$ of the GOF test is significantly influenced by sample size and model complexity, alternative GOF test measures are advised.

The second set of statistical criteria to assess the model GOF are GFI and AGFI

Because of this, GFI is less affected by the size of the sample used to calculate the fit statistic. In other words, it evaluates how well the model reproduces the observed covariance matrix. In addition, the AGFI is more robust in the face of small sample sizes and complicated models. It is a refinement of GFI that equalizes the degrees of freedom of the proposed and null models. Both the GFI and the AGFI should have readings that are between 0 and 1. Generally speaking, a value above.90 is considered satisfactory (Hair et al., 2010).

The third set of statistical criteria to assess the model GOF is Root Mean Square Error of Approximation (RMSEA)

Root mean square error of approximation (RMSEA) represents how well a model fits a population, not just a sample used for estimation. It explicitly tries to correct for both model complexity a d sample size by including each in its computation. Lower RMSEA values indicate better fit. The question of what is a "good" RMSEA value is debatable. RMSEA is best suited to use in a confirmatory or computing models strategy as samples become larger. Large samples can be considered as consisting of

more than 500 respondents. Thus, it enables is to report that the RMSEA is between 0.03 and 0.08 with 95% confidence (Hair et al., 2010).

The fourth set of statistical criteria to assess the model GOF are RMR and SRMR.

RMR is the mean of the residuals after fitting a model, and it makes sense only in light of the observed variances and covariances. When all observables are normalized, this measurement becomes accurate. When the population covariance matrix is known, the standardized value of RMR (SRMR) shows "how well the model, with optimally chosen but unknown parameter values, would fit the population covariance matrix." Having smaller RMR and SRMR values is indicative of a tighter fit. A SRMR value below.05 indicates excellent agreement, between.05 and.08, between.08 and.1 indicates fair agreement, above 0.10 indicates a poor agreement (Diamantopoulos & Siguaw, 2000, p. 85). In addition, the difference between the sample and fitted covariance matrices is the standardized residual, which is defined as the residual error in a large sample divided by the difference between the sample and fitted covariance matrices. Model fit is considered good if the difference between the largest and smallest standardized residuals, in absolute terms, does not exceed 2. (Joreskog & Sorbom, 1996).

Additional absolute indices.

Comparative Fit Index (CFI). The CFI is an incremental fit index that is an improved version of the normed fit index (NFI). The CFI is normed so that values range between 0 and 1, with higher values indicating better fit. Because the CFI has many desirable properties, including its relative, but not complete, insensitivity to model complexity, it is among the most widely used indices. CFI values above .90 are *usually* associated with a model that fits well

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CHAPTER III
Methodology

The methods of investigation employed in the present study are outlined in this section. Design, population, sample, instruments, subject protection, data collection, and analysis are all covered in depth.

Research Design

This study is a cross-sectional correlational analysis of the factors that affect the quality of nursing care in Indonesian hospitals, including patient-to-nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, and turnover intention.

The Aiken's Model (2002) served as the theoretical foundation for the selection of these prospective elements, and the literature study used to establish connections between the selected variables and the model. The descriptive cross-sectional research methodology has various benefits, according to Polit and Beck (2017). Initially, it was useful for investigating naturally occurring relationships between variables without resorting to artificial modification. Second, it was a cost-effective technique to gather a lot of information for the researcher. Even though the hypothesized model in this study was based on the Aiken Model's causal links, a cross-sectional design was used since it was thought to better explain the relationships between the study variables. Therefore, a cross-sectional study design was adopted for this investigation.

Population and Sample

There are 2,394 general hospitals spreading in Indonesia (PERSI, 2021). The target population of this study is 300,877 nurses (BPPSDMK, 2020), and for the purpose of this study is nurses who are working as registered nurses, inpatient wards of hospitals. Public and private with all type hospital (Hospitals type A, B, and C) are chosen because there is no difference in the level of practical nursing skill. This population was used to generalize the results. They followed the policy and regulations of Indonesia Act and Standards.

Sample size

Phase 1: instrument testing

In the phase of instrument testing, the researchers hope to examine the psychometric properties of the translated instruments I-GNCS, I-NCS, I-PES, I-MMSS, and I-ATS. According to Bentler and Chou (1987) suggestion, in n order to test the instrument's construct validity, 5-10 subjects per item to about 400 subjects. Comrey and Lee (2013) also determined that 300 people were good subjects for the study. This guideline was used to recruit participants who met the same inclusion criteria as the primary study. A total of 380 nurse were involved for instrument testing: 1) 30 nurse were employed for the pilot testing and 2) 350 nurse for construct validity and reliability testing

Phase II: main study

Based on complexity of the model, the sample size was derived from Hair, Black, Babin et al. (2018), suggestions, a sample size of 500 nurses is required, if one construct has less than three observed items. In this study, patient to-nurse ratio was a one-item scale. Thus, 500 nurses were needed. Additionally, 10% of the estimated

sample was added to offset the attrition of the sample. So, there are 550 inpatient nurses recruited, and it is estimated from proportion of selected hospitals in Indonesia.

Sampling technique

This research presents its sampling methods in two parts. During the testing phase of the instruments, a stratified random sampling technique was used. A multi-stage random sampling technique was used in the main study phase.

Multi-stage random sampling technique used for a probability sample of nurses who are working in hospitals. There are 3 stages to select the sample in this study as following: (see Figure 3.1)

Stage 1. Indonesia consists of three main area (East, Middle, and West). The numbers of hospitals in these areas are 262, 414, and 1,718 hospitals, respectively. Those are 1,596 public hospitals and 798 private (PERSI, 2021). The hospitals were grouped based on the area, type, and managed/funded by. Multistage were used to divided hospital into small group.

Stage 2. Researchers divided hospitals in each area to be type A, B, and C. The number of hospitals in each type was identified. Hospital selected by simple random sampling based on the area. The study chose one type A, B, and C hospital and one managed/funded by government and private on each type. However, there is no type A hospital in the east, and it changed become type B hospital. The total of 18 hospital were including four type A, eight type B, and six type C.

Stage 3. Once the hospitals have been selected, then the nurse recruited by using proportional sampling in each ward that consist of 550 inpatient nurses (Table 3.1). In each ward, convenience sampling was used.

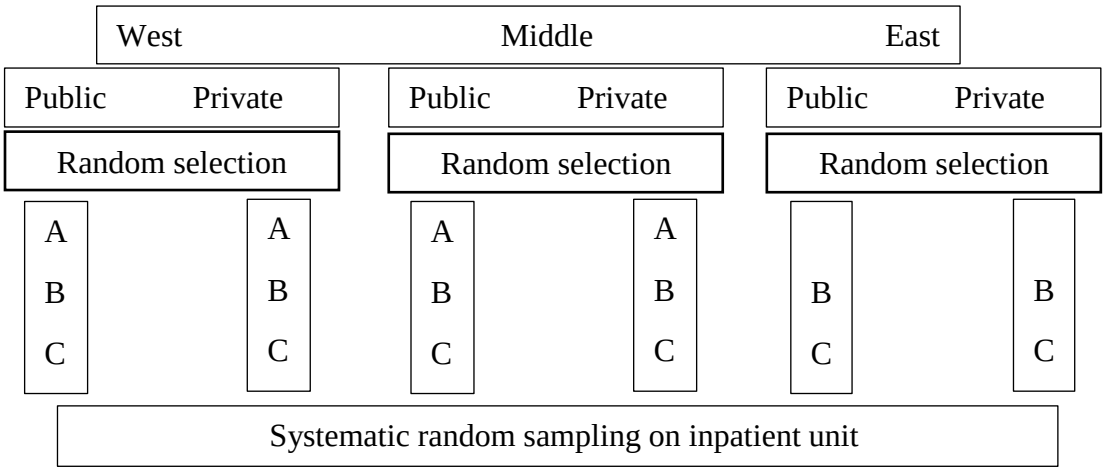

Figure 3.1 Multistage sampling for this study

Table 3.1 Proportional sampling on each hospital

Type of Hospitals	Area	Nurses	Study participants
A	West	1,491	141
A	West	821	78
B	West	243	23
A	Middle	913	86
A	Middle	594	56
B	Middle	252	24
B	West	309	29
B	Middle	225	21
B	East	98	9
B	East	130	12
C	West	32	3
B	East	232	22
C	West	62	6
C	Middle	49	5
C	Middle	33	3
B	East	240	23
C	East	39	4
C	East	62	6
	Total		550

Type A hospital on the east region was changed into Type B hospital because there is no Type A hospital on that region. According to the hospital privacy and agreement, this study could not expose the name of the hospital. A total 18 Hospitals are located in Bengkulu, West Sumatra, West Java, Middle Java, East Java, West Kalimantan, South Kalimantan, Bali, East Nusa Tenggara, South Sulawesi, Maluku, and Papua. The detail of each hospital is shown on Table 3.1.

Sample selection

1) Based on sample size frame

2) Inclusion criteria used to select the participants: (a) Indonesian nationality, (b) having experience practical nurses at inpatient department at least 1 year, (c) can speak, write, and read in *Bahasa Indonesia*, and d) willing to participate in this study.

3) Exclusion criteria are: (a) nurses who are not directly caring for patients because they are on leave due to maternity, illness, or education. (b) nurses who are on administrative duties.

Instrumentations

Questions from the Demographic Data Form, the Nurse Staffing Measurement Form, the Indonesian Good Nursing Care Scale (I-GNCS), the Indonesian Nurse Competence Scale (I-NCS), the Indonesian Practice Environment Scale (I-PES), the Indonesia McCloskey Mueller Satisfaction Scale (I-MMSS), and the Indonesia Anticipated Turnover Scale were used to compile the data (I-ATS).

The researcher went on to describe or develop the instruments, how they were scored, how they were translated and back translated, and how their psychometric

properties were tested. Information was gathered from June 2022 to September 2022. Researcher breaks down aforementioned development into four sections below: Description of the existing Indonesian version instruments of the PES (I-PES), MMSS (I-MMSS) and ATS (I-ATS) psychometric properties testing; Description of translation instrument, including Good Nursing Care Scale (GNCS), and Nurse Competence Scale (I-NCS) into Indonesian version of GNCS (I-GNCS) and Indonesian version of NCS (I-NCS); Detailed explanation of the demographics questionnaire and the staffing scale for nurses.

Part 1: Description of existing Indonesia version instruments and psychometric properties testing

The Indonesian version of the Practice Environment Scale (I-PES), Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS) and Indonesian version of Anticipated Turnover Scale (I-ATS) were translated and back translated from PES-NWI, MMSS and ATS. In the existing literature, the content validity, internal consistency reliability, and EFA of I-PES, I-MMSS and I-ATS have been tested among Indonesia RNs. These psychometric properties of I-PES, I-MMSS and I-ATS were acceptable in previous studies.

In this study, the internal consistency reliability, construct validity and composite reliability of I-PES, I-MMSS, I-ATS, I-GNCS and I-NCS were tested among 350 RNs from tryout data. The construct validity and composite reliability were tested by CFA to assess the goodness of-fit.

1. Indonesian version of the Practice Environment Scale (I-PES)

Environment was assessed by I-PES. The I-PES was translated and adapted from the Lake (2002) PES-NWI by Indonesian researcher (Kusnanto, Juanamasta,

Yuwono et al., 2020). According to (Kusnanto, Juanamasta, Yuwono et al., 2020), I-PES has 31 items with five dimensions, including 1) nurse participation in hospital affairs (9 items), 2) nursing foundations for quality care (10 items), 3) nurse manager ability, leadership, and support of nurses (5 items), 4) staffing and resource adequacy (4 items), and 5) collegial nurse-physician relations (3 items). In Kusnanto's study, I-PES content validity index was calculated by five nursing administration experts with position level higher than associate professor. It was .94. The Cronbach's alpha coefficient of total scale was .93 and item to total correlation ranged from .45 to .63. Construct validity was done with loading factor ranged from .74 to .86. In addition, convergent validity was employed with Average Variance Extracted (AVE) was higher than .63 and composite reliability was .85. Scoring and interpretation of the score: It is a five-point Likert scale. The score ranged from 1 = strongly disagree to 5 = strongly agree.

According to the score of nurse work environment range from 1 to 5, containing five ranks, the mean score of was divided into four levels by using the class interval formula $\bar{x}$ = ($\bar{x}$ max — $\bar{x}$ mix)/k. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit, 1996). The range of mean scores with levels of interpretation are presented below.

Range of Mean Scores Levels of Interpretation

1.00 – 1.80 a very poor level of nurse work environment

1.81 – 2.60 a poor level of nurse work environment

2.61 – 3.40 a fair level of nurse work environment

3.41 – 4.20 a good level of nurse work environment

4.21 – 5.00 a very good level of nurse work environment

Internal Consistency Reliability: The constructs of I-PES included five dimensions, which is inconstant with both original English version of PES-NWI in five constructs. In addition, PES-NWI was used in several studies with five dimensions. In order to enhance the comparative findings with other studies, this study used the original five dimensions classification of the construct validity of I-PES with 31 items. From the tryout (n = 350), the total internal consistency Cronbach's Alpha was .97. The Cronbach's Alpha of five dimensions ranged from .89 to .95. The item-to-total correlation ranged from .62 to .85

The constructs of I-PES was assessed by the measurement model of CFA.

By using the second-order CFA analysis, the result presented that I-PES had five dimensions with 31 items. The Goodness of fit statistics presented that I-PES is acceptable ($\chi 2$ = 986.21, df = 265, P-value = .00, GFI = 1.00, AGFI = .96, RMSEA = .06, and CFI = 1.00), as shown in Appendix H1. The unstandardized factor loading (b) of each dimension ranged from 0.80 to 0.96 at statistic significant level of .05 (Appendix H1). The factor loading (B) of each item ranged from .66 to .91 at a statistic significant level of .05. Nurse work environment had Item 31 with the highest factor loading (B =.91) and squared multiple correlation of .83. The measurement model of I-PES is showed in Appendix H1.

Composite reliability: Each latent variables' composite reliability of I-PES ranged from .89 to .95, which was considered as higher composite reliability (Appendix H1). The dimension of Nursing foundations for quality care (ρc = .95) had the highest score of composite reliability, which was followed by the dimension of nurse participation on the hospital affair (ρc = .93) and Nurse manager ability, leadership, and

support of nurses (ρc = .93). Each latent variables' average variance extracted of I-PES ranged from .61 to .80 (Appendix H1). the dimension of nurse-physician relationship can explain the variance of latent variable at a high level (ρv = .80). The other dimensions can explain the variance of latent variable at a hign level.

2. Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS)

Nurses' satisfaction was assessed by I-MMSS. The I-MMSS was translated and adapted from the Mueller and McCloskey (1990) by Indonesia researcher (Arini, 2018; Arini & Juanamasta, 2020). According to previous study, I-MMSS has 31 items with eight dimensions, including satisfaction with external awards (3 items), satisfaction with service schedules (6 items), satisfaction on the balance between family and work (3 items), satisfaction with relationships with coworkers (2 items), satisfaction with the opportunity to interact in the work environment (4 items), satisfaction with the opportunity to develop professional (4 items), and satisfaction with responsibility (5 items). In Tantri's study (Arini, 2018), I-MMSS content validity index was calculated by five nursing administration experts with position level higher than associate professor. It was .92. The criterion validity was established by Pearson correlation with correlation of more than .4. In addition, convergent validity was employed with Average Variance Extracted (AVE) was higher than .54 The Cronbach's alpha coefficient of total scale was .86 and composite reliability was .89. Scoring and interpretation of the score: It is a five-point Likert scale. The score ranged from 1 = strongly disagree to 5 = strongly agree.

According to the score of I-MMSS range from 1 to 5, containing five ranks, the mean score of was divided into four levels by using the class interval formula $\bar{x}$ = ($\bar{x}$

max — $\bar{x}$ mix)/k. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit, 1996). The range of mean scores with levels of interpretation are presented below.

Range of Mean Scores Levels of Interpretation

1.00 – 1.80 a very low level of nurse satisfaction

1.81 – 2.60 a low level of nurse satisfaction

2.61 – 3.40 a fair level of nurse satisfaction

3.41 – 4.20 a high level of nurse satisfaction

4.21 – 5.00 a very high level of nurse satisfaction

Internal Consistency Reliability: The constructs of I-MMSS included eight dimensions, which is consistent with original English version in eight constructs. In order to enhance the comparative findings with other studies, this study used the original eight dimensions classification of the construct validity of I-MMSS with 31 items. From the tryout (n = 350), the total internal consistency Cronbach's Alpha was .96. The Cronbach's Alpha of five dimensions ranged from .69 to .93. The item-to-total correlation ranged from .49 to .79.

The constructs of I-MMSS was assessed by the measurement model of CFA.

By using the second-order CFA analysis, the result presented that I-MMSS had eight dimensions with 31 items. The Goodness of fit statistics presented that I-MMSS is acceptable ($\chi 2$ = 787.77, df = 357, P-value = .00, GFI = .97, AGFI = .96, RMSEA = .06, and CFI = 1.00), as shown in Appendix H2. The unstandardized factor loading (b) of each dimension ranged from .75 to .97 at statistic significant level of .05 (Appendix H2). The factor loading (B) of each item ranged from .59 to .92 at a statistic significant

level of .05. Nurse satisfaction had Item 31 with the highest factor loading (B =.92) and squared multiple correlation of .81, followed by item 25 and item 19 with factor loading (B = .83, B = .74) and squared multiple correlation of .68 and .54, respectively. The measurement model of I-MMSS is showed in Appendix H2.

Composite reliability: Each latent variables' composite reliability of I-MMSS ranged from .70 to .93, which was considered as higher composite reliability (Appendix H2). The dimension of control/responsibility (ρc = .93) had the highest score of composite reliability, which was followed by the dimension of interaction (ρc = .92) and professional opportunities (ρc = .92). Each latent variables' average variance extracted of I-MMSS ranged from .44 to .66 (Appendix H2). Only the dimension of family and work balance can explain the variance of latent variable at a moderate level (ρv = .49). The other dimensions can explain the variance of latent variable at a high level.

3. Indonesian version of the Anticipated Turnover Scale (I-ATS)

Turnover intention was assessed by I-ATS. The I-ATS was translated and adapted from the Hinshaw and Atwood (1982) by Indonesia researcher (Elastrina A, 2012). According to previous study, I-ATS has 11 items unidimensional. The Cronbach's alpha coefficient of total scale was .79 and internal consistency range from .33-.80. Scoring and interpretation of the score: It is a seven-point Likert scale. The score ranged from 1 = strongly disagree to 5 = strongly agree. However, according to the nature of questionnaire, the study follow the original scoring from 1-7. The study tried to measure the reliability, construct validity and reliability to measure the questionnaire.

According to the score of I-ATS range from 1 to 7, containing two ranks, the mean score of was divided into four levels by using the class interval formula $\bar{x}$ = ($\bar{x}$ max — $\bar{x}$ mix)/k. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit, 1996). The range of mean scores with levels of interpretation are presented below.

Range of Mean Scores Levels of Interpretation

1.00 – 3.00 a level nurse intention to stay in job

3.01 – 5.00 a level nurse not sure to stay or quit in job

5.01 – 7.00 a level nurse intention to quit in job

Internal Consistency Reliability: The constructs of I-ATS included nine questions. In this study, from the tryout (n = 350), the reliability of I-ATS was .85. Nine items' item-to-total correlation ranged from .30 to .76.

The constructs of I-ATS was assessed by the measurement model of CFA.

By using the first-order CFA analysis, the result presented that I-ATS had nine items. Three questions (item 3, item 6, and item 7) were deleted because loading factors <.3. The Goodness of fit statistics presented that I- ATS is acceptable (χ2 = 50.39, df = 20, P-value = .00, GFI = 1.00, AGFI = .99, RMSEA = .06, and CFI = 1.00), as shown in Appendix H3.

The unstandardized of each item ranged from 41 to 1.75. The factor loading (B) of each item ranged from -.83 to .36 at a statistically significant level of .05 (Appendix H3). I-ATS had Item 5 had the highest score of .83 and the squared multiple correlation of .70. The basic measurement model of I-ATS is showed in Appendix H3.

Composite reliability: The composite reliability of latent variable for I-ATS was high as .87. The average variance extracted of latent variable for I-ATS was .46, which indicated the factor can explain the variance of latent variable at a high level.

Part II: Instrument translation procedures and modification

In order to study the health care needs of people with diverse cultural backgrounds, research instruments must be reliable and valid in each culture studied (Rehnström, Christensson, Leino-Kilpi et al., 2003). Phase I focused on translating and adapting the instrument into the Indonesian language and included the following subphases (Sousa & Rojjanasrirat, 2011). 1) Author assessed the conceptual equivalence of the instrument to evaluate the cultural relevance of the measure, the author of the scale and a member of the research team participated in this process. 2) The items of the English version of the instruments were translated into Indonesian and retranslated into English by a translator and a Professor of Nursing, who were chosen for their linguistic competence in both languages and for being immersed in the culture where the instrument would be applied. 3) An expert panel consisting of three nurses with a doctoral degree and extensive clinical experience and one official translator reviewed the translated version for relevancy and conceptual ambiguities of the items. Moreover, the author of the instrument was consulted to resolve conceptual ambiguities when needed. 4) Pilot testing of the prefinal version of the instrument in the target language was conducted. Once the Indonesian version was obtained, a pilot testing (n = 30) of the questionnaire was conducted in a sample of nurses with the same characteristics of the target population to verify nurses' understanding of the instructions, items and response format of the instrument. Each participant was asked to assess the items and instructions using a dichotomous scale (clear or unclear). No

item of the questionnaire was difficult to understand, therefore, no changes were necessary after completing the pilot test. Finally, the instruments were acceptable and reflected the meaning of each item. All the instruments were accepted but they were used in different wordings. After this, the final of Indonesian version is achieved and translated validity had been established.

In this study, there are two instruments to be translated into Indonesia language. Those include, Good Nursing Care Scale and Nurse Competence Scale.

1. Indonesian version of the Good Nursing Care Scale (I-GNCS)

The psychometric properties of I-GNCS were tested by the content validity, internal consistency reliability, construct validity by CFA and composite reliability. The progress of each of these is presented as follows. Good Nursing Care Scale developed by Leino-Kilpi (1991) was a self-reported instrument that contained 116 items, and it revised three times become 40 items. GNCS was the selected instrument to measure nurses' perceived quality nursing care in this study. The Cronbach's Alpha of GNCS was .66. The construct validity was established by the exploratory factor analysis and confirmatory (Istomina, 2011). The factor loading for each item was more than .40. Scoring and interpretation of the score: It is a seven-point Likert scale. The score ranged from 1 = disagree strongly to 5 = agree strongly.

According to the score of I-GNCS range from 1 to 5, containing five ranks, the mean score of was divided into four levels by using the class interval formula $\bar{x}$ = ($\bar{x}$ max — $\bar{x}$ mix)/k. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit, 1996). The range of mean scores with levels of interpretation are presented below.

Range of Mean Scores Levels of Interpretation

1.00 – 1.80 = the quality of care is very low

1.81 – 2.60 = the quality of care is low

2.61 – 3.40 = the quality of care is fair

3.41 – 4.20 = the quality of care is high

4.21 – 5.00 = the quality of is very high

Content validity: After translating the GNCS, the Indonesian version of GNCS (I-GNCS) was sent out to validate the content. I-GNCS content validity was evaluated by a panel of five nurse experts, who are hold a doctoral degree and extensive clinical experience validity evaluation experts. 40 items were maintained after the content validation process.

These 40 items' I-CVI ranged from .8 to 1 and S-CVI/Ave was .96. Internal Consistency Reliability: In this study, from the tryout (n = 350), the reliability of I-GNCS was .96. Items' item-to-total correlation ranged from .48 to .75.

The constructs of I-GNCS was assessed by the measurement model of CFA.

By using second-order CFA analysis, the result presented that I-GNCS was the had seven dimensions with 40 items. The GOF statistics presented that the I-GNCS goodness fit is acceptable ($\chi 2$ = 1779.75, df = 651, P-value = .00, GFI = .99, AGFI =.98, RMSEA = .07, and CFI = 1.00) as shown in Appendix H4. The unstandardized factor loading (b) of each dimension ranged from .74 to 1.00 at statistic significant level of .05 (Appendix H4). The factor loading (B) of each item ranged from .43 to .89 at a statistic significant level of .05. I-GNCS had Item 37 and 36 with the highest factor loading (B =.89) and squared multiple correlation of .78 AND .79 respectively,

followed by item 36 and item 18 with factor loading (B = .88) and squared multiple correlation of .77. The measurement model of I-GNCS is showed in Appendix H4.

Composite reliability: Each latent variables' composite reliability of I-GNCS ranged from .77 to .91, which was considered as higher composite reliability (Appendix H4). The dimension of collaboration with relatives (ρc = .91) and nurse environment (ρc = .91) had the highest score of composite reliability, which was followed by the dimension of patient' coping strategies (ρc = .89). Each latent variables' average variance extracted of I-GNCS ranged from .37 to .67 (Appendix H4). The dimension of collaboration with relatives, patient' coping strategies, nurse environment, and staff characteristics can explain the variance of latent variable at a high level (ρv >.5). The other dimensions can explain the variance of latent variable at a moderate level.

