A DEVELOPMENT OF THAI MORAL INTEGRITY SCALE
FOR PROFESSIONAL NURSES

Mrs. Jinda Nunthawong

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By	Mrs. Jinda Nunthawong
Field of Study	Nursing Science
Thesis Advisor	Associate Professor Jintana Yunibhand, Ph.D.
Thesis Co-Advisor	Associate Professor Waraporn Chaiyawat, D.N.S., Dip. APPN

Accepted by the Faculty of Nursing, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

....Dean of the Faculty of Nursing
(Associate Professor Waraporn Chaiyawat, D.N.S., Dip. APPN)

THESIS COMMITTEE

....Chairman
(Associate Professor Police Captain Yupin Aungsuroch, Ph.D., RN)

....Thesis Advisor
(Associate Professor Jintana Yunibhand, Ph.D.)

....Thesis Co-Advisor
(Associate Professor Waraporn Chaiyawat, D.N.S., Dip. APPN)

....Examiner
(Associate Professor Sureeporn Thanasilp, D.N.S., APN)

....Examiner
(Associate Professor Siridej Sujiva, Ph.D.)

....External Examiner
(Associate Professor Nuangnoi Boonyanate, Ph.D.)

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จินดา นันทวงษ์ : การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทย (A DEVELOPMENT OF THAI MORAL INTEGRITY SCALE FOR PROFESSIONAL NURSES) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. ดร.จินตนา ยูนิพันธุ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: รศ. ดร.วราภรณ์ ชัยวัฒน์, 229 หน้า.

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อพัฒนาและทดสอบคุณสมบัติการวัดทางจิตวิทยาของแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทย โดยความหมายและองค์ประกอบของคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพในการศึกษาครั้งนี้ได้พัฒนาจากแนวคิดคุณธรรมบูรณภาพของ Carter (1996) และข้อบังคับสภาการพยาบาลว่าด้วย Code of Professional Conduct และสมรรถนะพยาบาลวิชาชีพด้านจริยธรรม โดยผ่านการตรวจสอบความตรงเชิงเนื้อหาจากผู้เชี่ยวชาญ จำนวน 5 ท่าน พบว่าดัชนีความตรงเชิงเนื้อหารายฉบับ (S-CVI) เท่ากับ 1.00

แบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทย จำนวน 27 ข้อ ประเมินแบบ 5 ระดับ ได้รับการตรวจสอบคุณสมบัติการวัดทางจิตวิทยาโดยเก็บข้อมูลในพยาบาลวิชาชีพจำนวน 502 คน โดยทำการทดสอบความตรงเชิงโครงสร้างด้วยการวิเคราะห์องค์ประกอบเชิงสำรวจ ผลการวิเคราะห์พบว่าแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทยประกอบด้วย 4 มิติ คือ 1) ยึดมั่นต่อจรรยาการประกอบวิชาชีพ 2) แสดงออกทางการกระทำตามจรรยาการประกอบวิชาชีพ 3) กระทำอย่างต่อเนื่องตามจรรยาการประกอบวิชาชีพ 4) กล้ายืนหยัดกระทำตามจรรยาการประกอบวิชาชีพแม้ยากลำบาก ซึ่งสามารถอธิบายความแปรปรวนได้ร้อยละ 55.98 และนำไปวิเคราะห์องค์ประกอบเชิงยืนยัน ผลการวิเคราะห์พบว่า โครงสร้างองค์ประกอบของแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทยมีความสอดคล้องกับข้อมูลเชิงประจักษ์อยู่ในเกณฑ์ดี (χ^2 = 266.32, df = 242, p = 0.136), χ^2/df = 1.10, GFI = 0.96, AGFI = 0.95, CFI = 0.96,และ RMSEA = 0.01) และมีค่าความเชื่อมั่นชนิดความสอดคล้องภายในเท่ากับ 0.92

การศึกษาครั้งนี้พบว่าแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพไทยมีค่าความเชื่อมั่นชนิดความสอดคล้อยภายใน ความตรงเชิงเนื้อหาและความตรงเชิงโครงสร้างอยู่ในเกณฑ์ดี และสามารถนำไปใช้ประโยชน์ในการพัฒนาเป็นแบบประเมินสำหรับพยาบาลวิชาชีพไทยได้ต่อไป

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JINDA NUNTHAWONG: A DEVELOPMENT OF THAI MORAL INTEGRITY SCALE FOR PROFESSIONAL NURSES. ADVISOR: ASSOC. PROF. JINTANA YUNIBHAND, Ph.D., Dip. APPMHN, CO-ADVISOR: ASSOC. PROF. WARAPORN CHAIYAWAT, D.N.S., Dip. APPN, 229 pp.

The purpose of this study was to develop the Thai Moral Integrity Scale (TMIS), and to test its psychometric properties. The construct definition and content domains of the TMIS were developed through the intensive literature reviews and test the content validity by experts. This used to guide the conceptual framework in this instrument. The content validity was examined using the panel of five experts. The content validity index (S-CVI) was 1.00.

The Moral Integrity Scale was consists 27 items with five Likert scale. The result of psychometric properties from 502 professional nurses by using exploratory factor analysis indicated that there were four dimensions that can explain the moral integrity in professional nurses that consists; 1) adhere to Code of Professional Conduct, 2) express action according to Code of Professional Conduct, 3) continue to act on Code of Professional Conduct and 4) have courage to act on Code of Professional Conduct, even have difficult condition. There are 55.98% of the total variance. The construct validity was tested by using confirmatory factor analysis. The results indicated that the measurement model had good fit the data with (χ^2 = 266.32, df = 242, p = 0.136), χ^2/df = 1.10, GFI = 0.96, AGFI = 0.95, CFI = 0.96, and RMSEA = 0.01). The Cronbach's alpha coefficient of the total scale was 0.92.

The Thai Moral Integrity Scale demonstrated the good internal consistency reliability with evidence to support the content and construct validity. This instrument should be useful for develop the instrument for assess moral integrity for Thai professional nurses in the future.

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Student's Signature ....
Advisor's Signature ....
Co-Advisor's Signature ....

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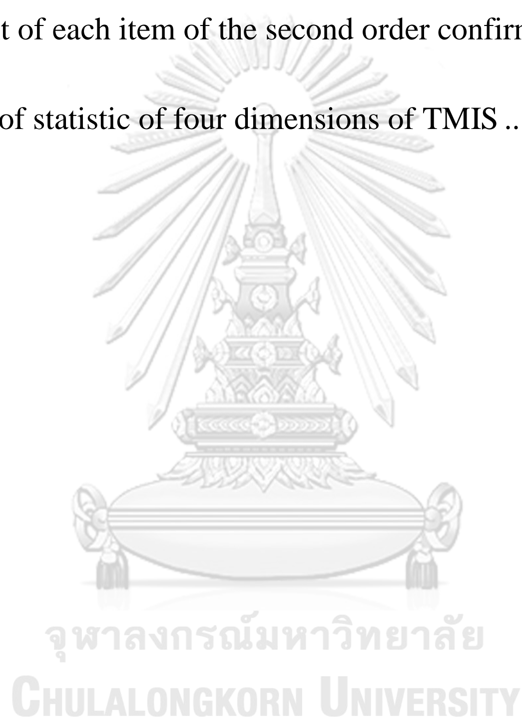

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CHAPTER I
INTRODUCTION

Background and Significance of the Study

Moral integrity refers to the ability of person that reflects of thinking, feeling, and action on their moral beliefs. It like the navigator in nurse's themselves to continue follow the professional standard. The original concept was defined in to three components of discernment, public justification, and consistent act (Carter, 1996). Professional nurses play the largest role to support the need for individualized treatment of the patient. The goals of the profession of nursing are related to ethics and involve protecting patients from harm while providing care that is most benefit for the patient (Bosek, 2009; Kopala&Burkhart, 2005; Helft, 2011; Susan, 2013; Ulrich et al, 2010; Pavlish et al, 2012). Moral integrity can be reflected thinking, feeling, and action of professional nurses when give nursing care for the patients base their belief. The outcome of nurse’s action affected and influenced to the quality of nursing care (Corley, 1995, Redman& Fry, 2000; Ulrich et al, 2010). Assessing the moral integrity could be helping the professional nurse to understand themselves and understand professional nurse’s action in clinical practices.

A good quality of nursing care come from good action of professional nurses that base on professional standard. For nurses around the world could be used an international Code of Ethics for Nurses to guide nursing services to the individual, the family and the community and coordinate their services with those of related groups (ANA, 2015). In Thailand, the professional nurses practices based on Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and Thailand

Nursing and Midwifery Council Competencies of Registered Nurses (Thailand Nursing & Midwifery Council). The level to perform, depended on individual value in each person (Jessica, 2016).

Professional nurses have to provide high quality of nursing care for the patients, even some situation they were face with a moral problems that occur from complexity of patient health problems, advances in technology, inappropriate of the health care system, policies and priorities that conflict with care needs, inadequate staffing and increased turnover, or lack of administrative support (Brazil et al. 2010; Eizenberg et al. 2009; Elpern et al. 2005; Epstein, 2008; Gutierrez, 2005; Peter, 2008; Radzvin, 2010; Redman and Fry, 2000; Solomon et al. 2005; Sporrong et al. 2006, Savel, 2015). Nurses tries to maintain moral integrity when give nursing care for the patients and nurse tries to live up to their beliefs by acting honestly and consistently standing up for and doing what is right based on the professional standard in nursing practices . In these situations, nurses are expected to choose the best nursing care from different options. Nurses know the right thing to do, but could not express and continue to do the nursing care base on moral situation (Savel, 2015). Therefore, the nurse has difficulty deciding between two or more choices which based on their belief that are equally acceptable and/ or unacceptable (Corley, 2002).

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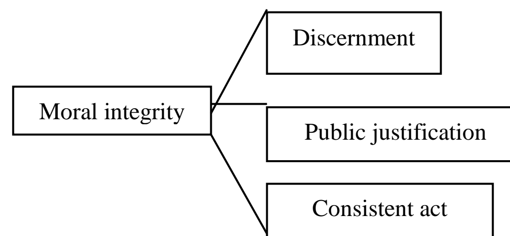
Moral integrity represents the harmony of thoughts, feelings and actions of professional nurses that perform a good nursing care for the patients within the scope of their professional standard according to Code of Professional Conduct and competency in professional Nurses. Moral integrity is the nursing navigator to maintain professional standards. The original concept of moral integrity was derived from Carter' concept of moral integrity (1996) that present in Figure 1

Figure 1 The original concept of Moral Integrity

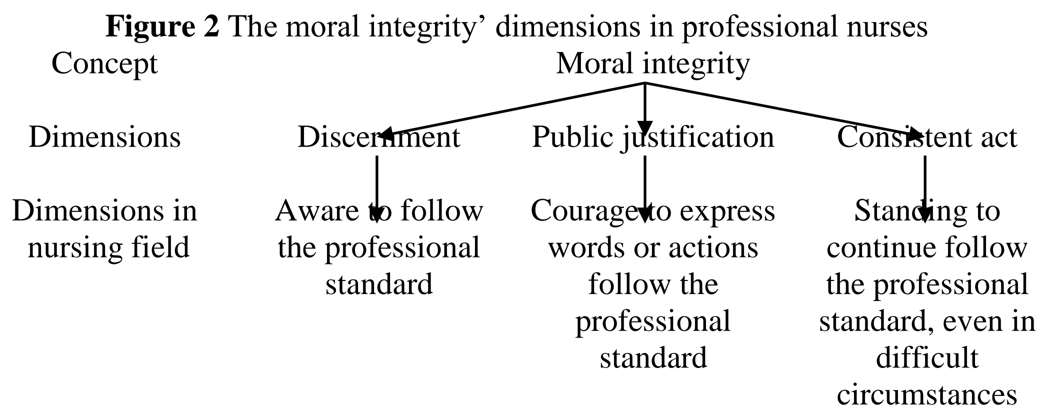


Theoretical framework

This is the original theoretical that defined construct of moral integrity (Carter, 1996) included three components as follows: 1) Discernment: the ability to think about and weights the value to evaluate what is morally right from morally wrong. There are included the ability of person to draw conclusions from thinking to develop convictions and the ability to think independently decide what the most truly and deeply believes to do the right thing, 2) Public Justification: the ability of person be confident in the knowledge in their thinking right, doing right and share their moral conviction with others publicly, and 3) Consistent act: ability to continue doing on those convictions that reliably across time and situation.

In nursing field, the conviction and belief that were used to think about and evaluated for express and continue the best nursing care for the patient are based on professional standard value. The relationship of dimensions from the original concept of moral integrity and dimensions of nursing area are present in Figure 2. This construct and framework are used to guide for develop the instrument for assessing moral integrity in nursing practice.

Figure 2 The moral integrity' dimensions in professional nurses



Operation definition

According to intensive literature review of existing knowledge of the operational definition of moral integrity in professional nurses refers to abilities in professional nurses that aware to follow professional standard, courage to express words or actions follow professional standard in nursing profession, standing to continue doing follow professional standard in nursing profession, even in difficult circumstances. This is the operational definition to guide the framework for develop the moral integrity scale to assess moral integrity for professional nurses.

In this study, the belief of professional nurses was refer to professional standard that include the content guide line of Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) in the aspect of professional practices ethical guidelines in the part of conduct towards patients or clients which nine aspects (from twelve aspects) that related to nursing practice. Another content guide line were consists of Thailand Nursing and Midwifery Council Competencies of Registered Nurses (7 aspects). These professional standards were conceptualized for provided the direction or guideline for nursing practice.

For described in this situation, it necessary to assess moral integrity for described the source of nurse's action. It helps nurses to display for others and help nurses to understand, how nurses are doing and continue to provide nursing care based on the professional standard that it is still valid, even if there are obstacles or disagree with it.

The Moral Integrity Scale was developed based on intensive literature review in professional conviction and value that were integrated to guide for the construct framework in this study. There are including: Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and Thailand Nursing and Midwifer Council Competencies of Registered Nurses. (Thailand Nursing & Midwifery Council, (Arpanantikul, 2014; Chamnapood, 1994; Davidhizar, 1992; Jacobs, 2001; Becker, 1991; Jormsri, 2004; Perry, 1994; Aristotle, 2002; Pornwattanakul, 1999; Rawekchome, 1998; Suwanpatikorn, 1991; Dietze , 2000; Sattayatham&Vaivong, 1994 Tuckett, 1998; Pask, 2005; Helin, 2003; Tom, 1995; Tongprateep, 2002).

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Although, there are the existing instrument to assess moral integrity for example; Define Issues Test (DIT) is measure in aspect of behavior (Rest, 1979), Moral Integrity Survey Screening Assessment (MISSA) and Moral Integrity Survey (MIS) focus on self-concept (Olson, 2002), Moral Judgment Interview (MJI) used to measure people's moral traits by their own standards (Kohlberg, 1996), Nursing Dilemmas Test (NDT) (Parker, 1990), Trust in Nurses Scale (Radwin, 2000), academic integrity scale (Zulmi, 2018). All of them were used in education field and focus on moral judgment and behavior aspect. The previous studies have been widely practiced. They were not developed specifically for the nursing field. Moreover, the majority of the moral integrity was conducted in western countries. The appropriately

of issue in existing instruments should be consider in term of population characteristics, cultural context, language, beliefs, political and historical events, and normative (Shultz, 1999). Thus, assessment of moral integrity in Thai professional nurses needs to be developed for nursing education and professional development for quality of nursing care.

Studying and identifying empirical indicators of moral integrity is necessary in order to capture the unique nature of the concept of moral integrity in term of thinking, feeling, and acting. Moral integrity was the ability in person that are the strong inner conscience, try to maintain the good belief in their own, and try to express and still to do the good thing follow their belief. This ability is the highest level of moral development that is expected there will be in every nurses (Kohlberg, 1986).

The accurate instrument to measure moral integrity is also needed to assess three aspects of thinking, feeling, and acting based on professional standard which perform to good nursing care for patients. Developing the moral integrity scale represented new knowledge that was provide the way for nurses to assess moral integrity in nursing aspect and professional nurses view point. The result from this study may be developed the future knowledge in nursing science, which can be used as an instrument for assessing the effectiveness of an intervention for motivate and improve moral integrity in professional nurses (Kelly, 1998). Moreover, may assist in development of strategies to promote retention of nurses in the workplace, and improve quality of nursing care (Laabs, 2011). Moreover, assessment of moral integrity in professional nurses could be stimulate and confirm the belief of a professional nurse in good standing to continue.

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The purpose of this study needs to develop the Thai Moral Integrity Scale for professional nurses and test the psychometric properties of Thai Moral Integrity Scale for professional nurses.

Research questions

1. What the moral integrity scale is for assesses Thai moral integrity in professional nurses?
2. What are the psychometric properties of Thai moral integrity scale for professional nurses?

Scope of the study

This study aims to develop the Thai Moral Integrity Scale for professional nurses. The Moral Integrity Scale was developed based on Carter' concept and literature review process. Carter (1996) defined moral integrity and provides a theoretical foundation for the construct of moral integrity. The instrument development process is guided by DeVellis (2012) and Crocker and Algina (1986) which consist two phase; 1) instrument formation that were consists identifying construct definition, generating an item, examining content validity, assessing the clarity and readability of instrument and conducting preliminary item tryout and 2) psychometric properties evaluation that consists the construct validity testing and reliability testing. The samples of this study were professional nurses who work at hospitals in Thailand.

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Expected benefits

This research was added the research knowledge involving associate moral integrity in Thai professional nurse. The Moral Integrity Scale could be a new scale that provides an alternative way of assessing the moral integrity in term of thinking, feeling, and acting. This research is specifically benefit for professional nurses who need to develop moral integrity in practiced and the new graduate nurses. It could be used to screening or preliminary assessment moral integrity in nursing new graduates. The result may let to know who else wants to develop in moral integrity and which part that need to be improve. The result from study was enhance the quality of care in professional nurses to improve and develop moral integrity to the higher level. Moreover, the study may guide the way that nursing administration filed for management and solving the moral problem and complex situation that related to Nursing and Midwifery Regulation on Code of Professional Conduct and registered nurses competency in ethics in nursing practice. The study describes the knowledge in nursing science both in research and clinical practice. Moreover, the result was beneficial for future research to find the factors that associated with moral integrity in Thai professional nurses, and for selecting the appropriated intervention to improve Thai moral integrity in professional nurses in the future.

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CHAPTER II
LITERATURE REVIEW

This chapter presents the comprehensive review of the literature and focuses on major concepts important for this study, including

1. Moral integrity
2. Ethics, Moral integrity and professional nursing practice
3. Existing instrument of moral integrity assessment
4. Instrument development process
5. Factor analysis

1. Moral integrity concept

Moral development theory was initially documented from Piaget (1931). It was developed into stages of moral reasoning by Kohlberg (1981). Gilligan (1982) stated that two modes of ethical choice: 1) the responsibility mode focused on caring and relationship based on human needs, and 2) the rights mode focused on justice, equality, and individual rights based on moral principles. Gilligan (1982) described that care express interpersonal senses, such as empathy and connectedness and defined that care is spontaneously social relation. Beauchamp and Childress (1994) defined moral integrity is soundness, reliability, wholeness, and integration of moral character such as reasonably stable, justifiable moral value, action follow values in judgment. The person who has integrity has a consistency of convictions, action sand emotions and is trustworthy. Integrity is compromised when the nurse acts

inconsistently. It refer to continue to follow moral belief over time (Beauchamp &Childress, 1994; Beauchamp, 2001; Burkbardt, M. A., Natbanied, A. K. (2002).

The moral integrity was develop from a moral concept from Piaget (1960) psychologists defined meaning of morality that is a criteria that accepted by person and though that it is good and appropriate for being respected person in society. Kohlberg (1976) adapted the psychological theory originally conceived by Piaget and determined the process of moral development that was principally concerned with justice. There were six stages of moral development are divided into three level. The goal of the moral development process was focused on the ability of person to resolve conflicts rationally by the principles of justice irrespective of social context. According to Kohlberg theory, there are two interrelated processes affecting moral development: the first involves exposure to both internal and external moral conflict and conditions. The second process is "moral attachment," involves the recognition of a perceived, or connection to the person with whom an individual has formed a close relationship. (Kohlber, 1976).The field of moral psychology began to use the questions of moral character and defined the moral exemplar as an individual with a sense of moral integrity (Bennett, 1993; Blasil, 1994**;** Carter, 1996; Damon, 1996).

Moral integrity comes from the Latin word “integer” which means “whole”. According to New Oxford Advanced Learner’s Dictionary defined integrity is the quality of being honest and having strong moral principles. The state of being whole and undivided. The condition of being unified or sound in construction. Internal consistency or lack of consistency or lack of corruption. Late Middle English: from French defined integrity is the quality of being honest and having strong moral principles; moral uprightness. It is generally a personal choice to uphold oneself to

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consistent moral and ethical standards. Ethical meanings of integrity used in medicine and law refer to the wholeness of the human body with respect for “sacred” qualities such as a sense of unity, consistency, purity, unspoiledness and uncorruptedness.A person with integrity is a whole person in some sense, and when we refer to our moral integrity, either as a person or a professional, we think about a wholeness in the relationship between our actions and our values and beliefs, in other words, about a certain conception of our self as being a consistent whole (Redman, 2003, Solomon. 1992; Lorraine, 2004). The person with integrity can be relied upon to act in a way that is responsive to a well-thought-out view of the relation between his or her beliefs and actions. Moral integrity as coming from maturation brought about by reflection on many different kinds of values, which in turn will provide a critical coherence to one’s experiences (May, 1996).

Moral integrity is the fundamental behavior underlying ethical. There are including consistency and coherence in persons that know the right thing to do for good thing (Laabs, 2005,). Moral integrity defined as consistently walk and talk, keep the promises, be honest with yourself and others stand up for what they believe is right, and help others whenever possible (Emery, 2010). Sometime it can define as a kind of person that is honest, trustworthy, and consistently doing the right thing and standing up for what is right despite the consequences (Anderson, 2002; Laabs, 2011). Edgar (2011) defined integrity in two forms of the personal experience and the more social, reflective competence. Larry May (1996) defined moral integrity into three aspects that include: 1) critical thinking, 2) coherence of value orientation, and 3) the disposition, or commitment, to act in a principled way. Moral integrity has a unique place among the values that guide nursing practice. Mitchell (1982) points out that

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"whereas these other values have to do with what is owed to clients, integrity directs attention to the moral agency of the health professional" (p.163). Olson (2002) defined moral integrity that represents the philosophical component of moral discernment, consistent behavior, and public justification and the psychological aspects of affective, behavior, and cognition. Moral integrity is extremely rich in meaning, and therefore very difficult to define. Four constituent features of the concept can be distinguished; 1) moral autonomy, 2) fidelity to promise moral agency is partially bound up with our willingness to promise, 3) steadfastness, and 4) Wholeness (Aristotelian, 1987).

Moreover, there were studied that report moral integrity in many meanings. Musschenga (2001) defined moral integrity in the educational field that was a formal and global concept. The formal concept evaluates the quality of the relationship between someone's convictions and behavior that focuses on the coherence and consistency of the taking and doing in person that follow by their beliefs and values. There were two aspects of moral integrity which personal integrity and social moral integrity. Personal integrity: refer to a person which has a distinctive character, in his indemnificatory valuation reflects his deepest convictions (Albert, 2001). In business field, moral integrity describes in term of people that live with moral value that say and believe in. For the person to have moral integrity, they need to know what their moral values are and then strive to model in their behavior. The moral value such as fairness, courage and love are easy to claim to have, but difficult to act.

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In psychological perspective is divided moral integrity into three aspects (Erikson, 1963; Kohlberg, 1984). Erikson (1963) identified the integrity as the positive resolution of eight stages of ego development that defined as a whole that is

achieved in the mature individual when the person is able to see uniformity in all the separate pieces of their life. It refer to an inner sense of coherence and wholeness of maturity and mental capacities that faced with the possibility of the total loss of responsible function in the world. It is the result of a long life (Erikson, 1963). Moral integrity includes the cognitive discernment into the moral conviction. In psychological area defined moral integrity in to three aspects. Moral integrity is "affectively experienced as a sense of wholeness and balance in the individual that is aware of their moral convictions" (Olson, 2002). It is consistent in their behavior, and is unashamed to share their convictions to other. Moral integrity is "behaviorally experienced in the individual that consciously considers the moral conviction that person able to do follow their believed, and can share the conviction in the face of adversity" (Olson, 2002). These is the individual consistently behavior that reflects moral commitment and are capable of articulating and justifying their commitments publicly. Moral integrity is "cognitively experienced in person that thinks about weighed the consequences of moral conviction that is able to consider the appropriate behavior in various compromising circumstances, and believes the conviction should be share with others" (Olson, 2002). In psychological perspective, focus on the moral evaluation of people what it is to be of good character and live the good life.

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Moreover, Janet (2007) defined moral integrity were state of being, acting like, and becoming a certain kind of person that consist honest, trustworthy, consistently doing the right thing and standing up for what is right despite the consequence. Moral integrity means that a person's character is made of three virtues; honest, truthfulness, and moral courage. Honest is defined as being real, genuine, and authentic. Honest is more than just telling the truth: it is the substance of human

relationships. It is well-thought out and rehearsed behavior that reflects commitment and integrity. Honest in nurse, mean that they will make rational, trustworthy decisions regarding the care of patients (Janet, 2007; Gray, 2008, Anderson, 2002; Rawls, 1971; Badaracco & Ellswerth, 1992; Murphy, 1999; Baccilli, 2001; Trevino, 2000; Koehn, 2005; Paine, 2005).

Moral courage is one component of moral integrity (Janet, 2007; Gray, 2008). Moral courage as a response to threat or challenge, real in the present, recognized in the pass, and anticipated in the future (Kidder, 2005). Moral courage has to speak out and do the right thing even when constraints or forces to do otherwise are present. It mean, person have to do what they believe is the right thing in the situation; they make a personal sacrifice by possibly standing alone, but will feel a sense of peace in their decision. Nurses need moral courage to act according to their beliefs and value (Janet, 2007). Lachman (2007) defined moral courage as the confronting a situation or person that are not within reasonable standard or care. According to the information above, there are many meanings of moral integrity in many viewpoints, but there is no meaning that defined in professional nurse's aspect. In the nursing profession, nurses' convictions are composed of their perceptions of nursing roles that focus on personal attitudes, the influence how the role contents are performed. However, there are the descriptive studies that related to the competence and moral distress in nurses. The most research is descriptive, and still limited knowledge exists about determinants of the consequence of moral integrity (Veer et al, 2013).

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The qualitative study in moral integrity: almost studies that related to moral integrity were studies in qualitative research to identify the concept of moral integrity and answering the questions," what is moral integrity (Bauman, 2011, Graham, 2001,

Pike, 2001, McFall,, 1987, DeWolf, 1989, Edgar, 2011). Laabs (2011) used qualitative descriptive by using a confidential short answer online survey to determine how newly graduated baccalaureate prepared nurses perceive moral integrity. The contradiction within this perception needs explanation (Laabs, 2011). Donna studied by using phenomenological qualitative study to describe the moral decision making of nurse that related to moral integrity behavior in acute care, rural hospital to gain an understanding of the processes for compromising or maintaining moral integrity behavior (Donna, 2006). Ruth studied the structured of moral integrity by using content analysis. (Ruth, 2013).Moreover, there are studies in the field of philosophy and sociology and used in many contexts (Blasi, 1995, Musschenga, 2001). Some studies are not focusing in term of moral integrity, but used in term of negative consequence of moral integrity, it is a term of moral distress (Silen, 2011, Godfrey, 2002, Epstein, 2009, Lilen, 2001). There are a few studies in clinical practice.

Quantitative studies, there are only descriptive studies in term of moral integrity or integrative review in moral integrity. Laabs explain the process nurses use to manage moral problem and how to maintaining moral integrity behavior among primary care nurse practitioner (Laabs, 2006, Olson, 1998). Rittenbach defined a framework of moral reasoning for nurse practitioners that related to moral integrity behavior (Rittenbach, 2005, Clancy, 2003).Kelly follow-up study with new graduate nurse to preserving moral integrity (Kelly, 1998).Hardingham study moral integrity and moral residue in the nurses as participants in the moral community (2004).

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While maintaining integrity can be a challenge for people in any profession, it is particularly so for nurses. Nursing has a history of subordination in health care setting, and especially in hospitals where nurses have often lacked the power to define

their activity in the workplace (Davis, 1983) Storch (1988) found that the professional obligations of nurses extend to the patient, families, physicians, colleagues, and employing institutions. Nurse will have to decide which should prevail in the situation. State points out, "is at the root of many ethical dilemmas for nurses in health care" (p.213). Ethical dilemmas may arise when the nurse is expected, or even obligated, to do something inconsistent with personal or professional values. Integrity may be at issue in any of three intersecting relationship; (1) with patient, (2) with the institution in which one practices; and (3) with other health professionals. In a comprehensive review on moral integrity, there were many definition and meaning that describe as follow:

Table 1 The summary of moral integrity definition from intensive literature review.

Author	Source	Definition of moral integrity
Gutman (1945), Pritchard (1972), Taylor (1981), Kekes (1983), Halfon (1989), Erikson (1980), Redman, (2003) Webster's New World Rost (1995).	Oxford dictionary, Encyclopedia of Ethics philosophy	Whole/ wholeness of personal character. The quality or state of being complete, unbroken condition, uprightness, honest and sincerity.
Erikson (1963), Kohlberg, (1984)	philosophy	A whole that is achieved in the mature individual when the person is able to see uniformity in all the separate pieces of their life. It is an inner sense of coherence and wholeness of maturity and mental capacities that faced with the possibility of the total loss of responsible function in the world. It is the result of a long life
Rawls (1971), Badaracco & Ellsworth (1992), Murphy (1999), Baccilli (2001), Trevino (2000), Koehn (2005), Paine (2005)	Management	As ethical behavior in some respect: honest, justice and respect, empathy, compassion, fairness, being trustworthy.
Taylor (1981)	Philosophy	Being the person who keep is inmost self-intact whose life is of piece, whose self is whole and integrated.
McFall (1987)	Philosophy	Consistency in adversity, presence of adverse circumstances, choices challenging.
Hume (1995), Ferre (2001), Hamilton (2008)	Philosophy	It is instinctively and consistently doing what is right for the good of others in the absence of motivation or punishment. It impress feelings and thoughts that far superior to that of reason.

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Table 1 The summary of moral integrity definition from intensive literature review. (Continued)

Author	Source	Definition of moral integrity
Solomon. (1992, 1999)	-	A super virtue, which is a synthesis of virtues that form a coherent, identifiable and trustworthy personality.
Colby (1992)	-	Willingness to translate one's principles into effective action, whatever the person cost. Someone who refuses to compromise one's commitment in face or great adversity.
Blasi (1993)	-	The individual to feel and know what is believed, to do what is said, and to ultimately justify it others.
Colby & Damon (1993)	Philosophy	It is moral goal that includes a conscious awareness of one's moral intentions and sense of obligation to realize those intentions. The person that have moral conviction to act with certainty and strength.
Carter (1996),	philosophy	The ability to discern the moral good, discern a moral right from wrong, and must have the standard with measure or compare the good thing and bad thing. Consistent to hold the moral principle. Expresses or acts according to their convictions over time and across situations. Confident in the knowledge in the living right and share their moral conviction with publicly
Lorenc (1996)	-	Behaviorally experienced in the individual who consciously considers the moral conviction, is able to do what is believed, and can share the conviction in the face of adversity. It reflects moral commitment and capable of articulating and justifying their commitments publicly. It is cognitively experienced in the person who thinks about and weighs the consequences of moral conviction, is compromising circumstances, and believes the conviction should be shared with others.
Damon (1996)	Philosophy	The person of moral integrity must base his or her conviction on a moral good that honors human dignity.
Olson (1998)	Moral psychology	As moral discernment of a moral conviction, consistent behavior regarding the conviction, and public justification of the moral conviction. It represent aware of moral conviction, the consistent of behavior, and unashamed to share the conviction.
May (1996)	-	Coming from maturation brought about by reflection on many different kinds of values, which in turn will provide a critical coherence to one's experiences. There is tree aspect of 1) Critical thinking, 2) coherence of value orientation, and 3) the disposition, or commitment, to act in a principled way.
Musschenga (2001)	Business field	The coherence and consistency of the saying and doing in person that follow by his beliefs and values.
Albert (2001).	Business field	A person that has a distinctive character, in his indemnificatory valuation reflects his deepest convictions.

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Table 1 The summary of moral integrity definition from intensive literature review. (Continued)

Author	Source	Definition of moral integrity
Anderson (2002)		The honest, trustworthy, and consistently doing the right thing and standing up for what is right despite the consequences.
Parry (2002)		Based on morally justifiable set of values.
Olson (2002)	philosophy	The person of moral integrity is unashamed of doing what they believes are right and are open and honest enough to share them intention, desires, and motivation.
Cox (2003)	Philosophy	It is a matter of persons integrating various parts of their personality into a harmonious, intact whole.
Emery, P (2003)	Nursing	Consistently walk your talk, keep your promises, be honest with yourself and others, freely admit your mistakes, stand up for what you believe is right, be available and approachable, and help others whenever possible.
Plante (2004)	-	Follow a moral compass and usually, do not very by apply to act immorally.
Peterson& Seligman (2004)	Society	It is a behavior consistent with shared values, different from morals, and can also be an alternative in determining the quality of individuals in interaction with society.
Richard (2005)		Standing to responsibility to maintaining the standards for professional nursing practice.
Palanski & Yammarino (2007), Paine (2005), Simons (2002)	Business	Defined as wholeness, as consistency of words and action, as consistency in adversity, as authenticity or being true to oneself, and as ethical behavior.
Janet (2007)	-	The person that have three values of honest, truthfulness, and moral courage.
Maak (2008)	Management	As the meeting and alignment of seven conditions. There are commitment, conduct, content, context, consistency, coherence, and continuity.
Gray (2008)	-	Honesty, respect to other, standard of excellence, moral courage.
Laabs (2005, 2011)	-	Consistency and coherence in persons that know the right thing to do for good thing. As a state and a process of being, acting like, and becoming a certain kind of person. This person is honest, trustworthy, consistently doing the right thing and standing up for what is right despite the consequences. It is a process in that the person recognizes that there will be challenges to their belief.
Branson (2009)	Educational	Acting according to our considered consciousness and lasting conviction

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Table 1 The summary of moral integrity definition from intensive literature review. (Continued)

Author	Source	Definition of moral integrity
Emery (2010)	-	Consistently walk and talk, keep the promises, be honest with yourself and others stand up for what they believe is right, and help others whenever possible.
Stephen (2011)	-	It is primary a personally hell moral framework on whether it is a social concept. It is a best a futile luxury and worst.
Edgar (2011)	-	It is a moral concern, might on the first sight to be. the capacity to deliberate and reflect usefully in the light of context, knowledge, experience and information (that of self and others) on complex and conflicting factors bearing on action or potential action
Wirtz (2007)	-	As a state and a process of being, acting like, and becoming a certain kind of person. This person is honest, trustworthy, consistently doing the right thing and standing up for what is right despite the consequences. It is a process in that the person recognizes that there will be challenges to their belief.
Wurzbach (2012)	-	Being to one' s own beliefs, consistently applying one's intellectual standards, holding oneself to one's own standard for evident and proof and practicing what one advocates.
Scherkoske (2013)	-	Sticking to one's convictions, especially in the face of disagreements, challenge and pressure or temptation. It is person's resistance to sacrificing or compromising his convictions and displays the relevant coherence and stickiness of conviction base on their reasons.
Schottl (2015)	Business	The wholeness, consistency, identity, honesty, and moral commitment.
Merriam-Webster Dictionary (2016)		It as a firm adherence to a code of especially moralistic or artistic value.
Jimenez & Garza (2017)	Academic	It is able to develop scientific progress and can prepare the responsible young generation as part of civilized society.
Devine & Chin (2018)	Education	It is the behavior that are result in a balance between aspects that will ultimately collaborate to create an atmosphere of character education
Zulmi (2018)	Academic	Defined as an individual's commitment to positive values so as to be able to act and behave accordingly in creating a good academic situation. There are consists honesty, fairness, respect, trust, and responsibility.

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According to the summary of definition of moral integrity, it could be summarized to two aspects of moral integrity meaning. First, the meaning of philosophy and education filed are focused on the idea and belief. Second, the meaning of management, business, and nursing field were focused on the behavior, ability, and action that present the moral integrity in different kind of behavior, such

as the behavior of consistent with shared the belief and determining of interaction with society (Peterson, 2004). The information from literature review present the definition and meaning of moral integrity that reflect to thinking, feeling, and action belong with their belief. There were no studies that included all three aspect that related to attributes and demonstrated the relationship of the three elements that represented aspect.

According to Carter (1996) defined integrity in three characteristic include: (1) Discernment: Carter state that the person do not take time to discern right from wrong. He suspect that few of us really know just what we believe, what we value, and often, we do not really want to know. Person refusing to think independently is what leads to mob violence. but a public spirited citizen must do a bit of soul searching must decide what he or she most truly and deeply believes to be right and good before it is possible to live with integrity. (2) The second step is also a tough one. It is far easier to know what one believes to know, in effect, right from wrong than it is to do something about it. For example: one may believe that the homeless deserve charity, but never dispense it. (3) Saying publicly that we are doing what we think right, even when other disagree. It is made particularly difficult by our national desire to conform. Most of us want to fit to be accepted and admitting to an unpopular belief is rarely the way to gain acceptance. But if moral dissenters are unwilling to follow the example of the civil rights movement and make a proud public show of their conviction, we as a nation will never have the opportunity to be inspired by their integrity to rethink our own ideas. According to literature reviews of moral integrity that are in the philosophy field were justifies the component of moral integrity in three components as follows:

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Discernment: refer to the ability to discern the moral good, discern a moral right from wrong, and must have the standard with measure or compare the good thing and bad thing. Moral discernment defines the moral convictions that determine one's behavior and ultimately one's life. The person with moral integrity can lives with consistent of convictions or believes of themselves. Carter (1996) defined the people that have moral integrity that consistent to hold the moral principle, conviction. Olson (2002) defined moral discernment refer to the ability to discern what is morally right from morally wrong that requires moral reflects on the meaning of good and bad. It refers to ability to draw conclusions from the discernment to develop convictions.

Livesey (2012) defined discernment that including both rules knowledge and reasoning. Moreover, discernment defined as moral awareness that refer to cognitively attentive to the personal of moral issue and adept at developing option in response to these issues. It should be able to demonstrate understanding and proficiencies in the identifications relate to various situation, rationally analyze specific arise in their units and help others to gain and understanding of these issues, and work to strengthen the moral responsibility (James, 2004).

Beauchamp & Childress (1994) defined discernment is related to classical concept of wisdom. It is the sensitive insight involving acute judgment and understanding. It eventuates in decisive action. Discernment leads us to appropriate actions in given situations. It needs sensitivity and attention attuned to the demands of a particular context. It requires that we continually strive to recognize and understand important of difference in human behavior (Burkhardt, 2002). Discernment is the

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ability to obtain sharp perceptions or to judge well (or the activity of so doing). In the case of judgment, discernment can be psychological or moral in nature.

James Rest (1994), a developmental psychologist who studied moral and ethical development, identified the characteristic of moral development that were include; the ability to interpret a situation, ability to determine a course of action in the context of what is just, ability to select an appropriate course of action, and the courage and skills to follow a course of action in response to a situation. These are the same meaning of moral discernment (Rest, 1994).

Public justification: refer to the ability of person that confident in the knowledge in the living right and share their moral conviction with publicly. This ability is fully understood one's beliefs and just them to others (Carter, 1996). Olson (2002) defined public justification that refers to the ability to openly articulate the acting according to their convictions that are the result of moral reflection and evaluation. The person with moral integrity is unashamed of doing what their believe is right and is open and honest enough to share their intentions, desires, and motivations. They must be capable of promoting their convictions with others.

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Consistent act: refer to ability of person that expresses or acts according to their convictions over time and across situations. Moral integrity is ability to overcome weakness of will and includes a consciousness about avoiding a contradiction between one's moral commitments and one's behavior. Blustein (1991) defined moral integrity is related with a host of virtues that organize and direct rational self-control over sensual desire. That is an individual holds to moral commitment despite the temptations to abandon it. Other people are able to determine

the degree of moral integrity that individual has. Moral integrity is the consistent behavior of individuals that determined to have regards to their ability to consistently act according to their moral commitments. Olson (2002) defined consistent behavior refer to the ability to consistently act on convictions. The person with moral integrity will acts reliably across time and situation. So, the resulting feelings are consistent with convictions even in the face of adversity. The other meaning, consistent act refers to the continue pattern or set of statement or behavior or ability to impress the critics action consistent with his views.

According to the Carter's concept and intensive literature review, there are three groups of dimensions that represent or reflect moral integrity. The moral integrity in this study defined as an ability or behavior that reflect three dimensions of moral integrity which discernment, public justification, and consistent act.

2. Ethics, Moral integrity and professional nursing practice

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Professional nurses are responsible to provide the best nursing care for the patients with the high-quality care. They are confronted with many moral situation challenges in their professional practice, so they have to have a professional ethics guideline to perform the best nursing care. In every profession, there are Code of Ethics for scope the standard regulation in their profession. The codes of ethics have been adopted for many professions in recent decades.

In nursing field, the Ethical code of conduct is the essentials of ethical decision making for international nurses. It is the most-trusted professions; the ethical codes have been also published by nearly every recognized professional group

worldwide. The first international code of ethics for nurses was adopted by the International Council of Nurses (ICN) in 1953 by American Nurses Association.

Value is particularly helpful in providing ways to understand individuals' reaction to different situation (Altun, 2002; Darlen, 2002; Hendel, 2002; Itzhaky, 2004). The same as Rokeach (1973) mention that value is an ongoing belief or attitude about a certain type of behavior or state that considered desirable and professional. Values are active standards that define social and professional behavior and affect moral judgment. Value is the something of worth or excellence. It is refer to one's evaluative judgment about what one believes is good or what make something desirable (Angeles, 1992, Pence, 2000).

The conviction or beliefs are influenced by many factors that shaped human perception and provided the moral norms for individual person (Rattanakul, 1988). Religious were influence with ability of decision making in nurse (Cassells and Redman, 1989). Nurse's values and beliefs are influenced by religion and culture as well as the professional values that derived from nursing code of ethics (Chaowalit, 1997). The conviction or belief in one person based on the value that provides the standard guide activities and plans used to make decisions and resolve the problems. Some studies found the value that affected to moral integrity were personal value. Values are the essential guideline and antecedent of moral integrity that are integrated into the everyday practice of professional nurses. Nurse's values derive from family, religious, social, profession, and individual personal (Benoliel, 1983; Jimenez-Lopez, 2016; Rassin, 2008; Veins, 1991). The values are implemented through moral reasoning that guide the direction of moral action (Omery, 1989; Rassin, 2010). Various studies have analyzed the values associated with nursing professional

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practice, for example; religious values, social values, personal values, health values, work value, feminism value, and ethical value, (American Nurses Association, 2015; Horton, 2007; Jormsri, 2004; LaSala, 2010; Lorraine, 2004; Limenez- Lopez, 2016; Sellman, 2011; Rassin, 2010).

They are organized hierarchically in value system according to individual, principles. There are the kind of value that affected to human behavior such as personal value, social value, and professional value. An attributes or characteristics that represented moral integrity in nursing practice are described below.

Personal value

Individual's values are the result of culture, beliefs and tend to be stable while also possessing a mutable character. In the maturation process, individuals come to integrate the isolated and absolute values they have been taught in their early years in to an organized system in which each value is ordered in priority or importance relative to the other values (Broom, 1991). In nursing profession, nurse' personal values are composed of their perceptions of the nursing roles that focus on their preferred role content and personal attitudes, the latter of which influences how the role contents are performed. In other words, personal values represent the nurses' conceptions of what it means to be and act as a good nurse. Personal values can also be defined as the values and beliefs which guide nurses' thinking, actions, and interactions, and interactions with patients (Fagermoen, 1997).

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Social value

Social value is the accepted mode of conduct and the set of norms, goals, and values binding any social group. Such guidelines for determining what is right or wrong, good or bad, and desirable or undesirable serve as a frame of reference for the

individual in reaching decisions and in achieving a meaningful life. Professional Nursing Practice: Craven and Hirnle, (2009) suggest that in general professions have a knowledge base and a... collection of skills and values that distinguish one from another. Knowledge base, power and authority over training and education, registration, altruistic service, a code of ethics, lengthy socialization and autonomy are the seven qualities that have been recognized as being the characteristics of a profession (McEwen & Wills, 2007).

Professional nurse value

Professional value defined as beliefs, and feelings of people accept as guidelines in their work. It is the standard for action by practitioners because provide a framework for evaluating action (Weis, &Schank, 2000). In professional nurses, Codes of ethics is an implicit contract through which the nursing profession informs society of the standards and values by which it function, providing the important values (Veins, 1989). The ethical theories as the moral guide for nurse, and provide individuals with guidance in moral thinking and reasoning for nurse actions. From literature review, there are ethical and moral theories that related to nurse as follows:

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Deontology: the aim of this theory need to seek the best overall outcome by nurse’s actions. This theory is concerned with right actions, not the consequences of those actions. It focus on” do what is right, even the world should perish” (Emery, 2003). Deontology is an ethical that based on dutiful action (Hill& Zweig, 2003). The moral action must be based on reason. Where moral actions are concerned, duties and laws are absolute, unconditional, and universal (Kant, 2003). Munson (2004) described a set of moral.

Utilitarianism: an action is judged as good or bad based on the consequence, outcome or end result. An action that is good or right produces the greatest good for the greatest number. Utilitarianism focus on justify imposing suffering on a few for the benefit of the majority. Ethic of care, focus that an action is right if it involves an empathic understanding of the person and the complex situation, moral decisions should consider the people involved.

The International Council of Nurses updated its code of ethics in 1973 these are ethical concepts applied to nursing. The professional nurses have to provide nursing care base on respects the beliefs, values, and customs of the individual. Nurses have to maintain the highest standard of nursing care possible within the reality of a specific situation. Nurse uses judgment in relation to individual competence when accepting and delegating responsibilities. Nurses share with other citizens the responsibility for initiating and supporting action to meet the health and social needs of the public. Nurses sustain a cooperative relationship with co-workers in nursing and other fields. Nurses have to play the major role in determining and implementing desirable standards of nursing practice and nursing education. Moreover, nurses have to developing a core of professional knowledge and acting through the professional organization and maintaining equitable social and economic working conditions in nursing. (Davis, 1991). Values are the core of the diverse world of human behavior and are express in every human decision and action. These represent basic convictions of what is right, good or desirable, and motivate both social and professional behavior (Rassin, 2008).

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American Nurses Association (ANA) defined Short Definitions of Ethical Principles and Theories Familiar words. 1) Autonomy—agreement to respect

another's right to self-determine a course of action; support of independent decision making. 2) Beneficence- compassion; taking positive action to help others; desire to do good; core principle of our patient advocacy. 3). Non-maleficence- avoidance of harm or hurt; core of medical oath and nursing ethics. Often in modern times, non-maleficence extends to making sure you are doing no harm in the beneficent act of using technology to extend life or in using experimental treatments that have not been well tested. 4) Fidelity, this principle requires loyalty, fairness, truthfulness, advocacy, and dedication to our patients. It involves an agreement to keep our promises. Fidelity refers to the concept of keeping a commitment and is based upon the virtue of caring. 5) Justice- derived from the work of John Rawls, this principle refers to an equal and fair distribution of resources, based on analysis of benefits and burdens of decision. Justice implies that all citizens have an equal right to the goods distributed, regardless of what they have contributed or who they are. For example, in the US, we all have rights to services from the postal service, firefighters, police, and access to public schools, safe water, and sanitation (ANA, 2015 Beauchamp, 2009).

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There are moral principles that related in nursing profession that help for decision making for action in nurses (ANA, 2015 Beauchamp, 2009). There are including:

1. Autonomy: refer to agreement to respect another's right to self-determine a course of action; support of independent decision making. In 1990 the Patient Self Determination Act was passed by the United States (US) Congress, this Act stated that competent people could make their wishes known regarding what they wanted in their end of life experience, when they were possibly not competent. Also included in this Act is the durable power of attorney, which designates a competent person to

assist in making end-of-life decisions when the individual was no longer competent. Autonomy is the right of a person to generate personal decisions dependently. It is described a respect for autonomy such as respect for a patient's autonomy includes actions, diagnoses, and treatment (Butts, 2005).

2. Beneficence: refer to compassion; taking positive action to help others; desire to do good; core principle of our patient advocacy. It is refer as taking action to promote well-being of the patients (Butts, 2005).

3. Non-maleficence: as refer to avoidance of harm or hurt; core of medical oath and nursing ethics. Often in modern times, non-maleficence extends to making sure you are doing no harm in the beneficent act of using technology to extend life or in using experimental treatments that have not been well tested. It refers to "do no harm" (Numson, 2004). The good nursing care need to maintain this competency.

4. Justice: Derived from the work of John Rawls, this principle refers to an equal and fair distribution of resources, based on analysis of benefits and burdens of decision. Justice implies that all citizens have an equal right to the goods distributed, regardless of what they have contributed or who they are. For example, in the US, we all have rights to services from the postal service, firefighters, police, and access to public schools, safe water, and sanitation (ANA, 2015). It is the right to be justify, fairly, and equally for treatment to the patients (Butts, 2005).

5. Fidelity refer to the principle requires loyalty, fairness, truthfulness, advocacy, and dedication to our patients. It involves an agreement to keep our

promises. Fidelity refers to the concept of keeping a commitment and is based upon the virtue of caring (ANA, 2015).

Moreover, Huebner and Garrod (1991) suggested that the western moral reasoning theories may not appropriate to use for moral reasoning in Buddhist culture. Especially, when justice or decision the situation that occur in the context of Buddhist culture (Jormsri, 2004). According to professional value and literature review, there are elements of moral principle to scope the conviction or believe in professional nurses that represent the scope of professional value that include:

Honesty refers to the human respect that upholds the truth, avoids deceit, and strives to be sincere with other. Honesty also includes both talking over misunderstandings when they occur and eschewing gossip, harsh words, and idle speech. Honesty is the personal conviction that nurse necessary for optimal patient care (Arpanantikul, 2014; Davidhizar, 1992; Jormsri, 2004; Perry, 1994).

Truthfulness is what the person says and how the person says that nurses are usually ethically obligated to tell the truth and are not intentional to deceive or mislead patients (Aristotle, 2002). Trust within nursing practice is merely on patient of a system of performance for monitoring nursing actions and for containing patients' expectations (Gilbert, 1998). Moreover, it defined as the confident belief in reliance upon the ability and moral character of another person and will act with the right motives in accord with moral norms (Beauchamp & Childress, 1994). Trustworthiness is measured by others' recognition of the nurse's consistency and predictability in following moral norms. Burkhardt (2002) defined trustworthiness is

accounted for in the reputation that have among coworkers. It is important for the relationship in coworkers.

Responsibility is the nursing value that mandates prompt and faithful discharge of duty. Responsibility means that minor mistakes are quickly corrected, that action is taken in emergencies, and that others are called on for assistance when necessary. Responsibility is the moral image of the nursing profession. These conviction is the important doing duties of professional nurse to the best of capacity with consideration of patients, families, and nursing care the good care to the patient (Arpanantikul, 2014; Jormsri, 2004; Saungam-Aium, 2003; Grace, 2001; Snowball, 1996).

Kindness is the human expression of a generous character. It means to exhibit an all-embracing kindness, the desire to make others happy as opposed to causing hatred or suffering, and to generate only friendliness among all living things. (Arpanantikul, 2014; Pornwattanakul, 1999; Rawekchome, 1998; Suwanpatikorn, 1991; Jormsri, 2004). Love – kindness refer to the unselfish friendliness (Zang, 2015). It concerns the way in which help is offered (Faust, 2009). Moreover, it defined as a life lived instincts sympathetic identification with the vulnerabilities of other (Philloips and Taylor, 2009). It is being in solidarity with human need, and with them vary paradoxical sense of powerlessness and power that human need in dues (American Nurses Association, 2008). Nurses need to have the value of kindness in everyday (Johnstane, 2010).

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Compassion is a well-known nursing value. It means to have sympathy for the suffering of others and to desire to free suffers from their pain. It avoids harmful actions and to show sympathy for the human right. (Arpanantikul, 2014; Dietze, 2000;

Jormsri, 2004; Tuckett, 1998). Compassion is the ability to imagine oneself in the situation of another. It is the trait combining an attitude of active regard for another's welfare with an imaginative awareness and emotional response of deep sympathy, tenderness, and discomfort at the other person's suffering Beauchamp & Childress (1994). Compassion is so important for the patient's need and caring presence outweighs the need for technical care. Nurse must be careful and does not delay to make objective decisions (Burkhardt, 2002).

Discipline as a nursing value is the ability to organize one's life for personal growth and to conduct oneself properly in the social environment by performing helpful rather that exploitative acts. Discipline is the important nursing conviction that provides the guideline for nursing practice and included in one aspect of Nursing and Midwifery Profession B.E. 1985. Moreover, there were studied that related to discipline in the nursing profession. These convictions are the aim and the rules that accepted in nursing profession (Arpanantikul, 2014; Chamnapood, 1994; Jormsri, 2004; Pornwattanakul, 1999; Ratanapanya, Charonyuth, Rungreungtham, &Chaowalitnithikul, 1997; Sattayatham&Vaivong, 1994)

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Self-sacrifice refers to a loss or something you give up, usually for the sake of a better cause. Professional nurses have to show to be vulnerable to self-sacrifice to caring for patients, at the expense of themselves. Self-sacrifice is a necessary aspect of a nurse's professional (Arpanantikul, 2014; Pask, 2005; Helin, 2003).

Fairness is the condition of freedom from bias. It involves what is right and equal. Fairness canbe interpreted as being equal in provision, in opportunity or in the result. Nurses need to have fairness when caring patients in every condition. This involves what is right and equal. Interpreting this is a problem, due to the limitations

of human experience and the balance of all desired good. Fairness can be interpreted as being equal in provision, in opportunity or in the result. From each point of view, the other point of view may seem unfair. Professional nurses need to give nursing care for the patients according to fair rules and fair treatment that is often expressed by a variety of justice principles (Tom, 1995).

Equanimity means the acceptance that things are as they are. It is to understand that everyone experiences, good and evil in accordance with their actions without prejudice or preference, but in the light of Kama or the law of cause and effect. Equanimity build up the habit of considering everything from the standpoint of right or wrongs based on principles, reasons and equity. It ultimately leads to even mindedness based on insight into the nature of things (Tongprateep, 2002). These conviction help nurses to control the mind and prevent inappropriate feeling that represent to the public (Jormsri, 2004).

Respect for human values, dignity, and rights are important in nursing values. It can be defined as seeing human beings as neighbors and co-habitants of the world and as thinking about human beings as both equal and unique. The respect for persons divided into two parts: the respect for individual autonomy and self-determination and respect for each individual as a member of the human community in which everyone is interdependent and interconnected. Respect for human value is the fundamental issue in nursing that includes three ways to represent: with non-verbal signals, with courtesy, honesty, and a communication style, and the last with actions that recognize the patient’s rights (Arpanantikul, 2014; Browne, 1993; Jormsri, 2004; McGree, 1994; Jacobs, 2001; Becker, 1991). Respect for human

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implies that one considers others to be worthy of high regard and respect for others serves as the cornerstone of any caring profession (Burkhardt, 2002).

According to several studied that related to moral integrity but, did not directly present in term of moral integrity, almost studies presented in term of moral conflict in professional nurses which is the result of action component of moral integrity. Lerkiatbundi and Borry (2009) stated that moral distress associated with loss of moral integrity in nurses and may be a direct result of what nurses perceive of their participation in moral wrongdoing. Moral distress is the negative consequence of moral integrity (Laabs, 2011). Epstein and Hamric(2009) explain that "moral distress is a consequence of a challenge to one's moral integrity, the result of perceived violation of one's core values and duties and powerfully negative experience which can result in burnout and leaving the profession". Jameton (1984) described moral distress as occurring "when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action". Moral distress is characterized by frustration, anger, guilt, physical symptoms, and anxiety due to a threat to one's moral integrity (Austin, et al. 2005; Gutierrez, 2005; Beumer, 2008; Brazil, 2010; Buerhaus, 2009; Corley, 2005; Eizenberg, 2009; Epstein, 2008; Ferrell, 2006; Gutierrez, 2005; Hamric, 2012; Olson, 1998; Radzvin, 2011; Redman, 2000; Rogers, 2008; Solomon, 2005; Sporrong, 2006).

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In nursing profession, the nursing care or treatment of nursing practices are based on moral principle, ethics, and code of professional conduct. Religion, culture, human rights, and the Nursing and Midwifery Profession Act. Thailand Nursing and Midwifery Council defined the code of conduct in professional nurses defined the ability of registered nurses that consist of eight aspects. There is aspect of competency

in ethics that related to professional nurses. Registered nurses are sensitive to ethical and legal issues, while still being capable of making moral decisions and incorporating morality into their nursing practices appropriately, as described below:

1) Be aware of one's own values and beliefs and not judge others based on these values and beliefs. Provide nursing care with respect to client's values and beliefs as well as human dignity.

2) Realize one's own limitations; be able to consult the appropriate expert. Never take risks which may adversely affect patients.

3) Be accountable for all out comets of personal nursing practices.

4) Assist patients in becoming informed of their rights and to understand them.

5) Take appropriate actions to protect patients who are vulnerable to violation of rights and immoral and unethical practices.

6) Be capable of analyzing ethical issues and making ethical decisions appropriately in uncomplicated health care situations.

7) Perform nursing care with kindness and compassion, taking into consideration the optimal benefits of clients, the professional code of ethics, and laws and relevant regulations.

There are aspects of professional characteristics that nurses should attain. There are related to nursing profession when nurses give nursing care for patients such as professional personality that related trustworthy, responsible, and honest, self-disciplined, and be aware of rights and duties of nursing profession. Moreover, there are the part of continuation of self-development and possess a positive attitude towards the nursing profession.

Moreover, Based on the Regulation of the Nursing and Midwifery Council on the Observance of Ethics of Nursing and Midwifery Profession B.E. 2550 (2007). Notified on June 7th B.E. 2550 (2007) and appeared on the Government Gazette, Volume 124, Part 83 e dated 11th July B.E. 2550 (2007) The guidelines on observance of ethics of nursing and midwifery profession in the aspect of Nursing and Midwifery Professional Practices Ethical Guidelines, part of Conduct towards Patients or Clients are consists of 12 aspect that professional nurses have to follows that include:

1) A professional practitioner must uphold professional standards as specified in the notification of the Nursing and Midwifery Council without asking for any special gratuity other than normal service fee.

2) A professional practitioner must not convince or persuade any client to use or receive nursing or midwifery services for their personal benefits.

3) A professional practitioner must not ask for any benefits in return due to picking up or sending a patient or client to receive nursing or midwifery services.

4) A professional practitioner must treat a patient or client politely and without any duress.

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5) A professional practitioner must not deceiver or mislead or client for private gain.

6) A professional practitioner must not perform their professional practice without taking into account the safety and unnecessary expenses of a patients or client.

7) A professional practitioner must not order or encourage the use of drugs with secret ingredients including unidentified medical equipment.

8) A professional practitioner must not intentionally issue a false certificate or give or voice insincere opinions on any matter related to their profession.

9) A professional practitioner must not disclose patients' or clients' information and records which they obtained in their professional capacity except obtaining prior consent of the patient or client, or as required by law or under a duty.

10) A professional practitioner must not refuse to help or assist any critically ill person upon being requested and within their capacity to do so.

11) A professional practitioner must not perform their practices in public or public settings except in emergency first aid or on duty for other ministries, agencies or bureaus, departments, Bangkok Metropolitan Administration (BMA), Pattaya City, provincial administrative organizations (PAOs), municipalities, local administrative organization (LAOs) as proclaimed by the Minister in the Government Gazette or the Thai Red Cross Society.

12) A professional practitioner must not illegally perform or encourage anyone to illegally perform nursing and midwifery professional practices, professional practice in medical or public health, or professional practice of healing arts.

In this study were selected nine aspect of Code of Professional Conduct that which except aspect 7, 11, and 12 because there were not directly related to nursing practice in the clinical. For developing the quality of nursing practice, the frame work or the conceptualized were based on the Code of professional Conduct. The content of Nursing and Midwifery Regulation on Code of Professional Conduct in Thailand (aspect 1-9 in Table 4) and Midwifery Council Competencies of Registered Nurses (aspect 10-12 in Table 4) were conceptualize for provided the direction or guideline for nursing practice. In term of analyzing the professional standard in professional nurses, the integrative of professional nurse meaning and content of all value in to the set of professional standard that used to scope the attributes for moral integrity in professional nurses were presented in Table 2.

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Table 2 The summary of Code of Professional Conduct and Registered nurses competency in ethics that related to nursing profession.

No	Code of Professional Con duct and Registered nurses competency in ethics
1	A professional practitioner must uphold professional standards as specified in the notification of the Nursing and Midwifery Council without asking for any special gratuity other than normal service fee.
2	A professional practitioner must not convince or persuade any client to use or receive nursing or midwifery services for their personal benefits.
3	A professional practitioner must not ask for any benefits in return due to picking up or sending a patient or client to receive nursing or midwifery services.
4	A professional practitioner must treat a patient or client politely and without any duress.
5	A professional practitioner must not deceiver or mislead or client for private gain.
6	A professional practitioner must not perform their professional practice without taking into account the safety and unnecessary expenses of a patients or client.
7	A professional practitioner must not intentionally issue a false certificate or give or voice insincere opinions on any matter related to their profession.
8	A professional practitioner must not disclose a patients' or clients' information and records which they obtained in their professional capacity except obtaining prior consent of the patient or client, or as required by law or under a duty.
9	A professional practitioner must not refuse to help or assist any critically ill person upon being requested and within their capacity to do so.

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Table 2 The summary of Code of Professional Conduct and Registered nurses competency in ethics that related to nursing profession. (Continued)

No	**Code of Professional Conduct and Registered nurses competency in ethics**
10	Be aware of one's own values and beliefs and not judge others based on these values and beliefs. Provide nursing care with respect to patient's value and beliefs as well as human dignity.
11	Realize one's own limitations; be able to consult the appropriate expert. Never take risks which may adversely affect patients.
13	Assist patient or clients in becoming informed of their rights and to understand them.
14	Take appropriate action to protect patients or clients who are vulnerable to violation of rights and immoral and unethical practices.
15	Be capable of analyzing ethical issues and making ethical decisions appropriately in uncomplicated health care situations.
16	Perform nursing care with kindness and compassion, taking into consideration the optimal benefits of clients, the professional code of ethics, and laws and relevant regulations.

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According to the literature review, there were the three dimension of moral integrity that reflects thinking, feeling, and acting of person. The summary of attribute three dimension of moral integrity that define to ability and behavior in this study. There was present in Table 3.