2. Indonesian version of the Nurse Competence Scale (I-NCS)

The psychometric properties of I-NCS were tested by the content validity, internal consistency reliability, construct validity by CFA and composite reliability. The progress of each of these is presented as follows. Nurse Competence Scale (NCS) developed by Meretoja, Isoaho, and Leino-Kilpi (2004) was a self-reported instrument that contained 73 items with six different variables, including helping role (7 items), teaching-coaching (16 items), diagnostic function (7 items), managing situations (8 items), therapeutic interventions (10 items), ensuring quality (6 items), and work role (19 item). The psychometric evaluation with content validity and principal component analysis showed .90 (I-CVI) and 58.45% of total variance were demonstrated six factors with 36 items (Juntasopeepun, Turale, Kawabata et al., 2019). It is a four-point Likert scale. The score ranged from 0 = disagree strongly to 3 = agree strongly. Higher mean

of total score interpreted nurses' perceived high competence and lower mean of total score interpreted nurses' perceived low competence.

According to the score of I-NCS range from 0 to 3, containing four ranks, the mean score of was divided into four levels by using the class interval formula $\bar{x}$ = ($\bar{x}$ max — $\bar{x}$ mix)/k. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit & Lake, 2013). The range of mean scores with levels of interpretation are presented below.

Range of Mean Scores Levels of Interpretation

0.00 – 0.75 a very poor level of nurse competence

0.76 – 1.50 a poor level of nurse competence

1.51 – 2.25 a high level of nurse competence

2.26 – 3.00 a very high level of nurse competence

Content validity: After translating the NCS, the Indonesian version of NCS (I-NCS) was sent out to validate the content. I-NCS content validity was evaluated by a panel of five nurse experts, who are hold a doctoral degree and extensive clinical experience validity evaluation experts. 36 items were left after the content validation process.

These 36 items' I-CVI ranged from .76 to 1 and S-CVI/Ave was .94. Internal Consistency Reliability: In this study, from the tryout (n = 350), the reliability of I-NCS was .97. Thirty six items' item-to-total correlation ranged from .57 to .84.

The constructs of I-NCS was assessed by the measurement model of CFA.

By using second-order CFA analysis, the result presented that I-NCS was the had six dimensions with 36 items. The GOF statistics presented that the I-NCS

goodness fit is acceptable ($\chi 2$ = 1233.81, df = 479, P-value = .00, GFI = 1.00, AGFI =1.00, RMSEA = .06, and CFI = 1.00) as shown in Appendix H6. The unstandardized factor loading (b) of each dimension ranged from .76 to 1.00 at statistic significant level of .05 (Appendix H6). The factor loading (B) of each item ranged from .57 to .94 at a statistic significant level of .05. I-NCS had Item 35 with the highest factor loading (B =.94) and squared multiple correlation of .88, followed by item 36 and item 33 with factor loading (B = .89, B = .89) and squared multiple correlation of .80 and .79, respectively. The measurement model of I-NCS is showed in Appendix H6.

Composite reliability: Each latent variables' composite reliability of I-NCS ranged from .89 to .93, which was considered as higher composite reliability (Appendix H6). The dimension of mentoring functions and work role (ρc = .93) had the highest score of composite reliability, which was followed by the dimension of feedback from patient education (ρc = .91). Each latent variables' average variance extracted of I-NCS ranged from .59 to .81 (Appendix H6). All dimensions can explain the variance of latent variable at a high level (ρv >.5).

Part 3: Description of demographic data form with nursing staffing form.

The researcher created a demographic data form to collect information about the RNs' personal histories. In addition, the nurse staffing measurement form was created to determine the ratio of patients to nurses. Since it was a single table, it was regarded as part of the demographic data.

1. Form for demographic data

The researcher created a demographic data collection form. It was designed to collect information about the participants, including their ages, genders, marital status, education level, working years, employment status, income, work departments,

schedule system, working hours, and the number of patients cared for by an RN during their previous shift.

2. Staffing measurement form for nurses

Utilizing a nurse staffing measurement form, working hours and patient-to-nurse ratio were determined. The researcher modified it based on Aiken's indicator, a literature review, and interviews with Indonesian experts.

Notation and analysis of the score: The working hour is determined by subtracting the time a nurse leaves from the time she arrives. That is the equivalent of working hours. A larger number of hours indicates a longer workday, while a smaller number indicates a shorter workday. To interpret the patient-to-nurse ratio, the number of patients cared for by a single RN during the previous shift was determined. The greater the number of patients per nurse, the more patients they care for. Lower patient count indicates fewer patients are cared for by a single nurse.

Validity: An online panel of five nurse experts (1 chief nursing officer, 1 supervisor, 1 head nurse, 1 nurse director, and 1 lecturer from nursing school) from different regional hospitals or schools evaluated the content validity of nurse staffing. All of them possess the same credentials as experts in testing the content validity of other instruments. The I-CVI, as determined by these six experts, was 0.86, which is acceptable. (Polit & Beck, 2020).

Table 3.2 The summary of instruments' reliability and validity

Instruments name	**Reliability**			**Validity**
	Item No	**Internal Consistency (N = 350)**	**Composite reliability (N = 350)**	**Content Validity**	**Construct Validity (N = 510)**
I- PES	31	Total: .97. Range: .62 to .85.	Range: .89 to .95.		Model achieve criteria
I-MMSS	431	Total: .96. Range: . 49 to .79.	Range: .81 to .93.		Model achieve criteria
I-ATS	9	Total: .90.	One dimension .90		Model achieve criteria
I-GNCS	40	Total: .94. Range: .64 to .88.	Range: .69 to .86	I-CVI: .8 to 1, S-CVI: .96.	Model achieve criteria
I-NCS	36	Total: .97. Range: .89 to .93.	Range: .69 to .86	I-CVI: .8 to 1, S-CVI: .94.	Model achieve criteria
Nurse staffing form				I-CVI: .86.	

Instrument overview: In Appendix E, the instruments used for the primary study are presented. Three instruments were chosen from the Indonesian version: the Practice Environment Scale (I-PES), the McCloskey/Mueller Satisfaction Scale (I-MMSS), and the Anticipated Turnover Scale (I-ATS). Existing instruments were translated and modified to create the Indonesian version of the Good Nursing Care Scale (I-GNCS) and the Indonesian Nurse Competence Scale (I-NCS). The existing instrument was adopted as the basis for the Nurse staffing measurement form. The psychometric properties of I-GNCS and I-NCS were tested for content validity, internal consistency reliability, confirmatory factor analysis, and composite reliability. I-PES, I-MMSS, and I-ATS were evaluated for internal consistency reliability, confirmatory factor analysis, and composite reliability. In addition, the content validity of the nurse staffing measurement form was evaluated. Consequently, each of the instruments exhibited acceptable levels of validity and reliability. The reliability and validity of all instruments are summarized in Table 3.2.

Protection of Human Subjects

Appendix A demonstrates that the Ethics Committee on Social Studies and Humanities of the National Research and Innovation Agency (NRIA), National Research and Innovation Agency of the Republic of Indonesia, approved this study on August 10, 2022. After receiving ethical clearance approval, data collection permission was granted by each hospital. Participants also received an information sheet and consent form. The purpose, rationale, progression of participation, risk/harm, and benefits of this project were explained to participants in a document. In addition, the consent form stated that participation was voluntary. Participants may withdraw from

or decline participation in this study at any time without incurring penalties or losing benefits. Moreover, the responses of participants were kept confidential, and their identities were not made public. Participants were also given the researcher's address and phone number, in case they had any questions.

Data Collection

Individual questionnaire was used to gather data. The subsequent steps were carried out.

1. Obtained permission to gather research data from the NRIA.

2. Requested permission to conduct this research from the hospital research and education departments of 18 general hospitals.

3. Send a letter to the directors of specific general hospitals. The letter detailed the objective of the study, the method of data collection, the request for permission to collect data, and the copy of questionnaires in Indonesian.

4. Obtained from hospital nursing divisions the total number and number of RNs in each strata of inpatient departments. The researcher instructed research assistants on the inclusion criteria for participant selection and the required sampling technique for data collection.

5. The researcher and research assistants distributed the information sheet, informed consent form, and questionnaires to the participants who were selected. The information sheet disclosed the objective of the study, the time required to complete questionnaires (15 to 30 minutes), and the method for ensuring confidentiality and anonymity. Moreover, it explained the significance of the authenticity and completeness of questionnaire responses.

6. The researcher and research assistants gathered questionnaires from participants who were selected.

7. The researcher examined the completeness of the questionnaires. Six hundred fifty questionnaires were distributed. Five hundred seventy-seven returned questionnaires were complete. The return rate for questionnaires was 88.77 percent.

In preparation for data analysis, the researcher examined and tidied all data.

Data Analysis

Before data analysis, univariate and multivariate outliers were examined. The univariate outlier of each variable was determined by examining the Z score's frequency distribution. Kline (2011) states that | Z | > 3.00 indicates an outlier. Consequently, 27 outlier cases were removed from analysis.

The multivariate outlier was evaluated using the Mahalanobis distance at a significance level of p .001. The formula for calculating the Mahalanobis distance is " 2 with the degree of freedom equal to the number of variables" (Tabachnick & Fidell, 2007, p. 99). This investigation involved eight variables. All instances with a Mahalanobis Distance score exceeding $\chi 2$ (6) = 22.458 were eliminated. Mahalanobis Distance analysis has no delete function. In conclusion, 550 cases were used for data analysis. The p-value of 0.05 was established as the accepted significance level for this study. The procedures for data analysis were carried out using the following procedures.

1. Using statistical package, descriptive statistics such as frequency, percentage, range, mean, and standard deviation were utilized to describe the characteristics of study participants and variables.

2. Using statistical package, the 350 RNs who served as controls for the primary study were used to assess the reliability of all instruments. According to Polit and Beck (2020), Cronbach's Alpha Coefficient of the total score greater than 0.7 is acceptable. .

3. Using statistical package, the SEM assumptions include normality, linearity, homoscedasticity, and testing for multicollinearity. Normality was determined using the skewness, kurtosis, and normal probability plots. The residual plot, which is the graph between the standardized residuals (Y-axis) and the predicted value, was used to test for linearity (X-axis). The homoscedasticity was examined using a scatter plot of residuals. Pearson Product Moment correlations were used to evaluate the multicollinearity of bivariate relationships between 23 observed variables. Multiple regression was employed to examine multicollinearity by the variance inflation factor (VIF) and the tolerance value between 8 exogenous observed variables and 31 endogenous observed variables (Hair, Black, Babin et al., 2018).

4. By using statistical package for Windows program, the construct validity of environment, nurses' satisfaction, nurses' competence, and quality nursing care were tested by second-order CFA model. The construct validity of nurses' turnover intention was tested by the first-order CFA model. The measurement model's $\chi 2 < .05$, $\chi 2/df < 3$, GFI > .90, CFI > .90, AGFI > .80, RMSEA < .07, SRMR < .08 for more than 350 participants were reported (Byrne, 2013; Hair, Black, Babin et al., 2018).

5.. By using statistical package, the hypothesized causal model was tested and modified for best fit and parsimony by SEM. The measurement used the meaen of each dimension of variable. With the sample size of 550, the $\chi 2 > .05$, $\chi 2/df < 3$, GFI > .90, CFI > .90, AGFI > .80, RMSEA < .07, SRMR < .08 were used to test the model fitness (Byrne, 2013; Hair, Black, Babin et al., 2018).

Table 3.3 The summary of instruments' type of dimension and item number

Variable	Type of Dimension	Number of items of dimension
Quality nursing care	Multidimension	1st dimension, five items 2nd dimension, six items 3rd dimension, five items 4th dimension, five items 5th dimension, six items 6th dimension, seven items 7th dimension, six items
Patient to nurse ratio	Unidimension	One item
Working hour	Unidimension	One item
Nurse competence	Multidimension	1st dimension, nine items 2nd dimension, ten items 3rd dimension, five items 4th dimension, four items 5th dimension, three items 6th dimension,
Environment characteristics	Multidimension	1st dimension, nine items 2nd dimension, ten items 3rd dimension, five items 4th dimension, four items 5th dimension, three items
Job satisfaction	Multidimension	1st dimension, three items 2nd dimension, six items 3rd dimension, three items 4th dimension, two items 5th dimension, four items 6th dimension, four items 7th dimension, four items 8th dimension, five items
Turnover intention	Unidimension	Nine items

CHAPTER IV
RESULTS

The results of this study are present in this chapter. This cross-sectional correlation study aimed: 1) To explain the average levels of nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention and quality nursing care Indonesian hospitals. 2) To confirm how nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention influence quality nursing care in Indonesian hospitals.

The results include 1) descriptive statistics of variables, 2) Structural Equation Modeling (SEM) assumption testing, and 3) Findings of research questions and hypothesis testing.

Descriptive Statistics of the Variables

1. Demographic characteristics of participants

Five hundred and fifty participants self-reported questionnaires were used for analyzing the data. The participants' ages, genders, marital status, education, work experience, income, incentive, shift, additional responsibility, and patient severity were presented in Table 4.1.

The participants' age ranged from 20 to 59 with the mean of 33.72 (SD = 6.91). Approximately half of the participants' ages were around 31 to 35 years old (28.7%) and 25-30 (27.5%). Nearly eighty percent of participants were female (76.4%) and married (79.1%). Most of the participants got a diploma's degree (47.5%) and followed by bachelor RN degree (46.2%). The participants' work experience as a nurse ranged from 1 year to 35 years with the mean of 10.92 (SD = 7.18). The largest group of the participants' work experience in the hospital were not more than five years (36.0%). It was followed by groups of six to ten years (26.4%), 11 to 15years (19.1%).

Table 4.1 Demographic characteristics of participants (N = 550)

Charactheristics	Frequency	Percent
Age		
<25	54	9.8
25-30	151	27.5
31-35	158	28.7
36-40	92	16.7
41-45	60	10.9
46-50	23	4.2
>50	12	2.2
Sex		
Male	130	23.6
Female	420	76.4
Education		
Diploma	261	47.5
Bachelor	28	5.1
Bachelor RN	254	46.2
Master	6	1.1
Master Specialist	1	.2
Marital status		
Unmarried	115	20.9
Married	435	79.1
Working experience as being a nurse		
<5 years	143	26.0
5-10 years	162	29.5
11-15 years	113	20.5
16-20 years	63	11.5
21-25 years	43	7.8

Table 4.1 Demographic characteristics of participants (N = 550) (Cont…)

Charactheristics	Frequency	Percent
26-30 years	16	2.9
>30 years	10	1.8
Working experience in the hospital		
<5 years	198	36.0
5-10 years	145	26.4
11-15 years	105	19.1
16-20 years	53	9.6
21-25 years	30	5.5
26-30 years	10	1.8
>30 years	9	1.6
Working experience in the ward		
<5 years	345	62.7
5-10 years	118	21.5
11-15 years	49	8.9
16-20 years	26	4.7
>20 years	12	2.2
Job status		
Civil servant	263	47.8
Government Employees with Agreement	6	1.1
Permanent	19	3.5
Temporary	28	5.1
Contract	234	42.5
Salary/month		
<Rp2,500,000	299	54.4
Rp2,600,000-Rp3,500,000	154	28.0
Rp3,600,000-Rp4,500,000	70	12.7
Rp4,600,000-Rp5,500,000	27	4.9
Incentive/month		
<Rp500,000	89	16.2

Table 4.1 Demographic characteristics of participants (N = 550) (Cont…)

Charactheristics	Frequency	Percent
Rp500,001-Rp1,000,000	171	31.1
Rp1,000,001-Rp1,500,000	132	24.0
Rp1,500,001-Rp2,000,000	86	15.6
Rp2,000,001-Rp2,500,000	72	13.1
Shift system		
others	87	15.8
7/7/10	235	42.7
8/8/8	96	17.5
12/12	15	2.7
6/6/12	117	21.3
Additional responsibility		
Yes (Team leader, ward administration, etc)	299	54.4
No	251	45.6
Patient severity		
are mostly independent	23	4.2
require some assistance at times	186	33.8
mostly require assistance	253	46.0
bedridden	88	16.0

Considering the employment status, most of the participants were civil servant (47.8%). Approximately half of the participants' monthly salary were lower than 2,500,000 rupiah (1USD = 15,700 rupiah). Thirty one percent participants were get incentives 500,001-1,000,000 rupiah.

Almost half participants worked in the unit with 7-7-10 shift system (42.1%) and followed by 6-6-12 (21.3%). Fifty four percent participants have an extra

responsibility, such as team leader, primary nurse, and unit/ward administrator. Majority patients' severity were mostly required assistance.

2. Characteristics of study variables

The study variables in this study included patient to nurse ration, working hour, turnover intention, environment, nurse competence, nurses' satisfaction, turnover intention, and quality nursing care. The description of each study variables and observed variables' Skewness (SI), Kurtosis (SK), and Critical ratio (CR) are presented in Table 4.2.

Table 4.2 Description of study variables and observed variables (N = 550) Variables Skewness

Variable	Skewness	SI.	Kurtosis	KI
Patient to nurse ratio	0.32	3.06	-0.69	-3.31
Working hour	0.54	5.15	-1.50	-7.16
Quality nursing care	-0.99	9.52	.64	3.06
Staff characteristics	-1.62	-15.49	2.51	12.02
Care activities	-1.08	-10.30	0.51	2.43
Precondition for care	-1.01	-9.66	1.35	6.46
Nurse environment	-1.77	-16.93	3.24	15.50
Course of nursing process	-0.61	-5.87	-0.36	-1.70
Patient' coping strategy	-0.90	-8.61	0.10	0.46
Collaborative with relatives	-1.22	-11.72	1.55	7.44
Competence	-0.89	-8.64	-0.47	-2.26
Research oriented	-0.71	-6.79	-0.55	-2.63
Work role	-1.14	-10.87	0.23	1.10
Diagnostic function	-1.18	-11.31	0.78	3.72
Manage situation	-1.04	-9.98	-0.34	-1.63

Table 4.2 Description of study variables and observed variables (N = 550) Variables Skewness (Cont…)

Variable	Skewness	SI.	Kurtosis	KI
Patient to nurse ratio	0.32	3.06	-0.69	-3.31
Working hour	0.54	5.15	-1.50	-7.16
Quality nursing care	-0.99	9.52	.64	3.06
Staff characteristics	-1.62	-15.49	2.51	12.02
Care activities	-1.08	-10.30	0.51	2.43
Precondition for care	-1.01	-9.66	1.35	6.46
Nurse environment	-1.77	-16.93	3.24	15.50
Course of nursing process	-0.61	-5.87	-0.36	-1.70
Patient' coping strategy	-0.90	-8.61	0.10	0.46
Collaborative with relatives	-1.22	-11.72	1.55	7.44
Competence	-0.89	-8.64	-0.47	-2.26
Research oriented	-0.71	-6.79	-0.55	-2.63
Work role	-1.14	-10.87	0.23	1.10
Diagnostic function	-1.18	-11.31	0.78	3.72
Manage situation	-1.04	-9.98	-0.34	-1.63
Patient education	-0.96	-9.19	-0.50	-2.40
Mentoring function	-1.65	-15.83	3.09	14.78
Environment	-0.86	-8.27	0.11	0.54
Nurse participation of hospital affair	-0.84	-8.07	0.39	1.85
Nurse foundation of quality nursing carec	-0.92	-8.81	0.20	0.94
Nurse manager ability, leadership and support of nurses	-1.07	-10.22	0.89	4.24
Staffing and resource adequacy	-0.85	-8.16	-0.09	-0.43
Nurse-physician relationship	-1.09	-10.40	0.22	1.07

Table 4.2 Description of study variables and observed variables (N = 550) Variables Skewness (Cont…)

Variable	Skewness	SI.	Kurtosis	KI
Nurse satisfaction	0.08	0.78	-1.743	-8.37
Control/responsibility	-0.55	-5.30	-0.03	-0.15
Professional opportunities	-0.47	-4.52	-0.35	-1.68
Praise/recognition	-0.69	-6.64	0.35	1.67
Interaction opportunities	-0.85	-8.13	0.74	3.53
Co-worker	-0.91	-8.75	1.27	6.06
Balance of family and work	-0.28	-2.70	-0.44	-2.11
Scheduling	-0.20	-1.86	-0.43	-2.07
Extrinsic	-0.15	-1.47	-0.48	-2.28
Turnover intention	0.75	7.16	-0.08	-0.38
Multivariate			311.29	73.78

The patient to nurse ratio score had a positive skewness value (0.32), which suggested that most of the participants had score of patient to nurse ratio lower than the mean score. The kurtosis value of patient to nurse ratio had a negative value (- 069), which indicated that score was shaped like a platykurtic (Table 4.2). The SI of nurse ratio was 8.07, which was more than critical value of 1.96 ($\alpha = .05$) (Hair et al., 2010, p. 73). It indicated the non-normal distribution of nurse staffing.

Meanwhile, working hour and turnover intention had a positive skewness value .54 and .75, respectively, which suggested the majority participant score lower than mean. The similar negative kurtosis was found in working hour (-1.50) and turnover intention (-.08), which indicated nurses' working hour and turnover intention score were shaped like platykurtic (flattened curve). According to Hair, Black, Babin et al.

(2018), the critical value of normal data distribution is 1.96. Based on the SI of working hour and turnover intention, both of variable indicated non-normal distribution.

The nurse competence had a negative skewness value (-0.89), which suggested that most of the participants had a score of nurse competence higher than the mean score. The kurtosis value of nurse competence was negative (-0.47), which indicated that nurse competence scores were shaped like a platykurtic (flattened curve) (see Table 4.2). Since the SI score of nurse competence (- 5.38) and each dimension (-8.64 to -2.26) were outside the absolute value 1.96, which indicated the non-normal distribution of variable and observed variables' nurse competence.

It is seen form Table 4.2 that environment scores had a negative skewness value (-0.86), which suggested that most of the participants had a score of perceived environment higher than the mean score. The kurtosis value of nurse work environment was positive (0.11), which indicated that the scores of nurse work environment were shaped like a leptokurtic (peaked shape curve). The SI of environment was -8.27, and each dimension was ranged from -2.92 to 2.16, which were more than critical value of 1.96 (α = .05) (Hair et al., 2010). It indicated the non-normal distribution of study variable and observed variables' environment.

The nurses' satisfaction had a positive skewness value close to zero (0.08), which suggested that most of the participants had a higher score of nurses' satisfaction to the mean score. The kurtosis value of nurses' satisfaction was negative (-1.73), which indicated nurses' satisfaction scores were shaped like a platykurtic (flattened curve) (see Table 4.2). Since the score of critical value of CR skewness (0.78) was inside the absolute value 1.96, it indicated the normal distribution of nurses' satisfaction (Hair et al., 2010, p 73). However, the score of SI's CR in each dimension ranged from -8.17 to

-1.47, which majority were outside an absolute critical value of 1.96 (Hair et al., 2010, p 73). It indicated the non-normal distribution of observed variables' nurse satisfaction.

The quality nursing care had a negative skewness value (-0.09), which suggested that most of the participants had a higher score of quality nursing care to the mean score. The kurtosis value of quality nursing care was positive (0.64), which indicated that quality care scores were shaped like a leptokurtic (peaked shape curve) (see Table 4.2). The SI' score of quality nursing care (9.52) and each dimension (-5.87 to -15.49) was outside the absolute value 1.96, it indicated the non-normal distribution of variable and observed variables of quality of nursing care (Hair et al., 2010, p 73).

SEM Assumption Testing

Normality

The normality referred to "which the distribution of the sample data corresponds to a normal distribution" (Hair et al., 2010, p. 36). The normality of SEM was checked by univariate normality and multivariate normality. According to Schumacker and Lomax (2010), the interface of PRELIS in LISREL software program can screen data for both univariate normality and multivariate normality. The results of univariate normality testing and multivariate normality testing are presented in Appendix G. Most of observed variables' p–value were less than .05, it indicated the no normality distributed of observed variables. Therefore, the assumption of normality violated in this study.

Homoscedasticity

The homoscedasticity referred to "assumption that dependent variable(s) exhibit equal levels of variance across the range of predictor variable(s)" (Hair et al., 2010, p.

74). This assumption was examined by residual scatter plots. The spread of residual variables randomly around the zero axis within + 4 SD indicated the homoscedasticity. This assumption was not violated in this study as showed below on the Appendix G.

Linearity

Linearity referred to "predict values that fall in a straight line by having a constant unit change(slop) of the dependent variable for a constant unit change of the independent variable" (Hair et al., 2010, p. 35). It was tested by the residual plot which was the graphs between the standardized residuals (Y-axis) versus the predicted value (X-axis) as shown in the page Appendix G, the scatter plots between standardized residuals and the predicted value illustrated such a linear relationship.

Multicollinearity

Multicollinearity referred to as "the extent to which a variable can be explained by the other variables in the analysis"(Hair et al., 2010, p. 2). Bivariate multicollinearity was checked by examining the correlation matrix among individual variables included in the analysis. Bivariate multicollinearity occurs when correlations of any variables is greater than + 0.90 (Hair et al., 2010). In addition, the multivariate multicollinearity occurs when the tolerance values are less than 0.1 and variance inflation factor (VIF) values are greater than 10 (Mertler & Vannatta, 2002).