Table 3 The summary of ability and behavior to measure in each dimension

Dimension	Attributes
Discernment	Discern, know, recognize
	Conclusion
	Awareness
	Understand
	Consider
	Interpreting, analyzing, evaluating,
	Adherence in belief
Public justification	Express the word
	Express the feeling
	Action of showing something to be the right or reasonable.
	Courage to speak out the right word
	Courage to decision making to follow the belief
Consistent act	Consistent to action
	Standing and Continue to doing
	Stability to thinking, feeling, acting
	Strong to thinking, feeling, acting
	Reliably to doing across time and situation
	Doing follow the belief
	Courage to do the right thing even have constrains or forces
	Confrontation of fear to stand alone

Initial List of Dimensions of Thai Moral Integrity Scale

The researcher also used the review of precedent literature to compile an initial list of three possible components of moral integrity (Table 4). This list was formulated by identified in the literature review. To sum up, there were various definitions of moral integrity show overlaps, and differences. In the next process, the

researcher was develop the conceptual framework of Thai moral integrity by drawing from Carter's concept and the literature reviews.

Table 4 Summary of dimensions and meaning of moral integrity

Dimension of Carter's concept	Meaning	Defined in nursing profession
ernment	Aware to belief /value	Aware to follow the Code of Professional Conduct and Registered nurses competency in Ethics
ic justification	Courage to openly thinking and feeling, belong with belief /value	Courage to express words or actions follow the Code of Professional Conduct and Registered nurses competency in Ethics
sistent act	Standing to continue follow belief /value, even have other disagree or difficult	Standing to continue follow the Code of Professional Conduct and Registered nurses competency in Ethics, even in difficult circumstances

For scale development, the scale is intended to represent or reflect the latent variable. The latent variable is the actual phenomenon that need to measure (DeVillis, 2012). The latent variable cannot see or directly measure. It can be using some indicators/items. In this study, the researcher need to assess moral integrity in professional nurses. There are three latent variables to represent the moral integrity. From an intensive literature review showed the moral integrity represent as ability and behavior that could be observe and assess in term of observe variable. The operational definition is the statement of procedures used in defining the terms of a process or set of variable that needed to determine the nature of an item or phenomenon (Shoemaker, 2004).

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The literature review could reveal the theory in which the construct or discover the construct that assess the validity that have appear from the literature review. The literature reviews need to carry out the definition on such the concept. It need to translate them from the abstract to a concrete in order to measure them. The operation definition is a definition of a variable in terms of the procedures used to assess or evaluated (Kerlinger & Lee, 2000). Usually find the best ways to measure specific variables by examining the literature. Developing an operational definition involves drawing on parts of research, by create observe variable to measure the concept from theoretical and the practical. There are many way to define of the definition (Graziano & Raulin, 2010).

The operation definition was defined the operational definition by knowing the literature, prior studies, and confirm from the experts. Developing the operational definitions is the one of the systematic elements that makes up to the overall process of the research study. The researcher narrows the big concept into detail and measures of statement of the real situation that how the variable is to be measured (Graziano & Raulin, 2010). It defined as a clear and understandable description of what is to be observed and measured. It is a concept to guide what properties will be measured.

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There were many researchers have used the definition with reference to western countries. The moral integrity is an abstract aspect. The researcher analyzed the definition of moral integrity from the western and Thai perspectives and found that the both group showed similar characteristics and dimension themes. There were three themes of moral integrity in nursing perspectives that were integrated with professional standard value in nursing profession.

According to intensive literature review of the meaning of moral integrity and the Code of professional Conduct and registered nurses competency in ethics, researcher defined the operational definition of moral integrity in Thai professional nurses as the ability in professional nurses that aware to follow Code of professional Conduct and registered nurses competency in ethics. Courage to express words or actions follow Code of professional Conduct and registered nurses competency in ethics. Standing to continue doing follow Code of professional Conduct and registered nurses competency in ethics in nursing profession, even in difficult circumstances. This is the operational definition to guide the framework for develop the Thai moral integrity scale to assess moral integrity for professional nurses.

3. Existing instrument of moral integrity assessment

The moral agent is measured in many different ways. The study of moral integrity starts from philosophy field. There were few existing instrument are available for measuring moral integrity concept. Most of these instruments were developed in western countries. From the literature review there were existing instruments which related to moral integrity as follows:

Defining Issues Test (DIT): has been developed since 1979 (Rest, 1979). The second version was introduced in 1998. The Defining Issues Test (DIT): is a paper and pencil test of the cognitive aspect of moral reasoning. The DIT is based on Kohlberg’s theory of moral justice reasoning, though it is not directly equivalent to Kohlberg’s own moral judgment interview used to assess justice reasoning. The short version of DIT presents respondents with three short hypothetical dilemmas and then requires them to select which of a number of statements provided to the respondent, represents a specific stage of moral development. By recording the statements that the

subject chooses, it is possible to determine the subject's level of moral reasoning. the cognitive aspects of hypothetical moral reasoning as measured by the DIT represent a separate, non-equivalent type of cognitive reasoning that is not related to moral discernment or the cognitive aspects of experienced real-life moral integrity and not correlate with moral integrity (Colby and Damon, 1993; Olson, 2002).

DIT was used to investigate the moral integrity in education field which used as a one-time measurement to determine moral development of nursing students. The variables included grade point average, credit earned, along with public versus private institutions. The DIT were consist six questions that represent the moral development to reflect the education levels in nursing students. Wirtz (2007) used the Defining Issues Test-2(DIT-2) measure moral integrity development in nursing student. The score is compare to the fifth and sixth stages of Kohlberg's moral development theory that focus on process of socialization of students within educational settings. Bebeau, Thoma, and Narvaez (2006) reported the validity of DIT-2 has been assessed in 755 participants indicated an effect size of .80. The Cronbach alpha and test retest is.70. This reliability coefficient is slightly low and may be indicative of the limited range of education level in this research sample (Center for the Study of Ethical Development, 2006). The DIT was focused on moral reasoning should not correlate with moral integrity (Colby and Damon, 1993; Olson, 2002). Moreover, the DIT and DIT-2 not represented the moral integrity in term of discernment, public justification, and consistent act.

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The moral integrity survey screening assessment (MISSA): is designed to identify those individuals who define morality as a significant aspect of their self-concept. The MISSA was adapted from Nisan's (1991) study of moral identity. The

MISSA rate a five-point Likert scale to assess presence of, and ability to, articulate a moral self. Olson (2002) used MISSA to measure adolescent that volunteered from small Liberal Arts College in the Midwest United States. Sixty-seven participants that ages 18-22 were completed this tool. The participants have to identify themselves to six aspects that most closely defined who they are? Such as "Is it what you look like? Is it what you do? Is it in the relationships you have? Is it what you believe in? , and is it the groups that you belong to? The participants in the study noted a total of 66 different aspects they identified with such as Religious, valuing family or friends, honest, trustworthy, and love. In this way, the participants define the content of the moral domain from a homogeneous sample though of adolescent.

The Definition of Moral Integrity Questionnaire: this questionnaire consisted of twelve open-ended, paper and pencil questions designed to assess the criteria people use when deciding whether or not another individual has or fails to have moral integrity. The purpose of this questionnaire is to develop a participant definition of qualities that is associated with moral integrity. The items include three general areas: 1) the respondent is asked to think about the concept of moral integrity and then list the qualities that he or she associates with moral integrity, such as "Please list a few things you think of when you hear the word moral integrity" or "do you know anyone who has moral integrity", 2) the describe the qualities of persons with and without moral integrity, and 3) the area is one of self-identification. The respondent is asked to rate their own level of moral integrity on a five point scales (Olson, 2002). This tool is used for developing a definition of moral integrity in Olson's study. There is no detail of psychometric properties of the instrument development enough. It could not

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measure the construct of moral integrity in aspect of the nursing profession. The example are present in Figure 3.

Figure 3 The example of the definition of moral integrity questionnaire

The definition of moral integrity questionnaire

Now I would like to change the subject slightly and ask you to write your opinions about the concept of moral integrity. Take a minute and review all the questions before beginning.

1.	Please list a few things you think of when you hear the words" moral integrity"
2.	If I were to say; "That person has moral integrity" please list the kinds of qualities do you think that person would have? (Or not have?)
3.	Do you know anyone who has moral integrity? If yes; Could you describe two reasons why you think that person has moral integrity?
	A. As far as you can tell, what does that person think about when it comes to his/her moral integrity?
	B. Can you give an example of when that person has demonstrated moral integrity?
	C. Has that person ever told you or ever explained to you why they happen to believe what they do? Explain:
4.	On a scale from 1-5 how would you rate this individual?
	(One represents that this individual has no moral integrity. Three represents that this person sort of has integrity. five represents that this person has incredible moral integrity.)

1…………………………	3………………….........	5
No integrity	Some integrity	Lots of integrity

5.	What about a person who does not have moral integrity? If I were to say, "That person lacks moral integrity" please list the kinds of qualities do you think that person would have? (Or not have?)

The Moral Integrity Survey (MIS): This instrument defined moral integrity to virtue aspired to through personal will and represent the psychological integration of the moral domain within the moral self.is a paper and pencil survey with a forced choice Likert scale response format designed to assess levels of moral integrity. the statement on the MIS represent each of the nine categories of moral integrity the specific behaviors selected to reflect moral integrity levels have been derived from philosophical and psychological theory. It was constructed to identify three separate components of moral integrity: moral discernment, consistent behavior in relation to the moral conviction, and public justification of the moral conviction. Each of three components included three elements of cognitive, affective, and behavioral. The MIS included a total of 63 objectively scored statements designed to assess levels of moral integrity. the participants rate the degree they agree with feeling, doing, and thinking a number of characteristics identified throughout the literature as being related to moral integrity specifically about the one issue or conviction they identified as being important to who they are as a person. The participants are asked to refer to five point Likert scale when responding to statements of moral affect, behavior, and cognition. The MIS is scored by adding each of the responses to create a total MIS score. The MIS had the high inter-item reliability (α=.95). Moreover, estimates of validity and reliability need to establish for larger,

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Olson (2002) studies the relationship between moral integrity, psychological well-being, and anxiety in adolescents and adults by using the Moral Integrity Survey (MIS). This study first develops a theoretical definition of moral integrity. There were some concerns about Olson' instrument. First, the sample size was small. Second, the sampling was highly religious community, that shown the self-evaluate higher of moral dimensions reducing the external validity of the scale. It uncertain generalizability based on the homogenous and limited sample. Finally, the questionnaire is over 50 questions long and not scalar that less than optimal utility for researcher due to its great length and difficulty in scoring. The barrier to measurement moral integrity by using MIS was not clearly defined, especially in the nursing field. This paper was the preliminary study for measure moral integrity, but it appropriated in psychological field and in perspective of philosophy viewpoint. There is no study in clinical nursing to measure moral integrity in directly. The example of Moral Integrity Survey (MIS) was present in Figure 4.

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Figure 4 The example of Moral Integrity Survey

Moral Integrity Survey

For the following statements, please indicate the degree to which these feelings accurately describe your own feelings in relation to the moral issue you stated you most closely associate yourself with.

1…………...	2…………...	3…………...	4…………...	5

Weak	Moderate	Very strong
Not at all	Sometimes	Very much
This statement	This statement	This statement
Not describe	Sort of describes	Very accurately
How I feel	How I feel	Describes how I feel

Read the sentence and fill in the blank with the issue you have previously identified. Circle the appropriate number to indicate how you feel regarding this issue.

1.	I feel good about myself knowing (your issue) is essential to who I am as a person	1…..	2…..	3…..	4…..	5…..
2.	I feel I would lose a large part of myself if I did not/wasn't________	1…..	2…..	3…..	4…..	5…..
3.	I am uncomfortable thinking about________	1…..	2…..	3…..	4…..	5…..
4.	I feel confident ________is right	1…..	2…..	3…..	4…..	5…..
5.	I'd feel wrong if I wasn't________	1…..	2…..	3…..	4…..	5…..
6.	I feel personally obligated to be ________	1…..	2…..	3…..	4…..	5…..
7.	I respect the idea of ________in other people	1…..	2…..	3…..	4…..	5…..

Please provide a brief example or personal situation for only one item that you rated as a four or five. If you did not rate an item a four or five, please go to the next page. Briefly describe why you rated that item either a four or five. You may choose any one item you wish as long as you pick from those items you rated as a four or five.

Item number ________:

Brief example of when you felt strongly about issues in that item:

Although, there were some instruments that evaluated and used to the guideline for survey and defined the meaning of moral integrity. The close questions which are commonly used may restrict the depth of participant response (Bowling, 1997). The quality of data collected may be diminished or incompletely. The study was limited and cannot be generalized beyond the sample, which was small, homogenous. While the initial response rate was not unusually low for type of study, the dropout rate was high. The methodology did not allow in-depth exploration, which further limits understanding (Laabs, 2011). The analysis and statistical that used in each study is depend on design and appropriate in each study (Downs, 1999). In nurse profession use the instrument to measure knowledge, attitudes, or behavior. This approach the self-reported observations of the individual and is commonly used the perception of many aspects of nursing care. The instrument development need the respondent to respond to the series of questions into numerical form and statistically analyses. In each item must reliably operational and key concept that interest and specific research question. The main benefits of method of data collection are that questionnaires are usually relatively quick to complete, relatively economical and easy to analyses (Bowing, 1997).

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According to existing instruments, there were no the instrument that appropriates to assess moral integrity in professional nurses. So, that is the important reason to develop moral integrity assessment for professional nurses in the Thai context. All of an instrument was conducted in Western countries. Schultz (1999) stated that the issue should be consider are included population characteristics, cultural context (ethnicity, cultural traditions and norms), historical context (language, knowledge base, beliefs, attitudes, values, political and historical events), research

goals (content of measurement, specificity of measurement, comparisons to normative groups), administration issues (feasibility, format of instrument). In Thai culture, Buddhism are the strongly affect to nursing care. There are no appropriate tools that could be assessed moral integrity in three components of moral integrity concept that include: discernment, public justification, and consistent act. Thus, developing the moral integrity assessment is necessary. So, in this study will be use the concept of moral integrity that developed from Carter (1996) to develop the moral integrity assessment in professional nurses.

4. Instrument development process

There were several researchers that defined the steps for developing an instrument such as Spector (1992), Mishel (1998), DeVellis (2012), Burns and Grove (2011). The step and process are bases on the goal of an instrument. The overview of each step of instrument development were divided into two phase including (1) instrument formation and (2) psychometric properties evaluation

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Instrument Formation

1. Define the construct

The important element of a scientific investigation can be defined as the process of developing a measure of a concept. This is the important step of scale development (DeVellis, 2012; Nunnally & Bernstein, 1994). This process consist the construct definition is through the literature review. The literature review can reveal the theory in which the construct and can discover the constructs and measure. It can be used to evaluate the various kind of validity that has expanded from the thorough literature review. This process aim to identifying the construct definition and content

domain of moral integrity in professional nurses. The main construct of moral integrity based on Carter's concept and integrated with the intensive literature review to guide the scale development.

The process of operationalization of the concept has been proposed by Waltz and colleagues. This process involves five step: 1) developing the theoretical definition; 2) specifying variables derived from the theoretical defection; 3) identifying observable indicators; 4) developing meaning for measure the indicators; 5) the evaluating the adequacy of the resulting operational definition (Waltz, et al., 2005).

The significant dimensions of moral integrity and intensive literature reviews has been critically analyzed and defined in this study as representing moral integrity in professional nurses. Each attribute was clarified and specified through analysis and interpretation in order to reflect all dimensions of moral integrity and to be appropriate to nursing field.

According to intensive literature review of existing knowledge above, researcher defined the operational definition of moral integrity in professional nurses as the ability in professional nurses that aware to follow Code of Professional Conduct and registered nurses competency in ethics, Courage to express words or actions follows Code of Professional Conduct and registered nurses competency in ethics. Standing to continue follows Code of Professional Conduct and registered nurses competency in ethics, even in difficult circumstances. This is the operational definition to guide the framework for develop the Thai moral integrity scale to assess moral integrity for professional nurses.

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2. Generate an item pool

Nowadays, there are no an instrument for assessing moral integrity of professional nurses in the Thai context. Therefore, the first step of the study will devote to generating items to be categorized as the domains of moral integrity. The content of each item should primarily reflect the construct of interest (DeVellis, 2012). Four methods for generating items have been proposed by Mishel (1998): first, to review the literature; second, to use the combination method of the literature review and interviews with consultant or experts in the area of interest and patients' interviews; third, to select items from existing scales; and finally, to develop items from a qualitative investigation that involves interviews within the target population to explore the concept (Mishel, 1998).

This study used intensive literature reviewed to judgments concerning items. The literature includes a variety of sources such as published anecdotal studies, case studies, or reports of the experiences of specific populations. The research has to consider the criteria as guidance for including appropriate items in the initial poo as follows: reflection of the scale's purpose, redundancy, number of items, characteristics of good and bad items,

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The appropriate item should not be ambiguous. Each scale language should be simple, clear, and directly. The construction process needs to eliminate items with several characteristics, such as, statements with a quandary, factual statements that contain longer than 20 words, and compound or complex sentences, items that express more than one idea or use multiple negatives (DeVellis, 2012). Another concern in item construction is the number of items that should be constructed for any scale because the major source of error within a test is the sampling of items. The more

items in the measure, the less the error, therefore, the number of the initial item pool should be large enough to insure against poo internal consistency (DeVellis, 2012). The number of the items in an initial poo should be developed at least two times before the final scales (Nunnally&Bernstrein, 1994) are determined.

3. Define the choices of responses to items

There are two parts in the format of measurement and defining the choices of responses to items: first, is the nature and numbers of the responses options; and second, is the particular instruction (Spector, 1992). One strategy that has been used for construction scales to influence the format of items and response choices is Thurston scaling. Spector (1976) tried to use a variation of Thurston scaling to assign internal scale values to a variety of adjectives. The natures to the response choices are typical address, including agreement, evaluation, or frequency has been used (Burn & Grove, 2011).

Agreement options are usually bipolar and symmetrical around a neutral point and may include statements such as strongly agree, agree, uncertain, disagree, and strongly disagree. Items can be written to assess many different types of variables, including attitudes, personality, and opinion. Evaluation options ask the respondent for an evaluation rating along a good and bad feature, such as positive to negative or excellent to terrible. It can be used to assess attitude an investigate performance. Frequency is usually used to investigate how often or how many times the respondents have performed particular behavior. These options include statement such as rarely, seldom, sometimes, and frequently. Besides, each choice should contain 13 words or phrases and scale value should be ordered from low - high for each choice. The maximum number of categories should be generally using remarkably seven plus

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or minus two (five to nine) for discrimination ability (Streiner& Norman, 1995). The scale developers have to specifically address the design of the instruction to maximize accuracy of the findings. The instructions are necessary for the respondents who are not familiar with the scale.

4. Review an items

The preliminary review of all test items should be done once the generation of items has been completed. Item review is a method that many investigators use to evaluate an instrument. This review serves multiple purposes related to maximizing content validity of the scale (DeVellis, 2012). Having experts review the item pool can confirm or invalidate definition of the phenomenon. The mechanics the obtaining evaluations of item relevancy usually involve providing the expert panel with a working definition of the construct. The content of an item should be related to the construct. This process is necessary to submit the blueprint specifications, to the experts and representatives of the population of the area of interest. At the five appropriate, accurate, and representative experts would be selected as content validates since this number of experts would provide an enough level of control for chance agreement (Lynn, 1986). Burn & Grove (2011) indicated that individuals with experts in various fields might be sought, for example, one with knowledge of instrument development, a second with clinical expertise in appropriate field of practice, and a third with expertise in another discipline relevant to the content area. Polit & Beck (2014) suggested that the expert who are knowledgeable and expertise in the study should not less than 3 persons.

It needed to calculate the item level for content validity index (I-CVIs) and inter-rater agreement for quantifying the extent of agreement between the experts

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(Polit& Beck, 2010). Waltz and colleague (2005) suggested that it should be assessed interrater agreement with the experts 'use of the rating scale to solve the problem of disagreements among experts affected by the differences in the education and experiential backgrounds of panel experts. To calculate overall I-CVIs, divide the total number of items ranked 3-4 (Quite/very relevant) by both reviewers by the total number of items (Polit& Beck 2010). Inter-rater agreement scores range from 0 to 1. Although, the acceptation of inter-rater agreement score is .70 or over .80 or better that is agreement for new instruments (Davis, 1992). The first draft of the questionnaire should be revised according to the critique.

The aspects of each item to be considered by content specialists during item review include accuracy, clarity, appropriateness or relevance to the test specifications technical flaws, grammar, offensiveness or bias in items, and level of readability. Waltz and colleagues (2005) recommended that at least of three subjects review the questionnaire. However, Burn and Grove (2012) suggested 15 to 30 subjects to review it. The number of subject depends on the complexity of the instrument or the homogeneity of the target population representatives should be asked to complete the tool and then specify (1) which items they had difficulty responding to and why, (2) which items they have questions about, (3) revisions they believe should be made, and (4) suggestions for items that should be included. Finally, appropriate revisions should then be made.

Five experts were invited to be the content validates of this study from three areas of their expertise: (1) from the area of instructor's nurse ethics research, (2) from instructor who have experience to in clinical practice, and (3) from measurement development researchers.

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5. Select item for analyses

The next process is selecting the items to be used in the final version of the test. The purpose of item analysis is identifying items that form an internally consistent scale and eliminate items that do not meet this criterion. Internal consistency implies that all the items measure the same concept (Burn & Grove, 2011). Mishel (1998) stated that performance criteria must be established in order that items that do not contribute or actually detract from the total instrument can be detected and eliminated to strengthen the reliability and validity of the measure. Discriminative criteria are usually structured around two major performance criteria; (1) discriminability or the item and (2) precision of the item(Waltz, et al, 2005).The acceptable level of item to total, item to subscale, and inter item correlations should be .40 or greater, .50 or greater, and .30 or .70 respectively (Knapp & Brown, 1995). Factor analysis will used in item analysis. Items that do not load heavily on a factor can be deleted (Mishel, 1998). Factor analysis is used procedures to compute Cronbach's alpha coefficient for each set of items (Polit& Beck, 2010).

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6. Conduct the field test

The first full administration and item analysis was conduct to investigate the performance of the individual items of the scale (Mishel, 1998; Waltz et al, 2005). The sample size calculation was conduct follow the final items. Hair (1998) state that the number of subject could be using 10 subjects per item (Hair, 1998). Moreover, Knapp and Campbel (1989) stated that the number of subject per item could rations ranging from three subjects per item to 40 or 50 subjects per item. The sample should be large enough to eliminate subject variance as a significant concern for the adequacy of the items. Nunnally (1978) suggested that 300 subjects

are an adequate number. Fewer than 300 subjects might be enough, if a scale with a pool of about 20 items is initially constructed. The large sample size can be representative of the population it includes almost all types of subjects. Consequently, the researcher needs to consider both size and composition of the development sample.

Psychometric Property Evaluation

There are two basic psychometric properties, validity and reliability that were used to evaluate the quality of scale development. Psychometric testing used to evaluate the quality of the instrument (Polit& Beck, 2010).

1. Validity

Validity refers to the ability of an instrument to measure the test scores appropriately, meaningfully, and usefully (Polit& Beck, 2010). It is the degree to which any measuring instrument measures what it is intended measure. The instrument has been developed to serve three major functions: (1) to represent a specific universe of content, (2) to represent the measurement of specific psychological attributes, (3) to represent the establishing of a relationship with a particular criterion. There are three types of validity; each type represents a response to one of three functions of an instrument; (1) content validity, (2) criterion related validity, (3) construct validity (DeVellis, 2012; Mishel, 1998; Nunally& Bernstein, 1994).

1.1 Content Validity: Content validity is a crucial factor in instrument development that addresses whether items on an instrument adequately measure desire domains of content (Waltz, et al, 2005). The development stage of content validation consists of domain identification, item generations, and instrument

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construction (DeVellis, 2012, Nunally& Bernstein, 1994). The content validity index (CVI) is the degree of an instrument that has an appropriate sample of item for the construct being measured (Polit & Beck, 2014). There were two type of content validity index (CVI) that include; 1) the content validity index for items (I-CVI) that refer to the score of content experts is asked to rate each scale item in terms of its relevance to the underlying construct, it should not less than 0.80. If there was an items less than 0.80, the researcher should be revised or removed that items (Polit & Beck, 2014), 2) the content validity index for scales (S-CVI) refer to the proportion of items given a rating of quit/very or the proportion of items given a rating of 3 or 4 relevant with the construct (Waltz et al., 2005). In the judgment qualification stage, a panel of experts evaluates the relevancy of items individually and as a set (DeVellis, 2012). Content validity is determined by the proportion of experts who score items as relevant or representative with either a 3 or 4. The index for relevancy or representativeness of the total instrument is the percentage of total items judged to have content validity by receiving a score of 3 or 4 (Grant & Davis, 1997). The S-CVI should be 0.80 or higher is acceptable. For the new content valid instrument should have a minimum content validity index of .80 or better (Davis, 1992; Lynn, 1986; Waltz et al., 2005).

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1.2 Construct Validity: Construct validity refer to how well a measure actually measures the construct it is intended to measure. It is related to the measure capturing the major dimension of the concept under study (Polit& Beck, 2010). The more abstract the concept, the more difficult it is to establish construct validity. Known group validation typically involves demonstrating that some scale can differentiate members of one group from another. The procedures in known group

technique consist of an instrument being administered to be high and low on the measured concept. In this study were test construct validity by method of factor analysis that included exploratory factor analysis (EFA) and confirmatory factor analysis (CFA)

2. Reliability

Reliability involves the consistency or repeatability of measurements made with the instrument (Mishel, 1998). The reliability is concerned with the portion of measurement that is due to permanent effects persisting from sample to sample. Reliability can be assessed in various ways that depend on the nature of the instrument and the aspect of the reliability of the concept of greatest concern. Three important aspects are internal consistency, equivalence, and stability (Polit& Beck, 2010).

Internal consistency is the basic and popular approach to reliability as well. Internal consistency or homogeneity demonstrates the correlation of various items within the instrument. It used to assess item interrelatedness. It is related to the degree to which set of items designed to measure the same concept is inter-correlated. The original approach to determining homogeneity was split-half reliability. This approach required only one full-length test administration and then divided the total number of items into two halves. The correlation between the two halves provided an estimate of the reliability of all of the items (Burns & Grove, 2011, Polit& Beck, 2010, Mishel, 1998). Waltz and colleague (2005) explained that internal consistency is most frequently employed for cognitive measures when the concern is with the consistency of performance of one group of individuals across the items on a single measure. The

alpha value should be at least .70 to indicate sufficient internal consistency in a new tool (Nunnally& Bernstein, 1994).

Equivalence involves two different forms of an instrument to measure the same concept including parallel and inter-rater reliability. In this form of reliability, one is attempting to determine whether there will be consistent performance on two different forms of a measure by the same subject during one specific testing period. The two different measures are considered alternative or parallel forms using two characteristics, including the same objective procedure and being based on the same conceptual definition. The parallel forms consist of one set of items that has been divided randomly into two subsets that make up the two parallel forms (DeVellis, 2012).

Inter-rater form of equivalence refers to the comparison of two or more trained observers watching an event simultaneously and scoring it independently, using the protocol developed for the study on two occasions (Burns & Grove, 2011, Polit& Beck, 2010, Mishel, 1998). The data can be used to calculate an index of equivalence or agreement between observers. The statistical analysis is needed to calculate coefficient alpha for more than two raters. The inter-rater reliability value should be .90 or higher (Burns & Grove, 2011). The correlation between the two halves provided an estimated of the reliability of all of the items (Burns & Grove, 2009, Polit& Beck, 2010, Mishel, 1998). Waltz and colleague (2005) explained that internal consistency is most frequently employed for cognitive measures when the concern is with the consistency of performance of one group of individual across the items on a single measure.

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Stability is concerned with the consistency of repeated measures of the same attribute with the use of the same scale or instrument. Assessments of an instrument's stability involve two procedures that are evaluated, including test-retest reliability and inter-rater reliability. The comparison is performed objectively using the correlation coefficient. The possible values for correlation coefficient range from -1 through .00 to +1.00 (Polit& Beck, 2010). The high correlation coefficient indicates high stability of measurement by the instrument (Burns & Grove, 2011). Test-retest time internal should be greater than a two-week period (Knapp & Brown, 1995); Burns (2005) recommend a period of two weeks to one month between the two testing times. The test-retest method is appropriate to determine the reliability of a measure when the concept being tested is stable over the time period (Mishel, 1998, Spector, 1992). For this study were used the internal consistency for reliability testing.

5. Factor analysis

Factor analysis was used to uncover the latent structure (dimensions) of a set of variables. It reduces attribute space from a larger number of variables to a smaller number of factors and as such is a "non-dependent" procedure (that is, it does not assume a dependent variable is specified). Factor analysis could be used for any of the following purposes: To reduce a large number of variables to a smaller number, create a set of factors to be treated as uncorrelated variables as one approach to handling multicollinearity in such procedures as multiple regression, identify clusters of cases and/or outliers, to determine network groups by determining which sets of people cluster together There are several different types of factor analysis, with the most common being principal components analysis (PCA), which is preferred for purposes

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of data reduction. However, common factor analysis is preferred for purposes of causal analysis and for confirmatory factor analysis in structural equation modeling, among other settings.

5.1 Exploratory Factor Analysis (EFA)

This method is a statistical method used to uncover the underlying structure of a relatively large set of variables. The exploratory factor analysis is a technique within factor analysis whose overarching goal is to identify the underlying relationships between measured variables. The process included an inductive approach, model derived from gathered data, and data driven (Brown, 2006). The assumption of EFA which need to evaluated were normality, outliers, correlation among variables (KMO and Bartlett's test of sphericity). The process of exploratory factor analysis consisted of four step which factor extraction, factor rotation, interpreting and naming factor, and factor score (Brown, 2006; Hair, 2010; Schumacker, 2011).

Exploratory factor analysis (EFA) seeks to uncover the underlying structure of a relatively large set of variables. The researcher was test assumption of indicator may be associated with any factor. This is the most common form of factor analysis. There is no prior theory and one uses factor loadings to intuit the factor structure of the data.

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The factor analysis is the process that used to determine the factor structure of the instrument. The exploratory factor analysis provides insight into which factors best explain the variation among the items on the instrument. These empirically derived constructs are then compared with the judgmentally developed categories reviewed previously. It the empirically derived constructs and the judgmentally created categories do not correspond, the conceptual and operational definitions of the concept should be reviewed in light of the characteristics of the target people. If the results of the EFA do not support the concept structure, it may be necessary to go back to the beginning of the instrument design process (McCoach et al, 2013).

5.2 Confirmatory Factor Analysis (CFA)

The method of confirmatory factor analysis included deductive approach, model specified before data gathering, and theory driven (Brown, 2006). It is used to test whether measures of factors are consistent with a nature of that construct. Confirmatory factor analysis (CFA) seeks to determine if the number of factors and the loadings of measured (indicator) variables on them conform to what is expected on the basis of pre-established theory. Indicator variables are selected on the basis of prior theory and factor analysis is used to see if they load as predicted on the expected number of factors. The researcher's a priori assumption is that each factor (the number and labels of which may be specified a priori) is associated with a specified subset of indicator variables. A minimum requirement of confirmatory factor analysis is that one hypothesizes beforehand the number of factors in the model, but usually also the researcher will posit expectations about which variables will load on which factors (Kim and Mueller, 1978).

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The propose of the CFA method

Defining individual construct**:** First, we have to define the individual constructs. The first step involves the procedure that defines constructs theoretically. This involves a pretest to evaluate the construct items, and a confirmatory test of the measurement model that is conducted using confirmatory factor analysis (CFA), etc.

For develop the overall measurement model theory**:** In confirmatory factor analysis (CFA) was consider the concept of unidimensionality between construct error variance and within construct error variance. At least four constructs and three items per constructs should be present in the research.

Designing a study to produce the empirical results: The measurement model must be specified. Most commonly, the value of one loading estimate should be one per construct. Two methods are available for identification; the first is rank condition, and the second is order condition.

Assessing the measurement model validity: Assessing the measurement model validity occurs when the theoretical measurement model is compared with the reality model to see how well the data fits. To check the measurement model validity, the number of the indicator helps us. For example, the factor loading latent variable should be greater than 0.7. Chi-square test and other goodness of fit statistics like RMR, GFI, NFI, RMSEA, SIC, BIC, etc., are some key indicators that help in measuring the model validity.

The factor loadings, also called component loadings in PCA, are the correlation coefficients between the variables (rows) and factors (columns). Analogous to Pearson's r, the squared factor loading is the Factor Analysis. for interpreting factor loadings, it could be use rule of thumb in confirmatory factor analysis, loadings should be 0.70 or higher to confirm that independent variables identified a priori are represented by a particular factor, on the rationale that the 0.70 level corresponds to about half of the variance in the indicator being explained by the factor. However, the 0.7 standard is a high one and real-life data may well not meet this criterion (Raubenheimer, 2004). The other value is the eigenvalues. The eigenvalue for a given factor measures the variance in all the variables which is accounted for by that factor. The ratio of eigenvalues is the ratio of explanatory importance of the factors with respect to the variables. If a factor has a low eigenvalue, then it is contributing little to the explanation of variances in the variables and may be ignored as redundant with more important factors.

The important indicator is the factor scores that are the scores of each case (row) on each factor (column). To compute the factor score for a given case for a given factor, one takes the case's standardized score on each variable, multiplies by the corresponding factor loading of the variable for the given factor, and sums these products. Computing factor scores allows one to look for factor outliers. Also, factor scores may be used as variables in subsequent modeling.

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Rotation a method is serves to make the output more understandable and is usually necessary to facilitate the interpretation of factors. The sum of eigenvalues is not affected by rotation, but rotation will alter the eigenvalues of particular factors and will change the factor loadings. An alternative rotation can explain the same variance but have different factor loadings, and since factor loadings are used to intuit the meaning of factors, this means that different meanings may be ascribed to the factors depending on the rotation. Normally, an orthogonal method such as varimax is selected and no factor correlation matrix is produced as the correlation of any factor with another is zero (Hair, 2010; Joreskog, 2016; Kline, 2011).

The sample size for factor analysis

There is no scientific answer to this question, and methodologists differ. Alternative arbitrary "rules of thumb," in descending order of popularity, include those below. These are not mutually exclusive: Bryant and Yarnold, for instance, endorse both STV and the Rule of 200. There is near universal agreement that factor analysis is inappropriate when sample size is below 50. 1) Rule of 10. There should be at least 10 cases for each item in the instrument being used. 2) STV ratio. The subjects-to-variables ratio should be no lower than 5 (Bryant and Yarnold, 1995) 3. Rule of 100: The number of subjects should be the larger of 5 times the number of variables, or 100. Even more subjects are needed when communalities are low and/or few variables load on each factor. (Hatcher, 1994) 4. Rule of 150: Hutcheson and Sofroniou (1999) recommends at least 150 - 300 cases, more toward the 150 end when there are a few highly correlated variables, as would be the case when collapsing highly multicollinear variables. 5. Rule of 200. There should be at least 200 cases, regardless of STV (Gorsuch, 1983) 6. Rule of 300. There should be at least 300

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cases (Norušis, 2005: 400). 7. Significance rule. There should be 51 more cases than the number of variables, to support chi-square testing (Lawley and Maxwell, 1971).

Summary of Literature Review

This study was developed and tested the instrument for assess moral integrity in professional nurses. it was important to review the meaning, definition, dimensions, and attribute of moral integrity and other empirical support that related to this concept and population, such as moral concept, moral integrity in all aspects, existing instrument that related to moral integrity, professional principle, believe, value, and process of instrument development. The construct of moral integrity are consisted three themes of definition. The process to developed the instrument were consists of two phases which instrument formation and psychometric properties. In the first phase of the questionnaire development consists of the step to identifying construct definition, generate an item pool, define the choices of responses to items, review items, and select items for analysis in the second phase, psychometric evaluation that included the step to evaluated construct validity by exploratory factor analysis, and confirmatory factor analysis and step to evaluated the reliability of the instrument.

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CHAPTER III
METHODOLOGY

This chapter describes the methodology used in the present study. The purpose of this study will develop the Thai Moral Integrity Scale (TMIS) for professional nurses. This part will present the methodology that used for constructing the scale and testing the validity and reliability. The following provides the details of the research design, population and sample, research instrument, scale development, data collection process, protection of human subjects, and data analysis procedures.

Research design

This study was a descriptive, cross-sectional research design that was used to develop Moral Integrity Scale to assessed moral integrity in professional nurses.

The development procedures comprised the steps guided by DeVellis (2012), Waltz (2005). The study were composed two phases of instrument formation phase and psychometric properties phase.

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The first phase were include steps of identification of a concept and framework , generation of an items pool, defining the choices of responses to items, reviewing items, examining content validity, and conducting the preliminary items tryout.

The second phase was testing the psychometric properties. This phase aim to test reliability and construct validity of the Moral Integrity Scale by used the exploratory factor analysis and confirmatory factor analysis.

Population and sample

The target population in this study were professional nurses. This study uses samples for developing the instrument and data analysis. Data were collect from professional nurses who are working in hospitals in Thailand. The criteria of samples was determined in this study as follows: 1) professional nurses that graduated from a baccalaureate nursing program 2) Working in nursing clinical practice, 3) Willing to participate in this study.

According to the process to develop and validate the instrument, there were many samples required for each step that be summarized as follows:

1) Ten professional nurses to clarity and readability for cognitive interview. They were purposively recruited at Ramathibodi hospital. The inclusion criteria of professional nurses were similar to target population.

2) Thirty participants from the population of interest is a reasonable minimum recommendation for an item tryout of this study where the purpose is scale development. So, thirty professional nurses were recruited for preliminary item tryout for examined internal consistency of the Moral Integrity Scale. They were recruited at Ramathibodi hospital bases on target population (Johanson, 2010; Fan & Thompson, 2001; Hertzog, 2008).

3) They were recruited 502 professional nurses by using multi stage sampling from four different type of hospitals in Thailand that included tertiary care hospital (350 cases), secondary care hospital (60 cases), primary care hospital (58 cases), and special care hospital (34 cases). This step was test for exploratory factor analysis to identifying dimensions of moral integrity based on a set of items. The sample size calculation will conduct follow the final items (Mishel, 1998; Waltz et al,

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2005). Hair (1998) state that the number of subject could be using 10 subjects per item. Knapp and Campbel (1989) stated that the number of subject per item could rations ranging from three subjects per item to 40 or 50 subjects per item. According to Comrey and Lee (1992) suggested that the sample size that appropriated for use in exploratory factor analysis is fair if more than 200 case, it is good if more than 300 case, it is very good if more than 500 case, and it will be excellent if more than 1,000 case (Table 5). So, in this study were used 502 participants for step to conduct exploratory factor analysis.

Table 5 The sample size for factor analysis

Sample size	**Appropriation**
50	Very poor
100	Poor
200	Fair
300	Good
500	Very good
1000	Excellent

(Comrey and Lee, 1992; MacCallum, 2001).

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4). There were recruited 502 professional nurses for confirmatory factor analysis (another group with EFA) from tertiary, secondary primary, and special care hospital bases on target population above.

5). The 502 professional nurses which the same group of confirmatory factor analysis were recruited to process of reliability testing The process with selected sample and sampling was the same with process of exploratory factor analysis. Moreover, Burn and Grove (2011) suggested it could be depend on the

number of final items. (Burn & Grove, 2011; Mishel, 1998; Waltz et al, 2005; Hair et al., 1998). The summary of sample size of this study was presented in Table 6.

Table 6 The summary of sample size of this study

Setting	Cognitive reviewing	Item tryout	EFA	CFA	Reliability
Tertiary care hospital	10	30	350	350	350
Secondary care hospital			60	60	60
Primary care hospital			58	59	59
Special care hospital			34	33	33
Total	10	30	502	502	502

Sampling technique

This study were used multi-stage sampling procedure to select the participants. There were four kind of hospital care that include tertiary care hospital, secondary care hospital, primary care hospital, and special care hospital (Bureau of policy and strategy, 2011). There were the name of hospital as follows:

1. Ramathibodi hospital (Tertiary care hospital)
2. Pathum thani hospital (Secondary care hospital)
3. Khlong luang hospital (Primary care hospital)
4. Lam lukka hospital (Primary care hospital)
5. Samkok hospital (Primary care hospital)
6. Central chest institute of Thailand (Special care hospital)

Multistage sampling is a type of sampling which involves dividing the population into groups. Then, one or more clusters are chosen at random and everyone within the chosen cluster is sampled. Using all the sample elements in all the selected clusters may be prohibitively expensive or unnecessary (Cochran, 1977; Cox and Hinkley, 1974). So, multistage cluster sampling becomes useful in this study. The researcher randomly selects the area from each part of Thailand. Constructing the clusters is the first stage. After that selected the hospital in each kind of the hospital in the central part. In each hospital, the professional nurses which meet the inclusion criteria were screen in this study by using the quota of workplace area in each hospital. The researcher approach and invited professional nurses that meet inclusion criteria to participate in the study. The process of multi-stage sampling was presented in Figure 5 as follow.

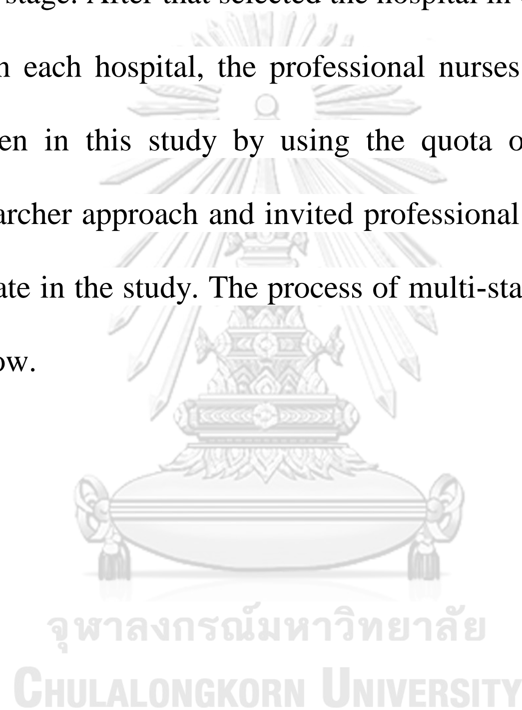
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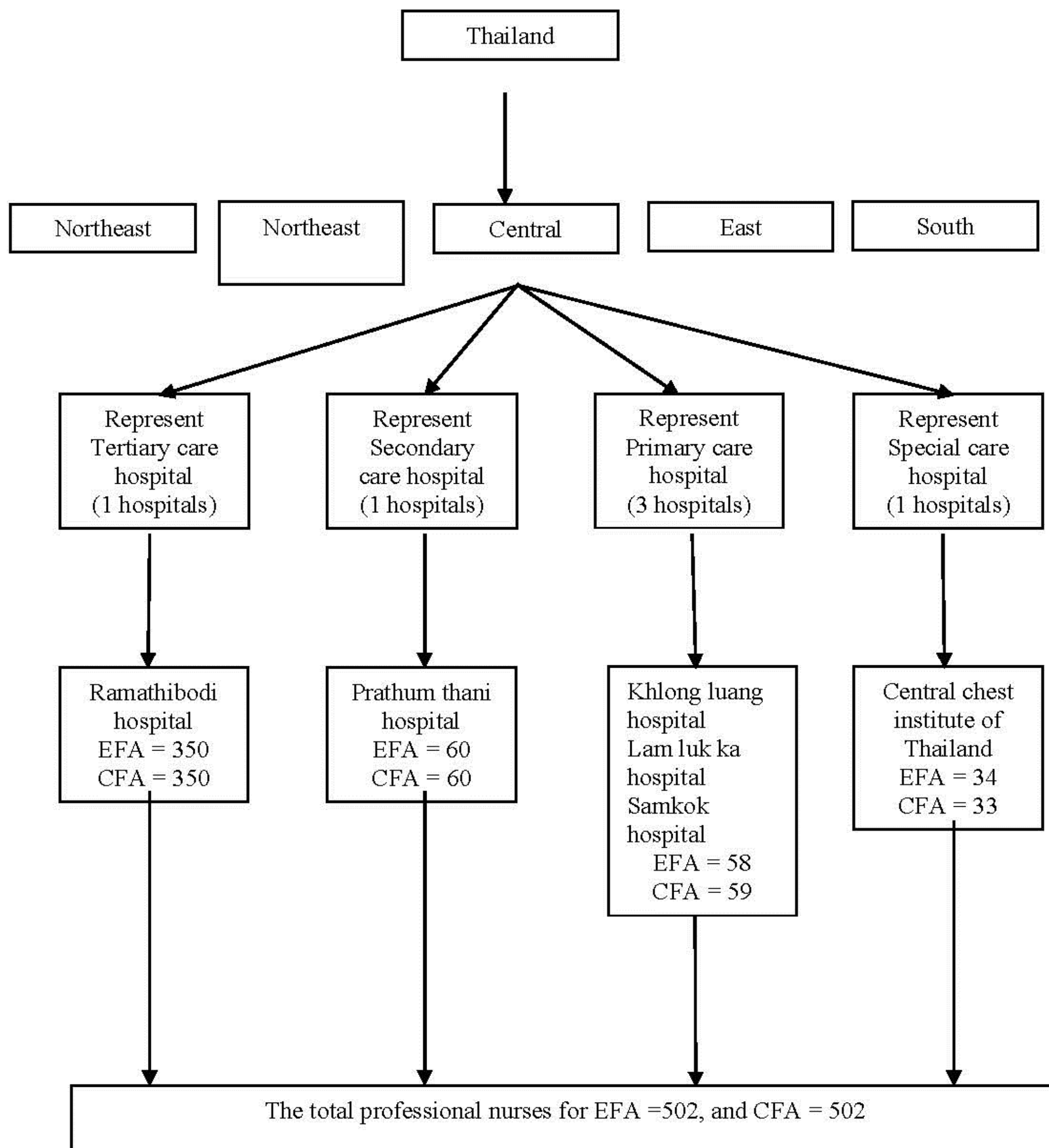
Figure 5 Sampling method of this study.



Protection of human subjects

The study was approved by the ethical committee of each hospital where the data was collected. Written informed consent was obtain from both the nurses and researcher (see appendix). All the information was gave to the director of each hospital that were setting of the study, to obtain authorization and cooperation. Before collecting the data, the participants were received an information sheet which described the title of the study, its purpose, assurance of the samples' anonymity, the usefulness of the results of the study, a chance to ask questions and express concerns, time and tasks to completed, and the name and address of the researcher, after which the researcher also responded to any questions the potential participant may have had. There is no harm to the samples in this study and there are no costs or payment requested from the samples in this study. During the collecting data, the process would be stopped whenever the samples needed without penalty. After completing the data collection, all data were keep anonymous through the use of name code. Their names was not used in the data; rather a code number was used to ensure confidentiality. This was explained before they signs their names on the informed consent sheet.

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This study was approved by the Ethical Committee on Human Rights Related to Research Involving Human Subjects Faculty of Medicine Ramathibodi Hospital, Mahidol University (Reference number: ID076059), The Ethical Review Committee of Prathum thani Hospital (Reference number: PT/0032. 203.3/2813), The Ethical Review Committee of Pathum thani Medical and Sanitary Human Ethic Committee (Reference number: PPHO-REC2561/006). After received approving for collecting the eligible professional nurses who willing to participate in this study were informed by consent form. The participant could withdrawal from the study at any time. The result of this study were reported as the whole picture.

Process of instrument development

There were several researchers that defined the steps for developing an instrument such as Spector (1992), Mishel (1998), DeVellis (2012), Burns and Grove (2011). The step and process are bases on the goal of an instrument. This study aim to develop The Moral Integrity Scale for measure the moral integrity in professional nurses. The participants will rate their ability to thinking, feelings, and acting in this scale. Items represent all components that operationally define moral integrity in professional nurses. The overview of each step of instrument development will divide into two phase including (1) instrument formation and (2) psychometric properties evaluation. The detail of both process were described in the following section.

Phase I: Instrument Formation

The instrument formation process was a procedure for developing the scale construction. It is important to have an ideal or frame work to guide the moral integrity because this concept could not be measure in directly. So, the definition and meaning of concept have to defined (Waltz. et al, 2005; Walker & Avant, 2005). The process to determine and defining the dimensions and attributes involves five steps of develop the theoretical definition, defined the variables from the theoretical definition, identify observe variable, develop the means for evaluated the variable, and assess the adequacy of the resulting operational definition (Waltz et al., 2005).

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Identifying the construct definition

The process of the Thai Moral Integrity Scale (TMIS) formation started with studying approaches concept and reviewing of literature on the definition,

the existing instruments that related to assessment moral integrity, the principle of professional nurse's value, and determination of the dimensions of the moral integrity. This study integrated Carter's concept of moral integrity and comprehensive review of relevant literature. The moral integrity in professional nurses were consist which three main components that include: discernment, consistent act, and public justification. Moreover, intensive literature review in professional value and belief were integrated to guide for the construct framework in this study.

The intensive literature reviews of the information were retrieved by using electronic database searches. The conducted using the CINAHL, Pub Med and Scopus databases. The beginning of databases starts from 1963, until 2018. The search terms were used moral integrity, integrity, moral integrity, moral integrity in nurses, assess/measure moral integrity and assess/measure moral integrity in professional nurses. The search outcomes were included the studies which main focus on moral integrity in general area such as: social field, philosophy field, business field, psychological field, and health care field especially in professional nurses. There were qualitative and qualitative and quantitative studies. Almost studies that related to moral integrity were conduct in qualitative research to identify the concept of moral integrity and answering the questions," what is moral integrity (Bauman, 2011, Graham, 2001, Pike, 2001, McFall,, 1987, DeWolf, 1989, Edgar, 2011). The details of literature were represented in Chapter II. After data were extracted, the next step were analyses and interpret the content in term of defined and explores the concept of moral integrity.

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The process of initial list of dimensions was included with the review of precedent literature to compile an initial list of three possible themes of moral integrity (Table 7). This list was formulated by identified in the literature review. To sum up, there were various definitions of moral integrity show overlaps, and differences. In the next process, the researcher developed the conceptual framework of moral integrity by drawing from Carter's concept and various definitions found in the literature reviews.

Table 7 The summary of definition and themes of moral integrity**.**

Definition and meaning of moral integrity from literature	**Themes**
Discernment	Aware to belief /value
Critical thinking (interpreting, analyzing, evaluating, explaining, self-regulating)	
Reflectiveness, Understanding, Conclusion, Knowledge, Become aware of, Deliberate, Consider	
Honest of thinking belong with belief and conviction	
Courage to stand on to do the right thing base on moral value.Adherence in belief	
Public justification	Courage to openly thinking and feeling, belong with belief /value
Openly (thinking, feeling, acting),	
Action of showing something to be the right or reasonable.	
Courage to decision making	

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Definition and meaning of moral integrity from literature	Themes
Consistent act Stability (thinking, feeling, acting) Strong (thinking, feeling, acting) Reliably across time and situation Resulting feeling consistent with conviction. Doing follow thinking, feeling Courage to speak out and do the right thing even have constrains or forces Confrontation of fear to stand alone	Standing to continue follow belief /value, even have other disagree or difficult

The process of operationalization of the concept has been proposed by Waltz and colleagues. This process involves five step: 1) developing the theoretical definition; 2) specifying variables derived from the theoretical defection; 3) identifying observable indicators; 4) developing meaning for measure the indicators; 5) the evaluating the adequacy of the resulting operational definition (Waltz, et al., 2005).

Table 8 Themes of moral integrity in professional nurses

No.	Nursing dimensions
1.	Aware to the Code of Professional Conduct and registered nurses competency in ethics
2.	Courage to express words or actions follow the Code of Professional Conduct and registered nurses competency in ethics
3.	Standing to continue follow the Code of Professional Conduct and registered nurses competency in ethics

According to the definition of moral integrity from carter's concept and literature reviewed, the definition of moral integrity in professional nurses were integrated with belief that are the regulation and professional standard to guide professional nurse perform good nursing care and give the benefit to the patients. The professional standard in this study refer from Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and aspect of competency in ethics of professional nurses that are scope of nursing practice appropriately. The meaning and definition of moral integrity in professional nurses reflect three dimensions of moral integrity and professional standard in professional nurses that showed in Table 9.

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Table 9 The definition of initial dimensions of Thai Moral Integrity Scale

Initial dimensions	Definition and meaning
Aware to the Code of Professional Conduct and registered nurses competency in ethics	Ability of the professional nurses to give the good reason regarding the moral good, understand, consider, and aware for the thinking, when give nursing care for the patient or work in clinical practice belong with the professional standard that consists of Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and aspect of competency in ethics of professional nurses. Nurses aware to work based on patient right, human dignity, kindness, compassion, and benefits of patients. Be aware of patient's values and beliefs, never take risks which may adversely affect patients, be accountable for all outcomes of personal nursing practices, be consider the appropriate action to protect patients, be analyzing ethical issues and making ethical decisions appropriately for the patients.
Courage to express words or actions follow the Code of Professional Conduct and registered nurses competency in ethics	Ability of professional nurses to express words or actions that are good for the patients based on Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and aspect of competency in ethics of professional nurses. Openly action base on patient right, human dignity, kindness, compassion, and benefits of patients that present the right or reasonable when work in clinical practice. To treat the patient without duress, take care the patients based on patient's values and beliefs, never take risks which may adversely affect patients, be accountable for all outcomes of personal nursing practices, take appropriate action to protect patient, be analyzing ethical issues and making ethical decisions appropriately for the patients.

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Table 9 The definition of initial dimensions of Thai Moral Integrity Scale (Continued)

Initial dimensions	Definition and meaning
Standing to continue follow the Code of Professional Conduct and registered nurses competency in ethics	Ability of professional nurses to standing continue to acting belong with Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and aspect of competency in ethics of professional nurses that base on patient right, human dignity, kindness, compassion, and benefits of patients, even in difficult circumstances, fear, or disagree from other in clinical practice. Give nursing care to the patients in critically situation. Perform the practice without taking into account the safety and unnecessary expenses of patients.

According to intensive literature review of existing knowledge above, the operational definition of moral integrity in professional nurses in this study: refer to ability in professional nurses that aware to professional standard and courage to express words or actions follow professional standard in nursing profession. Standing to continue follow professional standard in nursing profession, even in difficult circumstances.

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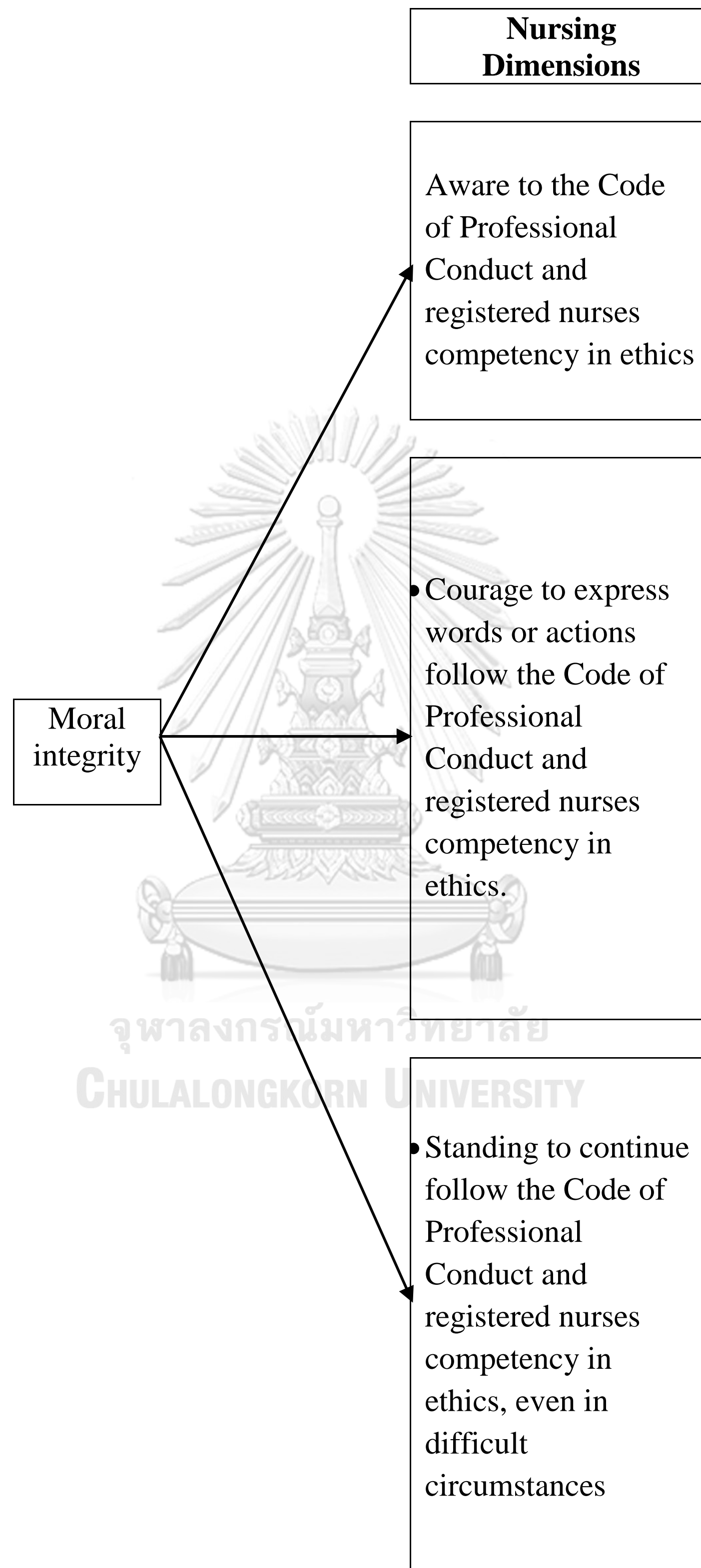
Figure 6 Moral integrity concept in Thai professional nurses



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Generate an items pool

After defined the operational definition of moral integrity, the next process was the items generation. The content of each item were reflect the construct of moral integrity (DeVellis, 2012). After review the literature, there are Code of Professional Conduct and Nursing & Midwifery Practice Stand that as the guideline that represent the scope of professional nurses believe in nursing profession when they practiced in clinical area (Thailand Nursing & Midwifery Council). The professional nurses practiced base on Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) in the part of professional practices ethical guidelines to conduct towards for patients or clients that included as follow.

1) A professional practitioner must uphold professional standards as specified in the notification of the Nursing and Midwifery Council without asking for any special gratuity other than normal service fee.

2) A professional practitioner must not convince or persuade any client to use or receive nursing or midwifery services for their personal benefits.

3) A professional practitioner must not ask for any benefits in return due to picking up or sending a patient or client to receive nursing or midwifery services.

4) A professional practitioner must treat a patient or client politely and without any duress.

5) A professional practitioner must not deceiver or mislead or client for private gain.

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6) A professional practitioner must not perform their professional practice without taking into account the safety and unnecessary expenses of a patients or client.

7) A professional practitioner must not order or encourage the use of drugs with secret ingredients including unidentified medical equipment.

8) A professional practitioner must not intentionally issue a false certificate or give or voice insincere opinions on any matter related to their profession.

9) A professional practitioner must not disclose a patients' or clients' information and records which they obtained in their professional capacity except obtaining prior consent of the patient or client, or as required by law or under a duty.

10) A professional practitioner must not refuse to help or assist any critically ill person upon being requested and within their capacity to do so.

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11) A professional practitioner must not perform their practices in public or public settings except in emergency first aid or on duty for other ministries, agencies or bureaus, departments, Bangkok Metropolitan Administration (BMA), Pattaya City, provincial administrative organizations (PAOs), municipalities, local administrative organization (LAOs) as proclaimed by the Minister in the Government Gazette or the Thai Red Cross Society.

12) A professional practitioner must not illegally perform or encourage anyone to illegally perform nursing and midwifery professional practices,

professional practice in medical or public health, or professional practice of healing arts.

Moreover, the aspect of competency in ethics of professional nurse there are the scope of nursing practices, regulations related to the legal issues. The aim to still being capable of making moral decisions and incorporating morality in their nursing practices appropriately, as described below:

(1) Be aware of one's own values and beliefs and not judge others based on these values and beliefs. Provide nursing care with respect to patient's value and beliefs as well as human dignity.

(2) Realize one's own limitations; be able to consult the appropriate expert. Never take risks which may adversely affect patients.

(3) Be accountable for all outcomes of personal nursing practices.

(4) Assist patient or clients in becoming informed of their rights and to understand them.

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(5) Take appropriate action to protect patients or clients who are vulnerable to violation of rights and immoral and unethical practices.

(6) Be capable of analyzing ethical issues and making ethical decisions appropriately in uncomplicated health care situations.

(7) Perform nursing care with kindness and compassion, taking into consideration the optimal benefits of clients, the professional code of ethics, and laws and relevant regulations.

After reviewed the literature, the researcher uses the combination method of the literature review and dimensions of moral integrity. This process was needed in order to clarity and specify the attributes that reflect all of dimensions of moral integrity in professional nurses. The items generation of Moral Integrity Scale based on Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and three dimensions of moral integrity that reflect the moral integrity in professional nurses. In nursing practice, the goal and quality of nursing care is the best practice that were guided and controlled by Nursing and Midwifery Regulation on Code of Professional Conduct. Each item should be thought of as a test, and the content of each item should primarily reflect the construct of moral integrity.

The processes of generated items are following the guide line of instrument development which state that Items should address only a single issue and should not be ambiguous. It is also important to keep all items consistent in terms of perspective, being sure not to mix items that assess behaviors with items that assess affective responses to or outcomes of behaviors (DeVellis, 2012; Harrison and McLaughlin, 1993).

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Another concern in item construction is the language. It should be familiar for nursing field, the word that contained per item should not longer than 20 words, should not have the compound or complex sentences. Moreover, the numbers of items that should be large enough to insure against poo internal consistency and should be developed at least two times before the final scales are determined (DeVellis, 2012; Nunnally & Bernstrein, 1994). These scales are included positively worded items to avoid forming the confusing (Burton, 1991).

This concept defined as the ability of professional nurses to express or action follow their thinking, feeling, and acting when they practices. The ability or behavior that could be observed in each dimensions of moral integrity were present in term of think about, awareness, consider, adherence, or interpreted the professional standard value. The ability of second dimension related to action that showing something by express the word, feeling, or action follow the professional standard value. The last dimension related to the action that standing to do something or courage to do something follow the professional standard value, even have constrains, forces, fear, or disagree from others. The Nursing and Midwifery Regulation on Code of Professional Conduct that related to nursing profession were reflect professional nurses' belief and conviction that are the right thing to do in nursing profession. The integration of moral integrity's dimensions and professional standard values were present in Table ו10 as follow.

Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses

Code of Professional Conduct and Registered nurses competency in Ethics	Dimensions		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
Code of Professional Conduct: - A professional practitioner must uphold professional standards as specified in the notification of the Nursing and Midwifery Council without asking for any special gratuity other than normal service fee.		39-I always refuse gifts from service recipients.	

Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	**Dimensions**		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
- A professional practitioner must not convince or persuade any client to use or receive nursing or midwifery services for their personal benefits.		30-When a relative of mine visits the hospital for treatment, he or she has to go through the same process as other service recipients.	
- A professional practitioner must not ask for any benefits in return due to picking up or sending a patient or client to receive nursing or midwifery services.	20-I think the amount of salary whether high or low – does not affect my work for service recipients.		
- A professional practitioner must treat a patient or client politely and without any duress.		29-I always speak politely to the service recipients even when I am not pleased.	
- A professional practitioner must not deceiver or mislead or client for private gain.	1-Honesty is important for me and nursing profession 9- I always intend to tell service recipients the truth even though it adversely affects the service recipients' feelings	23-I always ask for permission from or inform service recipients when providing nursing care even though they are not able to perceive or hear it.	49-I will tell service recipients the truth even if some are against this.