Evidence of multicollinearity was not found, with correlations coefficients among the predicting variables (patient to nurse ratio, working hour, nurse competence, environment, and turnover) ranged from -.10 to .80 as shown in Appendix G. The tolerance values ranged from .16 to .96 and VIF ranged from 1.04 to 6.43 as shown in Appendix G. The tolerance value and VIF indicated the evidence of non multicollinearity.

In summary, the assumptions for conducting SEM in this study did not violate the linearity, homoscedasticity, and multicollinearity. However, only the assumption of normality violated in this study.

Findings of Research Questions and Hypothesis Testing

The findings related to research questions and hypothesis testing are presented as follows.

Question 1. What are the average levels of nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention and quality nursing care in Indonesian hospitals?

The dimensions of each study variables' Mean (M), Standard Deviation (SD), and levels of interpretation are presented in Table 4.3.

The score of average patient to nurse ratio ranged from 1 to 25 patients with a mean of 9.70 (SD = 4.90). Meanwhile, the score of average working hour ranged from 5 to 14.33 hours with a mean of 8.90 (SD = 2.75) as shown in the Table 4.3.

The mean score of total quality nursing care was 4.54 (SD = 0.41) at very high level as shown in Table 4.3. The dimension of staff characteristic had the highest mean score of 4.74 (SD = 0.35), followed by the dimension of nurse environment and are related activities with a mean score 4.71 (SD = 0.42) and 4.60 (SD = 0,46), respectively. The lowest score and precondition with a mean score of 4.30 (SD = 0.48) and 4.25 (SD = 0.49), respectively. The lowest mean score was on the dimension of collaboration with relatives with a mean score of 4.36 (SD = 0.67).

The total mean score of nurse competence was 2.66 (SD = 0.50) at very high level as shown in Table 4.3. The dimension of managing situation had the highest mean (M = 2.71, SD = 0.40), which was followed by work role (M = 2.69, SD = 0.41), the dimension of mentoring function (M = 2.68, SD = 0.50),. The dimension of research oriented mean score had the lowest mean score of 2.58 (SD = 0.45).

The total mean score of environment was 4.43 (SD = 0.56) at very good level as shown in Table 4.3. The dimension of collegial nurse-physician relation had the highest mean (M = 4.56, SD = 0.50), which was followed by nursing foundation for quality care (M = 4.47, SD = 0.57), the dimension of nurse manager ability, leadership, and support of nurses (M = 4.45, SD = 0.62),. The dimension of nurse participation in hospital affairs' mean score had the lowest mean score of 4.28 (SD = 0.68).

The total mean score of nurses' satisfaction was 3.92 (SD = 0.64) at fairly high level as shown in Table 4.3. The dimension of interaction had the highest mean score (M = 4.32, SD = 0.67). It was followed by dimension of co-worker score (M = 4.26, SD = 0.71), praise/recognition (M = 4.14, SD = 0.72), control/responsibility (M = 4.14, SD = 0.72), professional opportunities (M =4.03, SD = 0.78), family and work balance (M = 3.68, SD = 0.88), scheduling (M = 3.52, SD = 0.88) and extrinsic (M = 3.28, SD = 0.97).

Nurses were not sure they would stay or quit in their workplace with mean score 3.50 (SD = 1.34) as shown in Table 4.3.

Table 4.3 Description the score range, minimum score, maximum score, mean, and standard deviation (N = 550)

	Range	Min	Max	Mean	SD	Level
Nurse ratio	24.00	1.00	25.00	9.70	4.90	
Working hour	9.33	5.00	14.33	8.90	2.75	
Staff Characteristics	2.00	3.00	5.00	4.74	0.35	Very high
Care Related Activities	2.00	3.00	5.00	4.60	0.46	Very high
Preconditions for Care	3.20	1.80	5.00	4.49	0.49	Very high
Nurse Environment	2.20	2.80	5.00	4.71	0.42	Very high
Courses of the Nursing Process	2.33	2.67	5.00	4.37	0.53	Very high
Patient' Coping Strategies	2.14	2.86	5.00	4.52	0.51	Very high
Collaboration with Relatives	3.67	1.33	5.00	4.36	0.67	Very high
Total Quality nursing care	2.02	2.98	5.00	4.54	0.41	Very high
Research oriented	2.00	1.00	3.00	2.58	0.45	Very high
Work role	2.00	1.00	3.00	2.69	0.41	Very high
Diagnostic functions	2.33	0.67	3.00	2.63	0.47	Very high
Managing situations	1.57	1.43	3.00	2.71	0.40	Very high
Patient education	1.80	1.20	3.00	2.67	0.44	Very high
Mentoring functions	3.00	0.00	3.00	2.68	0.50	Very high
Total Nurse competence	1.56	1.44	3.00	2.66	0.39	Very high
Nurse participation in hospital affairs	3.78	1.22	5.00	4.28	0.68	Very good
Nursing foundations for quality care	3.00	2.00	5.00	4.47	0.57	Very good
Nurse manager ability, leadership, and support of nurses	3.60	1.40	5.00	4.45	0.62	Very good
Staffing and resource adequacy	3.00	2.00	5.00	4.37	0.68	Very good
Collegial nurse-physician relations	2.67	2.33	5.00	4.56	0.58	Very good
Total Environment	3.01	1.99	5.00	4.43	0.56	Very good
Extrinsic	4.00	1.00	5.00	3.28	0.97	Fair

Table 4.3 Description the score range, minimum score, maximum score, mean, and standard deviation (N = 550) (Cont…)

	Range	Min	Max	Mean	SD	Level
Scheduling	4.00	1.00	5.00	3.52	0.88	High
Family and work balance	4.00	1.00	5.00	3.68	0.88	High
Co-worker	4.00	1.00	5.00	4.26	0.71	Very high
Interaction	4.00	1.00	5.00	4.32	0.67	Very high
Praise/recognition	3.75	1.25	5.00	4.14	0.73	High
Professional opportunities	4.00	1.00	5.00	4.03	0.78	High
Control/responsibility	4.00	1.00	5.00	4.14	0.72	High
Total Nurse satisfaction	3.97	1.03	5.00	3.92	0.64	High
Turnover intention	5.56	1.44	7.00	3.50	1.34	Not sure

Question 2. How patient to nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention influencing inpatient quality nursing care in Indonesian hospitals?

Model testing

The structural equation modeling sought to explain relationships among multiple variables, which concluded a measurement model and structural model. The measurement model described how observed variables or indictors indicating the latent variables or constructs. The structural model presented the hypothesized relationships among the latent variables based on the causal relationships. In addition, SEM offers the potential to remove measurement error from estimate of structural relationships. (Hair et al., 2010).

The robustness statistics of Maximum Likelihood (ML) was used due to observed date violated the assumption of multivariate normal distribution (Hair, et al.,

2010). The previous study supported that ML provides more realistic fit indexes and less biased parameter values under misspecification than GLS (Olsson, Foss, Troye et al., 2000). The correlation matrix of observed variables by using Bivariate Spearman's correlation with M and SD were used for SEM analysis as shown in Appendix G.

The results showed that the study model included 142 parameters. The number of unique variance parameters estimation of SEM were n (n+1)/2 = 34×35/2 = 595. Thus, the model was over identified, which indicated this model can be analyzed (Hair et al., 2010).

In the SEM, the researcher fix the parameters of observed variables working hour (WH), patient to nurse ratio (NR), and turnover intention (TO) were equal to 1 and constrain the errors of observed variables working hour (WH), patient to nurse ratio (NR) and turnover intention (TO) were equal to 0.

The initial hypothesized model (Figure 4.1) did not achieve the acceptable goodness of fit measures ($\chi 2$ = 2129.47, df = 502, p-value = .00, GFI = .81, AGFI = .78, RMSEA = .07, and CFI = .98) as shown in Table 4.4. The progress of decreasing the $\chi 2$ values was conducted by suggesting from the modification indices, which is the expected value change of freeing the highest value of Theta-Epsilon (TE), Theta-Delta (TD), and Theta-Delta-Epsilon (TH). This is because under the assumption of SEM, it allows correlation of error terms (Polit & Beck, 2012). Through model modification, the modified model (Figure 4.2) fitted the empirical data. The modified model had an acceptable goodness fit of index ($\chi 2$ = 1471.80, df = 498, p-value = .00, GFI = .86, AGFI = .84, RMSEA = .06, and CFI =.98) as shown in Table 4.4.

Table 4.4 Goodness of fit measures for overall model (N = 550)

Relative Fit Index	Acceptable goodness of Fit Statistics	Hypothesized model		Modified model	
		Statistic	Met criteria	Statistic	Met Criteria
Chi-square test	P ≤.05	1444.30 (p = .00)	Yes	975.50 (p = .00)	Yes
degree of freedom		359		351	
Chi-square/degree of freedom	< 3.00	4.02	No	2.78	Yes
Comparative Fit Index (CFI)	> .90	.98	Yes	.99	Yes
Goodness of Fit Index (GFI)	> .90	.83	No	.88	Almost
Adjusted Goodness of Fit Index (AGFI)	> .80	.79	No	.86	Yes
Normed Fit Index (NFI)	> .90	.97	Yes	.98	Yes
Root Mean Square Error of Approximation (RMSEA)	< .07	.08	No	.06	Yes
Standardized Root Mean Square Residual (SRMSR)	< .08	.04	Yes	.03	Yes

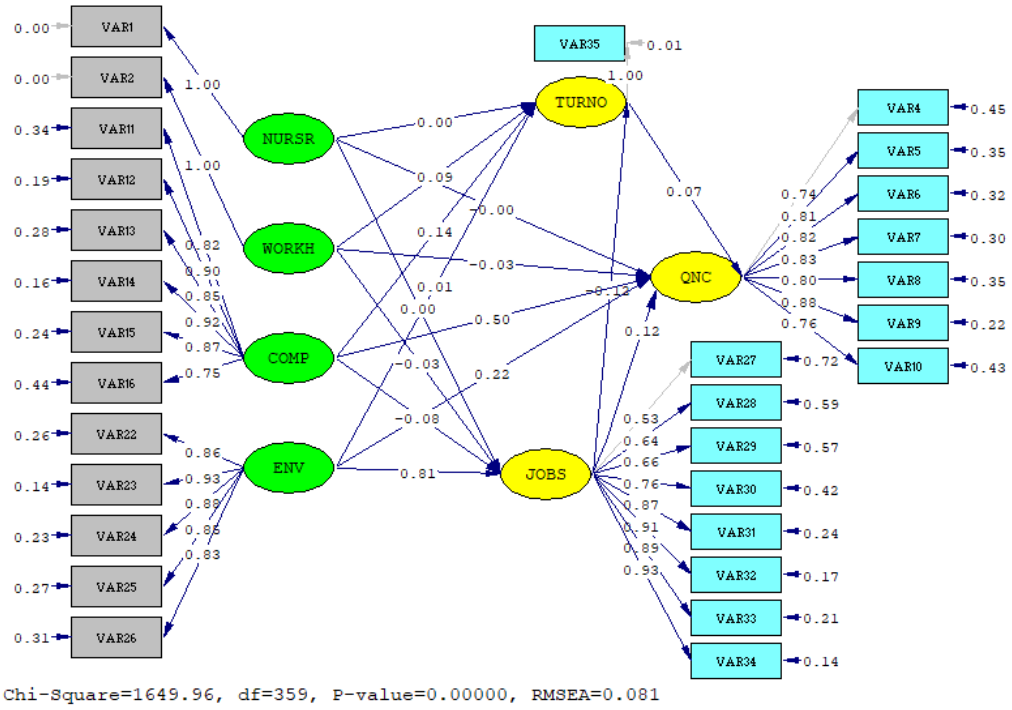

Figure 4.1 Hypothesized model of factors influencing quality nursing care perceived by Indonesian nurses in hospitals

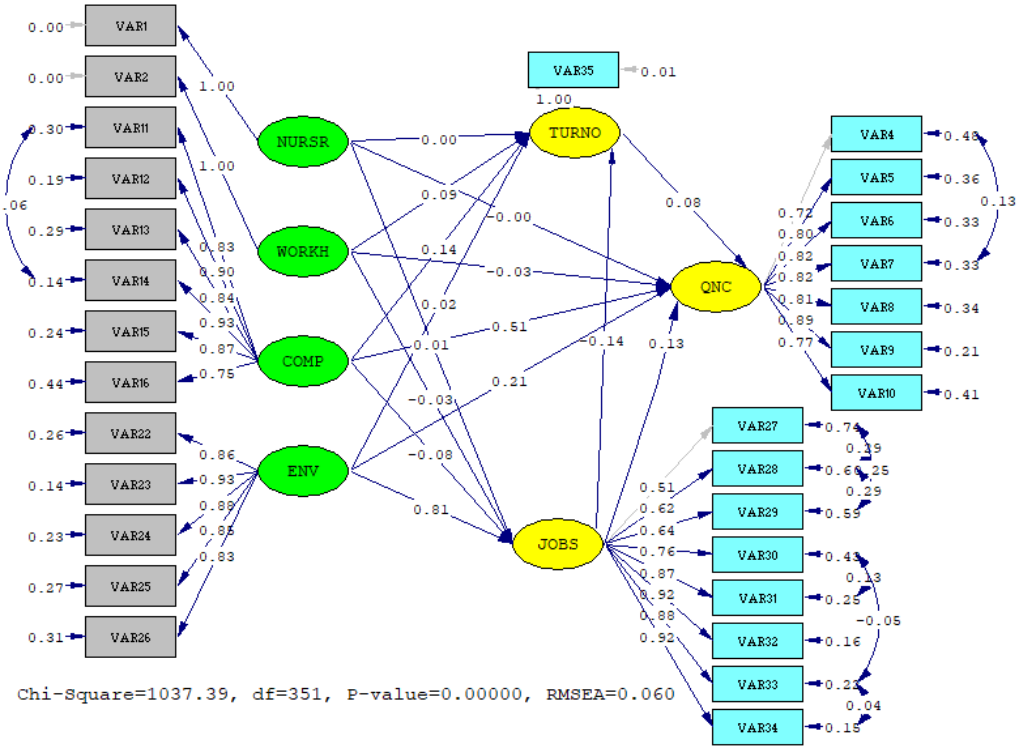

Figure 4.2 Modified model of factors influencing quality nursing care perceived by Indonesian nurses in hospitals

Measurement model

In this study, the measurement model reflected six constructs of latent variables which included quality nursing care, turnover intention, nurses' satisfaction, environment, competence, working hour, and patient to nurse ratio.

After the overall model received the goodness fit, the measurement model part of SEM was presented by 34 observed variables' standardized factor loading (B). In general, based on a p-value at the level of .05, the t-value test statistics needs to be more than an absolute value of 1.96 for acceptable value (Hair et al., 2010). In this study, the t-value of all observed variables ranged from 5.85 to 15.66 as shown in Table 4.5. Thus all observed variables can significantly reflect latent constructs.

Table 4.5 Factor loading of all observe variables (N = 550)

	Patient to nurse ratio		Working Hour		Quality nursing care				Nurse competence				
	b	**B**	**b**	**B**	**b**	**SE**	**t**	**B**	**b**	**SE**	**t**	**B**	R^2
NR	1.00	1.00											1.00
WH			1.00	1.00									1.00
SC					.25	.00	15.27	.72					.52
CRA					.37	.02	18.46	.80					.65
PC					.41	.02	18.85	.82					.67
NE					.34	.01	22.47	.81					.66
CNP					.43	.02	18.55	.81					.65
PCS					.45	.02	20.48	.89					.79
CR					.51	.02	17.58	.77					.59
RO									.37	.01	23.09	.82	.67
WR									.37	.01	27.00	.90	.81
DF									.40	.01	24.48	.85	.72
MS									.36	.01	28.04	.92	.85
PE									.38	.01	25.70	.87	.76
MF									.38	.02	20.34	.75	.56

Table 4.5 Factor loading of all observe variables (N = 550) (Cont…)

	Environment				Nurse satisfaction				Turnover intention		
	b	**SE**	**t**	**B**	**b**	**SE**	**t**	**B**	**b**	**B**	R^2
PHA	.58	.02	24.83	.85							.73
FQC	.53	.01	28.68	.93							.87
NM	.54	.02	25.93	.89							.77
SRA	.58	.02	24.61	.85							.72
NPR	.49	.02	24.10	.83							.70
EX					.49	.04	16.26	.50			.25
SC					.54	.03	13.79	.61			.38
FWB					.56	.04	13.59	.64			.41
CW					.56	.04	12.00	.78			.61
IN					.59	.04	12.59	.89			.79
PR					.66	.05	12.74	.91			.84
PO					.68	.05	12.47	.87			.75
CR					.66	.05	12.73	.91			.84
TO									1.00	1.00	1.00

Sixteen out of 29 observed variables (EX, SC, FWB, CW, IN, PR, PO, CR, TO, SC, CRA, PC, NE, CNP, PCS, CR) described the constructs of seven endogenous variables. As shown in Table 4.5, the endogenous observed variables' standardized factor loading (B) ranged from .50 to 1.00 and the squared multiple correlation (R^2) ranged from .25 to 1.00.

Thirteen out of 29 observed variables (WH, NR, RO, WR, DF, MS PE MF, PHA FQC, NM, SRA, NPR) presented the constructs of two exogenous variables. As shown in Table 4.5, the exogenous observed variables' standardized factor loading (B) ranged from .53 to 1.00 and the squared multiple correlation (R^2) ranged from .28 to 1.00.

Structural model

The structural model tested causal relationships between latent constructs. This structural model included three endogenous variables (quality nursing care, turnover intention, and nurses satisfaction) with 16 observed variables and five exogenous variables (working hour, nurse ration, competence, and environment) with 13 observed variables as shown in Figure 4.2.

As shown in Table 4.6, the results of SEM showed that five path coefficients of exogenous variables were significant at the .05 level. Nurse competence had the highest effect on quality nursing care ($\gamma = .51$, $p < .05$), followed by environment ($\gamma = .31$, $p < .05$). Additionally, nurse work environment had the highest effect on nurses' satisfaction ($\gamma = .81$ $p < .05$). Moreover, working hour had the highest effect on turnover intention ($\gamma = .09$, $p < .05$).

Three path coefficients of endogenous variables were significant at the .05 level. Nurse satisfaction had a positive significant effect on quality nursing care ($\beta = .12$, $p < .05$). Additionally, nurses' turnover intention had a positive significant effect on quality nursing care ($\beta = .08$, $p < .05$).

Table 4.6 Standardized path coefficients, standard error (SE), and t-value of parameters of the hypothesized model of quality nursing care (N = 550)

Parameters	Standardized path coefficients	SE	t-value
Gamma			
Patient to nurse ratio → quality nursing care	.00	.03	.00
Patient to nurse ratio → turnover intention	.00	.04	.08
Patient to nurse ratio → nurse satisfaction	.01	.03	.18

Table 4.6 Standardized path coefficients, standard error (SE), and t-value of parameters of the hypothesized model of quality nursing care (N = 550) (Cont…)

Parameters	Standardized path coefficients	SE	t-value
Gamma			
Working hour → quality nursing care	-.03	.03	-.87
Patient to nurse ratio → quality nursing care	.00	.03	.00
Patient to nurse ratio → turnover intention	.00	.04	.08
Patient to nurse ratio → nurse satisfaction	.01	.03	.18
Working hour → quality nursing care	-.03	.03	-.87
Working hour → turnover intention	.09	.04	2.22*
Working hour → nurse satisfaction	-.03	.03	-.94
Nurses' competence → quality nursing care	.51	.05	9.44**
Nurses' competence → turnover intention	.15	.07	2.28*
Nurses' competence → nurse satisfaction	-.08	.05	-1.53
Environment → quality nursing care	.31	.05	6.19*
Environment → turnover intention	-.09	.07	-1.35
Environment → nurse satisfaction	.81	.08	10.05**
Beta			
Nurse satisfaction → quality nursing care	.12	0.05	2.33*
Nurse satisfaction → turnover intention	-.14	0.07	-1.87
Turnover intention → quality nursing care	.08	0.03	2.64*

*p < .05; **p < .01

In order to answer five hypotheses, the direct, indirect and total effects between causal variables and affect variables are presented as followings and summarized in Table 4.7.

Table 4.7 Summary the total, direct, and indirect effects of causal variables on affected variables (N = 550)

Affected variables	R^2	Causal variables	Direct	Indirect	Total
Quality nursing care	.61	Patient to nurse ratio	.00	.00	.00
		Working hour	-.03	.00	-.03
		Nurse competence	.51*	.00	.51*
		Environment	.31*	.10*	.31*
		Nurse satisfaction	.12*	-.01	.12*
		Turnover intention	.08*		.08*
Turnover intention	.03	Patient to nurse ratio	.00	.00	.00
		Working hour	.09*	.00	.09*
		Nurse competence	.15*	.01	.15*
		Environment	-.09*	-.12*	-.09*
		Nurse satisfaction	-.14*		-.14*
Nurse satisfaction	.58	Patient to nurse ratio	.01		.01
		Working hour	-.03		-.03
		Nurse competence	-.08		-.08
		Environment	.81*		.81*

The study results presented that the hypothesized model fit the empirical data and explained 61% (R^2 = .61) the variance of quality nursing care by nurse competence, environment, nurses' satisfaction, and turnover intention. Fifty eight percent (R^2 = .58) the variance of nurses' satisfaction explained by nurse competence and environment. Three percent (R_2 = .03) the variance of turnover intention explained by nurse satisfaction, patient to nurse ration, and nurses' competence. (Table 4.7).

1. Effect of patient to nurse ratio on quality nursing care

Patient to nurse ratio had neither a significant negative direct effect on quality nursing care ($\gamma = .00$, $p > .05$), positive direct impact on turnover intention ($\gamma = .00$, $p > .05$) nor negative direct effect on nurse satisfaction ($\gamma = .01$, $p > .05$).

Additionally, patient to nurse ratio had neither negative indirect effect on quality nursing care ($\gamma = .00$, $p > .05$) nor negative indirect effect on turnover intention ($\gamma = -.00$, $p > .05$).

Total effect of patient to nurse ratio on quality nursing care was no significant ($\gamma = .00$, $p > .05$).

2. Effect of working hours on quality nursing care

Working hour had no negative direct effect neither on quality of nursing care ($\gamma = -.03$, $p > .05$) nor nurses' satisfaction ($\gamma = -.03$, $p > .05$). However, working hour had a significant positive direct effect on turnover intention ($\gamma = .09$, $p < .05$).

However, working hour had no significant negative indirect effect on quality nursing care ($\gamma = .00$, $p > .05$). Besides, there was no significant positive indirect effect on turnover intention ($\gamma = .00$, $p > .05$).

Total effect of working hour on quality nursing care was no significant ($\gamma = .00$, $p > .05$).

3. Effect of nurse competence on quality nursing care

Nurse competence had a significant both positive direct effect on quality nursing care ($\gamma = .51$, $p < .05$) and positive direct effect on turnover intention ($\gamma = .15$, $p < .05$). However, nurse competence had no significant impact on nurse satisfaction ($\gamma = -.08$, $p > .05$).

However, nurse competence had neither no significant positive indirect effect on quality nursing care (γ = .00, p> .05) nor negative indirect effect on turnover intention (γ = .01, p > .05).

Total effect of patient to nurse ratio on quality nursing care was .51, at a significant level of .05.

4. Effect of environment on quality nursing care

Environment had a significant positive direct effect either on quality nursing care (γ = .31, p < .05) and on nurse satisfaction (γ = .81, p < .05). However, environment had no significant impact on turnover intention (γ = -.08, p > .05).

Nurse work environment had significant indirect positive effect on quality nursing care (γ = .10, p < .05) through nurses' satisfaction. Nurse work environment had no significant indirect negative effect on turnover intention (γ = -.11, p > .05).

The total effect of environment on quality nursing care, nurses' satisfaction, and nurses' turnover intention were 0.31, 0.81, and -0.08, respectively, at a significance of .05 level.

5. Effect of nurses' satisfaction on quality nursing care

Nurses' satisfaction had a significant positive direct effect on quality nursing care (β = .12, p < .05) and no significant impact to turnover intention (β = -.14, p > .05). Nurses' satisfaction had no significant positive indirect effect on quality nursing care through turnover intention (β = -.01, p > .05)

The total effect of nurses' satisfaction on quality nursing care, and turnover intention were 0.10 and -0.16, respectively, at a significant level of .05.

6. Effect of turnover intention on quality nursing care

Turnover intention had significant direct effect on quality of nursing care ($\beta = .08$, $p < .05$).

Hypothesis testing

The following part presents findings of seven hypotheses testing regarding the results from the structural model as aforementioned.

Hypothesis 1: Patient to nurse ratio has a negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

The findings indicated that patient to nurse ratio had neither no significant direct negative effect on quality nursing care ($\gamma = .00$, $p > .05$), no significant direct negative on nurse satisfaction ($\gamma = .01$, $p > .05$) nor no significant directly positive effect on turnover intention ($\gamma = .00$, $p > .05$). In addition, patient to nurse ratio had no significant indirect effect on quality nursing care ($\gamma = .00$, $p > .05$) and turnover intention ($\gamma = .00$, $p > .05$). Therefore, this hypothesis was not supported.