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	Dimensions		
	Aware to follow the professional standard	Courage to express words or actions follow the professional standard	Standing to continue follow the professional standard, even in difficult circumstances
- A professional practitioner must not perform their professional practice without taking into account the safety and unnecessary expenses of a patients or client.	8-I always think carefully before deciding which equipment or things should be used for providing nursing care for the service recipients to save resources and for optimum benefits. 21- I am determined not to put service recipients in a situation that can harm them when providing nursing care.		
- A professional practitioner must not order or encourage the use of drugs with secret ingredients including unidentified medical equipment.	2-Telling the truth with patient, family, and other is important for me.	33- I do not release any pictures or reveal any information in public.	
- A professional practitioner must not intentionally issue a false certificate or give or voice insincere opinions on any matter related to their profession.	15-I strictly keep service recipients' information confidential even though I have not been asked to do so. 18- I always prioritize the privacy of the service recipients and their relatives.		

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	**Dimensions**		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
- A professional practitioner must not disclose a patients' or clients' information and records which they obtained in their professional capacity except obtaining prior consent of the patient or client, or as required by law or under a duty.			47-I am willing to work on weekends if there is a short of nursing staff on duty.
Be aware of one's own values and beliefs and not judge others based on these values and beliefs. Provide nursing care with respect to patient's value and beliefs as well as human dignity.		25-I always ask for permission from or inform service recipients when providing nursing care even though they are not able to perceive or hear it. 34- I openly articulate respect of human value when give nursing care for the patients. 36- I wear minimal accessories such as a watch while I am working although I would like to wear more jewelry. 38- I am willing to let my colleagues receive praise or a reward from the assignment that was accomplished mostly by me.	44-I insist on strictly following the rules even though some are relaxed or waived. 52 I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the moral principle in nursing profession that I always adhere to.

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	**Dimensions**		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
Realize one's own limitations; be able to consult the appropriate expert. Never take risks which may adversely affect patients.	7-I always check all the equipment required for nursing care and go over the procedures of providing standard nursing care.	32-I always come to work on time. 35- I am willing to pay extra to come to work on time. 41- I start my work ahead of time to revise the information and plan nursing care so that service recipients can get the best treatment.	50-When facing a difficult situation in providing nursing care, I am willing to be criticized by the public rather than not strictly following the moral principle in nursing profession that I always adhere to.
Be accountable for all outcomes of personal nursing practices.	3-Nurses should always treat others as nurses would want to be treated 10- When I make a promise to the service recipients, I always keep it.	24- I am willing to work overtime to complete my nursing care. 40- I always follow up the nursing care plans that have been provided for service recipients.	46-I insist on achieving my nursing care plans according to nursing ethics.
Assist patient or clients in becoming informed of their rights and to understand them.	11-I am confident that I provide equal nursing care to every service recipient. 12- I consider fairness my first priority when providing nursing care.	26-I provide the same nursing care to service recipients that have different rights to the care.	48- I provide proper nursing care plans for service recipients according to their rights.

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	**Dimensions**		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
Take appropriate action to protect patients or clients who are vulnerable to violation of rights and immoral and unethical practices.		28-I help with the transfer of the service recipients when they have problems with their rights to nursing care.	51- I am willing to accept negative attitudes from those who do not agree with me when I want to provide nursing care according to the moral principle in nursing profession to which I always adhere to with the service recipients.

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	Dimensions		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
Be capable of analyzing ethical issues and making ethical decisions appropriately in uncomplicated health care situations.	4-I decide to do follow my belief when give nursing care for the patients. 6- I take every detail into consideration such as the facial expressions, emotions and body language of the service recipients when providing nursing care. 17-22- I always take the moral principle in nursing profession into consideration before making decisions to provide nursing care so that the service recipients can have quality nursing care. 22- I take leave only when necessary.	45- I insist on providing nursing care according to the nursing ethics even if it is difficult to achieve.	

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	Dimensions		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
	42- When a problem or a mistake related to nursing ethics occurs in my organization, I immediately inform those who are in charge. 43- When I cause a problem or make a mistake, I immediately inform those who are in charge.		
Perform nursing care with kindness and compassion, taking into consideration the optimal benefits of clients, the professional code of ethics, and laws and relevant regulations.	5- The professional nurse standard value will show up in how we give nursing care for the patients. 6- I take every detail into consideration such as the facial expressions, emotions and body language of the service recipients when providing nursing care. 13- I consider the service recipients' benefits my first priority when providing nursing care.	27-I immediately dispose of unsightly matter such as the urine, farces, nasal mucus, saliva or phlegm of the service recipients whenever I find it. 31- Although I am very busy, I usually spare some time to take care of service recipients that do not have a relative to take care of them. 37- When providing nursing care that cause an uncomfortable situation, or pain to the service recipients, I do my best to relieve such feeling or pain.	53- I always believe that the organization's work is more important than my personal work. 54- I prioritize my duties at work over my duties at home.

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Table 10 An items generation of Thai Moral Integrity Scale for Professional Nurses (Continued).

Code of Professional Conduct and Registered nurses competency in Ethics	Dimensions		
	Aware to follow the professional standard	**Courage to express words or actions follow the professional standard**	**Standing to continue follow the professional standard, even in difficult circumstances**
	14- I am ready to sacrifice my own benefits for the benefits of service recipients. 19- I think sacrifice is the foremost quality of nursing profession.		

Define the choices of responses to items

The next process is defining the choices of responses to items. Lissitz and Green (1975) suggested that the new items be scaled using five- or seven-point Likert scales. Measures with five- or seven-point scales have been shown to create variance that is necessary for examining the relationships among items and scales and create adequate coefficient alpha (internal consistency) reliability estimates. In this study used Likert-scale format with five-point scaling: 5 = strongly agree, 4 = agree, 3 = not sure, 2 = disagree, 1 = strongly disagree (Burn & Grove, 2011). This represent moral integrity in professional nurses which including three component of discernment, public justification, and consistency act.

There are no specific rules about the number of items to be retained. The measure needs to be internally consistent and be parsimonious, comprised of the minimum number of items that adequately assess the component of interest

(Thurstone, 1947). Adequate internal consistency reliability can be obtained with four or five items per scale (Harvey, Billings and Nilan, 1985; Hinkin and Schriesheim, 1989). Keeping a measure short is an effective means of minimizing response biases caused by boredom or fatigue (Schmitt and Stults, 1985). Additional items also demand more time in both the development and administration of a measure (Carmines and Zeller, 1979). These issues would suggest that a quality scale comprised of four to six items could be developed for most constructs or conceptual dimensions. It should be anticipated that approximately one-half of the new items will be retained for use in the final scales, so at least twice as many items should be generated than will be needed for the final scales. Once the scale has been developed it is time to pretest the scale for the content adequacy of the items. For this study were retained for four to six items per component of moral integrity.

Review an items

Experts were chosen for their interests and expertise in relevant areas of moral and ethical. Five experts were invited to the content validates from three areas of their expertise: (1) from the area of instructor's nurse ethics research, (2) from nurses who have experience to in clinical practice, and (3) from measurement development researchers. In this study, all of expert were expertise and had experience cover of three area. For each item, respondents were asked to rate the relevance on a scale of 1 (not relevant) to 4 (highly relevant) and to rate items for clarity. Free text comments regarding the items were invited and respondents were also asked to comment on content coverage. The content validity index (CVI) was calculated for each item as the proportion of experts rating the item as relevant (Polit & Beck 2006). Taking the acceptable value of the item-level CVI as 0.78 (Polit *et al.*

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2007), items with a CVI of less than this were considered for removal. Qualitative comments from the experts were also used as a guide for altering or removing items. Where expert comment appeared at odds with the qualitative data from the young people, the item was retained for field-testing.

The item review is a method that many investigators use to evaluate an instrument (DeVellis, 2012). The experts confirm and validate definition of the concept and the construct of moral integrity. The content of an item should be related to the construct (Lynn, 1986; Lobiond-Wood&Haber, 2010; Burn & Grove, 2011). This study were used seven experts will gather for validating content and construct validity (Polit & Beck, 2014). For all experts will be invited from three criteria of their expertise: criteria of instructor's nurse ethics research, criteria of nurses who have experience to in clinical practice, and criteria of measurement development researchers (DeVellis, 2012).

The comments and suggestions of some inappropriate or ambiguous items from the expert were revised and refined. Taking the acceptable value of the item-level CVI as 0.78 (Polit *et al*. 2007), items with a CVI of less than this were considered for removal. Qualitative comments from the experts were also used as a guide for altering or removing items. It needed to calculate the item level for content validity index (CVI) and inter-rater agreement for quantifying the extent of agreement between the experts. To calculate overall (CVI), the level of the items evaluated can be scored as follows.

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Score	1	Not applicable.
Score	2	Unsure.
Score	3	Applicable but need some improvements.
Score	4	Applicable.

This study was determined the content validity by used the Items Content Validity Index (I-CVI) and the Scale Content Validity Index/Average (S-CVI/Ave). For I-VCI process, it was computed the number of expects rating of the scale equal to 3 or 4 scores of relevance scale, divided by the number of all experts (Polit and Beck, 2014). It was calculated according to the formula below.

$$\text{I-CVI} = \frac{\text{Number of experts on which items agreed}}{\text{Total number of experts}}$$

The S-CVI/Ave was computed by averaging the I-CVIs, it used to evaluate the content valid (Polit and Beck, 2014). The formula was presented as below.

$$\text{S-CVI/Ave} = \frac{\text{Total of I-CVIs}}{\text{Total number of items}}$$

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The acceptable value of the item-level CVI as 0.78 (Polit *et al*. 2007), items with a CVI of less than this were considered for removal. Qualitative comments from the experts were also used as a guide for altering or removing items. The item-level CVI or I-CVI refer to a proportion of content experts giving item a relevant rating of 3 or 4 are ranged between 0.60 to 1.00 and the scale-level CVI or S-CVI that refer to the average of the I-CVIs for all items on this scale are calculated by using the average proportion method.

Select the items for analysis

The criteria of choosing the item was consider as follows: 1) the item should be deleted, if the item was not applicable, 2) the item should be deleted, if the scores of unsure were more than the scores of applicable, and 3) the item should be applicable, if the scores of unsure were less than the score of applicable (Waltz, et al, 2010). To calculate overall of the content validity index (CVI), the total number of items ranked 3-4 by the total number of items (Polit& Beck 2010; Lynn, 1996).

After the final draft of Moral Integrity Scale had been improved from the suggestion of all experts, the first test of face validity was assessed to clarity the wording, the appropriate style, formatting, the clarity of the language used and the understanding of the target population (Trochim 2001; DeVon. et al. 2007). Hertzog (2008) suggested that, for assessing clarity or item wording, acceptability of formatting, a sample of 10 subjects may be suffice (Hertzog, 2008). So, ten professional nurses were selected from Ramathibodi hospital to conduct face validity on a Likert scale of 1-4, strongly disagree= 1, disagree= 2, agree= 3, and strongly agree= 4. After that, the draft of instrument was revised base on professional nurses' feedback. Finally, all items of final draft of MIS were appropriateness and clarity of item wording.

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Conduct the preliminary item tryout

The next process was the items tryout of the TMIS. The aim of this step to evaluated the performance of each item. Thirty professional nurses with purposive sampling were included in this process. An inclusion criteria was the same with the main study. This process was conduct at Ramathibodi hospital after received the documentary proof of ethical clearance from the Committee on Human Rights

Related to Research Involving Human Subjects. Researcher give the inform consent, the cover letter information, data sheet, and MIS to thirty participant. The data from this process were evaluated the characteristic of the participants, descriptive analysis of an items, and reliability.

Phase II: Testing the psychometric properties of the Moral Integrity Scale

1. Construct validity testing

Factor analysis was used to analyze for investigator determine the construct of the concept. It need to characterize the items set (DeVellis, 2012). There were to procedure of method that consisted 1) exploratory factor analysis that was used to consider to be an appropriate means to achieve the construct validity of the instrument and to serve the aim of data reduction and 2) confirmatory factor analysis for assess the replicability of the results to the population.

1.1 Evaluating exploratory factor analysis (EFA)

This process aim to evaluate the latent variables that consisted in the construct. The principle components extraction with varimax rotation was used to extract the factors based on the result. The criteria for accept of factor loading is equal to 0.40 or higher (Polit & Beck, 2014). For the sample that appropriated in this process should be large enough to calculate variance as a significant concern for the adequacy of the items (DeVillis, 2012). Vorapongsathorn (1997) suggested that requires sample size is 50 to 100 were adequate to reflect the errors from the instrument. Hair (1998) suggested that the sample size calculation will use 10 subjects per item. Some study suggested that 100 to 250 subjects could be conduct for EFA method (Hair, 1995; Lee, 1992). According to above information, this study was conducted follow Comrey guide line that used participants more than 500 case in EFA

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procedure. After EFA process, the final draft were consisted of 27 items based on four factors.

1.2 Evaluating confirmatory factor analysis (CFA)

The confirmatory factor analysis (CFA) was used to test the construct validity of the instrument on the large group sample in the field study. It could be approved from the goodness of fit indicators that included; the chi-square goodness of fit (should be not-significant), the ratio of the chi-square/degree of freedom (should be less than 2), the goodness of fit index (GFI) (should be greater than 0.90), the adjusted goodness of fit index (AGFI) (should be greater than 0.90), the SRMR and RMSEA values (should be less than 0.05), and the comparative fit index (CFI) and non-normed fit index (NNFI) (should greater than 0.95) (Hair, 2010). The indicator loadings for statistical significance were estimated by t-value (should exceed the critical values of $\pm$1.96 for the 0.05 significance level). The squared multiple correlation (R2) or variance extracted were used to detect the item reliability with a threshold level of 0.50 or higher (Hair, 2010).

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The participants in CFA process were recruited for testing the validity. The acceptable sample size wills ten subjects per item (Hari et al., 1998; Mishel, 1998). The sample size may depend on data saturate from the study. According to Camrey and Lee (1992) suggested that the sample size with 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1,000 as excellent for conducting factor analysis. Netemeyer (2003) state that the sample size must be at least 5 subjects per item (Netemeyer, Bearden & Sharman, 2003) .Therefore, sample size in this phase

were used 502 professional nurses that met the inclusion criteria from different hospital level in Thailand (tertiary, secondary, primary, and special care hospital).

2. Reliability testing

This process aimed to test the reliability of the final draft of the instrument by test the internal consistency of the TMIS. The Cronbach's alpha was used to indicator for reliability. The level Cronbach's alpha for the total score xhould be greater than 0.70 for new instrument (DeVellis, 2012; Hair, 2010). The participants in this process were the same characteristics and inclusion criteria with the step of confirmatory factor analysis.

Data collection procedure

The purposes of data collection are to construct and develop instrument and to test their psychometric properties. For this study, the data collection was conduct after the permission from each setting that include four kind of hospital level (tertiary, secondary, primary, and special care hospital). The participants were recruited from six setting which inclusion criteria that mention before. Two instruments of personal data sheet and the final draft of the Moral Integrity Scale were used in this process. The collecting data was stared from March to May, 2018.

The data collecting process were conduct in the step as follows: 1) collected data for face validity testing by used convenient sampling at Ramathibodi hospital, 2) collected the data for preliminary item tryout by used thirty professional nurses by used convenient sampling at the same setting with face validity, 3) the data for EFA and CFA procedure were collected from six setting that were already approved the

Ethical consider from the committee in each setting. The researcher contacted to each setting for set the appointment date to be collected the data. Before collected the data, researcher explained the details of the information included the objective of the study, inclusion criteria, benefit, risk, and the confidentiality of patient information when this study finish and was publish in the social.

After informed consent from the participants, they were completed the TMIS and demographic data sheet. The participant putted the questionnaire into an envelope and sealed for confidentiality. After all participant in each setting completed the questionnaires, researcher examined all questionnaire for checked and completed the data. If had some questionnaire was uncompleted or had the missing data, they were asked to completed again. Finally, the researcher asked the participants for an understanding and suggestions in this instrument. In this process, research was well cooperated with each hospital and all participants.

Data Analysis

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The data analysis of this study requires descriptive and analytical statistics that provides by the Statistical Package for the Social Sciences (SPSS for Windows version 18.0) that used for analyzed descriptive statistic, reliability, and EFA. The LISREL program version 8.72 was used for analyzed CFA. Demographic data: used for describing the personal characteristics of the participants and examining the distribution of demographic variables by used descriptive statistics including frequency and percentages, means, standard deviation, and ranges

Item analysis: for precision of the items, Pearson's product moment correlation coefficient was conduct to evaluate the precision for items for the item to

total, item to subscale, and item to item analyses. The criterion level for those correlation coefficients was 0.30 or greater (Knapp & Brown, 1995).

Content validity: concerns the item sampling adequacy, this is the extent to which a specific set of items reflects a content domain (DeVellis, 2012). It is the degree to which an instrument has an appropriate set of items for the construct (Polit & Beck, 2014). The content validity index (CVI) was used to quantify the extent of agreement between the experts. CVI is the proportion of items on an instrument that achieve a rating of quite relevant or highly relevant (rating of 3 or 4 in 4-point rating scale) by whole items (Davis, 1992).the acceptable level for content validity should not less than 0.80 (Waltz, et al, 1991).

For construct validity, the exploratory factor analysis with principle component analysis (PCA) was perform to examine the constructs of the new Moral Integrity Scale instrument. By using maximum likelihood, the principal axis factoring extraction analysis. Eigenvalues greater than 1 and screen-test was consider addressing the number of factors. Item loading cutoff point is 0.35 or greater (Hair, et al., 1998; Norusis, 1993). Confirmatory factor analysis was conduct for theoretical knowledge in testing the construct validity of the Thai Moral Integrity Scale (TMIS).

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The items selection proses was evaluated by using the corrected items total correlation. Nunlly (1994) suggested that, the corrected item total correlation should be > 0.3 to 0.70. The Thai Moral Integrity Scale (TMIS) had range of the corrected item total correlation between 0.30-0.70. Then, the EFA was conducted to identify a inter relationships among items and group of items that perform the concept of moral integrity (DeVillis, 2012). The Kaiser-Mayer-Olkin (KMO) and the Bartlett’s Test of

Sphericity was used to evaluate the assumptions of EFA. The acceptable of EFA result were factor loadings should be greater than 0.30 that were chosen (DeVillis, 2012).

Using the confirmatory factor analysis (CFA) for consider the concept of unidimensionality between construct error variance and within construct error variance. The value of one loading estimate should be one per construct. Two methods are available for identification; the first is rank condition, and the second is order condition. Assessing the measurement model validity occurs when the theoretical measurement model is compared with the reality model. The measurement model validity consider by goodness of fit indicators that consists factor loading latent variable that should be greater than 0.7, Chi-square test and other goodness of fit statistics like RMR, GFI, NFI, RMSEA, SIC, BIC, etc., are some key indicators that help in measuring the model validity.

Reliability: the Cronbach's alpha coefficient was used to examine the internal consistency reliability. The Cronbach's alpha was computed on the total scales and each sub-scale of Moral Integrity Scale. The acceptable coefficient was 0.70 or greater for new scale (Burn & Grove, 2012, Knapp & Brown, 1995; Nunnally, 1994; DeVellis, 2012). By the rule of thumb, the items is acceptable when it has correlation more than 0.20 and it should be deleted if correlation less than 0.20 (Norman, 1995).

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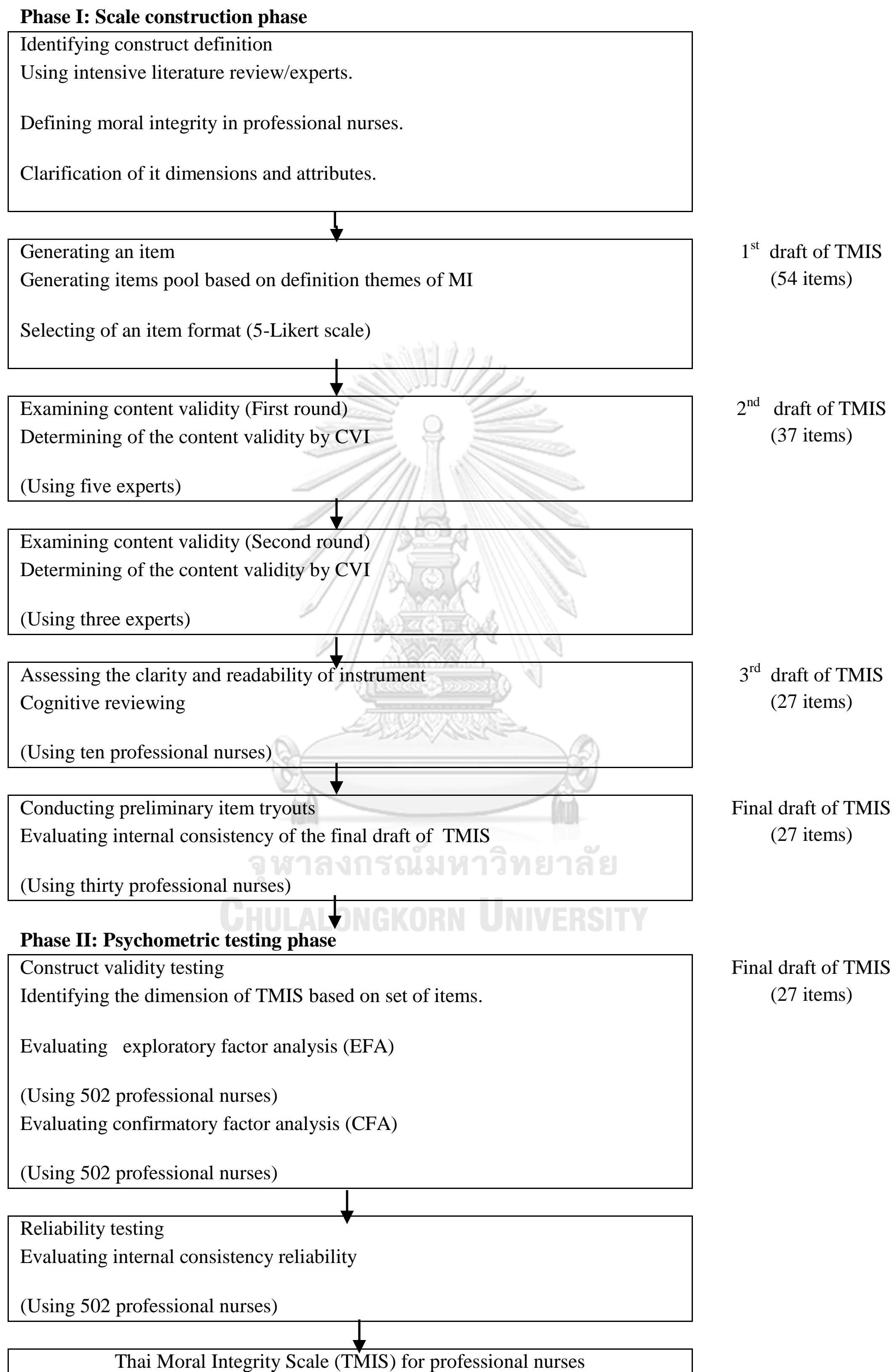
Figure 7 The process of developing the Thai Moral Integrity Scale for professional nurses



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CHAPTER IV
RESULTS

This chapter describes the result of the study. The reports of data analysis are presented in two part, followed by the process of instrument development that includes instrument formation and psychometric property test of the Thai Moral Integrity Scale (TMIS) in validity and reliability testing.

Phase I: Instrument formation

The constructing of definition and component of Thai Moral Integrity Scale (TMIS)the framework of concept guideline of this study based on the comprehensive literature review and expert interview.

1. Identifying construct definition

The result from intensive literature review was aimed to identify the existing components or frame work of the instrument to assess moral integrity in professional nurses. The finding showed the meaning and components of moral integrity and the antecedent of moral integrity in professional nurses. Moreover the meaning and components of moral integrity in professional nurses from the expert interviews was the related with the meaning of the literature reviewed. The data analysis using a content analysis method, there are included with the part of thinking, feeling, and doing that followed the belief or the moral principle in nursing profession. The literature review and Carter's concept indicated that the definition of moral integrity are group in to three theme that are present in Table 12.

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According to nursing profession, there are meta-paradigms that related to practice or situation that concrete from nursing knowledge (Masters, 2015). There are four phenomena that define nursing practice are identified as nursing, person, health, and environment. These four phenomena or concepts make up the overall meta-paradigm of nursing. The concept of moral integrity was used and familiar in philosophy field. The original dimension were related to belief and value that person aware, express, and standing continue to do, even have the obstacle. In nursing area, there have the professional standard value that belong with Nursing and Midwifery Regulation on Code of Professional Conduct (B.E.2550) and moral principle (Thailand Nursing & Midwifery Council). So, this study was defined themes of moral integrity in professional nurse by integrated the professional standard value and moral principle to reflect moral integrity in professional nurses when practice in the clinical. Three themes were present in Table 12

Table 11 The definition themes of Thai moral integrity in nursing profession.

o.	Themes of moral integrity	Themes of nursing dimensions
.	Aware to belief /value	Aware to the Code of Professional Conduct and registered nurses competency in ethics
.	Courage to openly thinking and feeling, belong with belief /value	Courage to express words or actions follow the Code of Professional Conduct and registered nurses competency in ethics
.	Standing to continue follow belief /value, even have other disagree or difficult	Standing to continue follow the Code of Professional Conduct and registered nurses competency in ethics, even in difficult circumstances.

After defined the operational definition of moral integrity, the next process is the items generation. The content of each item will reflect the construct of moral integrity (DeVellis, 2012). After review the literature, the researcher uses the combination method of the literature review and interviews with experts in nursing ethics area.

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The processes of generated items are following the guide line of instrument development which state that Items should address only a single issue and should not be ambiguous. It is also important to keep all items consistent in terms of perspective, being sure not to mix items that assess behaviors with items that assess affective responses to or outcomes of behaviors (DeVellis, 2012; Harrison and McLaughlin, 1993).

Another concern in item construction is the language. It should be familiar for nursing field, the word that contained per item should not longer than 20 words, should not have the compound or complex sentences. Moreover, the numbers of items that should be large enough to insure against too internal consistency and should be developed at least two times before the final scales are determined (DeVellis, 2012; Nunnally&Bernstrein, 1994). These scales are included positively worded items to avoid forming the confusing (Burton, 1991). The first draft of Moral Integrity Scale developed from intensive review of literature consist 54 items.

2. Generating an item pool

This process was used to defining the items that reflect the moral integrity in professional nurses. The item pool are contained the number of items that were relevant to the meaning of moral integrity framework from literature review, and expert interview. The initial item pool of 54 items was generated to reflect all constructions of moral integrity. The first draft consisted of three theme of moral integrity. The first theme contained 23 items, second theme contained 26 items, and third theme contained 11 items. After completing the item pool process, there were 54 items of the first draft of the Thai Moral Integrity Scale (TMIS) which this draft were used to the items review process.

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3. Determine the format

This instrument was designed to assess moral integrity in professional nurses by using the level of opinion and perception of professional nurses. To determine the response format for this tool, the characteristics of moral integrity concept and ability of professional nurses that respond to this instrument were the significant information to take into consideration.

According to DeVellis (2012). Suggested that a five Likert scale may provide the middle option for respondent the participant that avoid using extreme response and decrease the missing data. Additionally, the minimum number of ordered response levels should be range from five to seven to obtain the characteristics of change and statistics (Dawes and John, 2008). The Likert scale was used to assess in this instrument. It reflect the level of moral integrity in professional nurses. The level of scale are separate into five level of agreement in professional nurses (DeVellis, 2012). It may be appropriate for nurses because a five Likert scale may be easier and more convenient for nurses to respondents in limited time. The total scare were calculated in the form of a summarized score for each of the participants.

The first draft were 54 items which represent moral integrity in professional nurses. Thai Moral integrity scale, each item describes a moral integrity in professional nurses in aspect of thinking feeling and acting. Using a 5-point Likert scale that including;

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Strongly disagree
Disagree
Not sure
Agree
Strongly agree

The first draft of the Moral Integrity Scale (MIS) was prepared to the process of items reviews as present in Table 13.

Table 12 The first draft of the Thai Moral Integrity Scale (TMIS) (54 items)

tem	English Version	Thai Version
	Honesty is important for me and nursing profession	ความซื่อสัตย์เป็นสิ่งสำคัญสำหรับฉันและวิชาชีพการพยาบาล
	Telling the truth with patient, family, and other is important for me.	การพูดความจริงกับผู้ป่วย ญาติ และผู้ร่วมงานมีความสำคัญสำหรับฉัน
	Nurses should always treat others as nurses would want to be treated	พยาบาลควรดูแลผู้อื่นเช่นเดียวกับที่ต้องการให้ผู้อื่นปฏิบัติต่อเรา
	I decide to do follow my belief when give nursing care for the patients.	ฉันตัดสินใจทำตามความเชื่อของฉันตามมาตรฐานวิชาชีพที่ถูกต้องเมื่อให้การพยาบาลผู้ป่วย
	The professional nurse standard value will show up in how we give nursing care for the patients.	มาตรฐานวิชาชีพการพยาบาลจะแสดงให้เห็นว่าเราให้การพยาบาลผู้ป่วยอย่างไร
	I take every detail into consideration such as the facial expressions, emotions and body language of the service recipients when providing nursing care	ฉันใส่ใจในรายละเอียดเช่นสีหน้า ความรู้สึก ท่าทางของผู้รับบริการเสมอเมื่อให้การพยาบาล
	I always check all the equipment required for nursing care and go over the procedures of providing standard nursing care.	ฉันทบทวนซ้ำทุกครั้งก่อนให้การพยาบาลแก่ผู้รับบริการในเรื่องความพร้อมของอุปกรณ์ และขั้นตอนการปฏิบัติที่ถูกต้องตามมาตรฐานวิชาชีพการพยาบาล
	I always think carefully before deciding which equipment or things should be used for providing nursing care for the service recipients to save resources and for optimum benefits.	ฉันพิจารณาไตร่ตรองทุกครั้งก่อนเลือกอุปกรณ์ หรือสิ่งที่ใช้ในการพยาบาลแก่ผู้รับบริการเท่าที่จำเป็นเพื่อการใช้ทรัพยากรอย่างคุ้มค่า
	I always intend to tell service recipients the truth even though it adversely affects the service recipients' feelings because telling the truth is the right thing to do.	ฉันตั้งใจที่จะพูดความจริงแก่ผู้รับบริการทุกครั้งแม้จะมีผลต่อความรู้สึกต่อผู้ฟังก็ตามเพราะความจริงคือสิ่งที่ถูกต้องที่สุด

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Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
0	When I make a promise to the service recipients, I always keep it.	เมื่อฉันให้สัญญากับผู้รับบริการ ฉันจะทำตามสัญญาทุกครั้ง
1	I am confident that I provide equal nursing care to every service recipient.	ฉันมั่นใจว่าฉันให้การพยาบาลแก่ผู้รับบริการด้วยความเท่าเทียมกันทุกครั้ง
2	I consider fairness my first priority when providing nursing care.	ฉันยึดถือหลักความยุติธรรมเป็นอันดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ
3	I consider the service recipients' benefits my first priority when providing nursing care.	ฉันคำนึงถึงประโยชน์สูงสุดของผู้รับบริการเป็นอันดับแรกทุกครั้งเมื่อให้การพยาบาล
4	I am ready to sacrifice my own benefits for the benefits of service recipients.	ฉันพร้อมที่จะเสียสละผลประโยชน์ของตนเองเพื่อประโยชน์ของผู้รับบริการเสมอ
5	I strictly keep service recipients' information confidential even though I have not been asked to do so.	ฉันเก็บความลับและข้อมูลของผู้รับบริการอย่างเคร่งครัดแม้มิได้มีการร้องขอ
6	I always observe the rules set by my organization.	ฉันยึดมั่นในกฎระเบียบของหน่วยงานที่กำหนดขึ้นเสมอ
7	I always take the moral principle in nursing profession into consideration before making decisions to provide nursing care so that the service recipients can have quality nursing care.	ฉันนำหลักจริยธรรมในวิชาชีพการพยาบาลมาพิจารณาและประกอบการตัดสินใจในการให้การพยาบาลที่มีคุณภาพมากที่สุดแก่ผู้รับบริการทุกครั้ง
8	I always prioritize the privacy of the service recipients and their relatives.	ฉันให้ความสำคัญกับความเป็นส่วนตัวของผู้รับบริการและญาติของผู้รับบริการเสมอ

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Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
9	I think sacrifice is the foremost quality of nursing profession.	ฉันคิดว่าความเสียสละคือเอกลักษณ์อันดับแรกของวิชาชีพการพยาบาล
0	I think the amount of salary – whether high or low – does not affect my work for service recipients.	ฉันคิดว่าค่าตอบแทนการทำงานที่มากขึ้นหรือน้อยลงมิได้มีผลกระทบในการปฏิบัติงานของฉันต่อผู้รับบริการ
1	I am determined not to put service recipients in a situation that can harm them when providing nursing care.	ฉันตั้งใจอย่างแน่วแน่ที่จะไม่ทำให้ผู้รับบริการอยู่ในภาวะที่เสี่ยงต่อการเกิดอันตรายจากการให้การบริการโดยเด็ดขาด
2	I take leave only when necessary.	ฉันลาหยุดงานเมื่อมีความจำเป็นเท่านั้น
3	I always tell service recipients the truth even though it hurts their feelings.	ฉันพูดความจริงแก่ผู้รับบริการทุกครั้งแม้จะมีผลต่อความรู้สึกและอารมณ์ของผู้รับบริการ
4	I am willing to work overtime to complete my nursing care.	ฉันยอมเลิกงานเกินเวลาเพื่อปฏิบัติการพยาบาลที่ได้รับมอบหมายแก่ผู้รับบริการให้เสร็จสมบูรณ์ทุกครั้ง
5	I always ask for permission from or inform service recipients when providing nursing care even though they are not able to perceive or hear it.	ฉันขออนุญาตหรือแจ้งผู้รับบริการทุกครั้งที่ให้การพยาบาล แม้ว่าผู้รับบริการจะไม่รับรู้หรือได้ยิน
6	I provide the same nursing care to service recipients that have different rights to the care.	ฉันดูแลผู้รับบริการที่มีสิทธิการรักษาต่างกันด้วยการพยาบาลที่เหมือนกัน
7	I immediately dispose of unsightly matter such as the urine, farces, nasal mucus, saliva or phlegm of the service recipients whenever I find it.	ฉันจัดการกับสิ่งไม่น่าดู เช่นปัสสาวะ อุจจาระ น้ำมูก น้ำลาย เสมหะ ของผู้รับบริการให้หมดไปทันทีที่พบเจอ

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Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
8	I help with the transfer of the service recipients when they have problems with their rights to nursing care.	ฉันช่วยดำเนินเรื่องหรือส่งต่อให้ผู้รับบริการกรณีมีปัญหาด้านสิทธิการรักษาพยาบาลที่ไม่ได้รับตามที่ควรจะเป็น
9	I always speak politely to the service recipients even when I am not pleased.	ฉันพูดกับผู้รับบริการด้วยวาจาไพเราะนุ่มนวลทุกครั้ง แม้จะมีความรู้สึกไม่พอใจ
0	When a relative of mine visits the hospital for treatment, he or she has to go through the same process as other service recipients.	เมื่อมีญาติของฉันเข้ามารับบริการในโรงพยาบาลที่ฉันทำงาน ฉันให้ญาติของฉันเข้ารับบริการตามขั้นตอน เช่นเดียวกับผู้รับบริการคนอื่น
1	Although I am very busy, I usually spare some time to take care of service recipients that do not have a relative to take care of them.	แม้ว่างานจะยุ่งมากแต่ฉันก็มักจะหาเวลาเข้าไปดูแลผู้รับบริการที่ไม่มีญาติมาดูแลเสมอ
2	I always come to work on time.	ฉันมาทำงานทันเวลาเข้างานทุกครั้ง
3	I do not release any pictures or reveal any information in public.	ฉันไม่เปิดเผยภาพหรือข้อมูลของผู้รับบริการออกสู่สื่อสาธารณะ
4	I openly articulate respect of human value when give nursing care for the patients.	ฉันแสดงให้เห็นถึงการเคารพศักดิ์ศรีความเป็นมนุษย์เมื่อฉันให้การพยาบาลแก่ผู้ป่วย
5	I am willing to pay extra to come to work on time.	ฉันยอมเสียค่าใช้จ่ายเพื่อให้เดินทางไปให้ทันเวลาเข้าปฏิบัติงาน
6	I wear minimal accessories such as a watch while I am working although I would like to wear more jewelry.	ฉันใส่เครื่องประดับในขณะปฏิบัติงานเท่าที่จำเป็น เช่น นาฬิกา แม้ว่าจะอยากแต่งตัวตามยุคสมัยก็ตาม

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Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
7	When providing nursing care that cause an uncomfortable situation, or pain to the service recipients, I do my best to relieve such feeling or pain.	ทุกครั้งที่ต้องให้การพยาบาลที่ก่อให้เกิดความไม่สุขสบาย หรือความเจ็บปวดกับผู้รับบริการ ฉันจะทำทุกวิถีทางเพื่อลดความไม่สุขสบายเหล่านั้นลง
8	I am willing to let my colleagues receive praise or a reward from the assignment that was accomplished mostly by me.	ฉันยอมให้เพื่อร่วมงานได้รับคำชมเชย หรือความดีงามจากผลงานที่เกิดจากการกระทำของฉันเป็นส่วนใหญ่
9	I always refuse gifts from service recipients.	ฉันปฏิเสธในการรับของตอบแทนจากผู้รับบริการทุกครั้ง
0	I always follow up the nursing care plans that have been provided for service recipients.	ฉันติดตามผลการให้การพยาบาลของฉันที่ให้แก่ผู้รับบริการทุกครั้ง
1	I start my work ahead of time to revise the information and plan nursing care so that service recipients can get the best treatment.	ฉันเข้างานก่อนเวลาเพื่อศึกษาข้อมูลและวางแผนในการดูแลผู้รับบริการที่ฉันต้องรับผิดชอบให้ดีที่สุดเสมอ
2	When a problem or a mistake related to nursing ethics occurs in my organization, I immediately inform those who are in charge.	เมื่อเกิดปัญหาหรือความผิดพลาดที่เกี่ยวข้องกับหลักจริยธรรมในวิชาชีพการพยาบาลในหน่วยงาน ฉันจะแจ้งผู้เกี่ยวข้องทันทีโดยไม่ลังเล
3	When I cause a problem or make a mistake, I immediately inform those who are in charge.	เมื่อเกิดปัญหาหรือความผิดพลาดที่เกิดขึ้นจากตัวฉัน ฉันจะแจ้งผู้เกี่ยวข้องทันทีโดยไม่ลังเล
4	I insist on strictly following the rules even though some are relaxed or waived.	ฉันยืนยันที่จะปฏิบัติตามกฎระเบียบทุกครั้งแม้ว่าจะมีการอนุโลมเกิดขึ้น
5	I insist on providing nursing care according to the nursing ethics even if it is difficult to achieve.	ฉันยืนหยัดที่จะให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลทุกครั้งแม้ว่ามีความยากลำบาก

Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
6	I insist on achieving my nursing care plans according to nursing ethics.	ฉันยืนหยัดความตั้งใจในการพยาบาลผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลได้สำเร็จทุกครั้ง
7	I am willing to work on weekends if there is a short of nursing staff on duty.	ฉันยอมที่จะไปปฏิบัติงานในวันหยุดกรณีที่มีพยาบาลลาป่วยหรือไม่มีใครสามารถไปปฏิบัติงานได้
8	I provide proper nursing care plans for service recipients according to their rights.	ฉันปฏิบัติต่อผู้รับบริการตามสิทธิผู้ป่วยที่พึงมีทุกข้ออย่างเคร่งครัด
9	I will tell service recipients the truth even if some are against this.	ฉันกล้าบอกความจริงแก่ผู้รับบริการแม้ว่าผู้อื่นจะไม่เห็นด้วย
0	When facing a difficult situation in providing nursing care, I am willing to be criticized by the public rather than not strictly following the moral principle in nursing profession that I always adhere to.	เมื่อเผชิญกับสถานการณ์ที่ยากลำบากในการปฏิบัติการพยาบาลฉันยอมที่จะถูกตำหนิจากสังคม มากกว่าจะลดระดับจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นลง
1	I am willing to accept negative attitudes from those who do not agree with me when I want to provide nursing care according to the moral principle in nursing profession to which I always adhere to with the service recipients.	ฉันยอมที่จะถูกมองไม่ดีจากผู้ที่ไม่เห็นด้วยกับฉัน เมื่อฉันต้องให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่น
2	I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the moral principle in nursing profession that I always adhere to.	ฉันมั่นใจว่าการให้การพยาบาลแก่ผู้รับบริการของฉันตั้งแต่วันเรกที่ทำงานจนถึงปัจจุบันเป็นไปตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นเสมอมา

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Table 13 The first draft of the Thai Moral Integrity Scale (TMIS) 54 items (Continued)

tem	English Version	Thai Version
3	I always believe that the organization's work is more important than my personal work.	ฉันคิดว่างานส่วนรวมสำคัญกว่างานส่วนตัวเสมอ
4	I prioritize my duties at work over my duties at home.	ฉันเลือกปฏิบัติหน้าที่ในงานที่รับผิดชอบให้สมบูรณ์มากกว่าเลือกทำหน้าที่บทบาทในครอบครัวให้สมบูรณ์

4. Reviewing an items

This process aimed to assess content validity of the developed instrument. The first draft of Moral Integrity Scale (MIS) were consists 54 items and three theme of moral integrity that include, the first theme contained 22 items, second theme contained 21 items, and third theme contained 11 items.

The first draft were assess the content validity again by five experts that were required to identify the relevance, clarity, and language appropriateness of each item with four point rating scale (Appendix). Moreover, there are the comments and suggestions from five experts that concerning some items that inappropriate or some items should be revised. The example of suggestion were presented in Table 14.

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Table 13 The example of result of items review from five experts (first round)

Items	Content	Suggestion from experts
1	Honesty is important for me and nursing profession	It should be adjusted to be more visible or measurable.
2	Telling the truth with patient, family, and other is important for me.	It should be focus on patient, not family or other.
3	Nurses should always treat others as nurses would want to be treated	The words should be adjusted to be clear.
4	I decide to do follow my belief when give nursing care for the patients.	Should clarify what the sub-beliefs are.
23	Every words that I speak, are the same everything that I think.	May be give the situation in the clinic.
34	I openly articulate respect of human value when give nursing care for the patients.	Use Thai idioms.
45	I give nursing care for the patients follow professional nurse standard value, even I son tired.	Review content consistently.

5. Examining content validity

Lynn (1986) suggest that three experts is minimum and more that 10 was probably unnecessary. The items were reviewed by five experts for content validity and clarity and provided extensive comments (DeVellis, 2012; Polit & Beck, 2014, Lynn, 1986). Five experts will be invited to be the validators of this study. All of the expert are come from the area of instructor's nurse ethics research and had experience in clinical practice, two of them are the instructors of measurement development researchers.

The content validity were determined by five experts the acceptable value of the item-level CVI as 0.78 (Polit *et al*. 2007), items with a CVI of less than this were considered for removal. Qualitative comments from the experts were also used as a guide for altering or removing items. The item-level CVI or I-CVI refer to a

proportion of content experts giving item a relevant rating of 3 or 4 are ranged between 0.60 to 1.00 and the scale-level CVI or S-CVI that refer to the average of the I-CVIs for all items on this scale are calculated by using the average proportion method (Appendix F).

The next step involves the experts to rate each item of first draft of Thai Moral Integrity Scale (TMIS) in term of its relevance to the moral integrity construct. There were 54 items of moral integrity scale were content evaluated by five experts. The second draft have the I-CVI range from 0.6-1.00. The CVI/Ave are 0.71. According to Polit and Beck (2010) suggests that, if the I-CVI is higher than 79 percent, the item will be appropriate, between 70 and 79 percent needs revision. If it is less than 70 percent, it is eliminated (Davis, 1992, Polit& Beck 2010). So, there are 17 items were eliminated (Appendix).

According to expert's comment and suggestion, they gave some suggestion to modify wording of some items for more appropriate and clarity. There are some items that writing in term of English sentence or English idiom. Some items that included the patient's family or co-worker should be eliminated. Some items should be present the action that could be evaluated and interpreted in professional nurses when practice in clinical.

There were some items that had I-CVI equal to 0.6 (item number 3, 10, 13, 14, 20, 23, 24, 25, 31, 35, 36, 40, 42, 47, 53, 54) that are less than 0.70. The result of CVI was present in Table 15.

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Table 14 The result of CVI of the first draft of TMIS (54 items)

Items	I-CVI (54 items)	Remained	Items	I-CVI (54 items)	Remained
1	0.8	✓	28	0.4	
2	0.8	✓	29	0.4	
3	0.6	✓	30	0.4	
4	0.8	✓	31	0.6	✓
5	0.8	✓	32	0.4	
6	0.4		33	0.4	
7	0.8	✓	34	0.4	
8	0.8	✓	35	0.6	✓
9	0.4		36	0.6	✓
10	0.6	✓	37	0.8	✓
11	0.4		38	0.8	✓
12	0.8	✓	39	0.4	
13	0.6	✓	40	0.6	✓
14	0.6	✓	41	0.4	
15	0.4		42	0.6	✓
16	0.8	✓	43	0.4	
17	0.8	✓	44	0.8	✓
18	0.8	✓	45	0.8	✓
19	0.4		46	0.8	✓
20	0.6	✓	47	0.6	✓
21	0.8	✓	48	0.8	✓
22	0.2		49	1.0	✓
23	0.6	✓	50	1.0	✓
24	0.6	✓	51	1.0	✓
25	0.6	✓	52	0.8	✓
26	0.4		53	0.6	✓
27	0.4		54	0.6	✓
S-CVI	0.62				

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According to the result of I-CVI in first draft, most expert agree that the items no. 49, 50, and 51 were most relevant to the construct of moral integrity concept in term of standing to do the action follow their professional nurse value, even have obstacle. There are 17 items were deleted following the suggestions from five experts. Because there were irrelevancy to the meaning and definition of moral integrity. Some items were focus more in some professional standard value (see Appendix). So, the second draft are consist 37 items that are included three theme of moral integrity meaning. The first theme were contained of 16 items, second theme were contained of 10 items, and third theme were contained of 11 items. The second draft of TMIS was show in Table 16.

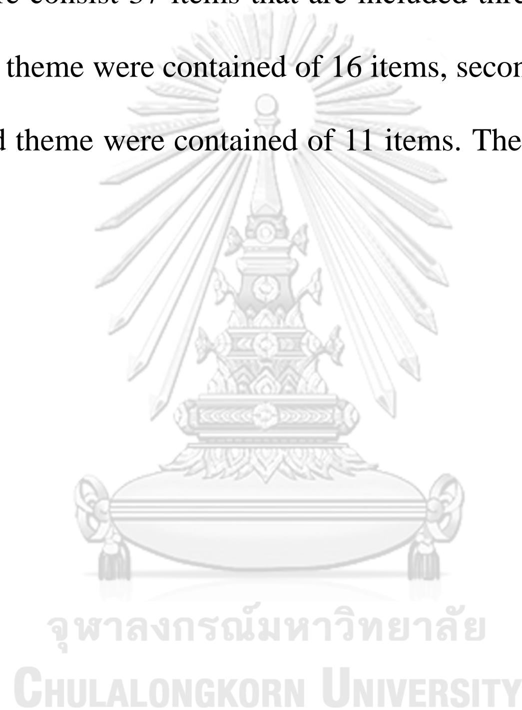
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Table 15 The second draft of the Thai Moral Integrity Scale (TMIS) 37 items

o.	English Version	Thai Version
	I consider honesty my first priority when providing nursing care.	ฉันยึดถือความซื่อสัตย์เป็นลำดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ
	I am determined to always tell the service recipients the truth.	ฉันตั้งใจแน่วแน่ในการพูดแต่ความจริงต่อผู้รับบริการเสมอมา
	I am ready to be responsible for the service recipients for whom I provide nursing care no matter what happens.	ฉันพร้อมรับผิดชอบผู้รับบริการที่ฉันให้การพยาบาลทุกครั้งไม่ว่าจะเกิดอะไรขึ้น
	The first thing that comes to my mind when providing nursing care is following the moral principle in nursing profession.	สิ่งแรกที่ฉันคำนึงถึงเมื่อฉันให้การพยาบาลแก่ผู้รับบริการคือความถูกต้องตามหลักจริยธรรมในวิชาชีพการพยาบาลเสมอ
	I consider service recipients' happiness my first priority.	ฉันคำนึงถึงความสุขของผู้รับบริการเป็นลำดับแรกเสมอ
	I always check all the equipment required for nursing care and go over the procedures of providing standard nursing care.	ฉันทบทวนซ้ำทุกครั้งก่อนให้การพยาบาลแก่ผู้รับบริการในเรื่องความพร้อมของอุปกรณ์ และขั้นตอนการปฏิบัติที่ถูกต้องตามมาตรฐานวิชาชีพการพยาบาล
	I always think carefully before deciding which equipment or things should be used for providing nursing care for the service recipients to save resources and for optimum benefits.	ฉันพิจารณาไตร่ตรองทุกครั้งก่อนเลือกอุปกรณ์ หรือสิ่งที่ใช้ในการพยาบาลแก่ผู้รับบริการเท่าที่จำเป็นเพื่อการใช้ทรัพยากรอย่างคุ้มค่า
0	When I make a promise to the service recipients, I always keep it.	เมื่อฉันให้สัญญากับผู้รับบริการ ฉันจะทำตามสัญญาทุกครั้ง

Table 16 The second draft of Thai Moral Integrity Scale (TMIS) 37 items

(Continued)

o.	English Version	Thai Version
2	I consider fairness my first priority when providing nursing care.	ฉันยึดถือหลักความยุติธรรมเป็นอันดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ
3	I consider the service recipients' benefits my first priority when providing nursing care.	ฉันคำนึงถึงประโยชน์สูงสุดของผู้รับบริการเป็นอันดับแรกทุกครั้งเมื่อให้การพยาบาล
4	I am ready to sacrifice my own benefits for the benefits of service recipients.	ฉันพร้อมที่จะเสียสละผลประโยชน์ของตนเองเพื่อประโยชน์ของผู้รับบริการเสมอ
6	I always observe the rules set by my organization.	ฉันยึดมั่นในกฎระเบียบของหน่วยงานที่กำหนดขึ้นเสมอ
7	I always take the moral principle in nursing profession into consideration before making decisions to provide nursing care so that the service recipients can have quality nursing care.	ฉันนำหลักจริยธรรมในวิชาชีพการพยาบาลมาพิจารณาและประกอบการตัดสินใจในการให้การพยาบาลที่มีคุณภาพมากที่สุดแก่ผู้รับบริการทุกครั้ง
8	I always prioritize the privacy of the service recipients and their relatives.	ฉันให้ความสำคัญกับความเป็นส่วนตัวของผู้รับบริการและญาติของผู้รับบริการเสมอ
0	I think the amount of salary – whether high or low – does not affect my work for service recipients.	ฉันคิดว่าค่าตอบแทนการทำงานที่มากขึ้นหรือน้อยลงมิได้มีผลกระทบในการปฏิบัติงานของฉันต่อผู้รับบริการ
1	I am determined not to put service recipients in a situation that can harm them when providing nursing care.	ฉันตั้งใจอย่างแน่วแน่ที่จะไม่ทำให้ผู้รับบริการอยู่ในภาวะที่เสี่ยงต่อการเกิดอันตรายจากการให้การบริการโดยเด็ดขาด
3	I always tell service recipients the truth even though it hurts their feelings.	ฉันพูดความจริงแก่ผู้รับบริการทุกครั้งแม้จะมีผลต่อความรู้สึกและอารมณ์ของผู้รับบริการ

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Table 16 The second draft of Thai Moral Integrity Scale (TMIS) 37 items

(Continued)

o.	English Version	Thai Version
4	I am willing to work overtime to complete my nursing care.	ฉันยอมเลิกงานเกินเวลาเพื่อปฏิบัติการพยาบาลที่ได้รับมอบหมายแก่ผู้รับบริการให้เสร็จสมบูรณ์ทุกครั้ง
5	I always ask for permission from or inform service recipients when providing nursing care even though they are not able to perceive or hear it.	ฉันขออนุญาตหรือแจ้งผู้รับบริการทุกครั้งที่ให้การพยาบาล แม้ว่าผู้รับบริการจะไม่รับรู้หรือได้ยิน
1	Although I am very busy, I usually spare some time to take care of service recipients that do not have a relative to take care of them.	แม้ว่างานจะยุ่งมากแต่ฉันก็มักจะหาเวลาเข้าไปดูแลผู้รับบริการที่ไม่มีญาติมาดูแลเสมอ
5	I am willing to pay extra to come to work on time.	ฉันยอมเสียค่าใช้จ่ายเพื่อให้เดินทางไปให้ทันเวลาเข้าปฏิบัติงาน
6	I wear minimal accessories such as a watch while I am working although I would like to wear more jewelry.	ฉันใส่เครื่องประดับในขณะปฏิบัติงานเท่าที่จำเป็น เช่น นาฬิกา แม้ว่าจะอยากแต่งตัวตามยุคสมัยก็ตาม
7	When providing nursing care that cause an uncomfortable situation, or pain to the service recipients, I do my best to relieve such feeling or pain.	ทุกครั้งที่ต้องให้การพยาบาลที่ก่อให้เกิดความไม่สุขสบาย หรือความเจ็บปวดกับผู้รับบริการ ฉันจะทำทุกวิถีทางเพื่อลดความไม่สุขสบายเหล่านั้นลง
8	I am willing to let my colleagues receive praise or a reward from the assignment that was accomplished mostly by me.	ฉันยอมให้เพื่อร่วมงานได้รับคำชมเชยหรือความดีงามจากผลงานที่เกิดจากการกระทำของฉันเป็นส่วนใหญ่
0	I always follow up the nursing care plans that have been provided for service recipients.	ฉันติดตามผลการให้การพยาบาลของฉันที่ให้แก่ผู้รับบริการทุกครั้ง

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Table 16 The second draft of Thai Moral Integrity Scale (TMIS) 37 items

(Continued)

o.	English Version	Thai Version
2	When a problem or a mistake related to nursing ethics occurs in my organization, I immediately inform those who are in charge.	เมื่อเกิดปัญหาหรือความผิดพลาดที่เกี่ยวข้องกับหลักจริยธรรมในวิชาชีพการพยาบาลในหน่วยงาน ฉันจะแจ้งผู้เกี่ยวข้องทันทีโดยไม่ลังเล
4	I insist on strictly following the rules even though some are relaxed or waived.	ฉันยืนยันที่จะปฏิบัติตามกฎระเบียบทุกครั้งแม้ว่าจะมีการอนุโลมเกิดขึ้น
5	I insist on providing nursing care according to the nursing ethics even if it is difficult to achieve.	ฉันยืนหยัดที่จะให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลทุกครั้งแม้ว่ามีความยากลำบาก
6	I insist on achieving my nursing care plans according to nursing ethics.	ฉันยืนหยัดความตั้งใจในการพยาบาลผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลได้สำเร็จทุกครั้ง
7	I am willing to work on weekends if there is a short of nursing staff on duty.	ฉันยอมที่จะไปปฏิบัติงานในวันหยุดกรณีที่มีพยาบาลลาป่วยหรือไม่มีใครสามารถไปปฏิบัติงานได้
8	I provide proper nursing care plans for service recipients according to their rights.	ฉันปฏิบัติต่อผู้รับบริการตามสิทธิผู้ป่วยที่พึงมีทุกข้ออย่างเคร่งครัด
9	I will tell service recipients the truth even if some are against this.	ฉันกล้าบอกความจริงแก่ผู้รับบริการแม้ว่าผู้อื่นจะไม่เห็นด้วย

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Table 16 The second draft of Thai Moral Integrity Scale (TMIS) 37 items(Continued)

o.	English Version	Thai Version
0	When facing a difficult situation in providing nursing care, I am willing to be criticized by the public rather than not strictly following the moral principle in nursing profession that I always adhere to.	เมื่อเผชิญกับสถานการณ์ที่ยากลำบากในการปฏิบัติการพยาบาลฉันยอมที่จะถูกตำหนิจากสังคม มากกว่าจะลดระดับจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นลง
1	I am willing to accept negative attitudes from those who do not agree with me when I want to provide nursing care according to the moral principle in nursing profession to which I always adhere to with the service recipients.	ฉันยอมที่จะถูกมองไม่ดีจากผู้ที่ไม่เห็นด้วยกับฉัน เมื่อฉันต้องให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่น
2	I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the moral principle in nursing profession that I always adhere to.	ฉันมั่นใจว่าการให้การพยาบาลแก่ผู้รับบริการของฉันตั้งแต่วันเรกที่ทำงานจนถึงปัจจุบันเป็นไปตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นเสมอมา
3	I always believe that the organization’s work is more important than my personal work.	ฉันคิดว่างานส่วนรวมสำคัญกว่างานส่วนตัวเสมอ
4	I prioritize my duties at work over my duties at home.	ฉันเลือกปฏิบัติหน้าที่ในงานที่รับผิดชอบให้สมบูรณ์มากกว่าเลือกทำหน้าที่บทบาทในครอบครัวให้สมบูรณ์

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The second draft of Thai Moral Integrity Scale (TMIS) were revised accordingly and were reviewed by an expert again. The result of I-CVI showed that it have the I-CVI range from 0.67-1.00. The S-CVI/Ave are 0.89, based on the acceptable level for content validity index is not less than 0.80 (Waltz, et al, 1991; Polit and Beck, 2014). The items with a CVI of less than this were considered for removal. So, there were ten items that have I-CVI that equal to 0.67 (item no. 20, 24, 25, 31, 35, 36, 42, 47, 53, and 54) that were considerate to eliminate from the suggestion of all experts. The items were reduce to 27 items that all item have I-CVI equal to 1.00. For the new content valid instrument should have a minimum content validity index of .80 or better (Davis, 1992; Lynn, 1986; Waltz et al., 2005). The result of S-CVI/Ave was presented in Table 17.

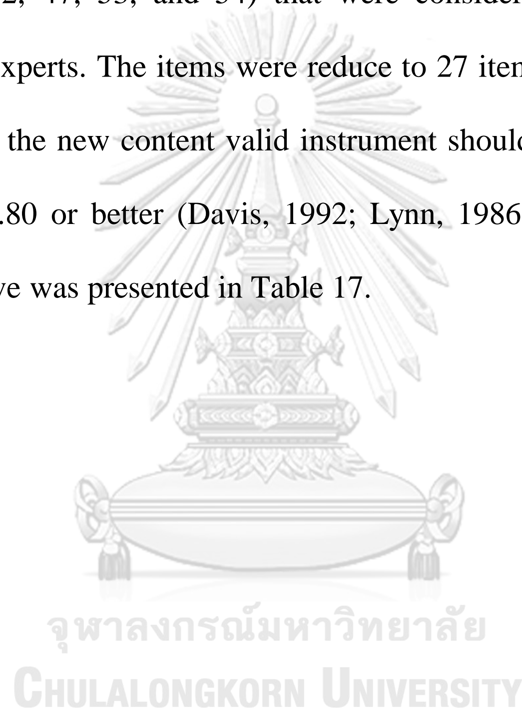

Table 16 The result of CVI of the second draft of MIS (37 items)

Items	I-CVI (54 items)	Remained	Items	I-CVI (54 items)	Remained
1	1.0	✓	25	0.67	
2	1.0	✓	31	0.67	
3	1.0	✓	35	0.67	
4	1.0	✓	36	0.67	
5	1.0	✓	37	1.0	✓
7	1.0	✓	38	1.0	✓
8	1.0	✓	40	1.0	✓
10	1.0	✓	42	0.67	
12	1.0	✓	44	1.0	✓
13	1.0	✓	45	1.0	✓
14	1.0	✓	46	1.0	✓
16	1.0	✓	47	0.67	
17	1.0	✓	48	1.0	✓
18	1.0	✓	49	1.0	✓
20	0.67		50	1.0	✓
21	1.0	✓	51	1.0	✓
23	1.0	✓	52	1.0	✓
24	0.67		53	0.67	
			54	0.67	
S-CVI	0.89				

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The final draft of the Thai Moral Integrity Scale (TMIS) consist of 27 items which I-CVI equal to 1.00 and it have an S-CVI/Ave of 0.90 or higher. This requires strong conceptualizations of construct, good items, and judiciously selected experts (Davis, 1992). The comment from three experts were agreed that most of the items were relevant to the moral integrity construct. Finally, the third draft of Moral Integrity Scale (MIS) were comprised 27 items with three theme of moral integrity

meaning. The first theme were contained of 15 items, second theme were contained of 4 items, and third theme were contained of 8 items that reflect moral integrity in professional nurses. The final draft of TMIS that consists of 27 items was present in Table 18.

Table 17 The final draft of the Thai Moral Integrity Scale (TMIS) 27 items

tem	English Version	Thai Version
	I consider honesty my first priority when providing nursing care.	ฉันยึดถือความซื่อสัตย์เป็นลำดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ
	I am determined to always tell the service recipients the truth.	ฉันตั้งใจแน่วแน่ในการพูดแต่ความจริงต่อผู้รับบริการเสมอมา
	I am ready to be responsible for the service recipients for whom I provide nursing care no matter what happens.	ฉันพร้อมรับผิดชอบผู้รับบริการที่ฉันให้การพยาบาลทุกครั้งไม่ว่าจะเกิดอะไรขึ้น
	The first thing that comes to my mind when providing nursing care is following the moral principle in nursing profession.	สิ่งแรกที่ฉันคำนึงถึงเมื่อฉันให้การพยาบาลแก่ผู้รับบริการคือความถูกต้องตามหลักจริยธรรมในวิชาชีพการพยาบาลเสมอ
	I consider service recipients' happiness my first priority.	ฉันคำนึงถึงความสุขของผู้รับบริการเป็นลำดับแรกเสมอ
	I always check all the equipment required for nursing care and go over the procedures of providing standard nursing care.	ฉันทบทวนซ้ำทุกครั้งก่อนให้การพยาบาลแก่ผู้รับบริการในเรื่องความพร้อมของอุปกรณ์ และขั้นตอนการปฏิบัติที่ถูกต้องตามมาตรฐานวิชาชีพการพยาบาล
	I always think carefully before deciding which equipment or things should be used for providing nursing care for the service recipients to save resources and for optimum benefits.	ฉันพิจารณาไตร่ตรองทุกครั้งก่อนเลือกอุปกรณ์ หรือสิ่งที่ใช้ในการพยาบาลแก่ผู้รับบริการเท่าที่จำเป็นเพื่อการใช้ทรัพยากรอย่างคุ้มค่า
0	When I make a promise to the service recipients, I always keep it.	เมื่อฉันให้สัญญากับผู้รับบริการ ฉันจะทำตามสัญญาทุกครั้ง

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Table 18 The final draft of the Thai Moral Integrity Scale (TMIS) 27 items (Continued).

tem	English Version	Thai Version
2	I consider fairness my first priority when providing nursing care.	ฉันยึดถือหลักความยุติธรรมเป็นอันดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ
3	I consider the service recipients' benefits my first priority when providing nursing care.	ฉันคำนึงถึงประโยชน์สูงสุดของผู้รับบริการเป็นอันดับแรกทุกครั้งเมื่อให้การพยาบาล
4	I am ready to sacrifice my own benefits for the benefits of service recipients.	ฉันพร้อมที่จะเสียสละผลประโยชน์ของตนเองเพื่อประโยชน์ของผู้รับบริการเสมอ
6	I always observe the rules set by my organization.	ฉันยึดมั่นในกฎระเบียบของหน่วยงานที่กำหนดขึ้นเสมอ
7	I always take the moral principle in nursing profession into consideration before making decisions to provide nursing care so that the service recipients can have quality nursing care.	ฉันนำหลักจริยธรรมในวิชาชีพการพยาบาลมาพิจารณาและประกอบการตัดสินใจในการให้การพยาบาลที่มีคุณภาพมากที่สุดแก่ผู้รับบริการทุกครั้ง
8	I always prioritize the privacy of the service recipients and their relatives.	ฉันให้ความสำคัญกับความเป็นส่วนตัวของผู้รับบริการและญาติของผู้รับบริการเสมอ
1	I am determined not to put service recipients in a situation that can harm them when providing nursing care.	ฉันตั้งใจอย่างแน่วแน่ที่จะไม่ทำให้ผู้รับบริการอยู่ในภาวะที่เสี่ยงต่อการเกิดอันตรายจากการให้การบริการโดยเด็ดขาด
7	When providing nursing care that cause an uncomfortable situation, or pain to the service recipients, I do my best to relieve such feeling or pain.	ทุกครั้งที่ต้องให้การพยาบาลที่ก่อให้เกิดความไม่สุขสบาย หรือความเจ็บปวดกับผู้รับบริการ ฉันจะทำทุกวิถีทางเพื่อลดความไม่สุขสบายเหล่านั้นลง

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Table 18 The final draft of the Thai Moral Integrity Scale (TMIS) 27 items (Continued).