Hypothesis 2: Working hour had negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

The findings indicated that working hour had neither no significant direct negative effect on quality nursing care ($\gamma = -.03$, $p > .05$), nor no significant direct negative on nurse satisfaction ($\gamma = -.03$, $p > .05$). However, working hour had a significant directly positive effect on turnover intention ($\gamma = .09$, $p < .05$). In addition, working hour had no significant indirect effect on quality nursing care ($\gamma = .00$, $p > .05$) and turnover intention ($\gamma = .00$, $p > .05$). Therefore, this hypothesis was partially

supported that high working hour had a significant directly positive effect on turnover intention.

Hypothesis 3: Nurse competence had positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

The findings indicated that nurse competence had a significant direct positive effect both on quality nursing care ($\gamma = .51$, $p < .05$), and turnover intention ($\gamma = .15$, $p < .05$). However, nurse competence had no significant direct impact on nurse satisfaction ($\gamma = -.08$, $p > .05$). In addition, nurse competence had no significant indirect effect on quality nursing care ($\gamma = .00$, $p > .05$) and turnover intention ($\gamma = .01$, $p > .05$). Therefore, this hypothesis was partially supported that high nurse competence had a significant direct positive effect on quality nursing care.

Hypothesis 4: Nurse work environment had a positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

Nurse work environment had a significant positive direct effect either on quality nursing care ($\gamma = .31$, $p < .05$) and nurses' satisfaction ($\gamma = .81$, $p < .05$). However, nurse work environment had no significant direct effect on turnover intention ($\gamma = -.08$, $p > .05$). Additionally, Nurse work environment had a significant positive indirect effect on both quality nursing care ($\gamma = .10$, $p < .05$) and had no significant effect on turnover intention ($\gamma = -.11$, $p > .05$). Therefore, this hypothesis was supported that good nurse work environment had a positive direct effect either on quality nursing care and nurse satisfaction and it had a positive indirect effect on quality nursing care through nurse satisfaction

Hypothesis 5: Nurses' satisfaction had a positive direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

The findings illustrated that nurses' satisfaction had a significant both positive direct effect on quality nursing care ($\beta = .12$, $p < .05$) and no effect on turnover intention ($\beta = -.14$, $p > .05$). Nurses' satisfaction had no a significance positive indirect effect on quality nursing care ($\beta = -.01$, $p > .05$). Therefore, this hypothesis was partially supported that high nurses' satisfaction had a positive direct effect on quality nursing care.

Hypothesis 6: Turnover intention had a negative direct effect on quality nursing care.

The finding indicated that nurse turnover intention had a significant positive direct effect on quality nursing care ($\beta = .09$, $p < .05$). Therefore, hypothesis was not supported. The summary of hypotheses testing are presented in Table 4.8.

Table 4.8 Summary of the hypotheses testing results (N = 550)

Effect	Hypo-thesis	Structural Path Relationship	t-value	p	Standardize regression coefficient		Hypotheses test SEM
					Direct	Indirect	
Direct	H1	NR → NS	.18	>.05	.01		Not accept
Effect		NR → QNC	.00	>.05	.00		Not accept
		NR → TO	.08	>.05	.00		Not accept
	H2	WH → NS	-.94	>.05	-.03		Not accept
		WH → QNC	-.87	>.05	-.03		Not accept
		WH → TO	2.22	<.05	.09		Accept
	H3	NC → NS	-1.53	>.05	-.08		Not accept
		NC → QNC	9.44	<.05	.51		Accept
		NC → TO	2.28	<.05	.15		Not accept
	H4	ENV → NS	10.05	<.05	.81		Accept
		ENV → QNC	6.19	<.05	.31		Accept
		ENV → TO	-1.35	>.05	-.09		Not accept
	H5	NS → QNC	2.33	<.05	.12		Accept
		NS → TO	-1.87	>.05	-.14		Not accept
	H6	TO → QNC	3.04	<.05	.09		Not Accept
Indirect	H1	NR →NS、TO→ NQC	.20	>.05		.00	Not accept
Effect		NR →NS→TO	-0.18	>.05		.00	Not accept
	H2	WH →NS、TO→ NQC	.63	>.05		.00	Not accept
		WH →NS→TO	.84	>.05		.00	Not accept
	H3	NC →NS、TO→ NQC	.24	>.05		.00	Not accept
		NC →NS→TO	1.20	>.05		.01	Not accept
	H4	ENV →NS、TO→ NQC	2.36	<.05		.10	Accept
	H5	ENV →NS→TO	-1.88	>.05		-.11	Not accept

CHAPTER V
Discussion

This chapter presents the information about study summary, discussion of hypothesis testing, limitations, implication, and recommendations for future study.

The results of this study are present in this chapter. This cross-sectional correlation study aimed: 1) To explain the average levels of nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention and quality nursing care Indonesian hospitals. 2) To confirm how nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, and turnover intention influence quality nursing care in Indonesian hospitals.

Summary

This survey study design for casual modeling aimed to examine factors influencing quality nursing care in hospitals at Indonesia. The hypothesized model was developed based on Aiken (2002) Nurse Work Environment, Nurse Staffing, and Outcome Model (NWE-NS-OM) in combination with empirical evidence. The multi-stage random sampling procedure was conducted to recruit study participants. The data collection procedure proceeded from the June, 2022 to October, 2022. Data from five hundred and fifty participants was collected for analysis.

A number of research instruments of self-report questionnaires were used for data collection, including demographic data, nurse staffing measurement form, Indonesian version of the Good Nursing Care Scale (I-GNCS), Indonesian Nurse Competence Scale (I-NCS), Indonesian version of the Practice Environment Scale (I-

PES), Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS) and Indonesia version of Anticipated Turnover Scale (I-ATS). Each of the instrument had acceptable validity and reliability. The assumptions of linearity, homoscedasticity, and multicollinearity did not violate the rules for analyzing SEM， except normality. A LISREL version 8.72 was used to test the hypothesized causal model.

The majority of participants were female (76.4%), their ages ranged from 31 to 35 (28.7%), and married (79.1%). Almost half of the participants had a 3rd Diploma degree (62.94%). Around One third of the participants had working experience as a nurse of less than five years (29.5%) and had working experience in the hospital of less than five years (36%). More than two third participants had experience <5 years in the ward. Almost half of participants were civil servant (47.8%). The first largest group of the participants' monthly income lower than Rp2,500,000 (Approx. $160USD) and monthly incentive Rp500,001-Rp1,000,000 (Approx. 32-64USD). Most of the participants worked in shift system 7 hours in the morning shift, 7 hours in the afternoon, and 10 hours in the night (42.7%).

The results from SEM showed that the hypothesis model fit the empirical data and explained for the 61% of the variance about the quality nursing care. The predictors significant directly influenced quality nursing care, including nurse competence, environment characteriustics, and nurse satisfaction. In addition, environment significant indirectly influenced quality nursing care through nurse satisfaction. Menawhile, nurse satisfaction explained 58% by work environment, and turnover intention only explained 3% by working hour and nurse competence.

Discussion

The study's objectives are presented in the following discussions.

To describe the average levels of quality nursing care, patient to nurse ratio, working hours, nurse competence, environment, nurses' satisfaction, and turnover intention in hospitals at Indonesia.

1. The average level of quality nursing care

In this study, quality nursing care was at a high level with the mean score of 4.54 (SD = 0.41). This might be related to standart of Hospital Accreditation Committee of Indonesia followed the international standard of Joint Commission International (JCI). Additionally, Indonesia has a rule that all hospital include primary care should be accredited (Care, 2020). The result was inconsistent with the previous study from Cambodia (Koy, 2017). Koy (2017) studied about factors influencing on nursing care quality perceived by professional nurses among 375 nurses in in government hospitals of Kingdom of Cambodia. The results showed that a mean score of overall nurses' perception of quality nursing care was 3.11 (SD = 0.94) at the moderate level. Another study from Iran found mean overall score was 3.16 (SD = 0,45). Those different might happen because the minimum score of current study was one and previous study was zero. Another probable explanation, the standard nurse services rated by this scale were regarded as the bare minimum for providing quality nursing care. Besides, each hospital set norms and guidelines for the provision of standard nursing services because quality of nursing care is fundamental to the management of clinical wards. Thus, the mean overall score for quality nursing care was high.

The lowest mean dimension was collaboration with relatives (M = 4.36). Gröndahl, Muurinen, Katajisto et al. (2019) claimed the similar results that

collaboration with relatives was the smallest mean (M = 3.00). The situation on each ward and hospital was quite different, such as the situation intensive care, surgical care and pediatric care were different. Majority intensive care in Indonesia were accompany by one family or relatives, otherwise in other units, might one or more family. Additionally, the lowest score might be related to the item "enough time for patients' relatives." Indonesian nurses might be busy because they must take care many patients and indirect care activities that would make limited time to interact with patients' relatives. The lowest results became an important finding.

Surprisingly, the dimension course of the nursing process was one of the lowest means. The results was contrast with study from Finland (Gröndahl, Muurinen, Katajisto et al., 2019), the mean was higher than current study (M = 3.70 with scale 0-4). Item number 24 "Patient can stay longer to recover" was the lowest score because Ministry of Health of Republic of Indonesia regulated the length of stay patient based on the disease. Patient can stay longer than the standard may be happening in VIP or executive ward.

2. The average level of patient to nurse ratio

The ranged of patients from 1 to 25 patients with an average 10 patients on each shift (M = 9.70, SD = 4.90). However, it was higher than the standard of Indonesia Health Ministry (Indonesia, 2010). Ministry of Health regulated for type A and B Hospital should be one nurse to one patient. Type C and D Hospital have to provide two nurses to three patients. One study from Thai found that patient to nurse ratio in general hospital of 1:10 (Boonpracom, Kunaviktikul, Thungjaroenkul et al., 2019). The lower number of nurse might relate to small number of fresh graduated and high number

of retirement. Additionally, pandemic experience might give a negative image to healthcare (Aungsuroch, Juanamasta, & Gunawan, 2020).

3. The average level of working hours

The score of average working hour ranged from 5 to 14.33 hours with an average 9 hours (M = 8.90, SD = 2.75). However, night shift become the problematic situation it ranged from 8-14 hours. This finding might violate the maximum working hours per week of 40 hours. Al fatih and Jing-Jy (2016) found nursing working hours per week ranged from 34 to 78 hours with the average 48 hours. The hospital policy has to consider working hours that might impact another part.

4. The average level of nurse competence

In this study, the nurse competence was classified as very good with a mean score of 2.66 (SD = 0.39). The dimension of managing situation (M =2.71, SD = 0.40) was the highest mean, followed by work role (M = 2.69, SD = 0.41) and mentoring function (M = 2.68, SD = 0.50). Otherwise, the dimension of research oriented (M=2.58, SD = 0.45) was the lowest mean, followed by diagnostic function (M = 2.63, SD = 0.47) and patient education (M = 2.67, SD = 0.50). The results showed research oriented was the weakest point of Indonesian nurse competence, specifically “making proposal for research.” The result supported by the regulation of Indonesian Ministry of Health that released on 2019 (Indonesia, 2019) which regulated the implementation of Indonesian Nursing Act Number 38/2014 (Indonesia, 2014) that nurse shoud do a research. Nursing in Indonesia more focus on practice, specifically before 2000’s they did not know about nursing process (Juanamasta, Iblasi, Aungsuroch et al., 2021). Hospital and nursing organization might need to stimalute senior and junior nurse to active in research.

Nurse competence described on the regulation Number HK.01/07/MENKES/425/2020 (Ministry of Health, 2020). The strengths of the competence were managing situation, work role, and mentoring function that represent practice based on ethical, legal, and culturally sensitive; professional nursing practice; leadership and management. Indonesia nurse competence was highly supported the nurse preparation from graduation to the work place. However, the more than half participants were below 36 years old. This might impact the acceptance of competence of nurses.

5. The average level of nurse work environment

In this study, the nurse work environment was classified as very good with a mean score of 4.43 (SD = 0.58). The dimension of nurse collegial nurse-physician relations (M =2.78, SD = 0.49) was the highest mean, and followed by nurse foundations for quality of care (M = 4.47, SD = 0.57) and nurse manager ability, leadership, and support of nurses (M = 4.45, SD = 0.62). The dimension of nurse participation in hospital affairs was the lowest dimension, and followed by resource adequacy (M = 4.37, SD = 0.68). On the contrary with this study, majority of all of the dimension in the previous study were fair (Juanamasta, 2018). Juanamasta (2018) examined the relationship between work environment, organization characteristics, job characteristics, professional self-concept and productivity among 331 nurses in four Indonesian hospitals.

The results described nurse participation in the hospital as the lowest mean (4.28) and minimum (1.22). In addition, item 9 “Nursing director/chief nursing executive has similar authority with another posisiton on the similar level” the lowest factor loading and followed by item 1 and 5 “nurses involved internal governance” and

"nursing director/chief nursing executive is accessible" respectively. It was reflected nurse did not have enough voice or power in the hospital affair, specifically on the upper management. The majority of the Indonesian hospital did not use nursing director, the highest position for nurse was chief nursing officer under deputy service director. Additionally, another healthcare profession still looks nurse as a doctor helper because the majority of the participant education were 3rd Diploma. Those supported by the previous study, nurse were powerless, lack of autonomy and managerial support (Juanamasta, Iblasi, Aungsuroch et al., 2021).

Moreover, the dimension of "staffing and resources adequacy" generally received one of the lowest scores as well. It was supported by item 25 "enough staff" that got the lowest score of factor loadings. It reflected the number of the nurse was not enough to cover all the patient. One nurse had to face 25 patients during one shift with patient "mostly require assistance." It would increase the risk of patient safety (Driscoll, Grant, Carroll et al., 2018). Through this situation, hospital would prepare some strategies to handle this issue.

6. The average level of nurses' satisfaction

In this study, the nurses' satisfaction was classified as high with the mean score of 3.92 (SD = 0.64). The highest score of factor loading wass item 31 "decision making" and followed by item 30 "control working conditions" and 19 "interaction with multidisciplinary team". Nurse felt satisfied as their participation in the unit or ward with nurse and other healthcares. The high mean score of nurses' satisfaction in this study was inconsistent with previous studies which reported that Indonesian nurses' job satisfaction was fairly low with mean of 2.84 (Arini & Juanamasta, 2020). Another study by Arini (2018) showed nurse satisfaction in moderate or average level. The

finding showed different situation of satisfaction that might be influenced the number of sample size and hospital.

Extrinsic is the lowest mean (3.28) dimension. It supported by item 3 “benefit package (retirement and insurance).” Another than civil servant job status, nurses did not get any retirement paid. That might impact the results because there is no benefit package they received, including public and private hospital. However, it was totally contrast with the Arini’s study in the moderate category. It might be influenced the difference minimum salary on each region. Current study was generalized Indonesia, and did not make a difference type A, B, and C that would impact the minimum salary.

Meanwhile, dimension of scheduling was one of the lowest mean of 3.52. Additionaly, item 6 “work straight days” and followed by item “compensation for working weekends” was the lowest. Work scheduling might be strict in some units of hospitals, and that would hard for nurses to work at consecutive time. Meanwhile, majority hospital did not give any compensation working on the weekend. The compensation would give on the night shift.

7. The average level of nurses’ intention to leave

In this study, nurse turnover intention score ranged from 1.44 to 7.00 with the mean of 3.50 (SD = 1.34) and majority of the participants lower than mean. Item 1 “intent to stay for some time” was the lowest score and followed by item 7 “intend to keep my job for some time.” Nurse was not sure during this time for their plan that might because they did not have a strong reason to move. Dewanto and Wardhani (2018) reported that nurse turnover ranged from 12 to 34%, findings might in line with the study because the condition for some participants might want to leave the hospital

or profession. Nurse consider to move because thirty years old, single, and having worked in the hospital up to three years.

To examine patient to nurse ratio, working hours, nurse competence, environment characteristic, nurse satisfaction, turnover intention influencing inpatient quality nursing care in Indonesian hospitals

1. Patient to nurse ratio has a negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

Based on Aiken's (2002) model, when nurses experience higher workload to take care more patients in a shift, nurses would have dissatisfaction, feel more frustrated from job, have higher turnover intention and have worse performance on their work. The result of this study was inconsistent with Aiken (2002) model that explained patient to nurse ratio had no significant negative direct relationship with quality nursing care. One possible reason was this study conducted in Type A, B, and C of public and private hospital, which is have a significant number of patient and nurse. Additionally, all of ward IPD nurse was included in the study: intensive unit, surgical, internist, oncology, pediatric, maternity, integrative, cardio, VIP/executive. This result was also incongruent with previous reports (Cho, June, Kim et al., 2009). In Cho et al. (2009) study, patient to nurse ratio was examined 1,365 nurse in 65 intensive care unit. Nurses were more likely to rate quality of care as high when they cared for two or fewer patients (odds ratio, 3-26; 95%confidence interval, 1-14–9.31) or 2.0–2.5 patients (odds ratio, 2-44; 95% confidence interval, 1-32–4.52), compared with having more than three patients.

Meanwhile, nurse patient ratio had no significant effect to job satisfaction and turnover intention. The problem patient to nurse ratio since then, and Indonesian nurse was

likely to adapt with this problem (Juanamasta, Iblasi, Aungsuroch et al., 2021). Indonesian nurse might consider they could not avoid the issue that they have to take care many patients. Mean of daily care patient to nurse ration was 10 patients per one nurse per shift (M = 9.70, SD = 4.90) with the average from five to 15 patients per one nurse per shift. A study by Sartika (2019) examined the direct care time per shift that found evening shift has the highest activity of 192 minutes for taking care. Thus, nurse adapt with the situation since nurse student practice in the hospital.

2. Working hour has a significant negative direct effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

Based on Aiken's (2002) models, when nurses experience higher workload to extend working shifts and overtime in a shift, nurses would have dissatisfaction, feel more frustrated from job, have higher turnover intention and have worse performance on their work. Aiken's model did not explicitly draw working hours, nursing staffing as the represent patient-nurse ratio, skill mix, and workload that relate to working hours. The result of this study was inconsistent with Rogers et al. (2004), that involved Aiken, found the risks of making an error were significantly increased when work shifts were longer than twelve hours, when nurses worked overtime, or when they worked more than forty hours per week. The previous study found the risk of error begin when shift durations exceeded 8.5 hours (Rogers, Hwang, Scott et al., 2004). Nurses feel fatigue when they working over 8 hours, this condition will lead nurse to make mistakes. Unpredictable and long hours will turn the nursing into poor working condition that will threats the patient. Moreover, another study found that working shifts 10 hours or longer reporting poor quality nursing care (Stimpfel & Aiken, 2013). It might be influence with nurse working

experience, almost two third participants have more than five-years experience in the hospital. They can resist with the situation

In addition, Ruggiero (2005) found shift work hours influence nurse satisfaction (Kuo, Lin, & Li, 2014). Positive feeling of working hours will make nurse feel satisfied. If the negative feeling arises, it will become dissatisfaction, and working hours is the reason of nurse turnover (Kuo, Lin, & Li, 2014). Congroent with this study, working hour had a significant positively direct impact on turnover intention. Bautista, Lauria, Contreras et al. (2020) described workload is the most frequent stressor. Moreover, workload was negatively related to job satisfaction and perceived quality of care. Workload and conflict with nurses were positively related to turnover intention. Nurse managers should identify and mitigate stressors experienced by nurses since these can lead to turnover and poor quality of care

3. Nurse competence has a significant direct positive effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

Based on Aiken's (2002) model, when nurses high competence would have high quality nursing care. The result of this study was consistent with Aiken (2002) model that explained nurse competence had a significant positive direct relationship with quality nursing care. Nurse competence was important to give a good quality nursing care. Patient coping strategies had the highest relationship with dimension of nurse competence. Additionally, managing functions was the highest score that might influence the quality nursing care perceived by Indonesian nurse. This result was also congruent with previous studies (Gaalan, Kunaviktikul, Akkadechanunt et al., 2019; Sloane, Smith, McHugh et al., 2018). Gaalan et al. (2019) determined overall quality of nursing care and nursing competence was perceived to be at a high level which was found as significant predictors

of nursing care quality. Additionally, the study by Sloane et al. (2018) involving Aiken found nurse education as significant predictors of nursing care quality

Meanwhile, the findings nurse competence had significant direct positive effect on turnover intention was inconsistent with Aiken model. On the contrary, the findings is slightly contradictive with previous study. Takase, Teraoka, and Kousuke (2015) the findings demonstrated a negative relationship between nurses' perception of their competence and their turnover intention. This might be indicated higher nurse competence would increase the chance of nurse to leave their workplace.

Another finding, nurse competence had no significant indirect positive effect on quality nursing care. This finding was consistent with the Aiken model's that show medical staff qualification had direct influence to the process of care. Moreover, Sloane et al. (2018) found nurse education as significant direct predictors of nursing care quality.

4. Environment characteristics has a significant direct positive effect on quality nursing care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

Based on Aiken's model, when nurse work environment encouraged nursing practice, nurses would provide good nursing care and feel satisfied with their jobs. The results of nurse work environment had a significant direct and indirect positive effect on quality nursing care that was in line with Aiken's Model. The findings determined work environment have significant direct influence rather than indirect influence on quality nursing care because higher score for direct influences.

Another finding, environment had significant positive direct effect on nurse satisfaction. The results was congruent with Aiken's model and previous study good nurse working environment was significantly positively influenced nurse satisfaction (Aiken, Clarke, Sloane et al., 2002; Kanai-Pak, Aiken, Sloane et al., 2008). A good work

environment will give a good atmosphere, and nurses can practice effectively and efficiently. Environment is related to nurse involvement for policy, control over practice, staffing adequacy, and nurse-physician relationship. If all of those conditions can work well, good working environment will realize.

In addition, nurse work environment had a significant indirect positive effect on quality nursing care and no significant effect on turnover intention through job satisfaction. The previous study by Sabei, Labrague, Miner Ross et al. (2020) found participation in hospital affairs, a foundation for quality of care, and staffing adequacy were indirect predictors perceived quality of care. Logistic regression analysis revealed that working in a favorable environment was associated with less turnover intention, but only when job satisfaction was high.

5. Nurses' satisfaction has a significant direct positive effect on quality care and indirect effect on quality nursing care through nurse satisfaction and turnover intention.

The results showed nurses' satisfaction had a significant direct positive effect on quality care and had no significant effect on turnover intention. It was inconsistent with Aiken's model that did not mention the relationship between nurses' satisfaction, turnover intention, and quality of nursing care. This finding was supported with the previous study (Gillet, Fouquereau, Coillot et al., 2018). Gillet et al. (2018) revealed that psychological need satisfaction which job satisfaction was positively associated with quality of care and negatively linked to turnover intentions. Sabei et al. (2020) supported that higher nurse satisfaction would less turnover intention. Positive feelings will impact nurse motivation, and they will enjoy their workplace. Feeling satisfied will reduce turnover intention that will make nurse prefer to stay in their workplace. Moreover, the positive feeling increase

nurse performance to provide good quality nursing care (Aiken, Sermeus, Van den Heede et al., 2012; Sloane, Smith, McHugh et al., 2018; White, Aiken, & McHugh, 2019).

Another finding, nurses' satisfaction had no significant indirect effect on quality nursing care. It reflects feeling of job dissatisfied would be impact quality nursing care directly rather than indirect. Poor feeling will influence nurse performance directly and impact their working quality.

6. Turnover intention has a negative direct effect on quality nursing care.

The study found that turnover intention had positive direct impact on quality nursing care. It was inconsistent with Aiken's model that did not mention the relationship between turnover intention and quality nursing care process. This finding might be related to study was conducted at public hospitals and private. Almost half of participants were contract that have a higher chance to find different hospitals. Nurse had to keep their performance to give a high-quality nursing care although they want leave. Another possible reason the majority partipants were categorize intent to stay in the hospital that might give positive results. A This result was incongruent with previous studies. The previous study by by Huang, Wong, Shyu et al. (2021) supported that turnover intention negatively influenced nurse perceived quality nursing care. When nurse feel uncomfortable in their workplace, they will consider to leave their job or find another workplace. Uncomfortable feeling is related to work environment (Dewanto & Wardhani, 2018).

The findings of this survey also helped refine the Aiken's Nurse Work Environment, Nurse Staffing, and Outcome model, which explains how factors like nurse-patient ratio, the quality of the nursing workplace, and the credentials of the medical staff can all have a profound effect on the standard of care provided to patients. A study found that the most significant impact was nurse sompetence, and followed by

environment characteristics, and job satisfaction. Those have impact on the quality of the nursing care process. Thus, this model can be re-examined by other nursing researchers to confirm the importance of variables influence the process of providing high-quality nursing care.

Limitation

The limitations of this study are presented as follows.

1. The values of the study variables may have been underestimated or overestimated by the self-reports used in this investigation. Participants may have an exaggerated opinion of the quality nursing care they perceive, for instance.