Item	English Version	Thai Version
40	I always follow up the nursing care plans that have been provided for service recipients.	ฉันติดตามผลการให้การพยาบาลของฉันที่ให้แก่ผู้รับบริการทุกครั้ง
44	I insist on strictly following the rules even though some are relaxed or waived.	ฉันยืนยันที่จะปฏิบัติตามกฎระเบียบทุกครั้งแม้ว่าจะมีการอนุโลมเกิดขึ้น
45	I insist on providing nursing care according to the nursing ethics even if it is difficult to achieve.	ฉันยืนหยัดที่จะให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลทุกครั้งแม้ว่ามีความยากลำบาก
46	I insist on achieving my nursing care plans according to nursing ethics.	ฉันยืนหยัดความตั้งใจในการพยาบาลผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลได้สำเร็จทุกครั้ง
48	I provide proper nursing care plans for service recipients according to their rights.	ฉันปฏิบัติต่อผู้รับบริการตามสิทธิผู้ป่วยที่พึงมีทุกข้ออย่างเคร่งครัด
52	I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the moral principle in nursing profession that I always adhere to.	ฉันมั่นใจว่าการให้การพยาบาลแก่ผู้รับบริการของฉันตั้งแต่วันแรกที่ทำงานจนถึงปัจจุบันเป็นไปตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นเสมอมา
23	I always tell service recipients the truth even though it hurts their feelings.	ฉันพูดความจริงแก่ผู้รับบริการทุกครั้งแม้จะมีผลต่อความรู้สึกและอารมณ์ของผู้รับบริการ

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Table 18 The final draft of the Thai Moral Integrity Scale (TMIS) 27 items (Continued).

Item	English Version	Thai Version
38	I am willing to let my colleagues receive praise or a reward from the assignment that was accomplished mostly by me.	ฉันยอมให้เพื่อร่วมงานได้รับคำชมเชย หรือความดีงามจากผลงานที่เกิดจากการกระทำของฉันเป็นส่วนใหญ่
49	I will tell service recipients the truth even if some are against this.	ฉันกล้าบอกความจริงแก่ผู้รับบริการแม้ว่าผู้อื่นจะไม่เห็นด้วย
50	When facing a difficult situation in providing nursing care, I am willing to be criticized by the public rather than not strictly following the moral principle in nursing profession that I always adhere to.	เมื่อเผชิญกับสถานการณ์ที่ยากลำบากในการปฏิบัติการพยาบาลฉันยอมที่จะถูกตำหนิจากสังคม มากกว่าจะลดระดับจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นลง
51	I am willing to accept negative attitudes from those who do not agree with me when I want to provide nursing care according to the moral principle in nursing profession to which I always adhere to with the service recipients.	ฉันยอมที่จะถูกมองไม่ดีจากผู้ที่ไม่เห็นด้วยกับฉันเมื่อฉันต้องให้การพยาบาลแก่ผู้รับบริการตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่น

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6. Assessing the clarity and readability by cognitive reviewing

The cognitive interviewing was used based on respondents' answers. It can be ensured that: 1) the instrument content captures the most important aspects of the concept of moral integrity, and 2) the participants understand how to complete the instrument, how to reference the correct recall period, the meaning of the items, how to use the response scales that may influence patient responses in the intended mode of administration. The third draft of Thai Moral Integrity Scale (TMIS) was determined appropriate and clear in terms of wording and understanding the language used.

After approved by the ethical committee of Ramathibodi hospital, the revised instrument was assess the clarity and readability by ten professional nurses. Ten professional nurses were asked to review the third draft Thai Moral Integrity Scale (TMIS) in terms of clarity of language, format, understanding, length of each item, and appropriateness of the instrument by using cognitive reviewing guideline. The question are include "Are there any words in the questionnaire that you do not understand, any questions are difficult or confusing, which answer is difficult or do not know that to answer, any question is too long, and have any questions that after reading it , you do not feel like answering" (Appendix).

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In this process are used the time for answering ranging 5-10 minutes. The professional nurses are the same criteria with the population in this study. After completing the questionnaires. Although the participant were different of work experiences, but they were understand in this instrument. Most of professional nurse described that all items were easy to understand and the length of each item are

appropriated to reading. Moreover, the five-Likert scale was easy to respond and answer. All of them no comment to revised something in third draft.

7. Conducting preliminary items tryouts

The third draft of Thai Moral Integrity Scale (TMIS) was initially tested for evaluated the internal consistency by using Cronbach's alpha coefficient. This step was conducted with thirty convenience sample of professional nurses at Ramathibodi Hospital who were the same criteria with the population. They were professional nurses that working in clinical practice more than one year and willing to participate in this study. After approved by the ethical committee of Ramathibodi hospital. The researcher explained the information of this study before the participant informed consents in this study. After completed the questionnaire, there were no question or suggestion from this questionnaire. The average time from each professional nurse was five minutes. The characteristic of the participants were presented in Table 19.

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Table 18 Demographic characteristics of the participants in process of preliminary item tryout (n= 30)

Characteristics	Number	Percent
Gender		
- Female	30	100
Age Level		
- 21 – 30 Years	14	46.7
- 31 – 40 Years	15	50.0
- 41 – 50 Years	1	3.3
Religion		
- Buddhist	18	99.1
- Christian	1	0.3
- Muslim	1	0.6
Marital Status		
- Single	20	81.7
- Married	9	18.0
- Widowed/Divorced/Separated	1	0.3
Education Level		
- Bachelor Degree Level	18	99.1
- Master Degree Level	1	0.3
Department		
- Outpatient Department	15	50
- Inpatient Department	15	50
Position		
- Register Nurse	30	100
Occupational		
- Government	1	3.3
- Employee	29	9.7
Experience		
- 1-5 Years	10	33.3
- 6-10 Years	8	26.7
- 11-15 Years	7	23.3
- 16-20 Years	5	16.7
Income Level		
- 15,000 – 25,000 Bath	2	6.7
- 25,001 – 35,000 Bath	15	50.0
- 35,001 – 45,000 Bath	11	36.7
- 45,001 – 55,000 Bath	2	6.7

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The Cronbach's alpha was used for test an internal consistency in order to evaluate the reliability of the final draft of TMIS. The level of Cronbach's alpha for reliability should be greater than 0.70 because it is considered to be acceptable level for the newly instrument (DeVellis, 2012). The result showed that the item means ranged from 2.5 to 4.50. Cronbach's alpha coefficients of the total scale was 0.90. For each item, Cronbach's alpha coefficients ranged from 0.80-0.90. There were no item that had corrected item-total correlation coefficient less than 0.30. After completed the questionnaire, there were no question or suggestion from this questionnaire. The average time from each professional nurse was five minutes. In this process, all items in final draft were not revised and kept the next step to test the psychometric properties. In this process, all items in final draft were not revised and kept the next step to test the psychometric properties.

Phase II: Psychometric properties of Thai Moral Integrity Scale (TMIS)

The result of this process were consisted of two part of validity test and reliability test. The construct validity are used exploratory factor analysis that aimed to identify the dimensions of moral integrity in professional nurses with 502 professional nurses and confirmatory factor analysis used to examine the construct validity with 502 professional nurses. The reliability of internal consistency reliability were used Cronbach's alpha.

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1. Construct validity testing

1.1 Exploratory Factor Analysis (EFA)

The process of exploratory factor analysis (EFA), data was explored and provides information about the numbers of factors required to represent the moral integrity in professional nurses. In exploratory factor analysis, all measured variables are related to every latent variable. This step was used to identifying the dimension of moral integrity in professional nurses. The participants were 502 professional nurses that working at different level of hospital in Thailand. Before analysis, the assumption and the normality of the variables were detected.

The participants of the exploratory factor analysis (EFA) were collected by used multi-stage sampling from different level of hospital that included tertiary care hospital, secondary care hospital, primary care hospital, and special center hospital. The inclusion criteria is the same criteria of the preliminary items tryout. The characteristic of the participants were presented in Table 20

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Table 19 Demographic characteristics of the participants in process of exploratory factor analysis (EFA) (n= 502)

Characteristics	Number	Percent
Gender		
- Female	12	2.4
- Male	490	97.6
Age Level		
- 21 – 30 Years	310	61.8
- 31 – 40 Years	112	22.3
- 41 – 50 Years	54	10.8
- 51 – 60 Years	26	5.2
Religion		
- Buddhist	493	98.2
- Christian	1	0.2
- Muslim	8	1.6
Marital Status		
- Single	370	73.8
- Married	123	24.5
- Widowed/Divorced/Separated	9	1.8
Education Level		
- Bachelor Degree Level	464	92.4
- Master Degree Level	38	7.6
Hospital Level		
- Tertiary Care Hospital	350	69.6
- Secondary Care Hospital	60	12.0
- Primary Care Hospital	58	11.6
- Special Care Hospital	34	6.8
Department		
- Outpatient Department	381	75.9
- Inpatient Department	121	24.1
Workplace		
- Medical	162	32.3
- Surgical	147	29.3
- Emergency	22	4.4
- Gynecology	67	13.3
- Pediatric	91	18.1
- Operating Room	6	1.2
- Psychiatric	2	0.4
- ENT	3	0.6
- Home Health Care	2	0.4

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Table 20 Demographic characteristics of the participants in process of exploratory factor analysis (EFA) (n= 502) (Continued).

Characteristics	Number	Percent
Position		
- Register Nurse	486	96.
- Head Nurse	9	1.8
- Head of Department	7	1.4
Occupational		
- Government	96	19.1
- Employee	406	80.9
Experience		
- 1-5 Years	238	47.4
- 6-10 Years	116	23.1
- 11-15 Years	49	9.8
- 16-20 Years	40	8.0
- 21-25 Years	28	5.6
- More than 25 Years	31	6.2
Income Level		
- 15,000 – 25,000 Bath	105	20.9
- 25,001 – 35,000 Bath	261	52.0
- 35,001 – 45,000 Bath	84	16.7
- 45,001 – 55,000 Bath	43	8.6
- 55,001 – 65,000 Bath	6	1.2
- More than 65,000 Bath	3	0.6

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1.1.1 Assumption test of EFA

This process aim to test the assumption before conducted EFA. There were testing which consisted normality, multicollinality, Kaiser Meyer Olkin (KMO), and Bartlett's Test of Sphericity. The result were presented as follow.

a) Normality testing of EFA

The final draft of Thai Moral Integrity Scale (TMIS) had mean ranged from 0.367 to 0.467, the standard deviation raged from 0.021 to 0.035, the skewness ranged from -1 to 0.666, and the kurtosis ranged from -0.963 to 8.21. According to Hair (2010) the skewness range from -1 to 1 are present normal distribution (Hair et al, 2010). The result of descriptive were presented in Table 21.

Table 20 Descriptive statistic of TMIS for EFA.

No. of item	Mean	SD	Skewness	Kurtosis
Item 1	4.70	0.46	-1.20	0.11
Item 2	4.45	0.55	-0.33	-0.92
Item 3	4.55	0.54	-0.75	-0.07
Item 4	4.62	0.51	-0.91	0.14
Item 5	4.30	0.63	0.51	5.59
Item 6	4.37	0.51	0.17	-1.18
Item 7	4.30	0.55	-0.24	0.62
Item 8	4.13	0.64	-0.49	1.08
Item 9	4.45	0.55	-0.50	0.07
Item 10	4.47	0.55	-0.47	-0.38
Item 11	4.10	0.65	-0.28	-0.75
Item 12	4.30	0.57	-0.18	-0.22
Item 13	4.42	0.54	-0.16	-1.06
Item 14	4.29	0.58	-0.28	0.08
Item 15	4.53	0.54	-0.57	-0.81
Item 16	4.25	0.56	-0.10	-0.08
Item 17	4.19	0.59	-0.14	-0.10
Item 18	4.09	0.61	-0.31	1.03
Item 19	4.28	0.55	-0.07	-0.12
Item 20	4.24	0.58	-0.21	0.18
Item 21	4.30	0.54	0.09	-0.62
Item 22	4.26	0.56	-0.36	1.88
Item 23	3.81	0.79	-0.45	0.23
Item 38	3.98	0.74	-0.61	0.81
Item 24	3.70	0.73	0.04	-0.29
Item 25	3.97	0.66	-0.25	0.11
Item 26	4.02	0.66	-0.31	0.46
Item 27	4.08	0.72	0.05	0.52

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b) Multicollinearity testing of EFA

Multicollinearity testing was used to evaluate the correlation matrix among each items. The communality is the sum of the squared factor loadings for all factors for a given variable is the variance in that variable accounted for by all the factors. The ratio of eigenvalues is the ratio of explanatory importance of the factors with respect to the variables. If the value greater than 0.85, there are multicollinearity (Munro & Page, 1993). Moreover, there are occurs when the tolerance is less than 0.01 and the variance inflation factor (VIF) is nearly to 10 (Hair, 2010). The result in this study have not found the multicollinearity, and the correlation of all item was less than 0.85.

The communality was to descript how much of the variability in variable is explained by all of the factors in the analysis. The value should be greater than 0.3. (Tabachnick & Fidell, 2001). Based on data that prepare for EFA, it ranged from 0.382 to 0.665. So, all items were acceptable communalities to conduct factor analysis in this research.

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c) Kaiser-Mayer-Olkin (KMO) of EFA

The process of exploratory factor analysis aimed to identify the factor of items that reflect the same dimension or the structure of moral integrity in professional nurses. Before conduct the exploratory factor analysis, the assumptions need to analysis. The factorability characteristics and linearity of the variables have sufficient correlations to analysis the application of the exploratory factor analysis. There are three assumption that were indicators before conduct factor analysis. First, the Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy; second, Barlett's

Test of Sphericity; and third, an inter-items correlation (Hair, 2010; Howell, 2010; Joreskog, 2016).

Kaiser-Mayer-Olkin (KMO) is an indicator to evaluate the degree of inter-correlations between variables and the appropriateness of the exploratory factor analysis. The criteria ranged from 0 to 1. If the value from analysis equal to 1, it indicated that each variable are the perfect to predict without error from other variables (Hair, 2010). The criteria to interpret the result of Kaiser-Mayer-Olkin (KMO) are present in Table 22.

Table 21 The guideline for interpreted the result of Kaiser-Mayer-Olkin (KMO)

Value	Interpreting
0.80 or above	Meritorious
0.70 or above	Middling
0.60 or above	Mediocre
0.50 or above	Miserable
Below 0.50	unacceptable

(Kaiser, 1970; Kaiser, 1974)

The result in this study showed that the Kaiser-Mayer-Olkin (KMO) was equal to 0.949 that was accepted to be good value to conduct exploratory factor analysis (Table 23).

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d) Bartlett's Test of Sphericity of EFA

Bartlett’s Test of Sphericity was the method to analyze the appropriateness of the factor analysis to examine the entire correlation matrix. This method are used to test the hypothesis that the correlation matrix is an identity matrix. The result from 27 items showed the significant of this test (χ^2 =6610.910, df = 351, p < 0.001). It indicated that the correlation matrix was not an identity matrix and was appropriated for conducting the exploratory factor analysis.

Table 22 KMO and Bartlett's Test of Sphericity of EFA (n = 502)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.949
Bartlett's Test of Sphericity	Approx. Chi-Square	6610.910
	df	351
	Sig.	.000

Finally, an inter-item correlation testing was the last assumption to test the linear relationship between the variables. The results indicated that the correlation among variables are significant relationship ($p < 0.05$). The correlation co-efficient range from 0.30-0.69. The result was an apparent linear relationship between the variables (Table 4.16). The result from assumption analysis, it could be indicated that the data were appropriateness for the exploratory factor analysis.

Identifying the dimension of moral integrity in professional nurses.

1.1.2 The results of conducting exploratory factor analysis (EFA)

The criteria that used to select the number of dimensions were the following 1) an eigenvalue grater that one, 2) the characteristics of the scree plot of eigenvalues, 3) the number of items substantially loading on a dimension (at least three items), 4) the variance being explained by an extracted dimension (50-60 %), 5) the number of dimension consistent with the theoretical framework. And 6) the meaningful interpretability (Netemeyer, 2007; Tabachnick & Fidell, 2007).

In addition, the criteria for reducing an inappropriate item consisted 1) an items loading less than 0.35, 2) an item loading on more than one factor, and 3) no contribution to factor interpretability ((Netemeyer , 2007). From the result, the exploratory factor analysis with the principal component analysis and orthogonal varimax rotation method was conducted to obtain the cluster of the 27 items of the Moral Integrity Scale (MIS) in 502 participant.

For the first factor analysis, the finding revealed four extracted dimensions that explained 55.975% of the total variance. The Kaiser-Mayer-Olkin (KMO) value was 0.949 and the Bartlett's Test of Sphericity was 6610.91 with p-value less than 0.05, which indicated the sampling adequacy and satisfaction factor analysis. The result from each of the four extracted factors consisted four to 12 items. The four dimensions were as follows 1) first dimension consists of 12 items (item 5-16), 2) second dimension consists of 6 items (item 17-22), 3) third dimension consists of 4 items (item 1-4), and 4) fourth dimension consists of 5 items (item 23-27).The factor loading and communalities were presented in Table 24.

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Table 23 Factor loadings, and Communalities for Varimax Factor Rotation (n = 502)

Items	Eigenvalues	% of variance	Cumulative % of variance	Factor loading	communalities
Item 1	10.750	39.814	39.814	.768	.665
Item 2	2.127	7.876	47.690	.696	.629
Item 3	1.210	4.481	52.172	.745	.650
Item 4	1.027	3.804	55.975	.725	.691
Item 5	.985	3.648	59.624	.392	.372
Item 6	.870	3.224	62.847	.644	.499
Item 7	.774	2.866	65.713	.631	.498
Item 8	.771	2.855	68.568	.490	.454
Item 9	.682	2.524	71.092	.581	.494
Item 10	.662	2.454	73.546	.639	.561
Item 11	.614	2.274	75.819	.474	.463
Item 12	.588	2.179	77.998	.582	.502
Item 13	.551	2.042	80.040	.615	.585
Item 14	.531	1.966	82.006	.623	.540
Item 15	.487	1.803	83.809	.559	.534
Item 16	.459	1.699	85.509	.477	.567
Item 17	.453	1.677	87.186	.486	.503
Item 18	.448	1.660	88.847	.617	.468
Item 19	.410	1.518	90.365	.735	.517
Item 20	.398	1.474	91.839	.689	.517
Item 21	.383	1.417	93.256	.637	.692
Item 22	.366	1.356	94.613	.535	.630
Item 23	.325	1.202	95.815	.682	.600
Item 24	.319	1.180	96.995	.499	.697
Item 25	.314	1.162	98.157	.782	.622
Item 26	.275	1.019	99.177	.604	.669
Item 27	.222	.823	100.000	.560	.493

1.1.3 Identify the dimensions of Moral Integrity Scale for professional nurses

The EFA was used to seek to discover the number of factors or dimensions. The factor loadings are obtained for all items related to all factors. Some items may be eliminated by the researcher if they were low factor loading. The criteria that used to select the factor or dimension of EFA include; 1) an eigenvalue that greater than 1.0, 2) the scree plot of characteristics, and 3) an accumulative percentage of variance criteria that could be explain the construct was greater than 50-60% (Tabachnick & Fiell, 2007; Hair, 2010).

The process of EFA were used the extraction method and the rotation of factors was used the verimax method. In the first round, the result of analysis was showed the communalities of 27 items. There were range from 0.37 to 0.70. The extraction of the component factors indicated four factors that had an eigenvalue greater than 1.00. There were range from 1.03 to 10.75. The variance of 27 items of MIS could explained 55.98%. Moreover, the scree plot showed the eigenvalues produced a departure from linearity coinciding with four factor result. Therefore, the scree plot indicated that the data should be analyzed for four factors. This were present in Figure 8.

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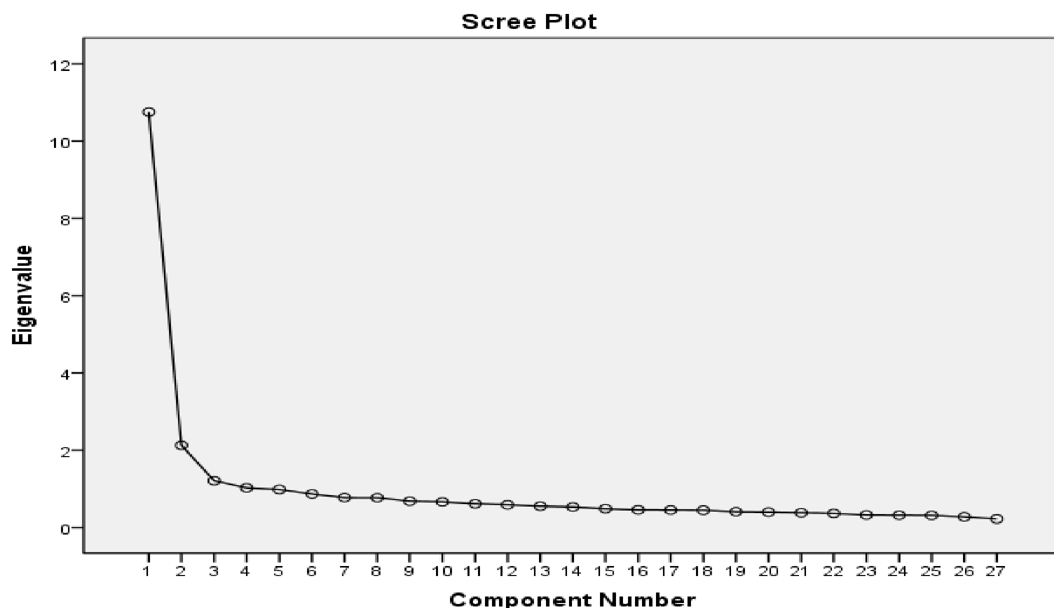
Figure 8 The scree plot of Eigenvalue and component number of TMIS



From the method of un-rotated component matrix, that are the correlations between the variable and the factor. The possible range from -1 to +1. In this analysis, there were some items that had factor loading between two factors. So, the method of orthogonal rotation with varimax was used to analyze in the second round. The result of rotated method showed that there were four factors that explained the TMIS and all of items had the factor loading greater than 0.40.

For the items selection process, the researcher and advisor team were used in order to make a decision making to judgment that this item should be in this factor by consider the ability and behavior of professional nurse that reflect in the component of moral integrity. The total variance explained of TMIS was presented in Table 25.

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Table 24 The total variance explained of TMIS

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.750	39.814	39.814	10.750	39.814	39.814	4.894	18.125	18.125
2	2.127	7.876	47.690	2.127	7.876	47.690	4.335	16.054	34.179
3	1.210	4.481	52.172	1.210	4.481	52.172	3.032	11.229	45.408
4	1.027	3.804	55.975	1.027	3.804	55.975	2.853	10.568	55.975
5	.985	3.648	59.624						
6	.870	3.224	62.847						
7	.774	2.866	65.713						
8	.771	2.855	68.568						
9	.682	2.524	71.092						
10	.662	2.454	73.546						
11	.614	2.274	75.819						
12	.588	2.179	77.998						
13	.551	2.042	80.040						
14	.531	1.966	82.006						
15	.487	1.803	83.809						
16	.459	1.699	85.509						
17	.453	1.677	87.186						
18	.448	1.660	88.847						
19	.410	1.518	90.365						
20	.398	1.474	91.839						
21	.383	1.417	93.256						
22	.366	1.356	94.613						
23	.325	1.202	95.815						
24	.319	1.180	96.995						
25	.314	1.162	98.157						
26	.275	1.019	99.177						
27	.222	.823	100.000						

Extraction Method: Principal Component Analysis.

1.1.4 Label of each dimension

According to the result of EFA, the result indicated that there were four components that response to the TMIS items which 55.98% of total variance that could explained the moral integrity in professional nurses by contained which factor 1 to factor 4. The process to label the factor is dependent on researcher definition (Henson, 2006). Moreover, it is search to find the factors that taken together explain the majority of the responses. It is important that the labels or constructs reflect the construct intent. In this study, the researcher meaningfulness the factor in four dimension as the following.

Factor 1 comprised item 5-16. It was labeled as “Express action follow the Code of Professional Conduct and registered nurses’ competency in Ethics”. There were 12 items that could explain 18.13% of the variance of TMIS. The contents and factor loading were present in Table 26.

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Table 25 Factor loading of Factor 1 (12 items)

tems	Contents	Factor loading
	I consider service recipients' happiness my first priority.	0.40
	I always check all the equipment required for nursing care and go over the procedures of providing standard nursing care.	0.65
	I always think carefully before deciding which equipment or things should be used for providing nursing care for the service recipients to save resources and for optimum benefits.	0.63
	When I make a promise to the service recipients, I always keep it.	0.49
	I consider fairness my first priority when providing nursing care.	0.58
0	I consider the service recipients' benefits my first priority when providing nursing care.	0.64
1	I am ready to sacrifice my own benefits for the benefits of service recipients.	0.47
2	I always observe the rules set by my organization.	0.58
3	I always take nursing ethics into consideration before making decisions to provide nursing care so that the service recipients can have quality nursing care.	0.62
4	I always prioritize the privacy of the service recipients and their relatives.	0.62
5	I am determined not to put service recipients in a situation that can harm them when providing nursing care.	0.56
6	When providing nursing care that cause an uncomfortable situation, or pain to the service recipients, I do my best to relieve such feeling or pain.	0.48
	Explained 18.13%	

Factor 2 comprised item 17-22. It was labeled as "Continue to do follow the Code of Professional Conduct and registered nurses competency in Ethics". There were 6 items that could explain 16.05% of the variance of TMIS. The contents and factor loading were present in Table 27.

Table 26 Factor loading of Factor 2 (6 items)

Items	Contents	Factor loading
7	I always follow up the nursing care plans that have been provided for service recipients.	0.49
8	I insist on strictly following the rules even though some are relaxed or waived.	0.61
9	I insist on providing nursing care according to the nursing ethics even if it is difficult to achieve.	0.74
0	I insist on achieving my nursing care plans according to professional standard value.	0.69
1	I provide proper nursing care plans for service recipients according to their rights.	0.64
2	I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the professional standard value that I always adhere to.	0.54
	Explained 16.05%	

Factor 3 comprised item 1-4. It was labeled as “Adhere to follow the Code of Professional Conduct and registered nurses competency in Ethics”. There were 4 items that could explain 11.23% of the variance of TMIS. The contents and factor loading were present in Table 28.

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Table 27 Factor loading of component 3 (4 items)

Items	Contents	Factor loading
	I consider honesty my first priority when providing nursing care.	0.77
	I am determined to always tell the service recipients the truth.	0.70
	I am ready to be responsible for the service recipients for whom I provide nursing care no matter what happens.	0.75
	The first thing that comes to my mind when providing nursing care is following the ethics of nursing care.	0.73
	Explained 11.23%	

Factor 4 comprised item 23-27. It was labeled as "Courage to action follow the Code of Professional Conduct and registered nurses' competency in Ethics". There were 5 items that could explain 10.57% of the variance of TMIS. The contents and factor loading were present in Table 29.

Table 28 Factor loading of component 4 (5 items)

Items	Contents	Factor loading
3	I always tell service recipients the truth even though it hurts their feelings.	0.68
4	I am willing to let my colleagues receive praise or a reward from the assignment that was accomplished mostly by me.	0.50
5	I will tell service recipients the truth even if some are against this.	0.78
6	When facing a difficult situation in providing nursing care, I am willing to be criticized by the public rather than not strictly following the nursing ethics that I always adhere to.	0.60
7	I am willing to accept negative attitudes from those who do not agree with me when I want to provide nursing care according to the nursing ethics to which I always adhere to with the service recipients.	0.56
	Explained 10.57%	

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Confirmatory Factor Analysis (CFA)

The method of confirmatory factor analysis is used to analyze the factor that descript the relationship between variables. It is a multivariate statistical procedure that is used to test how he measured variables represent the number of factors. In confirmatory factor analysis (CFA), researchers can specify the number of factors required in the data and which measured variable is related to which latent variable. Confirmatory factor analysis (CFA) is a tool that is used to confirm or reject the measurement theory.

The participants of the confirmatory factor analysis (CFA) were the same sampling as the exploratory factor analysis (EFA). The 502 professional nurses were collected by used multi-stage sampling from different level of hospital that included tertiary care hospital, secondary care hospital, primary care hospital, and special center hospital. The inclusion criteria is the same criteria of the EFA selecting. Almost participants were female (99.2 %.) They were age between 21-59 years. (Mean = 33.34, SD = 9.03). Most of them were Buddhist (96.40 %.), single (72.90 %.), Bachelor degree (87.50 %.), and had position of register nurses (97.2%). They were work at IPD (89.6%) more than OPD setting. They were come from different area of working such as medical area, surgical area, and pediatric area that was presented in Table 30.

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Table 29 Demographic characteristics of the participants in process of confirmatory factor analysis (CFA) (n= 502)

Characteristics	Number	Percent
Gender		
- Female	498	99.2
- Male	4	0.4
Age Level		
- 21 – 30 Years	266	53.0
- 31 – 40 Years	124	24.7
- 41 – 50 Years	80	15.9
- 51 – 60 Years	32	6.4
Religion		
- Buddhist	484	96.4
- Christian	13	2.6
- Muslim	5	1.0
Marital Status		
- Single	366	72.9
- Married	127	25.3
- Widowed/Divorced/Separated	9	1.8
Education Level		
- Bachelor Degree Level	439	87.5
- Master Degree Level	63	12.5
Hospital Level		
- Tertiary Care Hospital	350	69.7
- Secondary Care Hospital	60	12.0
- Primary Care Hospital	59	11.8
- Special Care Hospital	33	6.6
Department		
- Outpatient Department	52	10.4
- Inpatient Department	450	89.6
Workplace		
- Medical	141	28.1
- Surgical	111	22.1
- Emergency	16	3.2
- Gynecology	86	17.1
- Pediatric	99	19.7
- Operating Room	5	1.0
- Psychiatric	19	3.8
- ENT	16	3.2
- Home Health Care	9	1.8

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Table 30 Demographic characteristics of the participants in process of confirmatory factor analysis (CFA) (n= 502) (Continued).