2. Despite I-NCS that adapted from Thai study had the good internal consistency in the instrument testing phase and acceptable goodness fit of the measurement model in the main study phase, it might be difference in some part because the country culture.

3. Even though the statistical analysis technique of causal modeling was able to determine the causal relationships between independent variables and dependent variables, it simultaneously collected data. Thus, it may be restricted to reflect the nature of cause and effect between independent and dependent variables following the instrument in this study.

Implication for nursing

Nursing educators/researchers, nursing administrators, national nursing organization, policy makers and hospital stakeholder should work together to improve quality nursing care following this finding, specifically nurse competence factors. Competence should be synchronize based on the hospital needs, nursing organization standards, and university produces.

The outcome of this study will provide a clear concept and strength of the study design to provide good evidence of factors influencing quality nursing care in Indonesia hospitals. The factors will provide the support for better management in understanding and explaining factors influencing quality nursing care. The influencing factors are expected to build the awareness of stakeholders, including top nursing managers and hospital upper-level management in enhancing quality nursing care. The findings of this study will also suggest top managers to strengthen nursing staffing and work environment.

The results of this survey study showed that the dimensions of "course of the nursing process" and "collaboration with relatives" received the lowest scores for quality nursing care. It reflects nurse educators needs to encourage the student to understand of nursing process and communicable to support family and patients.

Work environment, job satisfaction and nurse turnover have significant results of SEM. Nurse administrator, specifically chief nursing officer and first line manager, should consider those factors to increase the quality nursing care. Nurse manager would make nurse feel comfortable with job environment, and nurse can be happy with their job. Thus, it would reduce turnover and increase the quality nursing care.

The results of this study can also be utilized by policymakers to strengthen hospital policies that support nurses' work. It is crucial that policymakers consider the lessons learned by magnet hospitals in the Western world. The policy should then be implemented to provide nurses with a safe and healthy workplace. A nursing staffing plan that takes into account the current state of hospital operations and the Indonesian healthcare system can be developed to ensure that nurses have manageable caseloads throughout their shifts.

Recommendations for future research

Based on the findings of this study, the following suggestions are recommended for future studies:

1. Tools used in research are crucial and have a major bearing on the findings. As an added precaution, instruments that measure both positive and negative outcomes, such as: 1) the I-ATS (Indonesian version of Anticipated Turnover Scale), should be adopted/modified to measure only one.

2. The model has to test in the specific ward of IPD or OPD nurse to make sure that model can be applied in the IPD or OPD

3. This study identified a number of predictors, including working hour, nurse competence, environment, nurse satisfaction, and turnover intention, that should be taken into account when designing an intervention study to improve nurses' perceptions of the quality of care they provide.

4. Due to the fact that Aiken's model may only be a partial fit in the context of Indonesian hospitals, another factor should be considered.

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APPENDICES

APPENDIX A

Disertassion Approval

ประกาศ
(Announcement)
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
(Faculty of Nursing, Chulalongkorn University)
เรื่อง การอนุมัติหัวข้อดุษฎีนิพนธ์
(Dissertation Approval)
ครั้งที่ 4/2564 ประจำปีการศึกษา 2564
(No. 4/2021, Academic year 2021

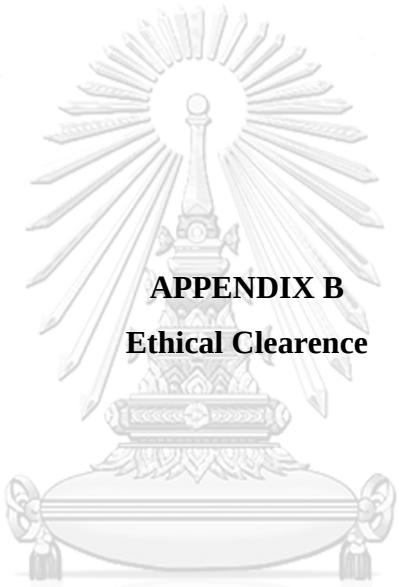
นิสิตผู้ทำวิจัยและอาจารย์ที่ปรึกษาดุษฎีนิพนธ์

รหัสนิสิต *(ID)*	6278805056
ชื่อ-นามสกุล	นายไอ จีดี อวนมัสตา
(Name)	*Mr. I Gede Juanamasta*
สาขาวิชา	พยาบาลศาสตร์ (นานาชาติ)
(Academic Program)	*Doctor of Philosophy Program in Nursing Science*
ประธานกรรมการ	ศาสตราจารย์ เกียรติคุณ ดร. วิภาดา คุณาวิกติกุล
(Chairperson)	*Prof. Emeritus Dr. Wipada Kunavikitkul*
อาจารย์ที่ปรึกษาหลัก	รองศาสตราจารย์ น.ต.ญ. ยุพิน อังสุโรจน์
(Major-advisor)	*Assoc. Prof. Capt. Dr. Yupin Aungsuroch*
อาจารย์ที่ปรึกษาร่วม	ศาสตราจารย์ ดร. แมรี่ ฟิชเชอร์
(Co-advisor)	*Prof. Dr. Mary Fisher*
กรรมการ	รองศาสตราจารย์ ดร. อารีย์วรรณ อ่วมคานิ
(Examiner)	*Assoc. Prof. Dr. Areewan Oumtanee*
กรรมการ	รองศาสตราจารย์ ดร. สุรีพร ธนสิลป์
(Examiner)	Assoc. Prof. Dr. Sureepom Thanasilp
กรรมการภายนอก	รองศาสตราจารย์ ดร. พิศมัย อรทัย
(External Examiner)	*Assoc. Prof. Dr. pisamai orathai*
ชื่อหัวข้อดุษฎีนิพนธ์	ปัจจัยที่มีอิทธิพลต่อคุณภาพการพยาบาลในโรงพยาบาล ประเทศอินโดนีเซีย
(Title of Thesis)	FACTORS INFLUENCING QUALITY NURSING CARE AT HOSPITALS IN INDONESIA
ครั้งที่อนุมัติ	4/2564
(Announcement No.)	
ระดับ	ปริญญาเอก
(Level)	*Doctoral degree*

จากมติคณะกรรมการบริหารคณะพยาบาลศาสตร์ ครั้งที่ 7/2565 วันที่ 12 เมษายน 2565
(Approved by the Board of the Faculty of Nursing. No. 7/2022 Date April 12, 2022)

ประกาศ ณ วันที่ 22 เมษายน พ.ศ. 2565
(Announced on April 22, 2022)

(ศาสตราจารย์ ดร. รัตน์สิริ ทาโต)
(Ratsiri Thato)
คณบดีคณะพยาบาลศาสตร์
Professor and Dean



APPENDIX B

Ethical Clearence

KOMISI ETIK BIDANG SOSIAL HUMANIORA
BADAN RISET DAN INOVASI NASIONAL
Gedung B.J. Habibie Lantai 8
Jalan M.H. Thamrin No. 8, Jakarta Pusat 10340
Laman: https://klirenetik.brin.go.id/, email: klirenetik@brin.go.id

ETHICAL CLEARANCE DECISION LETTER
Social Studies and Humanities Research
Ref No.: 176 /KE.01/SK/8/2022

Herewith The Ethics Committee on Social Studies and Humanities National Research and Innovation Agency (NRIA) informs that,

Research Title	:	Faktor-Faktor yang Mempengaruhi Kualitas Perawatan Rumah Sakit di Indonesia (Factors Influencing Quality Nursing Care at Hospitals in Indonesia)
Application Number	:	18072022000006
Unit/Institution	:	Chulalongkorn University
Research Coordinator	:	I Gede Juanamasta

Has been evaluated in the meeting on August 4th, 2022 .

Based on the results of the meeting, the Ethics Committee on Social Studies and Humanities NRIA has made the decision: **The research with the application number has met the ethical clearance requirements with a period of research from August to December 2022.**

Researchers remain obligated to:

a. Comply with health protocols related to Covid-19 Pandemic that apply at the research locations.
b. Submit a new application shall there be amendment to research design or research subject.
c. Submit a report when the field research has been completed.
d. Provide information if there is a change in location, research time and/or termination ahead of schedule.

The Ethical Committee on Social Studies and Humanities NRIA has the right to conduct monitoring during the research.

Jakarta, 10th of August 2022
Chief of Ethical Committee on Social Studies
and Humanities
National Research and Innovation Agency

TT ELEKTRONIK

Dr. Augustina Situmorang, M.A.

Dokumen ini ditandatangani secara elektronik menggunakan sertifikat dari BSrE. Untuk lebih lanjut verifikasi pada dokumen elektronik yang dapat diunduh dengan melakukan scan QR Code

APPENDIX C

List of Experts

	Educational backgrounf	**Position/Organization**
Nursalam	Doctoral degree in Nursing Science Master of Nursing Bachelor of Nursing Science	Professor in the field of Nursing Administration, Faculty of Nursing, Universitas Airlangga
Slamet Riyadi Yuwono	Doctoral degree in Hospital Administration Master of Hospital Administration Bachelor of Medical Science	Associate Professor, Chairman of the Indonesian Hospital Supervisory Agency (BPRS) Commissioner of The National Committee of RS-PTN Ministry of Ristek DIKTI Surveyor Indonesian hospital accreditation commission (KARS)
I Made Kariasa	Doctoral degree in Nursing Science Master of Nursing Bachelor of Nursing Science	Associate Professor, Faculty of Nursing, Universitas Indonesia Committee of The Association of Indonesia Nurse Education Centre

	Educational backgrounf	**Position/Organization**
Rosa Dwi Sahati	Master of Hospital Administration Bachelor of Nursing Science	Director of Nursing of RKZ Hospital Supervisor of Indonesian hospital accreditation commission (KARS)
Siluh Nyoman Alit Nuryani	Doctoral degree in the field of Nursing Management Master of Nursing Science Bachelor of Nursing Science	Nursing committee of Sanglah General Hospital
Ni Nyoman Ayuningsih	Doctoral degree in the field of Nursing Management Master of management in the field of Nursing Bachelor of Nursing Science	Quality assurance unit of Sanglah General Hospital
Ni Made Nopita Wwati	Master of Nursing Science in the field of Nursing Administration Bachelor of Nursing Science	Assistant Profesor Chief nursing management department of university

APPENDIX D

Form for Particpants

RESEARCH INFORMATION

Overall goal

The questionnaire you are asked to complete is part of a thorough study of the organization, management, and quality of care in inpatient units. The purpose of this study was to examine the work environment, nurse characteristics, self-concept of nurses' professionalism, job burnout and its relationship with the quality of nursing care. The long-term goal is to develop managerial and organizational guidelines that your organization and other organizations can use to improve the quality of nursing care.

Questionnaire

This questionnaire was adopted from an existing questionnaire and has been used in many other organizational studies and has been tested extensively. The questions deal with issues related to communication, coordination, conflict management, leadership, perceived work unit effectiveness, and related factors. Please note that physician-related questions refer to experienced and part-time inpatient clinicians, hospital staff, and regular physicians. We estimate that the questionnaire will take approximately 20-30 minutes to complete.

How are you useful

Solving this question will be of immediate benefit to you in two ways. First, we'll give specific feedback (overall) on your unit score on each measure of interest. Second, we will provide you with a comparison of the value of your unit with other units in this study. This will allow you to assess your comparative productivity. Feedback on the value of your unit and comparisons with other units can be used to assess your productivity and serve as the basis for continuous improvement in the quality of care provided in your unit.

Keep in mind

You are asked to respond to each question because you believe the situation really is, not the way you think it should be or want it to be. Responses are confidential; the numbers on the questionnaire are to trace back. The analysis is based on aggregated responses only.

Please note: ANY QUESTION YOU SHOULD ASK OR HELP NEEDED IN COMPLETING THIS QUESTION MUST ASK I GEDE JUANAMASTA EMAIL: juana.masta.90@gmail.com/ HP.+66993208178; +6285962716058

INFORM CONSENT

After reading, listening and understanding the contents of the explanation about the purpose and benefits of this research, then I am **willing/not willing*** to participate as a respondent in the research conducted by the student of Doctor of Philosophy in Nursing Science of Chulalongkorn University, namely:

NamE : I Gede Juanamasta

Student ID : 6278803036

Title : Factors influencing quality nursing care in hospitals at Indonesia

I understand that this research will not harm or harm me or my family. I made this agreement knowingly and without coercion from anyone. Thus this statement I make to be used properly.

……,……

Respondent

_____.

APPENDIX E

Research Instruments

QUESTIONNAIRE A

CHARACTERISTICS NURSE

Number / Code Respondent /	:	
Date Charging	:	
units / Room	:	
Hospital type	:	

Instruction Charging

1. Ladies and gentlemen, read it more formerly with careful before fill in questionnaire this
2. Give sign *check list* (√) on column which available
3. Answer ladies and gentlemen will guaranteed secrecy and no will take effect to career sibling

1. Age of father/mother/brother (i)	: .		year
2. Gender	: ( )		man
	( )		women
3. Last Nursing Education	: ( )		D III Kep.
	( )		Bachelor degree
	( )		Bachelor degree and RN
	( )		Master degree
	( )		Master degree and Specialist
4. Marital status	: ( )		Not Married
	( )		Married
5. Work experience as a nurse	: ..		year month
6. Work experience in this hospital	: ..		year month
7. Current work experience in the room	: ..		year month
8. Employment status	: ( )		PNS /ASN
	( )		Permanent
	( )		Honorary
	( )		Contract
9. Monthly base salary	: ( )		< Rp2,500,000
	( )		Rp2,600,000-Rp3,500,000
	( )		Rp3,600,000-Rp4,500,000
	( )		Rp4,600,000-Rp5,500,000
	( )		>Rp5,600,000
10. Incentives/benefits (average/month)	: Rp		
11. Shift system	:		Morning Afternoon
	( )		7 710
	( )		8 88
	( )		12 12
	( )		Other, specify

Additional information:

QUESTIONNAIRE B

FORM Measurement of staffing and working hours of nurses

Charging instructions :

1. Please help and willingness colleague for fill in whole statement which there is.
2. Give answers according to column instructions
3. Example:

During the last shift, the number of patients per shift per day you treated (According to your current situation in the room) Shift name	Shift Time (time you come-time you go home)	Rest time (in minutes)	Overtime (in minutes) or keep 2 continuous shifts	The number of patients per shift per day to be given care
afternoon shift	13.15-20.30	30 minutes	15 minutes	8 patients

***** Days when you work, excluding holidays

During the last shift, the number of patients per shift per day you treated (According to your current situation in the room) Shift name	Shift Time (time you come-time you go home)	Rest time (in minutes)	Overtime (in minutes) or keep 2 continuous shifts	The number of patients per shift per day to be given care

QUESTIONNAIRE FILLING INSTRUCTIONS C - G

Charging instructions :

1. Please help and willingness colleague for fill in whole statement which there is.
2. Give sign (√) on column which colleague choose in accordance with circumstances actually with alternative answer as following :
   a. **Very disagree (STS)** , when statement the said **same once no suitable by opinion** or condition which experienced.
   b. **Strongly agree (SS),** if statement the **very in accordance with opinion** or condition which experienced
3. The greater the value you give you strongly agree with the statement.
4. Specifically for the satisfaction questionnaire, as follows:
   a. **Very dissatisfied** , if statement the **same very no in accordance with opinion** or condition which experienced.
   b. **Very Satisfied,** if statement the **very in accordance with opinion** or condition which experienced
5. When want to change answer so you can replace one time with method members sign line ─ on answer which wrong, then give sign *checklist* on _ answer which you want

   Example :

1	2	3	4
~~√~~		√	

QUESTIONNAIRE C

QUALITY OF NURSING CARE

1=strongly disagree – 5=strongly agree

No	Statement	1	2	3	4	5
1.	I show a friendly attitude towards my patients					
2.	I am careful in doing my nursing duties					
	…					
39	The patient's relatives are provided with mental support during care and treatment					
40	I have enough time for the patient's relatives					

QUESTIONNAIRE D

COMPETENCE OF NURSES

0=strongly disagree – 3=strongly agree

No	Items	0	1	2	3
1.	Be able to identify areas in patient care that require further development and research				
2.	Utilizing research findings in the further development of patient care.				
3.	Critically evaluate my unit's maintenance philosophy.				
	…				
35	Considering the level of mastery of nursing student skills in mentoring.				
36	Coordinating nursing student assistance in the unit				

QUESTIONNAIRE E

NURSE WORK ENVIRONMENT

1=strongly disagree – 5=strongly agree

No	Question	1	2	3	4	5
1	Staff nurses are involved in the internal governance of the hospital					
2	Opportunity for nurses to participate in policy decisions					
	…					
30	Doctors and nurses have a good working relationship					
31	Collaboration (joint practice) between nurses and doctors					

QUESTIONNAIRE F

NURSE WORK SATISFACTION

1=very dissatisfied – 5=very satisfied

No	Statement	1	2	3	4	5
1	Wages					
2	Opportunity to take a break from work					
	…					
	…					
31	Participation in decision making					

QUESTIONNAIRE G

TURNOVER INTENTION (WISH TO STOP OR MOVE)

1=strongly disagree – 7=strongly agree

No	Statement	1	2	3	4	5	6	7
1.	I will intent to stay in my current job							
2.	I am sure that soon I will leave this job							
	…							
8.	There is a big doubt in my mind, whether I will stay in this hospital or not							
9.	In the near future I plan to leave this job							

APPENDIX F

Permission to use instruments

1. Good Nursing Care Scale for Nurse
Gede Juanamasta <juana.masta.90@gmail.com> Kam, 10 Feb 13.46

kepada Saija

Dear Saija Inkeroinen, as representative of Professor Helena Leino-Kilpi.
I am delighted to hear that. I will follow all the guidelines.
I will inform you if there are any problems or issues.
Many thanks to Professor Helena Leino-Kilpi for the permission and Saija Inkeroinen for your support.
I wish you all the best in your research and success in your studies.
Sincerely yours,
I Gede Juanamasta

Pada tanggal Jum, 4 Feb 2022 pukul 16.50 Saija Inkeroinen <saanin@utu.fi> menulis:
Dear I Gede Juanamasta, cc professor Helena Leino-Kilpi,
Professor Helena Leino-Kilpi herby gives you the permission to use the Good Nursing Care Scale (GNCS) in your study according to the research plan. The English version of GNCS (nurse version) with the key to the interpretation of the scale is attached to this mail.
The copyright of the scale is by ©Leino-Kilpi 2013. In all phases of the study, the copyright of the scale must be mentioned. The scale cannot be modified. There are no costs for the use in academic purposes, as your research is.
We would like to keep and give permissions to use the translated version of the GNCS. We kindly ask you to send as the translated version and a description of the translation process when it is ready. We will, of course, add your name to the copyright of the translated GNCS. We are also interested in the results of your study. We kindly ask you to send the thesis, reports and/or publications to us.
I wish all the best for your research and success in your studies.
With best regards on behalf of professor Leino-Kilpi,
Saija

Saija Inkeroinen

Tohtorikoulutettava, TtM, TtK, Th, Sh | Doctoral candidate, MHSc, BHSc, PHN, RN
Hoitotieteen laitos | Department of Nursing Science
Turun yliopisto | University of Turku, Finland
+358400760698
saanin@utu.fi
Linkedin | ORCID | Empowering Patient Education (EPE) Research Programme

Lähettäjä: Gede Juanamasta <juana.masta.90@gmail.com>
Lähetetty: torstai 3. helmikuuta 2022 5.13
Vastaanottaja: Saija Inkeroinen <saanin@utu.fi>
Aihe: Re: Good Nursing Care Scale permission request
Dear Saija Inkeroinen
Thank you for your response.

Summary of research plan:
Title: Factors Influencing Quality Nursing Care in Indonesia Hospital: A Structural Equation Modeling Study

1. Aim of the study and/or hypothesis and/or research questions: to test the hypothesized theoretical model and apply it to examine structural relationships among patient to nurse ratio, environment characteristics, and quality nursing care in Indonesian public and private hospitals using structural equation modeling (SEM)
2. Study design (e.g., quantitative, cross-sectional study?): cross-sectional study
3. Sample (e.g., nursing home/hospital or surgical/psychiatric), expected sample size and sampling: 550 nurse inpatient ward in the hospital
4. Data collection (who, when, how): I will spread the questionnaire to the sixteen hospitals across Indonesia. The time around June-December 2022
5. Data analysis (shortly): 1) I will generate descriptive statistics. Frequencies, means, and standard deviations. 2) Cronbach's alpha of internal consistency reliability scores for each scale will be computed. 3) I will evaluate the factor structure of each scale through Confirmatory Factor Analysis (CFA). 4) Structure Equation Modelling (SEM) will be used to analyze the hypothesized model
6. Ethical consideration (e.g., are you planning to apply for ethical approval or what ethical guidelines you are following): I will apply for ethical clearance after the Ph.D. committee of the Faculty of Nursing, Chulalongkorn University approve my proposal
7. Copyright issues of the scale (e.g., will you mention the copyright in every stage of the study): Surely, I will mention in each stage
8. Are you planning to modify the scale? If yes, describe it briefly. (Usually, modifying the scales is not allowed in bachelor or master level studies.): No, I am not
9. Are you planning to translate the scale? If yes, describe the process briefly: Yes, I am. I will translate the questionnaire into Bahasa Indonesia. I plan to use Brislin's back-translation model, do not hesitate to suggest the translation method.

Let me know if there is anything else.
Thank you very much for your support.

Best Regards,
I Gede Juanamasta
Doctoral student, S.Kep., Ns., M.Kep
Department of Nursing Science
Chulalongkorn University, Thailand

Pada tanggal Rab, 2 Feb 2022 pukul 15.56 Saija Inkeroinen <saanin@utu.fi> menulis:
Dear I Gede Juanamasta,
Thank you for your interest towards the Good Nursing Care Scale (GNCS) for Nurses. I am the coordinator of the scales but the final permission to use the scale will

be granted by professor Helena Leino-Kilpi. Before that, I need to clarify few things about your study. Can you provide me a summary of your research plan, including:

1. Aim of the study and/or hypothesis and/or research questions
2. Study design (e.g., quantitative, cross-sectional study?)
3. Sample (e.g., nursing home/hospital or surgical/psychiatric), expected sample size and sampling
4. Data collection (who, when, how)
5. Data analysis (shortly)
6. Ethical consideration (e.g., are you planning to apply for ethical approval or what ethical guidelines you are following)
7. Copyright issues of the scale (e.g., will you mention the copyright in every stage of the study)
8. Are you planning to modify the scale? If yes, describe it briefly. (Usually, modifying the scales is not allowed in bachelor or master level studies.)
9. Are you planning to translate the scale? If yes, describe the process briefly.

After I have all the information, professor Helena Leino-Kilpi will give the permission to use the GNCS and I will send it to you. If you have any questions or if I can help you with anything, do not hesitate to ask. I'm glad to help you.

Best regards,
Saija

Saija Inkeroinen

Tohtorikoulutettava, TtM, TtK, Th, Sh | Doctoral candidate, MHSc, BHSc, PHN, RN
Hoitotieteen laitos | Department of Nursing Science
Turun yliopisto | University of Turku, Finland
+358400760698
saanin@utu.fi
Linkedin | ORCID | Empowering Patient Education (EPE) Research Programme

2. Nurse Competence Scale
Request permission of Nurse Competence Scale
I gede Juanamasta
Kepada:
permissions@wiley.com
Kam 20/10/2022 07.37
Dear Wiley Global Permissions

Good morning, I am I Gede Juanamasta, doctoral degree student at the Faculty of Nursing, Chulalongkorn University.
I am sorry for disturbing your time. My research project is 'Factors predicting quality nursing care in Indonesia.' One of the factors will use Nurse Competence Scale (**https://doi.org/10.1111/j.1365-2648.2004.03071.x**). I would like to ask for requesting permission to use and translate Nurse Competence Scale. It will be translated into the Indonesian language.
I am really waiting for your information.
Thank you very much.

Best regards,
I Gede Juanamasta

Wiley Global Permissions <permissions@wiley.com>
Kepada:
I gede Juanamasta
Sab 29/10/2022 19.09
Dear I Gede Juanamasta,

Thank you for your email.

Permission is hereby granted for the use requested subject to the usual acknowledgements (author, title of material, title of journal, ourselves as publisher). You should also duplicate the copyright notice that appears in the Wiley publication; this can be found on the copyright page in the journal.

Any third party material is expressly excluded from this permission. If any of the material you wish to use appears within our work with credit to another source, authorization from that source must be obtained.

This permission does not include the right to grant others permission to photocopy or otherwise reproduce this material except for accessible versions made by non-profit organizations serving the blind, visually impaired and other persons with print disabilities (VIPs).

Sincerely,
Sheik Safdar
Sales Specialist – Permissions
Global Sales Partnerships

Wiley
ssafdar@wiley.com
T +1 201-748-6512
111 River Street
Hoboken, NJ 07030-5774
U.S.
permissions@wiley.com

From: I gede Juanamasta <6278803036@student.chula.ac.th>
Sent: Wednesday, October 19, 2022 8:38 PM
To: Wiley Global Permissions <permissions@wiley.com>
Subject: Request permission of Nurse Competence Scale

Olli Meretoja <olli.meretoja@fimnet.fi>
Kepada:
I gede Juanamasta
Rab 05/10/2022 22.39
Dear Gede,
I write on behalf of my wife who accepts this message.
The official copyright of the NCS is owned by the journal where the scale was published (Journal of Advanced Nursing). You have to ask their permission to use the scale for your studies.
The scale cannot be modified as it should be used in its original (translated) form. The best way for translation is to translate it first into your own language and the back-translated to English by a different person. By this way it is possible to find any inaccuraces of the translation process.
I hope you very good success for your studies.

Olli Meretoja
Professor, MD

Lähetetty iPadista

I gede Juanamasta <6278803036@student.chula.ac.th> kirjoitti 5.10.2022 kello 3.06:

Dear Professor Riitta Meretoja, PhD, RN

Good evening, I am I Gede Juanamasta, doctoral degree student at the Faculty of Nursing, Chulalongkorn University.
I am sorry for disturbing your time. My research project is 'Factors predicting quality nursing care in Indonesia.' One of the factors will use Nurse Competence Scale-Short Form. I would like to ask for requesting permission to use and translate Nurse Competence Scale. It will be translated into the Indonesian language.
I am really waiting for your information.
Thank you very much, Professor.

Best regards,
I Gede Juanamasta

PHANIDA JUNTASOPEEPUN <phanida.j@cmu.ac.th>
Kepada:
I gede Juanamasta
Rab 05/10/2022 11.24
Dear I Gede Juanamasta,
Thank you for your interest about our work. We are not the scale developer. We translated the original scale to Thai language. Please contact the original developer and ask for the permission. I think I stated about this info in my paper. Good luck with your study.
Regards,
Phanida

Phanida Juntasopeepun, PhD, RN
Assistant Professor
Associate Dean
Faculty of Nursing, Chiang Mai University
Chiang Mai, Thailand 50200
Email. phanida.j@cmu.ac.th
https://www.nurse.cmu.ac.th/web/en/

□
From: I gede Juanamasta <6278803036@student.chula.ac.th>
Sent: Wednesday, October 5, 2022 7:10 AM
To: PHANIDA JUNTASOPEEPUN <phanida.j@cmu.ac.th>
Subject: Request permission to use Nurse Competence Scale

Dear Assistant Professor Phanida Juntasopeepun, PhD, RN

Good morning, I am I Gede Juanamasta, doctoral degree student at the Faculty of Nursing, Chulalongkorn University.

I am sorry for disturbing your time. My research project is 'Factors predicting quality nursing care in Indonesia.' One of the factors will use Nurse Competence Scale. I would like to ask for requesting permission to use and translate Nurse Competence Scale that you published "Psychometric evaluation of the Nurse Competence Scale: A cross-sectional study". It will be translated into the Indonesian language.
I am really waiting for your information.
Thank you very much, Madam.

Best regards,
I Gede Juanamasta

3. Pratice Environment Scale-Nurse Work Index

Kepada: "i.gede.juanamasta-2016@fkp.unair.ac.id" <i.gede.juanamasta-2016@fkp.unair.ac.id>

Dear I Gede Juanamasta:
Thank you for your email to Dr. Lake. Enclosed, please find the instrument, scoring instructions, an article containing PES-NWI scores for ANCC Magnet hospitals from 1998 in Table 1, and a Warshawsky & Haven article you may find useful. These materials are sent to everyone who makes the request.
Dr. Lake's permission is not needed as the instrument is in the public domain due to its endorsement by the National Quality Forum in 2004 and re-endorsement in 2009: http://www.qualityforum.org/ QPS/QPSTool.aspx?m=1129&e=3. However, if you prefer to have Dr. Lake's permission, this email serves as her permission.
Please direct any reply to Dr. Eileen Lake at elake@nursing.upenn.edu. If you need anything else, feel free to write to us again.

All the best,
Andrea Barol

4. **McCloskey/Mueller Satisfaction Scale (MMSS)**
[External] Permission to use McCloskey/Mueller Satisfaction Scale (MMSS)

Abe, Noriko <noriko-abe@uiowa.edu>

Kepada:

I gede Juanamasta

Kam 17/11/2022 00.26

Dear I Gede Juanamasta,

Attached please find the following:

1. The McCloskey/Mueller Satisfaction Scale
2. Permission form

Thank you for the Indonesian translation of MMSS. I appreciate your effort in translation.
Please inform me when you publish related to MMSS Indonesian version. I need to keep records of publications about the MMSS and its translated versions.

The Center for Nursing Classifications and Clinical Effectiveness retains the copyright of the MMSS in English and in other languages. The Center continues issuing the Permission to Use the MMSS to researchers/students. There will be researchers/students who are interested in the MMSS in Indonesian version (e.g. a psychometric study) in the future. When they contact the Center, I will refer them to you and your work so please keep inform me of your contact information.

Best regards,

Noriko Abe, MSN
CNC Coordinator
The Center for Nursing Classification & Clinical Effectiveness (CNC)
The University of Iowa, College of Nursing
407 CNB, 50 Newton Road
Iowa City, IA 52242-1121
Office: 319-335-7051
Email: noriko-abe@uiowa.edu
Pronoun: she/her/hers

IOWA | Center for Nursing Classification and Clinical Effectiveness

Permission to use form:

This statement gives permission to use the McCloskey/Mueller Satisfaction Scale (MMSS) to I Gede Juanamasta for the purpose as stated in the request dated November16, 2022.

The instrument may be reproduced in a quantity appropriate for this project.

Signed:

Sue Moorhead

Sue Moorhead, RN, PhD, FAAN
Associate Professor Emerita
College of Nursing

Date: November 16, 2022

The Center for Nursing Classification & Clinical Effectiveness
The University of Iowa, College of Nursing 407 CNB
Iowa City Iowa 52242 USA

5. Anticipated Turnover Scale
JAN ATWOOD <atwoodj@comcast.net>
Kepada:
I gede Juanamasta
Cc:
ahinshaw@umich.edu

Sab 22/10/2022 07.22

Greetings, I Gede Juanamasta, doctoral degree student at the Faculty of Nursing, Chulalongkorn University,

Dr. Hinshaw and I are pleased to give you permission to translate and use the ATS scale in your research. The next 2 gratis emails will contain further information about the scale, including translation suggestions.

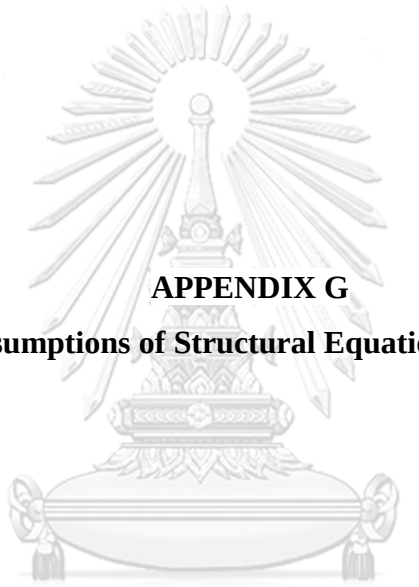
I thoroughly enjoyed my visit to your university and, most especially, the grace with which I was received. World Health Organization assignments were also special in Indonesia.

Sincerely,
Professor Jan R. Atwood, PhD, Nurse Practitioner, FAAN

cc: Dean Emerita Ada Sue Hinshaw, Ph D, Dean Emerita, University of Michigan School of Nursing and Uniformed Services University

APPENDIX G

Assumptions of Structural Equation Model



Normality

Table 1 Test of Univariate Normality and Multivariate Normality of the observed variables (N = 510) Skewness and Kurtosis

Observe variables	**Skewness and Kurtosis**	
	Chi-Square	**P-Value**
Nurse ratio	0.01	1.00
Working hour	0.13	0.94
Staff Characteristics	46.18	0.00
Care Related Activities	40.87	0.00
Preconditions for Care	27.76	0.00
Nurse Environment	51.40	0.00
Courses of the Nursing Process	14.45	0.00
Patient' Coping Strategies	36.67	0.00
Research oriented	41.91	0.00
Work role	50.46	0.00
Diagnostic functions	47.71	0.00
Managing situations	57.55	0.00
Patient education	56.14	0.00
Mentoring functions	76.91	0.00
Collaboration with Relatives	23.85	0.00
Nurse participation in hospital affairs	25.49	0.00
Nursing foundations for quality care	38.26	0.00
Nurse manager ability, leadership, and support of nurses	41.73	0.00
Staffing and resource adequacy	40.61	0.00
Collegial nurse-physician relations	55.77	0.00
Extrinsic	3.20	0.20
Scheduling	2.75	0.25
Family and work balance	6.47	0.04
Co-worker	31.29	0.00
Interaction	33.54	0.00
Praise/recognition	18.24	0.00
Professional opportunities	17.26	0.00
Control/responsibility	21.32	0.00
Turnover intention	0.49	0.78
Multivariate variables	311.29	0.00

Table 2 Observe Variables Pearson Correlation, Means and Standar Deviation (N=550)

	NR	WH	SC	CRA	PC	NE	CNP	PCS
Nurse ratio (NR)	1.00							
Working hour (WH)	.03	1.00						
Staff Characteristics (SC)	.10	-.03	1.00					
Care Related Activities (CRA)	.04	-.09	.64	1.00				
Preconditions for Care (PC)	.02	-.05	.64	.72	1.00			
Nurse Environment (NE)	.01	-.08	.67	.68	.70	1.00		
Courses of the Nursing Process (CNP)	.05	-.09	.54	.59	.65	.65	1.00	
Patient' Coping Strategies (PCS)	.07	-.06	.63	.70	.68	.73	.73	1.00
Collaboration with Relatives (CR)	.04	-.04	.51	.61	.62	.64	.68	.74
Research oriented (RO)	.11	-.03	.47	.52	.61	.55	.58	.63
Work role (WR)	.09	-.07	.46	.50	.57	.57	.54	.63
Diagnostic functions (DF)	.12	-.04	.39	.47	.53	.50	.51	.56
Managing situations (MS)	.12	-.03	.47	.51	.55	.55	.53	.62
Patient education (PE)	.12	-.02	.47	.49	.54	.54	.54	.63
Mentoring functions (MF)	.12	-.08	.39	.39	.47	.45	.43	.49
Nurse participation in hospital affairs (PHA)	.01	.00	.42	.44	.51	.49	.51	.55
Nursing foundations for quality care (FQC)	.04	-.06	.48	.51	.54	.54	.53	.63
Nurse manager ability, leadership, and support of nurses (NM)	.04	-.04	.41	.43	.47	.47	.48	.54
Staffing and resource adequacy (SRA)	.03	-.07	.42	.44	.51	.48	.51	.55
Collegial nurse-physician relations (NPR)	.00	-.10	.41	.40	.44	.47	.46	.51
Extrinsic (EX)	-.09	-.03	.12	.14	.19	.16	.20	.15
Scheduling (SC)	-.03	.02	.19	.22	.27	.23	.31	.30
Family and work balance (FWB)	-.02	-.04	.22	.25	.31	.26	.30	.31
Co-worker (CW)	-.04	-.09	.33	.30	.34	.36	.37	.43
Interaction (IN)	.00	-.11	.42	.39	.42	.45	.46	.52
Praise/recognition (PR)	-.03	-.10	.33	.35	.40	.37	.43	.46
Professional opportunities (PO)	.02	-.05	.36	.36	.43	.40	.45	.48
Control/responsibility (CR)	-.01	-.06	.38	.36	.43	.44	.46	.50
Turnover intention (TO)	.05	.07	.02	.10	.11	.01	.12	.08
Mean	8.90	9.70	4.74	4.60	4.49	4.71	4.37	4.52
Std. dev	2.75	4.90	.35	.46	.49	.42	.53	.51

Table 2 cont…

	CR	RO	WR	DF	MS	PE	MF
Collaboration with Relatives (CR)	1.00						
Research oriented (RO)	.60	1.00					
Work role (WR)	.57	.76	1.00				
Diagnostic functions (DF)	.55	.68	.78	1.00			
Managing situations (MS)	.55	.70	.80	.78	1.00		
Patient education (PE)	.55	.71	.74	.73	.81	1.00	
Mentoring functions (MF)	.48	.61	.68	.69	.71	.69	1.00
Nurse participation in hospital affairs (PHA)	.52	.56	.57	.58	.58	.57	.54
Nursing foundations for quality care (FQC)	.54	.61	.63	.59	.65	.67	.55
Nurse manager ability, leadership, and support of nurses (NM)	.46	.52	.54	.51	.55	.58	.49
Staffing and resource adequacy (SRA)	.49	.55	.56	.56	.56	.63	.49
Collegial nurse-physician relations (NPR)	.42	.46	.52	.46	.54	.56	.46
Extrinsic (EX)	.15	.14	.17	.16	.18	.20	.13
Scheduling (SC)	.25	.27	.26	.23	.24	.27	.19
Family and work balance (FWB)	.23	.28	.27	.26	.29	.33	.26
Co-worker (CW)	.33	.29	.33	.29	.33	.39	.30
Interaction (IN)	.43	.41	.45	.38	.46	.50	.40
Praise/recognition (PR)	.36	.38	.39	.35	.42	.47	.35
Professional opportunities (PO)	.42	.43	.45	.43	.44	.49	.39
Control/responsibility (CR)	.43	.46	.46	.40	.45	.49	.37
Turnover intention (TO)	.11	.11	.03	.10	.03	.05	.05
Mean	4.36	2.58	2.69	2.63	2.71	2.67	2.68
Std. dev	.67	.45	.41	.47	.40	.44	.50

Table 2 cont…

	PHA	FQC	NM	SRA
Nurse participation in hospital affairs (PHA)	1.00			
Nursing foundations for quality care (FQC)	.81	1.00		
Nurse manager ability, leadership, and support of nurses (NM)	.77	.80	1.00	
Staffing and resource adequacy (SRA)	.75	.79	.74	1.00
Collegial nurse-physician relations (NPR)	.68	.76	.75	.72
Extrinsic (EX)	.34	.30	.31	.29
Scheduling (SC)	.40	.39	.38	.38
Family and work balance (FWB)	.39	.38	.37	.40
Co-worker (CW)	.48	.51	.46	.49
Interaction (IN)	.59	.66	.59	.63
Praise/recognition (PR)	.57	.59	.59	.59
Professional opportunities (PO)	.64	.63	.60	.63
Control/responsibility (CR)	.66	.66	.60	.63
Turnover intention (TO)	.01	.00	-.05	.05
Mean	4.28	4.47	4.45	4.37
Std. dev	.68	.57	.62	.68

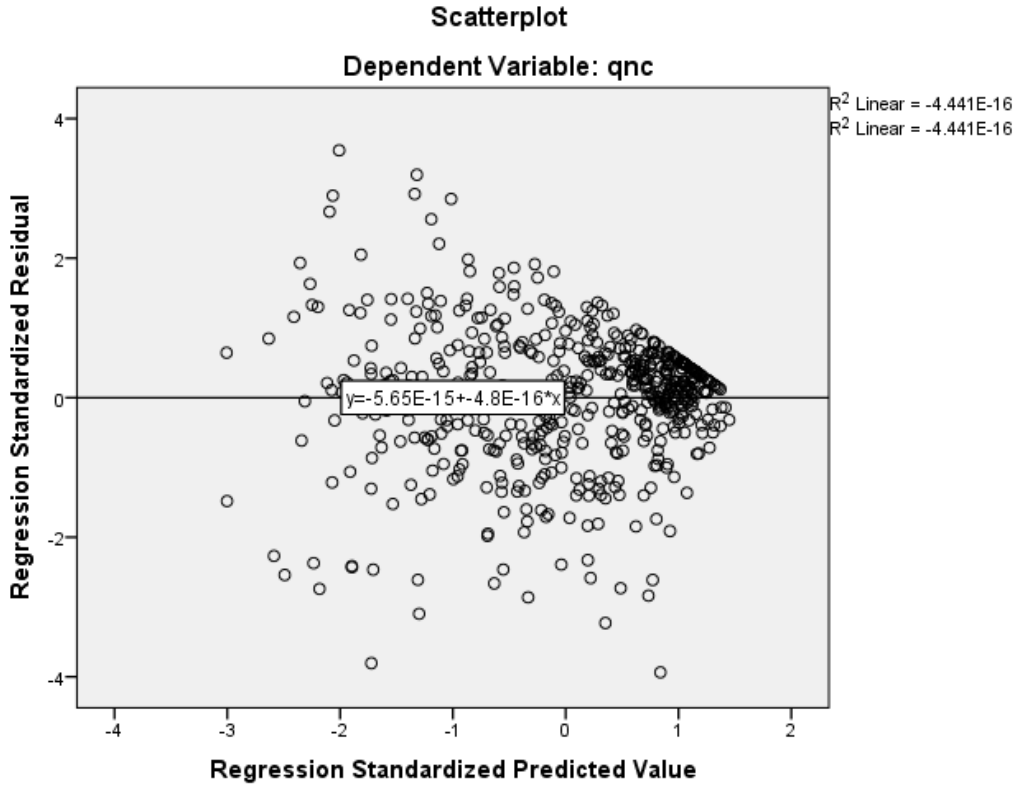
Table 2 cont…

	NPR	EX	SC	FWB	CW	IN	PR	PO	CR	TO
Collegial nurse-physician relations (NPR)	1.00									
Extrinsic (EX)	.24	1.00								
Scheduling (SC)	.30	.61	1.00							
Family and work balance (FWB)	.32	.59	.69	1.00						
Co-worker (CW)	.56	.37	.46	.50	1.00					
Interaction (IN)	.59	.39	.51	.54	.79	1.00				
Praise/recognition (PR)	.56	.52	.62	.65	.73	.80	1.00			
Professional opportunities (PO)	.52	.47	.59	.59	.63	.79	.81	1.00		
Control/responsibility (CR)	.58	.47	.56	.59	.69	.81	.85	.87	1.00	
Turnover intention (TO)	-.06	-.09	.05	.01	-.09	-.06	-.10	-.04	-.10	1.00
Mean	4.56	3.28	3.52	3.68	4.26	4.32	4.14	4.03	4.14	3.50
Std. dev	.58	.97	.88	.88	.71	.67	.73	.78	.72	1.34

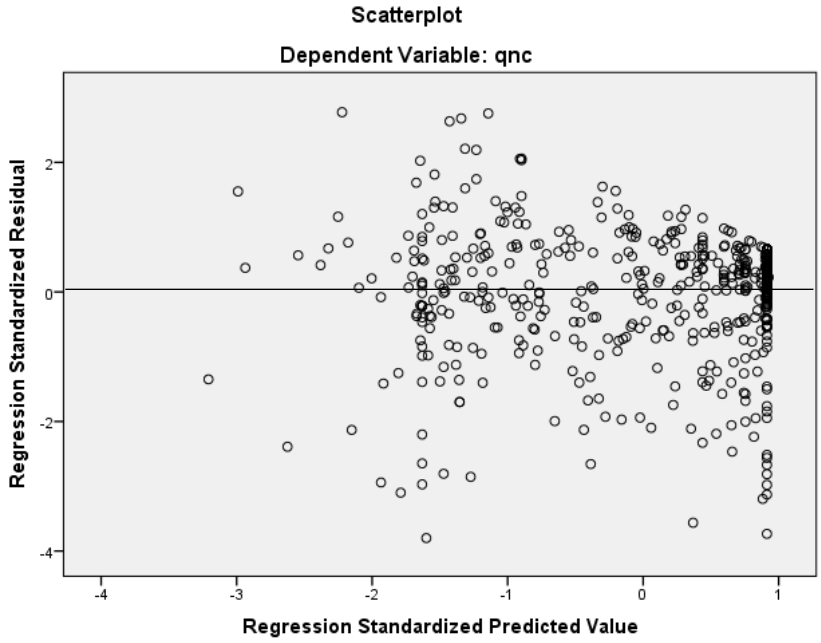
Table 3 Assessment for multicollinearity among the study variables (N = 550) Variables

Variables	Tolerance	VIF
Exogenous observe variables		
Nurse ratio	0.94	1.06
Working hour	0.96	1.04
Research oriented	0.32	3.12
Work role	0.21	4.74
Diagnostic functions	0.27	3.65
Managing situations	0.18	5.59
Patient education	0.24	4.12
Mentoring functions	0.42	2.41
Nurse participation in hospital affairs	0.25	4.00
Nursing foundations for quality care	0.17	6.01
Nurse manager ability, leadership, and support of nurses	0.25	4.09
Staffing and resource adequacy	0.28	3.61
Collegial nurse-physician relations	0.29	3.47
Endogenous observe variables		
Extrinsic	0.54	1.85
Scheduling	0.41	2.44
Family and work balance	0.41	2.44
Co-worker	0.32	3.15
Interaction	0.19	5.17
Praise/recognition	0.19	5.28
Professional opportunities	0.20	5.04
Control/responsibility	0.16	6.43
Turnover intention	0.87	1.16

Homoscedasticity



QNC to all latent variable



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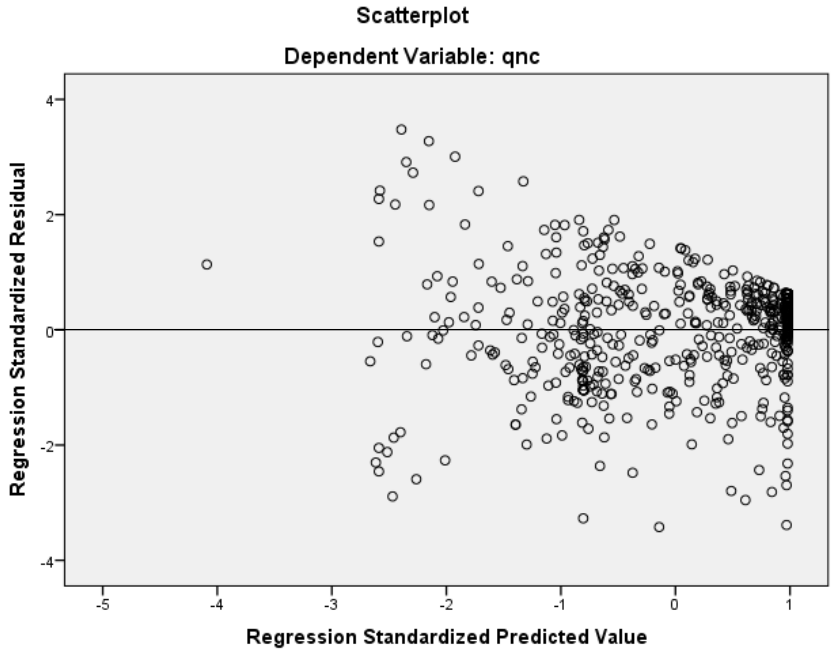
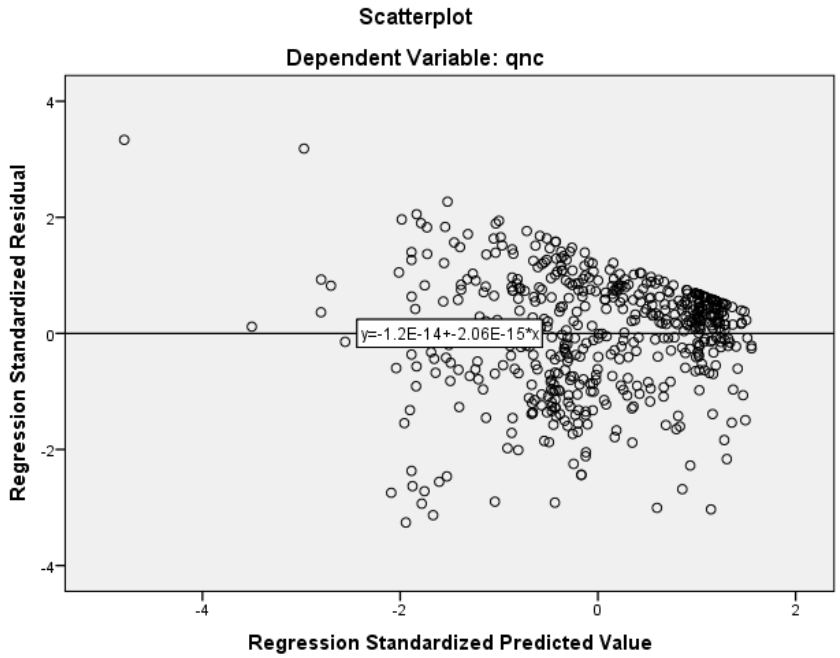
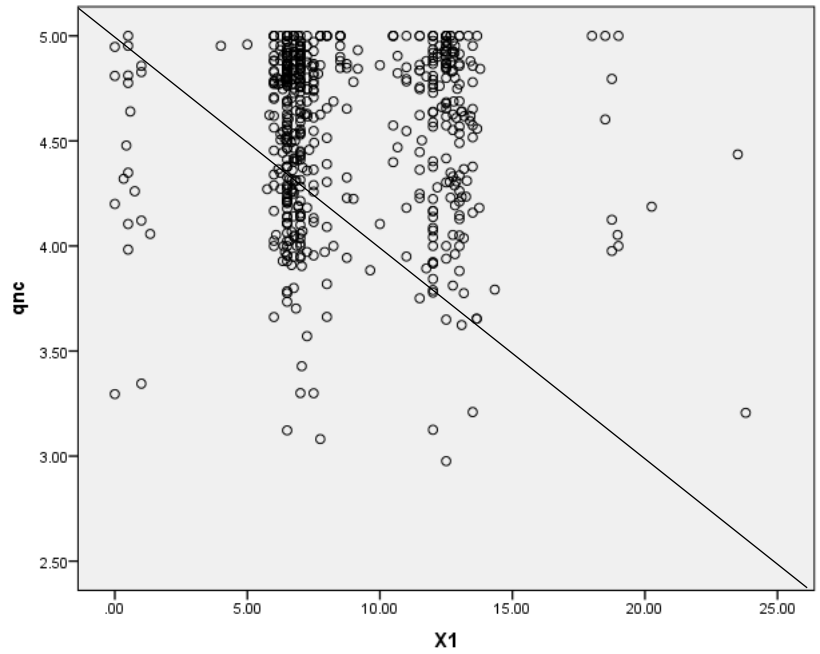


QNC to environment observed variables

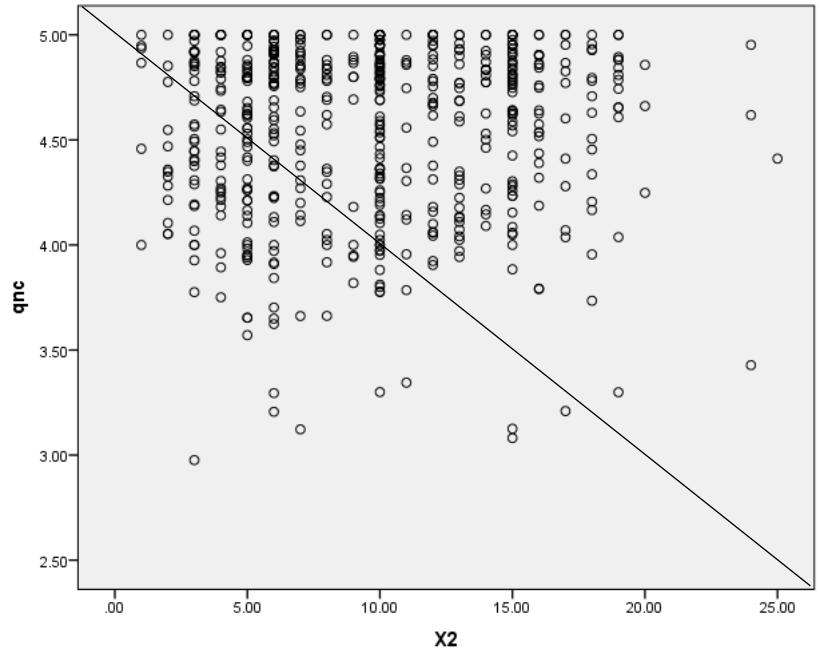


QNC to nurse satisfaction observed variables

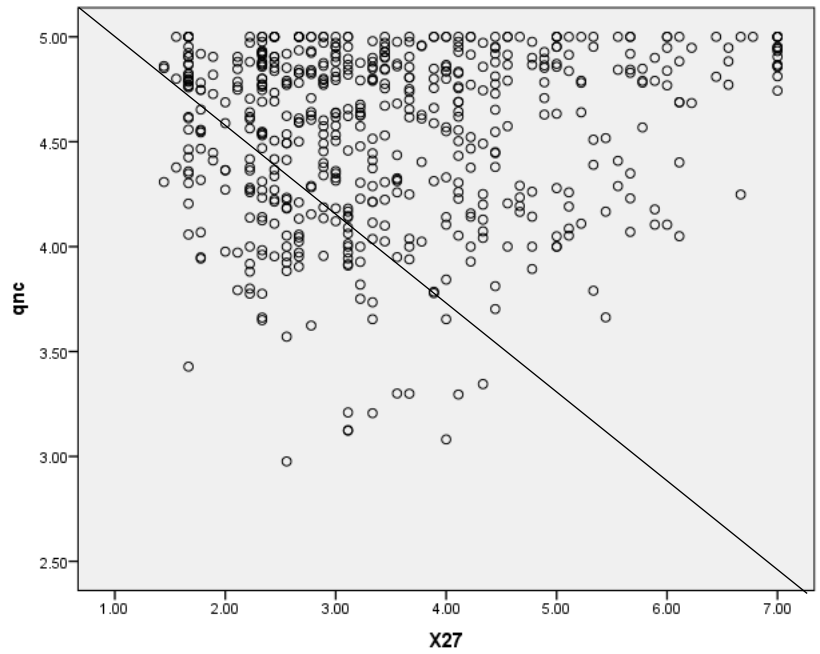
1. Linearity



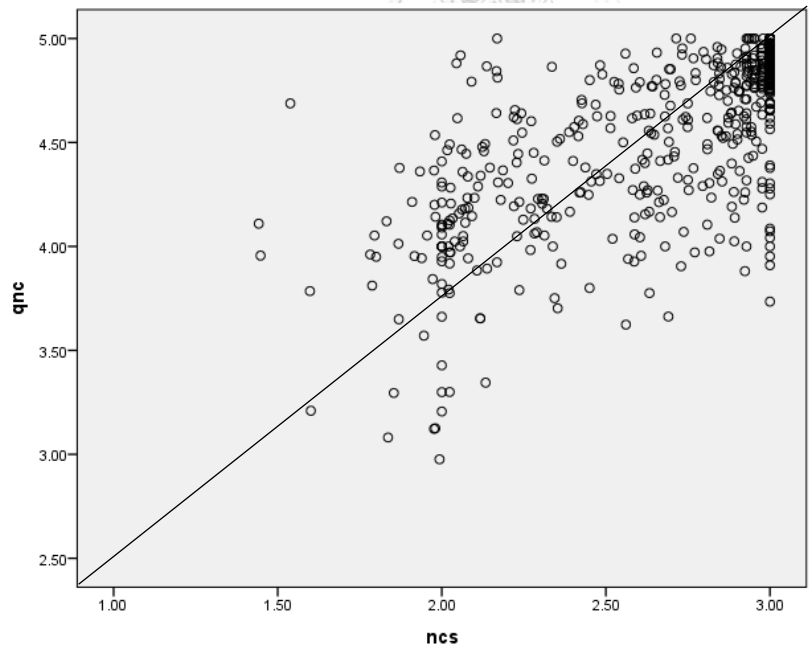
QNC to working hour observed variables



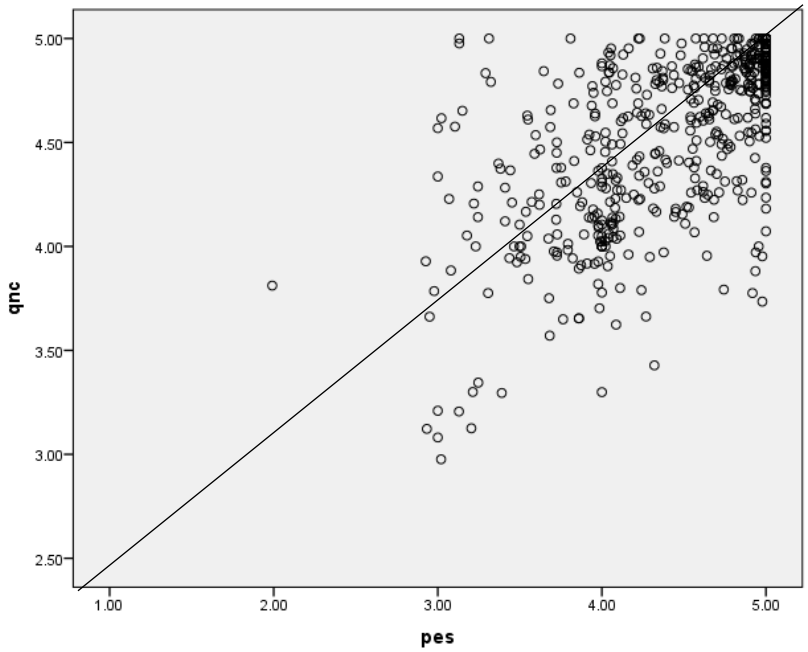
QNC to patient to nurse ratio observed variables



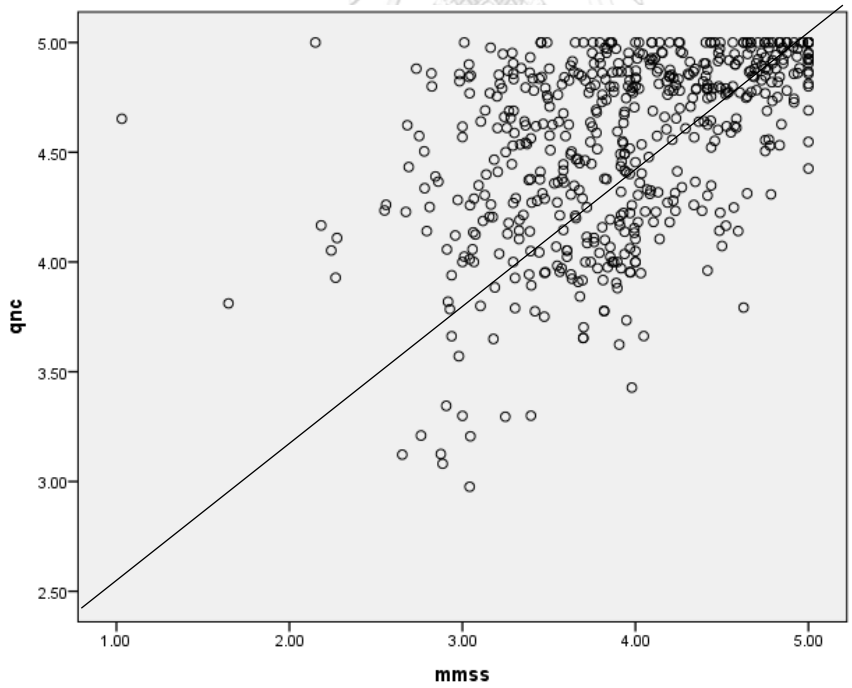
QNC to turnover intention observed variables



QNC to nurse competence observed variables



QNC to environment observed variables



QNC to nurse satisfaction observed variables

APPENDIX H

Measurement Model

Appendix H.1 I-PES

Table 1. The reliability of Indonesian version of the Practice Environment Scale (I-PES)

Dimensions	Item	Cronbach's α	Item to total correlation
Nurse participation in hospital affairs	9	.93	.64-.86
Nursing foundations for quality care	10	.95	.74-.86
Nurse manager ability, leadership, and support of nurses	5	.93	.78-.87
Staffing and resource adequacy	4	.89	.69-.79
Collegial nurse-physician relations	3	.93	.83-.88
Total	31	.97	.62-.85

Construct validity by CFA: The assumption of normality, linearity, and multicollinearity were tested before conducting CFA.

1) Normality: The univariate normality was tested by Critical Ratio (CR) of 130 Skewness (SI) and Kurtosis (SK) among 28 items. The CR of SI ranged from -5.15 to -2.78. The CR of SK ranged from -3.83 to 1.87. The results of CR's SI and SK were not inside an absolute value of 1.96 (α = .05) (Hair et al., 2010). Thus, the assumption of normality was violated.

2) Linearity: It was tested by the scatterplot matrix. Since the results of scatterplots revealed a linear relationship between each pair of variables, the assumption of linearity was not violated.

3) Multicollinearity: Both the latent variables and observed variables were tested for multicollinearity. Firstly, the correlation matrix among five latent variables were tested. The results showed that the pairs' correlation ranged from .49 to .69. Secondly, the correlation matrix among 28 items' observed variables were tested. Hair, Black, Babin et al. (2018) and Kline (2015), bivariate multicollinearity occurs when correlations of any variables is greater than absolute value of .90. The results showed that the correlation among 31 items ranged from .39 to .80. Therefore, the assumption of multicollinearity was not violated for both the latent variables and observed variables of 31-item's I-PES.

Table 2. Goodness of Fit Statistics of Indonesian version of the Practice Environment Scale (I-PES) Measurement Model (N = 350)

Relative Fit Index	Statistic from I-PES	Acceptable goodness of Fit Statistics	Model achieve criteria
Chi-square-test	.00	P ≤.05	Yes
Chi-square-test/degree of freedom	2.61	< 3.00	Yes
Comparative Fit Index (CFI)	1.00	>.90	Yes
Goodness of Fit Index (GFI)	.97	>.90	Yes
Adjusted Goodness of Fit Index (AGFI)	.96	>.80	Yes
Root Mean Square of Approximation (RMSEA)	.07	<.08	Yes
Standardized Root Mean Square Residual (SRMSR)	.04	<.07	Yes

Table 3. Factor Loading and Factor Score Regression of Indonesian version of the Practice Environment Scale (I-PES) (N = 350)

Practice Environment Scale of latent construct	b	B	R^2	Error	ρc	ρv
Nurse Participation in Hospital Affairs		**.90**	**.80**	**.20**		
1.	.64	.68	.73	.48		
2.	.73	.85	.73	.20		
3.	.74	.89	.80	.14		
4.	.76	.77	.59	.40		
5.	.58	.70	.49	.36	.93	.61
6.	.63	.80	.63	.23		
7.	.64	.78	.60	.27		
8.	.73	.85	.72	.20		
9.	.59	.66	.44	.45		
Nursing Foundations for Quality of Care		**.96**	**.92**	**.08**		
10.	.58	.76	.58	.24		
11.	.57	.74	.55	.26		
12.	.67	.82	.67	.22		
13.	.69	.86	.73	.17		
14.	.57	.80	.64	.18	.95	.66
15.	.63	.89	.79	.11		
16.	.67	.84	.71	.18		
17.	.57	.82	.67	.16		
18.	.63	.80	.65	.22		
19.	.58	.80	.65	.19		
Nurse Manager Ability, Leadership, and Support of Nurses		**.90**	**.80**	**.20**		
20.	.62	.90	.80	.09		
21.	.61	.83	.69	.16		
22.	.59	.78	.60	.23	.93	.74
23.	.66	.90	.82	.09		
24.	.66	.89	.79	.11		

Practice Environment Scale of latent construct	b	B	R^2	Error	ρc	ρv
Staffing and Resource Adequacy		**.89**	**.80**	**.20**		
25.	.63	.72	.52	.37		
26.	.66	.87	.75	.14	.89	.68
27.	.70	.87	.76	.16		
28.	.61	.83	.69	.17		
Collegial Nurse–Physician Relations		**.84**	**.70**	**.30**		
29.	.59	.88	.77	.10		
30.	.63	.90	.81	.09	.92	.80
31.	.67	.91	.83	.09		

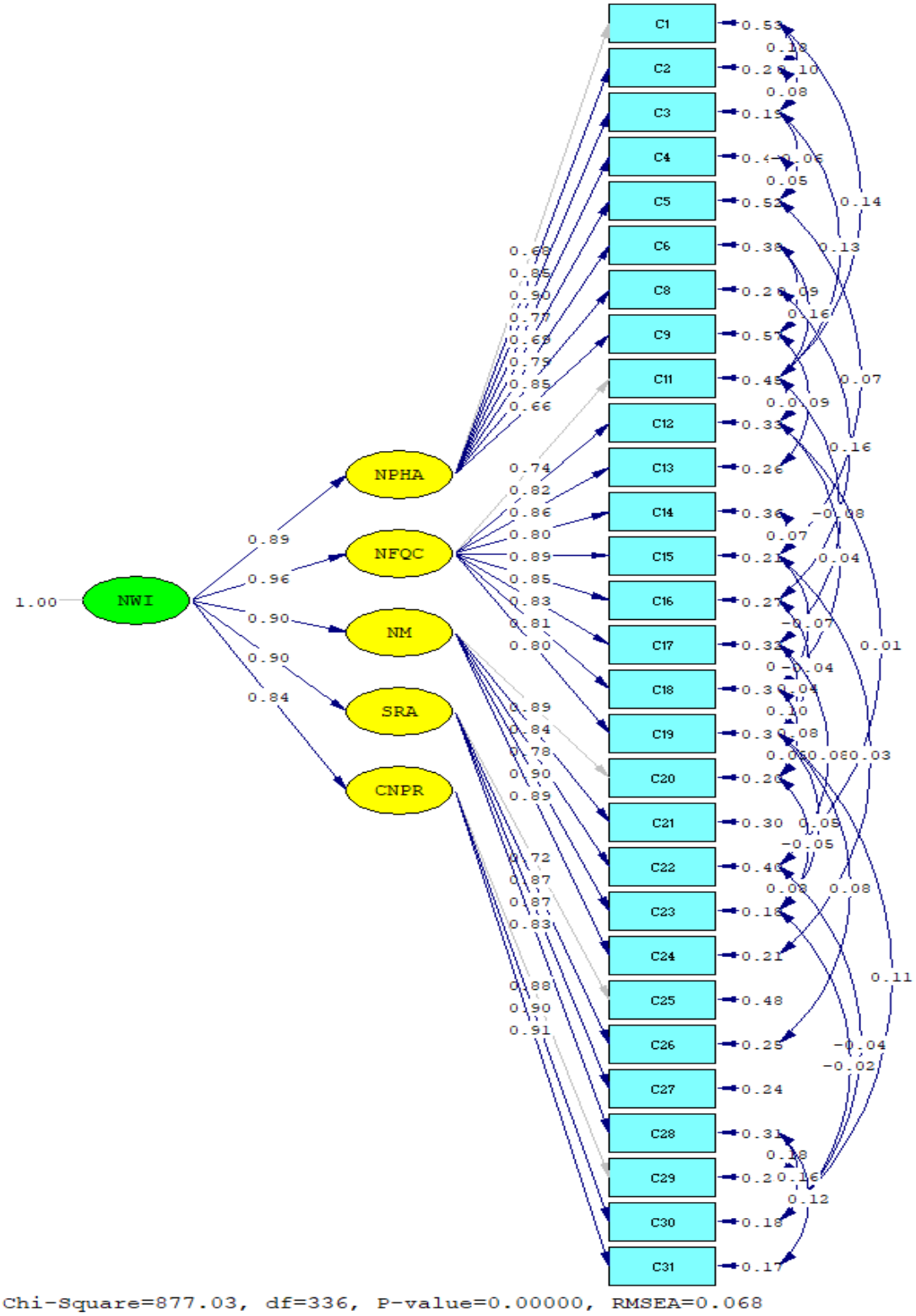


Figure 1 Measurement model of Indonesian version of the Practice Environment Scale (I-PES)

Appendix H2 I-MMSS

Table 4. The reliability of Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS)

Dimensions	Item	Cronbach's α	Item to total correlation
Extrinsic	3	.77	.58-.62
Scheduling	6	.85	.44-.77
Balance of family and work	3	.69	.45-.57
Co-worker	2	.75	.6
Interaction opportunities	4	.93	.77-.88
Praise and recognition	4	.84	.57-.68
Professional opportunities	4	.89	.71-.81
Control and responsibility	5	.93	.74-.88
Total	31	.96	.49-.79

Construct validity by CFA: The assumption of normality, linearity, and multicollinearity were tested before conducting CFA.

1) Normality: The univariate normality was tested by Critical Ratio (CR) of 130 Skewness (SI) and Kurtosis (SK) among 31 items. The CR of SI ranged from -2.94 to 0.46. The CR of SK ranged from -3.80 to -0.88 The results of CR's SI and SK were not inside an absolute value of 1.96 (α = .05) (Hair et al., 2010). Thus, the assumption of normality was violated.

2) Linearity: It was tested by the scatterplot matrix. Since the results of scatterplots revealed a linear relationship between each pair of variables, the assumption of linearity was not violated.

3) Multicollinearity: Both the latent variables and observed variables were tested for multicollinearity. Firstly, the correlation matrix among eight latent variables

were tested, results showed that the pairs' correlation ranged from .58 to .83. Secondly, the correlation matrix among 31 items' observed variables were tested. Hair, Black, Babin et al. (2018) and Kline (2015), bivariate multicollinearity occurs when correlations of any variables is greater than absolute value of .90. The results showed that the correlation among 31 items ranged from .25 to .84. Therefore, the assumption of multicollinearity was not violated for both the latent variables and observed variables of 31-item's I-MMSS.

Table 5. Goodness of Fit Statistics of Indonesian version of the Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS) Measurement Model (N = 350)

Relative Fit Index	Statistic from I-MMSS	Acceptable goodness of Fit Statistics	Model achieve criteria
Chi-square-test	.00	P ≤.05	Yes
Chi-square-test/degree of freedom	2.21	< 3.00	Yes
Comparative Fit Index (CFI)	1.00	>.90	Yes
Goodness of Fit Index (GFI)	.97	>.90	Yes
Adjusted Goodness of Fit Index (AGFI)	.96	>.80	Yes
Root Mean Square of Approximation (RMSEA)	.06	<.08	Yes
Standardized Root Mean Square Residual (SRMSR)	.06	<.07	Yes

Table 6. Factor Loading and Factor Score Regression of Indonesian version of the McCloskey/Mueller Satisfaction Scale (I-MMSS) (N = 350)

McCloskey/Mueller Satisfaction Scale of latent construct	b	B	R^2	Error	ρc	ρv
Extrinsic		**.77**	**.60**	**.40**		
Item 1	.94	.86	.74	.31		
Item 2	.86	.81	.66	.39	.81	.59
Item 3	.72	.62	.39	.82		
Scheduling		**.79**	**.62**	**.38**		
Item 4	.72	.71	.51	.51		
Item 5	.73	.78	.64	.34		
Item 6	.71	.64	.41	.74	.85	.51
Item 8	.83	.71	.50	.67		
Item 9	.85	.73	.54	.62		
Item 10	.79	.68	.47	.72		
Family and work balance		**.89**	**.79**	**.21**		
Item 7	.76	.72	.51	.54		
Item 11	.73	.67	.44	.67	.70	.44
Item 12	.70	.59	.34	.94		
Co-worker		**.75**	**.56**	**.44**		
Item 14	.49	.68	.47	.28	.76	.62
Item 15	.63	.88	.78	.11		
Interaction		**.85**	**.72**	**.28**		
Item 16	.66	.86	.74	.15		
Item 17	.60	.87	.76	.11	.92	.73
Item 18	.54	.80	.64	.16		
Item 19	.66	.89	.79	.12		
Praise/Recognition		**.97**	**.94**	**.06**		
Item 13	.62	.72	.52	.35		
Item 24	.59	.75	.57	.26	.83	.55
Item 25	.52	.73	.53	.24		

McCloskey/Mueller Satisfaction Scale of latent construct	b	B	R^2	Error	ρc	ρv
Item 26	.67	.76	.57	.33		
Professional opportunities		**.93**	**.87**	**.13**		
Item 20	.62	.82	.67	.19		
Item 21	.65	.78	.61	.26	.89	.66
Item 27	.67	.82	.68	.22		
Item 28	.72	.83	.68	.24		
Control/Responsibility		**.86**	**.74**	**.26**		
Item 22	.63	.80	.64	.22		
Item 23	.62	.82	.67	.19		
Item 29	.68	.86	.73	.17	.93	.74
Item 30	.70	.89	.80	.13		
Item 31	.74	.92	.85	.09		

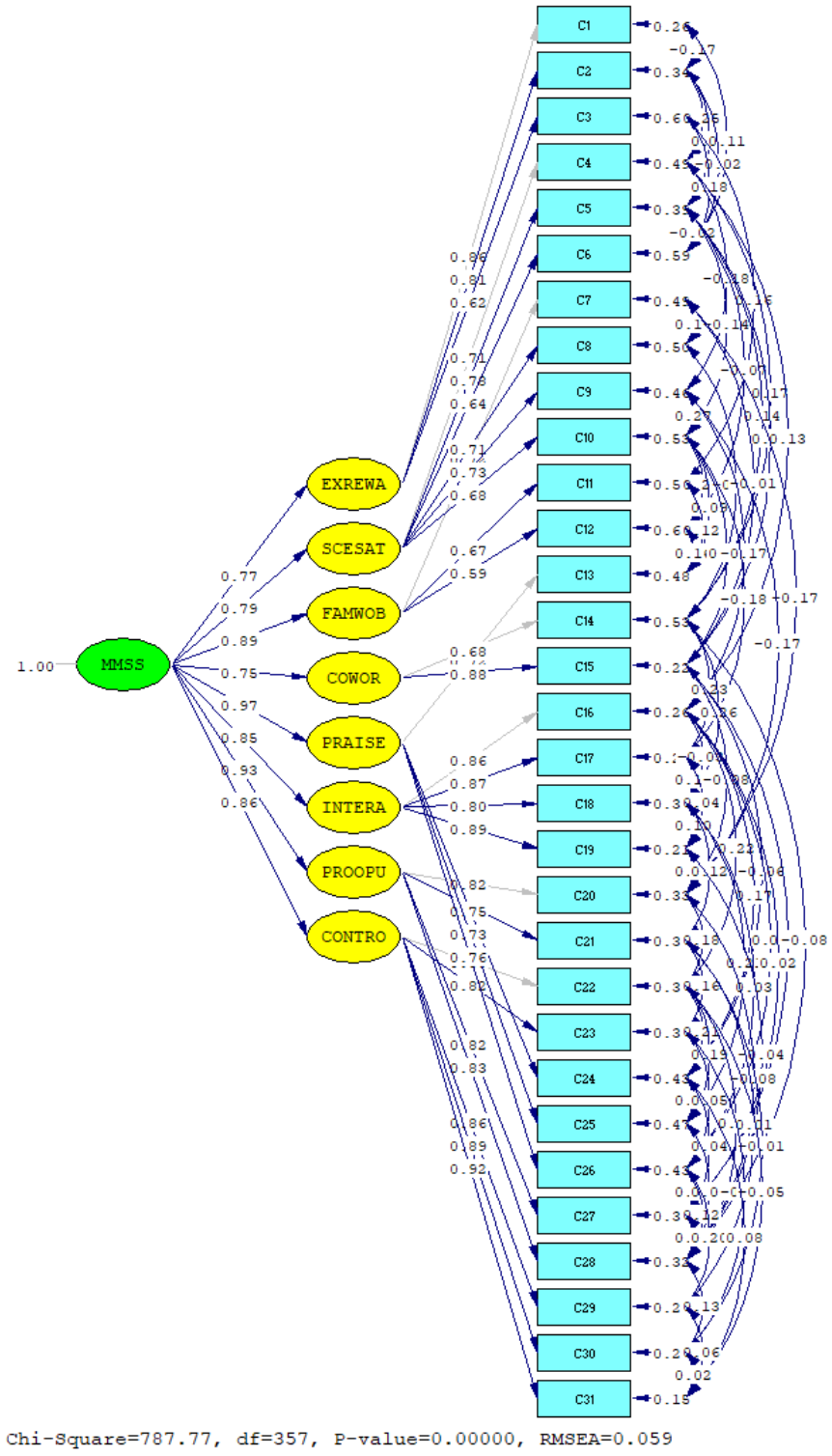


Figure 2 Measurement model of Indonesian version of McCloskey/Mueller Satisfaction Scale (I-MMSS)

Appendix H3 I-ATS

Construct validity by CFA: The assumption of normality, linearity, and multicollinearity were tested before conducting CFA.

1) Normality: The univariate normality was tested by Critical Ratio (CR) of 130 Skewness (SI) and Kurtosis (SK) among 12 items. The CR of SI ranged from -3.75 to 4.59. The CR of SK ranged from -9.00 to -3.18 The results of CR's SI and SK were not inside an absolute value of 1.96 ($\alpha = .05$) (Hair et al., 2010). Thus, the assumption of normality was violated.

2) Multicollinearity: Hair, Black, Babin et al. (2018) and Kline (2015), bivariate multicollinearity occurs when correlations of any variables is greater than absolute value of .90. The results showed that the correlation among 12 items ranged from 00 to .80. Therefore, the assumption of multicollinearity was not violated for both the latent variables and observed variables of 12-item's I-ATS.

Table 7. Goodness of Fit Statistics of Indonesian version of the Anticipated Turnover Scale (I-ATS) Measurement Model (N = 350)

Relative Fit Index	Statistic from I-ATS	Acceptable goodness of Fit Statistics	Model achieve criteria
Chi-square-test	.00	P ≤.05	Yes
Chi-square-test/degree of freedom	2.51	< 3.00	Yes
Comparative Fit Index (CFI)	1.00	>.90	Yes
Goodness of Fit Index (GFI)	1.00	>.90	Yes
Adjusted Goodness of Fit Index (AGFI)	.99	>.80	Yes

Relative Fit Index	Statistic from I-ATS	Acceptable goodness of Fit Statistics	Model achieve criteria
Root Mean Square of Approximation (RMSEA)	.06	<.08	Yes
Standardized Root Mean Square Residual (SRMSR)	.02	<.07	Yes

Table 8. Factor Loading and Factor Score Regression of Indonesian version of the Anticipated Turnover Scale (I-ATS) (N = 350)

Anticipated Turnover Scale of latent construct	b	B	R^2	Error
1.	.41	.30	.09	.1.67
2.	1.53	.76	.58	.1.72
3.	1.59	.81	.66	1.32
4.	1.29	.63	.40	2.48
5.	1.70	.83	.70	1.26
6.	1.13	.54	.30	3.02
7.	.83	.40	.16	3.64
8.	1.75	.81	.65	1.66
9.	1.65	.82	.67	1.35

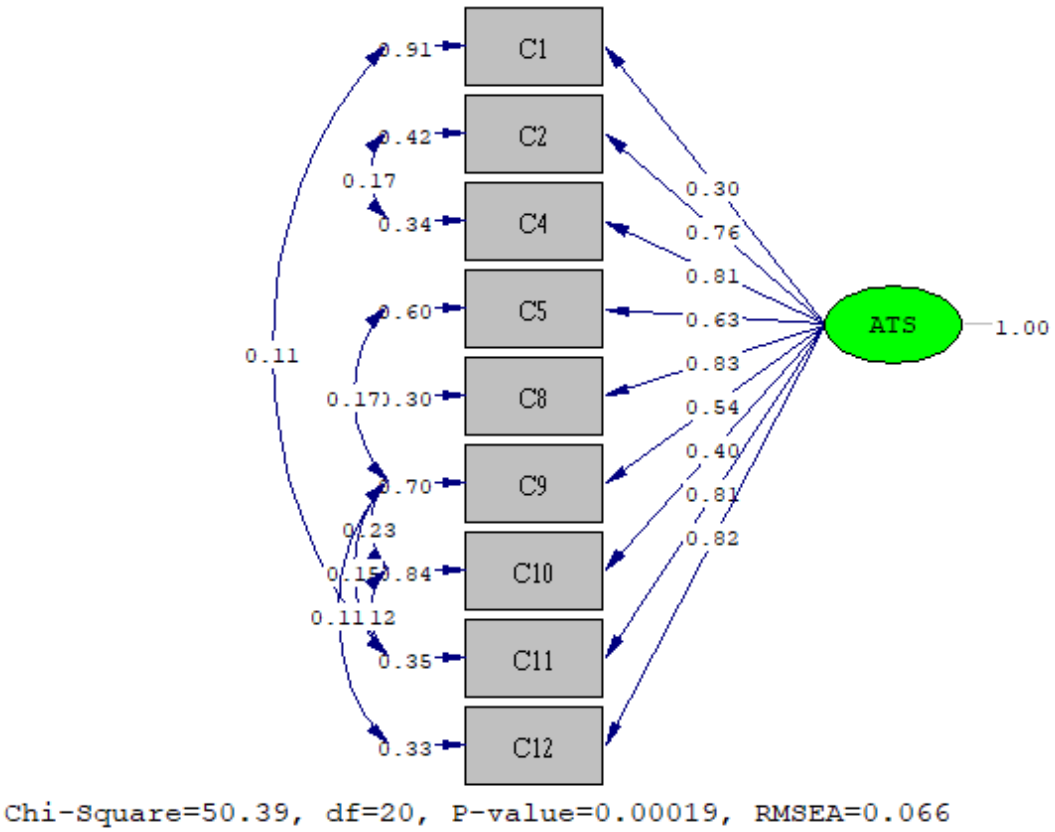


Figure 3. Measurement model of Indonesian version of Anticipated Turnover Scale (I-ATS)

Appendix H4 I-GNCS

Table 9. The reliability of Indonesian version of the Good Nursing Care Scale (I-GNCS)

Dimensions	Item	Cronbach's α	Item to total correlation
Staff Characteristics	5	.84	.57-.76
Care Related Activities	6	.84	.54-.73
Preconditions for Care	5	.79	.51-.62
Nurse Environment	5	.88	.58-.79
Courses of the Nursing Process	6	.73	.32-.66
Patient' Coping Strategies	7	.89	.59-75
Collaboration with Relatives	6	.91	.58-.85
Total	40	.96	.48-.75

Construct Validity by CFA: The assumption of normality and multicollinearity were tested before conducting CFA.

1) Normality: The univariate normality was tested by Critical Ratio (CR) of Skewness (SI) and Kurtosis (SK) among 5 items. The CR of SI ranged from -8.93 to -1.58. The CR of SK ranged from -13.24 to -2.78. The results of CR's SI and SK were higher than an absolute value of 1.96 ($\alpha = .05$) (Hair et al., 2010). Thus, the assumption of normality was violated.

2) Linearity: It was tested by the scatterplot matrix. Since the results of scatterplots revealed a linear relationship between each pair of variables, the assumption of linearity was not violated.

3) Multicollinearity: Firstly, the correlation matrix among seven latent variables were tested, results showed that the pairs' correlation ranged from .58 to .83. Hair, Black, Babin et al. (2018) and Kline (2015), bivariate multicollinearity occurs when correlations of any variables is greater than absolute value of .90. Secondly, The results showed that the correlation among 40 items ranged from .15 to .80. Therefore, the assumption of multicollinearity was not violated.

Table 10. Goodness of Fit Statistics of Indonesian version of the Good Nursing Care Scale (I-GNCS) Measurement Model

Relative Fit Index	Statistic from I-GNCS	Acceptable goodness of Fit Statistics	Model achieve criteria
Chi-square-test	.00	P ≤.05	No
Chi-square-test/degree of freedom	2.73	< 3.00	Yes
Comparative Fit Index (CFI)	1.00	>.90	Yes
Goodness of Fit Index (GFI)	.99	>.90	Yes
Adjusted Goodness of Fit Index (AGFI)	.98	>.80	Yes
Root Mean Square of Approximation (RMSEA)	.05	<.08	Yes
Standardized Root Mean Square Residual (SRMSR)	.07	<.07	Yes

Table 11. Factor Loading and Factor Score Regression of Indonesian version of the Good Nursing Care Scale (I-GNCS) (N = 350)

Good Nursing Care Scale of latent construct	b	B	R^2	Error	ρc	ρv
Staff charactheristics		**.74**	**.55**	**.45**		
1.	.36	.72	.52	.12		
2.	.36	.76	.58	.09		
3.	.46	.66	.44	.27	.83	.50
4.	.41	.71	.50	.17		
5.	.40	.69	.47	.18		
Care Related Activities		**.89**	**.80**	**.20**		
6.	.46	.73	.53	.19		
7.	.39	.75	.57	.12		
8.	.46	.65	.42	.29	.81	.43
9.	.39	.54	.29	.38		
10.	.41	.48	.23	.57		
11.	.46	.75	.57	.16		
Preconditions for Care		**1.00**	**1.01**	**-.00**		
12.	.48	.70	.49	.24		
13.	.47	.59	.33	.44		
14.	.44	.62	.39	.31	.81	.46
15.	.52	.73	.53	.24		
16.	.43	.74	.55	.15		
Nurse Environment		**.81**	**.65**	**.35**		
17.	.46	.76	.58	.15		
18.	.59	.88	.77	.11		
19.	.43	.79	.63	.11	.91	.67
20.	.46	.87	.75	.06		
21.	.37	.79	.62	.08		

Good Nursing Care Scale of latent construct	b	B	R^2	Error	ρc	ρv
Courses of the Nursing Process		**.92**	**.85**	**.15**		
22.	.42	.65	.42	.24		
23.	.35	.51	.26	.26		
24.	.48	.43	.19	.99	.77	.37
25.	.47	.57	.33	.44		
26.	.55	.71	.51	.29		
27.	.43	.74	.55	.15		
Patient' Coping Strategies		**.88**	**.78**	**.22**		
28.	.57	.71	.50	.32		
29.	.54	.78	.60	.19		
30.	.47	.77	.59	.15		
31.	.41	.67	.45	.21	.90	.56
32.	.50	.74	.54	.21		
33.	.48	.77	.60	.16		
34.	.57	.79	.63	.19		
Collaboration with Relatives		**.76**	**.57**	**.43**		
35.	.67	.87	.75	.15		
36.	.62	.89	.78	.11		
37.	.62	.89	.79	.09	.91	.62
38.	.56	.73	.53	.28		
39.	.59	.79	.62	.22		
40.	.48	.49	.24	.71		

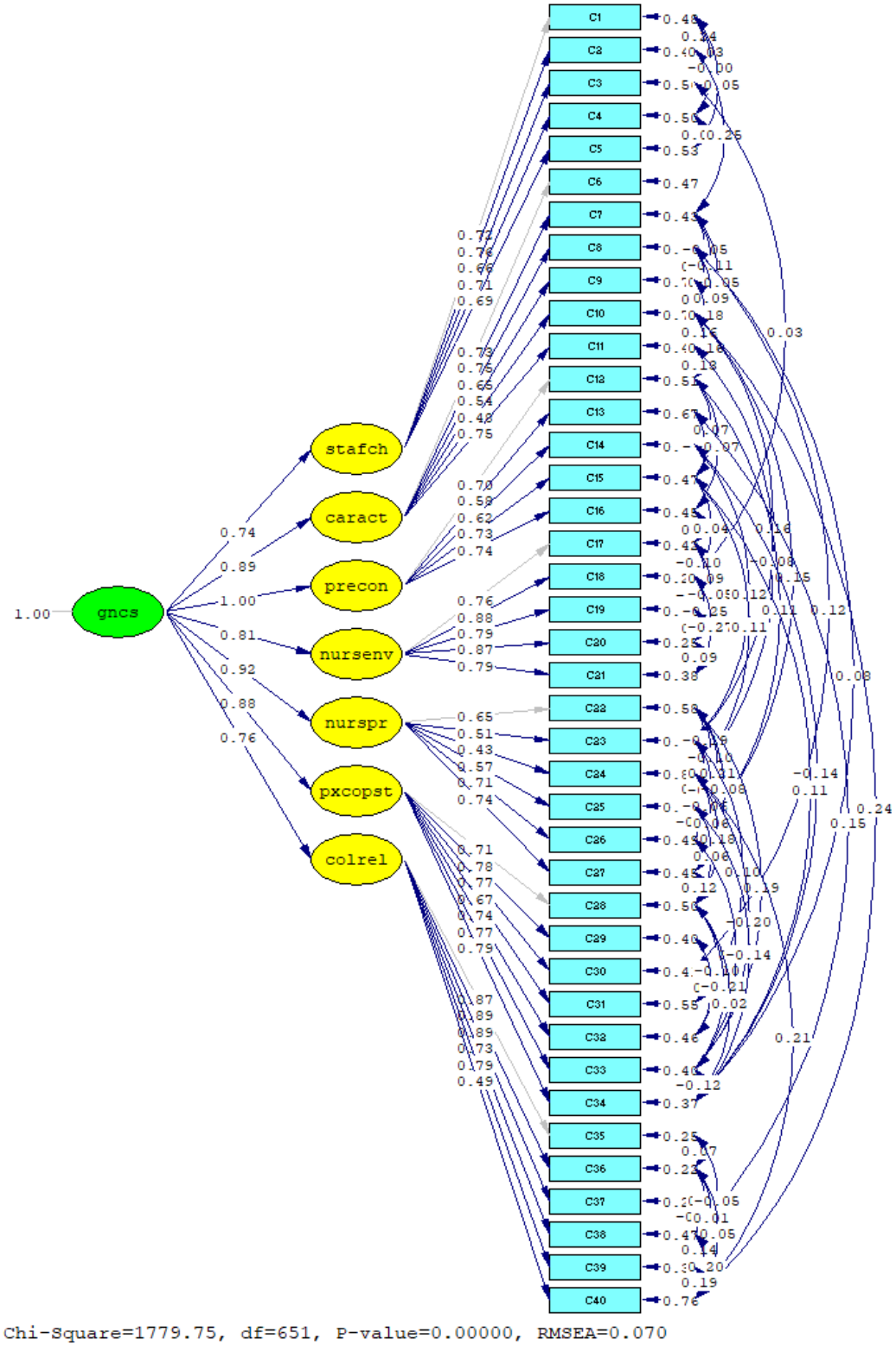


Figure 4 Measurement model of Indonesian version of the Good Nursing Care Scale (I-GNCS)

Appendix H5

Table 12. The reliability of Indonesian version of the Nurse Competence Scale (I-NCS)

Dimensions	Item	Cronbach's α	Item to total correlation
Research oriented	7	.90	.67-.78
Work role	8	.93	.66-82
Diagnostic functions	6	.89	.62-.81
Managing situations	7	.94	.77-.83
Patient education	5	.92	.72-.82
Mentoring functions	3	.92	.82-.87
Total	36	.97	.57-.84

Construct Validity by CFA: The assumption of normality and multicollinearity were tested before conducting CFA.

1) Normality: The univariate normality was tested by Critical Ratio (CR) of Skewness (SI) and Kurtosis (SK) among 5 items. The CR of SI ranged from -6.13 to -2.54. The CR of SK ranged from -35.51 to .19. The results of CR's SI and SK were higher than an absolute value of 1.96 ($\alpha = .05$) (Hair et al., 2010). Thus, the assumption of normality was violated.

2) Linearity: It was tested by the scatterplot matrix. Since the results of scatterplots revealed a linear relationship between each pair of variables, the assumption of linearity was not violated.

3) Multicollinearity: Firstly, the correlation matrix among six latent variables were tested, results showed that the pairs' correlation ranged from .61 to .87. According to Hair, Black, Babin et al. (2018) and Kline (2015), bivariate multicollinearity occurs when correlations of any variables is greater than absolute value of .90. Secondly, The results showed that the correlation among 40 items ranged from .29 to .84. Therefore, the assumption of multicollinearity was not violated.

Table 13 Goodness of Fit Statistics of Indonesian version of the Nurse Competence Scale (I-NCS) Measurement Model

Relative Fit Index	Statistic from I-NCS	Acceptable goodness of Fit Statistics	Model achieve criteria
Chi-square-test	.00	P ≤.05	Yes
Chi-square-test/degree of freedom	2.57	< 3.00	Yes
Comparative Fit Index (CFI)	1.00	>.90	Yes
Goodness of Fit Index (GFI)	1.00	>.90	Yes
Adjusted Goodness of Fit Index (AGFI)	1.00	>.80	Yes
Root Mean Square of Approximation (RMSEA)	.06	<.08	Yes
Standardized Root Mean Square Residual (SRMSR)	.03	<.07	Yes

Table 14. Factor Loading and Factor Score Regression of Indonesian version of the Nurse Competence Scale (I-NCS) (N = 350)

Nurse Competence Scale of latent construct	b	B	t-value	R^2	Error	ρc	ρv
Research oriented		**.76**	**32.15**	**.57**	**.43**		
1.	.42	.76	1.65	.57	.13		
2.	.45	.81	5.29	.66	.11		
3.	.43	.76	4.89	.58	.13		
4.	.44	.73	5.53	.54	.17	.90	.56
5.	.48	.68	5.08	.46	.27		
6.	.49	.73	5.36	.53	.21		
7.	.42	.78	5.42	.61	.11		
Work role		**.88**	**34.36**	**.78**	**.22**		
8.	.35	.70	1.62	.49	.13		
9.	.41	.77	3.85	.59	.12		
10.	.42	.79	4.11	.62	.11		
11.	.48	.80	4.11	.64	.13	.93	.61
12.	.44	.79	4.04	.63	.11		
13.	.41	.78	3.94	.62	.11		
14.	.38	.78	4.10	.61	.09		
15.	.46	.86	3.70	.73	.07		
Diagnostic functions		**1.00**	**33.93**	**.99**	**.08**		
16.	.47	.70	2.78	.49	.23		
17.	.47	.83	6.57	.70	.09		
18.	.45	.84	6.05	.71	.08	.89	.59
19.	.50	.84	6.50	.70	.11		
20.	.43	.57	5.90	.32	.40		
21.	.46	.79	6.11	.62	.13		

Nurse Competence Scale of latent construct	b	B	t-value	R^2	Error	ρc	ρv
Managing situations		**.97**	**36.00**	**.95**	**.05**		
22.	.47	.88	0.80	.78	.06		
23.	.46	.84	7.78	.71	.08		
24.	.45	.84	7.58	.71	.08		
25.	.41	.80	6.92	.65	.09	.92	.65
26.	.34	.72	6.06	.51	.11		
27.	.40	.78	7.30	.61	.10		
28.	.40	.76	6.99	.58	.12		
Patient education		**1.00**	**30.20**	**1.00**	**.00**		
29.	.46	.82	1.28	.67	.10		
30.	.44	.83	6.55	.69	.09		
31.	.43	.71	5.57	.51	.18	.91	.68
32.	.48	.87	5.63	.75	.07		
33.	.51	.89	6.46	.79	.06		
Mentoring functions		**.89**	**43.89**	**.80**	**.20**		
34.	.48	.87	.94	.75	.07		
35.	.54	.94	8.39	.88	.04	.93	.81
36.	.52	.89	9.27	.80	.07		

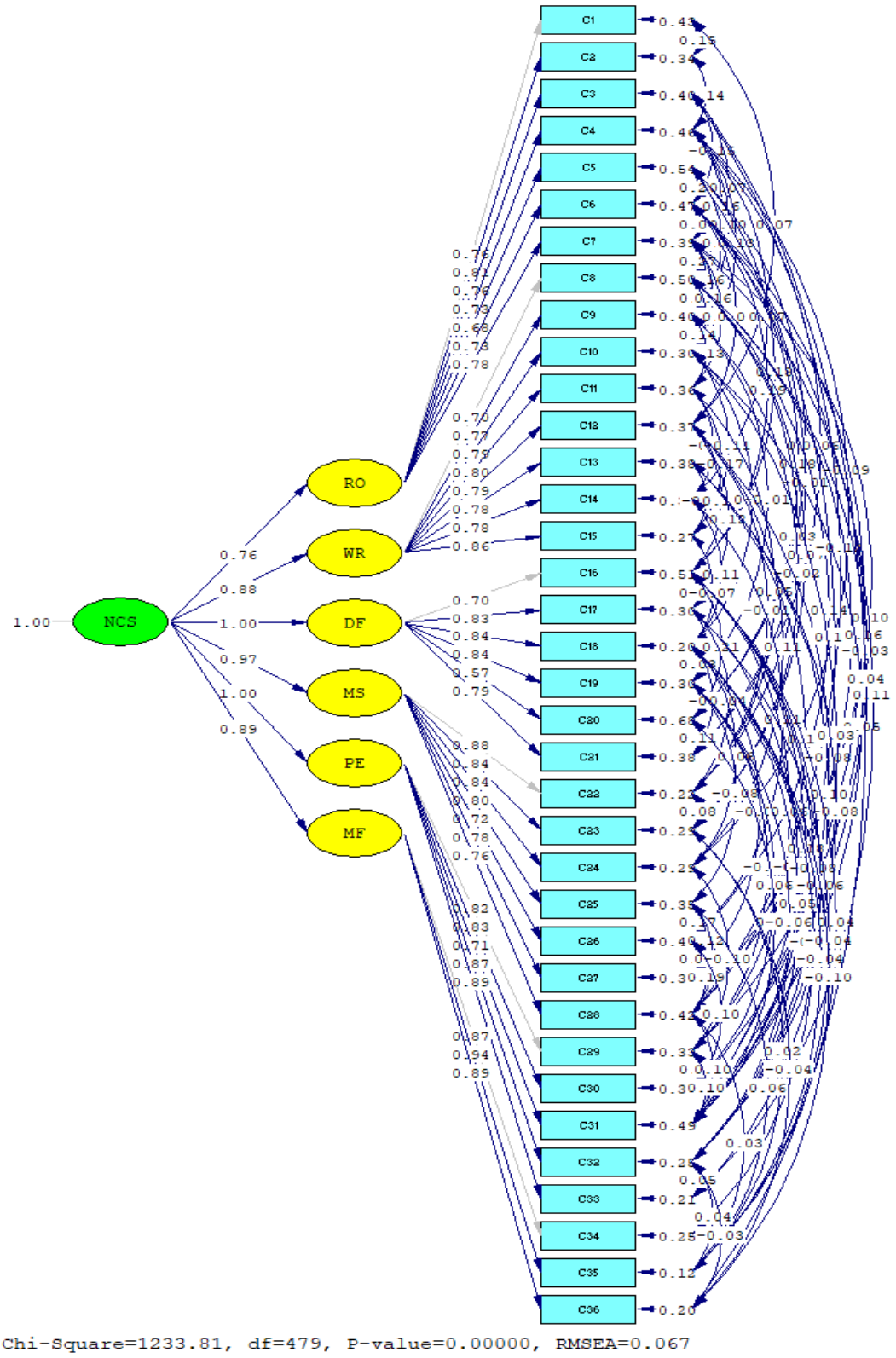


Figure 5 Measurement model of Indonesian version of the Nurse Competence Scale (I-NCS)

VITA

NAME	I Gede Juanamasta
DATE OF BIRTH	6 July 1990
PLACE OF BIRTH	Denpasar
INSTITUTIONS ATTENDED	Tukad Citarum FF No.1 Denpasar, Bali, Indonesia
HOME ADDRESS	Master of Nursing, Faculty of Nursing, Airlangga University, Indonesia (2016 – 2018) Nurse Profession, STIKes Wira Medika Bali (2012 – 2013) Bachelor of Nursing, STIKes Wira Medika Bali (2008 – 2012)