Characteristics	Number	Percent
Position		
- Register Nurse	488	97.2
- Head Nurse	9	1.8
- Head of Department	5	1.0
Occupational		
- Government	100	19.9
- Employee	402	80.1
Experience		
- 1-5 Years	194	38.6
- 6-10 Years	114	22.7
- 11-15 Years	55	11.0
- 16-20 Years	54	10.8
- 21-25 Years	43	8.6
- More than 25 Years	42	8.4
Income Level		
- 15,000 – 25,000 Bath	128	25.5
- 25,001 – 35,000 Bath	206	41.0
- 35,001 – 45,000 Bath	109	21.7
- 45,001 – 55,000 Bath	40	8.0
- 55,001 – 65,000 Bath	11	2.2
- More than 65,000 Bath	8	1.6

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The result for assumption test of CFA

This process aim to test the assumption before conducted CFA. There were testing which consisted normality, multicollinality, Kaiser Meyer Olkin (KMO), and Bartlett's Test of Sphericity. The result were presented as follow.

Normality testing of CFA

The final draft of Moral Integrity Scale (MIS) had mean ranged from 0.367 to 0.467, the standard deviation raged from 0.021 to 0.035, the skewness ranged from -1 to 0.666, and the kurtosis ranged from -0.963 to 8.21. According to Hair

(2010) the skewness range from -1 to 1 are present normal distribution (Hair et al, 2010). The result of descriptive were presented in Table 31.

Table 30 Descriptive statistic of 27 items of TMIS for CFA

No. of item	Mean	SD	Skewness	Kurtosis
Item 1	4.68	0.49	-1.06	0.48
Item 2	4.44	0.56	-0.34	-0.86
Item 3	4.52	0.53	-0.50	-0.96
Item 4	4.65	0.49	-0.82	-0.83
Item 5	4.22	0.57	-0.03	-0.33
Item 6	4.35	0.53	0.05	-0.89
Item 7	4.30	0.53	0.08	-0.12
Item 8	4.10	0.68	0.41	5.23
Item 9	4.45	0.55	-0.03	-0.45
Item 10	4.51	0.45	0.57	6.02
Item 11	4.03	0.62	-0.38	0.91
Item 12	4.29	0.61	0.66	6.45
Item 13	4.29	0.61	0.06	6.45
Item 14	4.37	0.53	-0.09	-1.05
Item 15	4.51	0.55	-0.05	0.41
Item 16	4.36	0.50	0.37	-0.43
Item 17	4.17	0.57	-0.20	0.70
Item 18	4.08	0.62	-0.30	0.50
Item 19	4.28	0.54	-0.23	1.78
Item 20	4.22	0.62	0.78	6.15
Item 21	4.24	0.61	0.53	8.21
Item 22	4.25	0.56	-0.14	0.32
Item 23	3.78	0.78	-0.43	0.07
Item 24	3.90	0.72	-0.30	-0.12
Item 25	3.67	0.73	0.53	-0.90
Item 26	3.93	0.56	-0.09	0.45
Item 27	4.02	0.62	-0.36	0.76

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Multicollinearity testing of CFA

Multicollinearity tesing was used to evaluate the correlation matrix among each items. If the value greater than 0.85, there are multicollinearity (Munro & Page, 1993). Moreover, there are occurs when the tolerance is less than 0.01 and the variance inflation factor (VIF) is nearly to 10 (Hair, 2010). The result in this study have not found the multicollinearity, and the correlation of all item was less than 0.85.

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Table 31 The communalities of Thai Moral Integrity Scale (TMIS) (27-items)

items	Initial	Extraction
Item 1	1.000	.665
Item 2	1.000	.598
Item 3	1.000	.600
Item 4	1.000	.629
Item 5	1.000	.382
Item 6	1.000	.610
Item 7	1.000	.658
Item 8	1.000	.439
Item 9	1.000	.556
Item 10	1.000	.424
Item 11	1.000	.420
Item 12	1.000	.539
Item 13	1.000	.579
Item 14	1.000	.537
Item 15	1.000	.442
Item 16	1.000	.557
Item 17	1.000	.438
Item 18	1.000	.535
Item 19	1.000	.616
Item 20	1.000	.596
Item 21	1.000	.552
Item 22	1.000	.567
Item 23	1.000	.578
Item 24	1.000	.412
Item 25	1.000	.638
Item 26	1.000	.653
Item 27	1.000	.596

The communality was descript how much of the variability in variable is explained by all of the factors in the analysis. The value should be greater than 0.3. (Tabachnick & Fidell, 2001). Based on data that prepare for CFA, it ranged from 0.382 to 0.665. So, all items were acceptable communalities to conduct CFA in this research.

Kaiser-Mayer-Olkin (KMO) CFA

The result in this study showed that the Kaiser-Mayer-Olkin (KMO) was equal to 0.935. The value was greater than 0.85. It mean that the overall of data were considered an excellent indication for using CFA (Table 33).

Bartlett's Test of Sphericity of CFA

Bartlett's Test of Sphericity was the method to analyze the appropriateness of the factor analysis to examine the entire correlation matrix. This method are used to test the hypothesis that the correlation matrix is an identity matrix. The result from 27 items showed the significant of this test (χ^2 =6610.910, df = 351, p < 0.001). It indicated that the correlation matrix was not an identity matrix and was appropriated for conducting the confirmatory factor analysis.

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Table 32 KMO and Bartlett's Test of Sphericity for CFA (n = 502)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.935
Bartlett's Test of Sphericity	Approx. Chi-Square	5358.274
	df	351
	Sig.	.000

Finally, an inter-item correlation testing was the last assumption to test the linear relationship between the variables. The results indicated that the correlation among variables are significant relationship ($p < 0.05$). The correlation co-efficient range from 0.30-0.69. The result was an apparent linear relationship between the variables (Table 34). From the result of assumption analysis, it could be indicated that the data were appropriateness for the confirmatory factor analysis.

The results of conducting confirmatory factor analysis CFA

The dimension of moral integrity were derived from the result of EFA. There were consisted of four dimensions and 27 items. The next step is CFA was used to test construct validity. It used to test a factors were consistent with a nature of that construct. The factor loading greater than 0.3 was accepted (Hair, 2010; Byrne, 2001). The criteria for supporting the model good fit to empirical data are showed in Table 34 as follow.

Table 33 The statistics of Goodness of fit indicators

Statistic of analysis	Recommendatio ns of fit indices
DF	Less than 3.0
P-value	Exceeds 0.90
GFI	Exceeds 0.9
AGFI	Exceeds 0.05
RMS	Should not exceeds 0.08
TLI	Exceeds 0.95
CFI	Exceeds 0.05
RMSEA	Less than 0.05 (close fit)
SRMR	Less than 0.05
PGFI	Less than 0.05
R^2	Greater than 0.05

(Hair, 2010, Byrne, 2001)

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Table 34 Comparison of the goodness of fit statistics in the initially model and the final model of the Moral Integrity Scale (MIS) (n= 502)

Relative fit index	Initial model	Final model	Criterion of good ness of fit
χ^2 – test	0.00	0.14	P < 0.05 Non – significant
χ^2	827.93	266.32	-
df	318	242	-
χ^2 / df	2.60	1.10	<3.00
CFI	0.97	1.00	≥ 0.95
GFI	0.89	0.96	≥ 0.95
AGFI	0.87	0.95	≥ 0.95
RMSEA	0.05	0.01	< 0.05
SRMR	0.05	0.03	< 0.05

Note: χ^2 = Chi-square, df = degree of freedom, CFI = Comparative Fit Index, GFI = Goodness of Fit Index, AGFI = Adjust Goodness of Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square Residual.

The result showed that, there were 27 items and four dimensions in the Confirmatory Factor Analysis (CFA). Factor loading of all items ranging from 0.27-0.75 were statistically significant at 0.05 this presented in Table 36.

Measurement model of MIS

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The TMIS was the construct as a unidimensional scale. The measurement model of MIS was establish in Table 4.1. The model indicated that TMIS consist 27 items and four dimensions. There were including 1) aware to the professional standard value in nursing profession (item 1-4), 2) Express words or action follow the professional standard value (item 516), 3) standing to continue follow the professional standard value (item 17-22), and 4) courage to think and action follow the professional standard value (item 23-27). The result of analysis was identified 27 items with four dimensions in this construct (Figure 9).

Figure 9 Measurement model of the Thai Moral Integrity Scale (TMIS)

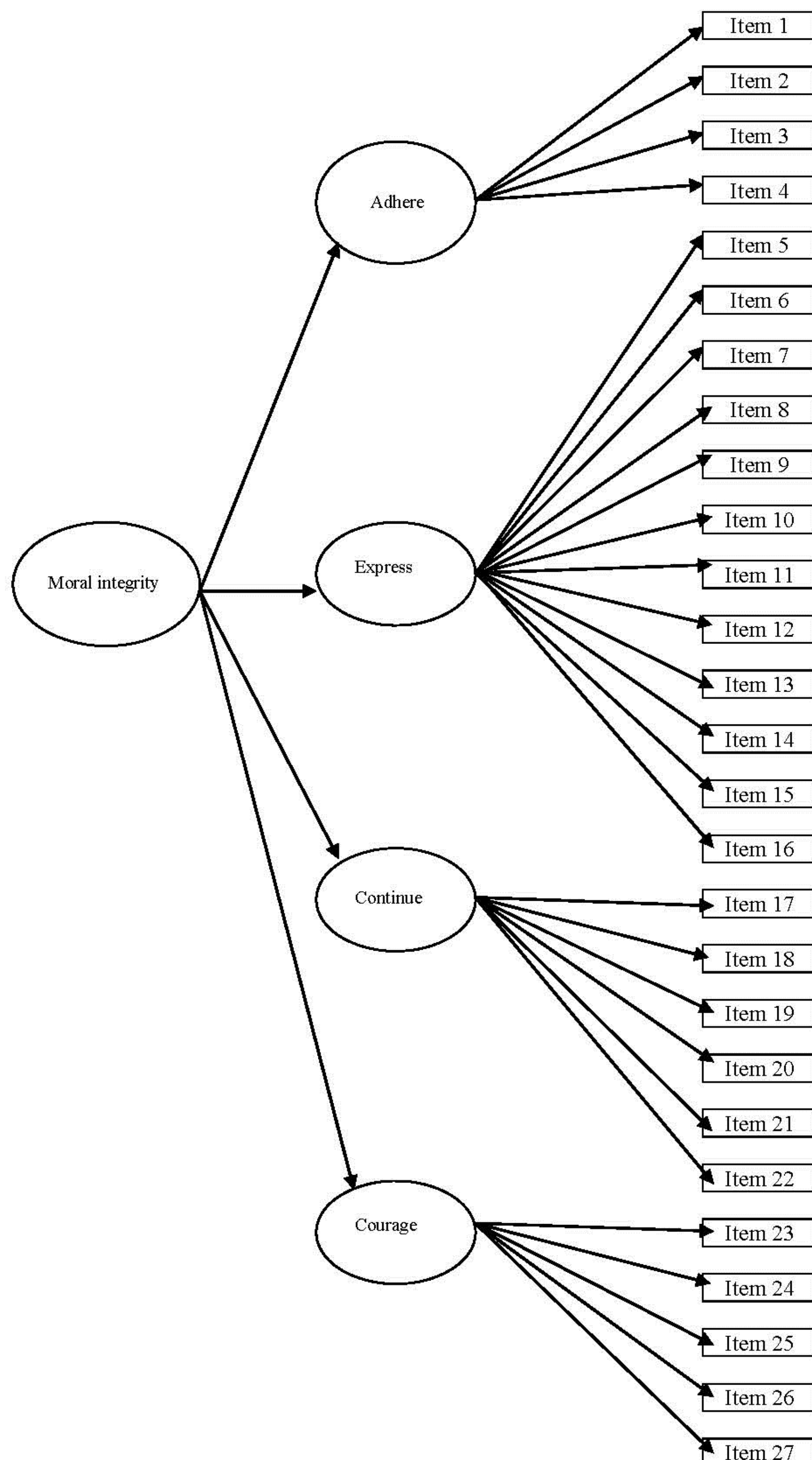
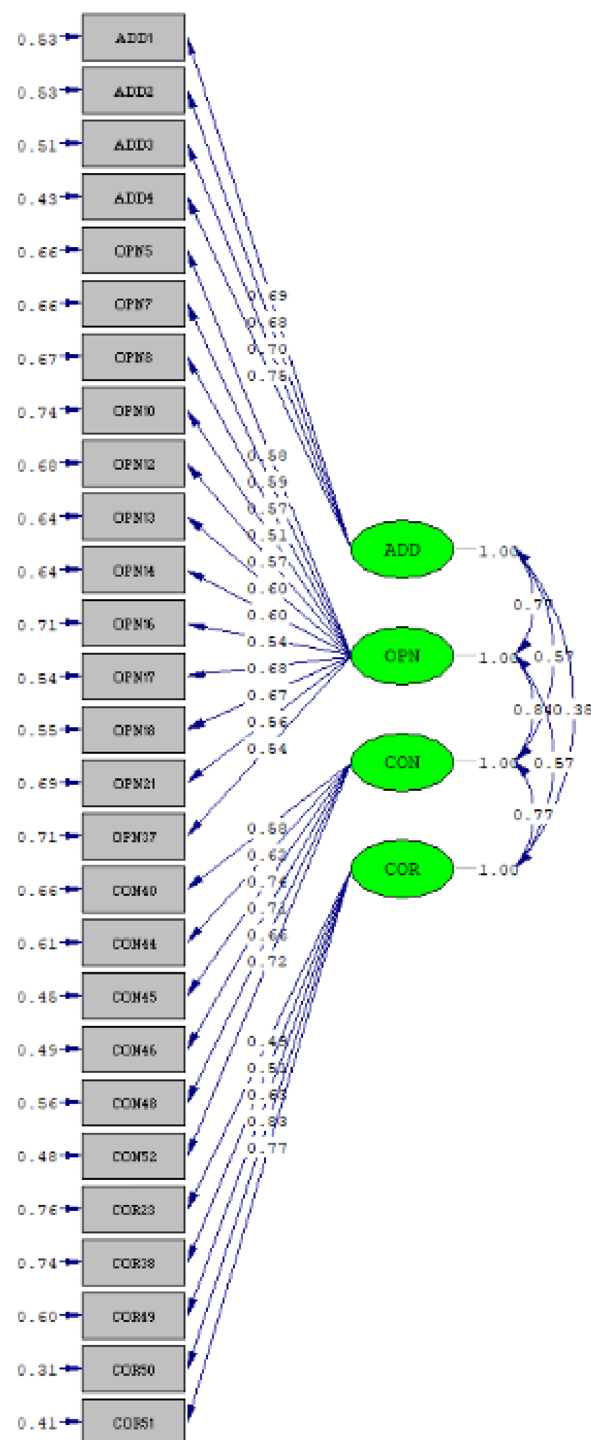
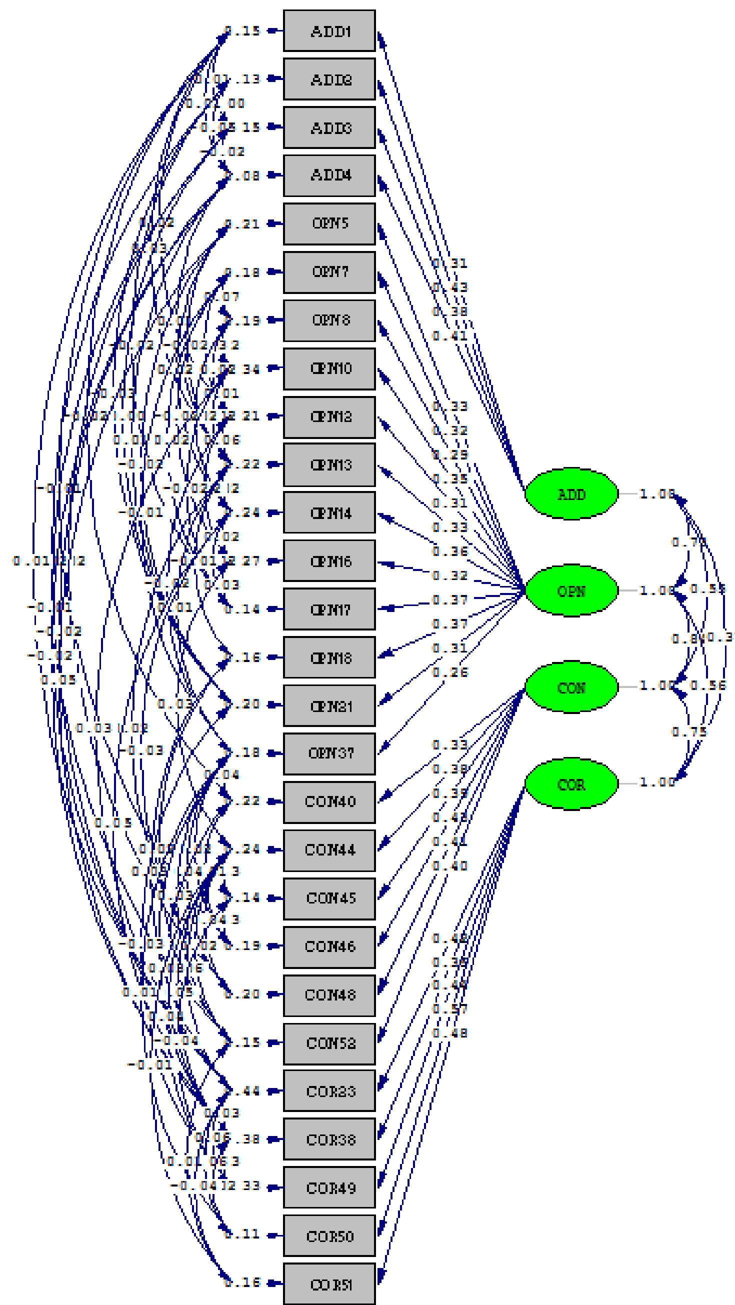


Figure 10 The hypothesize factor measurement model of the TMIS



Chi-Square=827.93, df=318, P-value=0.00000, RMSEA=0.057

Figure 11 The modified measurement model of the TMIS



Chi-Square=266.32, df=242, P-value=0.13558, RMSEA=0.014

According to the result, most indicators of the model were acceptable χ^2 – test equal to 266.32, degree of freedom equal to 242, goodness of fit index (GFI) equal to 0.96, adjust goodness of fit index (AGFI) equal to 0.94, Root Mean Square Error of Approximation (RMSEA) equal to 0.014, except the significance of χ^2. There was non-significant of Thai Moral Integrity Scale (TMIS) in χ^2 test.

The first level order of CFA

There were 27 indicators and four factors in the first of the CFA. As shown in Figure 4.2. The result showed that the factor loading of all 27 items range from 1.00 to 1.00, were statistically significant. The analysis result was presented in Table 36 as follow.

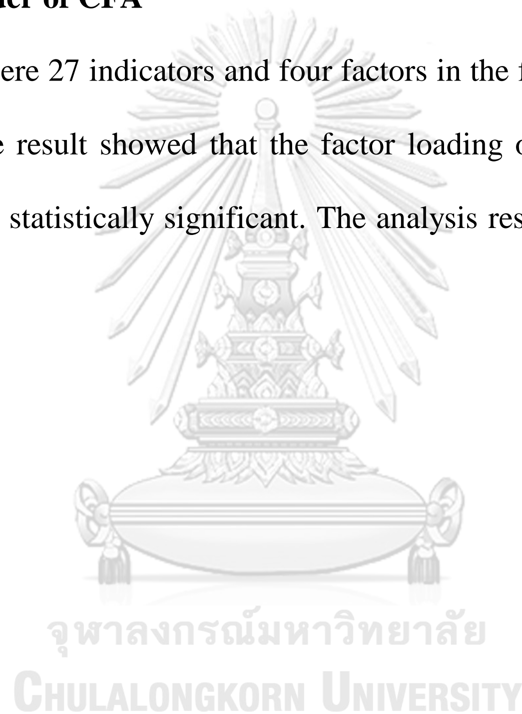


Table 35 The results of the confirmatory factor analysis of the TMIS (n=502)

Items		Factor loading			R2	Factor Scores
		B	SE	t		Regression
Item	1	0.31	0.02	13.05	0.39	0.10
Item	2	0.43	0.03	15.06	0.58	0.68
Item	3	0.38	0.03	11.92	0.50	0.37
Item	4	0.41	0.03	13.58	0.68	0.95
Item	5	0.33	0.02	13.52	0.34	0.18
Item	6	0.32	0.02	13.71	0.35	0.21
Item	7	0.29	0.02	12.75	0.31	0.09
Item	8	0.35	0.03	11.67	0.27	0.12
Item	9	0.31	0.02	12.77	0.31	0.14
Item	10	0.33	0.03	13.21	0.34	0.12
Item	11	0.36	0.03	13.67	0.35	0.17
Item	12	0.32	0.03	11.83	0.27	0.06
Item	13	0.37	0.02	16.99	0.49	0.33
Item	14	0.37	0.02	16.32	0.45	0.23
Item	15	0.31	0.02	13.02	0.32	0.19
Item	16	0.26	0.02	11.96	0.27	0.13
Item	17	0.33	0.02	13.31	0.33	0.21
Item	18	0.38	0.03	13.99	0.38	0.21
Item	19	0.39	0.02	17.37	0.51	0.22
Item	20	0.43	0.03	16.83	0.49	0.25
Item	21	0.41	0.03	16.14	0.45	0.30
Item	22	0.40	0.02	17.83	0.52	0.33
Item	23	0.42	0.05	8.96	0.29	0.23
Item	24	0.35	0.03	10.12	0.25	0.14
Item	25	0.44	0.03	14.11	0.37	0.11
Item	26	0.57	0.03	21.77	0.75	0.74
Item	27	0.48	0.03	18.76	0.59	0.38

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The second level order of CFA

There were 27 indicators and four factors in the second level of the CFA. As shown in Figure 12. The result showed that the factor loading of all 27 items range from to, were statistically significant. The analysis result was presented in Table 37. Based on an accepted level of 0.05, the t-value test statistic needed to be 1.96 or more before the hypothesis could be rejected. The result showed that all of the regression weights between the four constructs and the TMIS raged from 0.50 to 1.00 and were statistically significant at $p < 0.05$. It was indicated that the four dimensions of moral integrity scale were actual predictors of the TMIS.

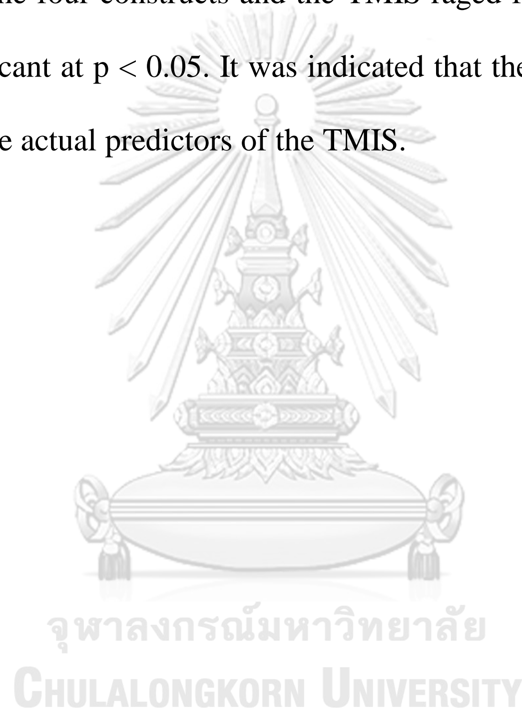

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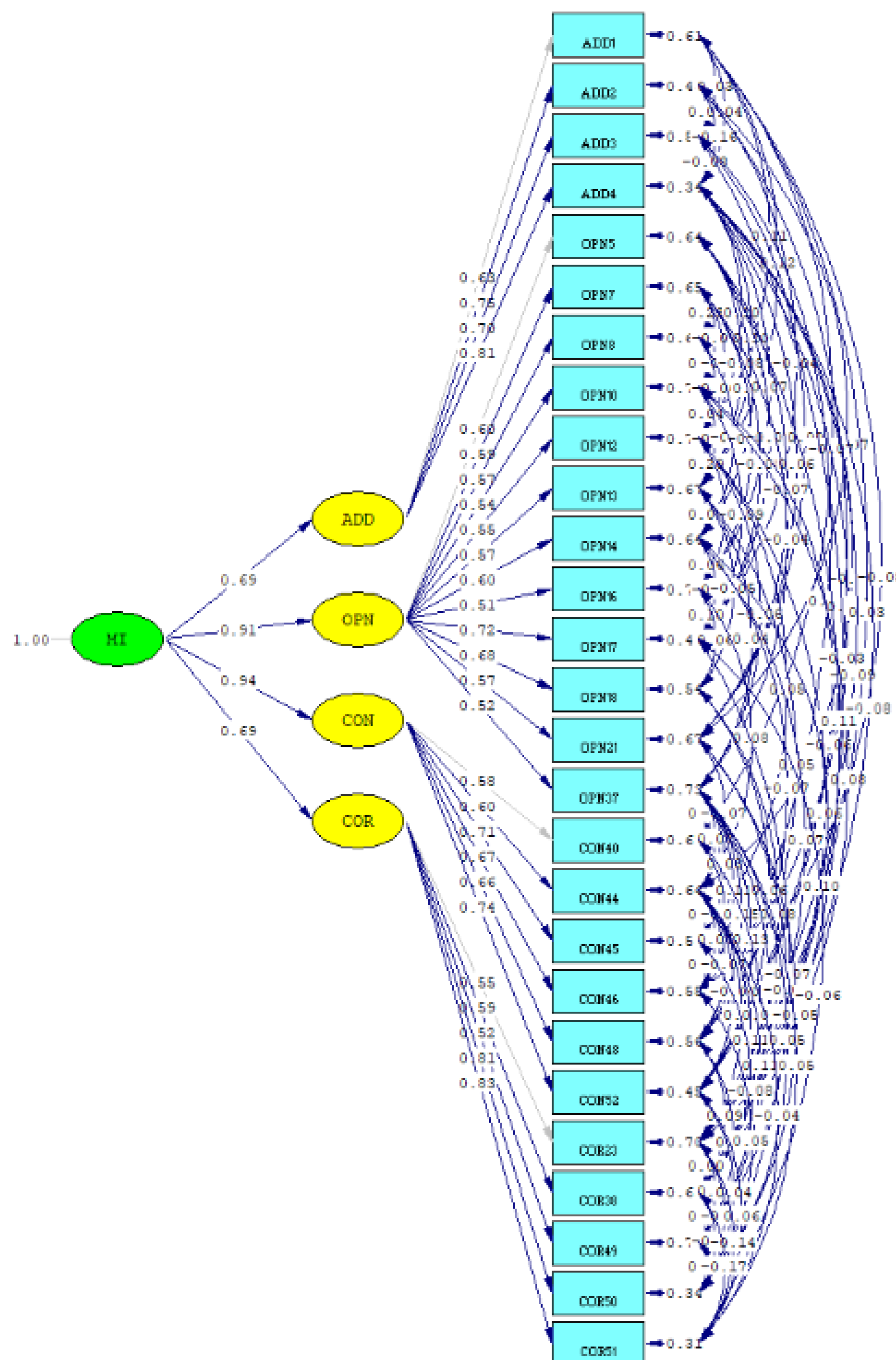
Figure 12 The second order of CFA model of the TMIS



Chi-Square=232.87, df=219, P-value=0.24802, RMSEA=0.011

Moreover, the construct reliability of four dimensions R^2 were less than 0.7, respectively. It mean that all construct were satisfactory level of construct reliability. According to the result of completely standardized solution of CFA found the range of factor loading were 0.51 to 0.83. The factor loading of factor 1 was 0.91, factor 2 was 0.94, factor 3 was 0.69, and factor 4 was 0.69. An average variance extracted (AVE) of TMIS construct equal to 0.43. The result of this process were present as Table 37.

Table 36 The result of each item of the second order confirmatory factor analysis

Items	**R^2 for second order indicator**				**Factor scores regression**	**AVE**
	Aware	**Express**	**Continue**	**Courage**		
Item 1	0.63	-	-	-	0.39	0.49
Item 2	0.75	-	-	-	0.57	
Item 3	0.70	-	-	-	0.49	
Item 4	0.81	-	-	-	0.66	
Item 5	-	0.60	-	-	0.36	
Item 6	-	0.59	-	-	0.35	
Item 7	-	0.57	-	-	0.32	
Item 8	-	0.54	-	-	0.29	
Item 9	-	0.55	-	-	0.30	
Item 10	-	0.57	-	-	0.33	
Item 11	-	0.60	-	-	0.36	
Item 12	-	0.51	-	-	0.26	
Item 13	-	0.72	-	-	0.52	
Item 14	-	0.68	-	-	0.46	
Item 15	-	0.57	-	-	0.33	
Item 16	-	0.52	-	-	0.27	
Item 17	-	-	0.58	-	0.33	
Item 18	-	-	0.60	-	0.36	
Item 19	-	-	0.71	-	0.50	
Item 20	-	-	0.67	-	0.45	
Item 21	-	-	0.66	-	0.44	
Item 22	-	-	0.74	-	0.55	
Item 23	-	-	-	0.55	0.30	
Item 24	-	-	-	0.59	0.35	
Item 25	-	-	-	0.52	0.27	
Item 26	-	-	-	0.81	0.66	
Item 27	-	-	-	0.83	0.69	

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According to the result of second order of CFA, the model was modified by allowing the error term between variable be correlated based on the modification indicators and theoretical support. After modifying the initial hypothesized model, the result present the measurement model had good fit the data with χ^2 = 232.87, df = 219, p = 0.248), χ^2/df = 1.06, GFI = 0.97, AGFI = 0.94 CFI = 1.0, and RMSEA = 0.01.

Table 37 he result of statistic of four dimensions of TMIS

Dimensions	Factor loading	se	t-value	R2
Express action follow the Code of Professional Conduct and registered nurses ‘competency	0.91	0.07	12.91	0.83
Continue to do follow the Code of Professional Conduct and registered nurses ‘competency	0.94	0.07	12.54	0.88
Adhere to follow the Code of Professional Conduct and registered nurses ‘competency	0.69	0.07	9.52	0.48
Courage to action follow the Code of Professional Conduct and registered nurses ‘competency	0.69	0.08	8.15	0.48

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In summary, the finding revealed which the measurement model fit the empirical data. The Chi-square test presented the low value with a non-significant level of CFI, GFI, and AGFI values were close to 1.0 and the RMSEA value was less than 0.80. So, the measured model were acceptable. The classical testing approach for reliability and validity provided adequate support for the TMIS.

The result of internal consistency

The result showed that the most items were approximately normally distributed with skewness of -1.00 to 1.50 and kurtosis of -1.00 to 2.00. The item means ranged from 2.5 to 4.50. Cronbach's alpha coefficients of the total scale was 0.92. The finding showed that there was high reliability of the instrument. Thus, the alpha coefficient of the MIS was more than acceptable at 0.70 for a newly developed instrument (Nunnally and Bernstein, 1994, Hair, 2010). Moreover, there was the value of internal consistency of overall scale of alpha coefficient of the MIS had sufficient evidence for internal consistency as a reliable scale.

In summary, the study result showed the empirical evidence to support the MIS that was consists of 27 items which could be accepted as a valid and reliable instrument. The factor construction of the MIS measurement model was confirmed have four dimensions.

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CHAPTER V
DISCUSSION AND CONCLUSIONS

This chapter discussed the result of the study based on the objective of the studied. That consists; 1) to identify the dimension of moral integrity in professional nurses, 2) to test the psychometric properties of the moral integrity scale for professional nurses

Discussion

1. Identify the dimensions of moral integrity in Thai professional nurses.

The original of definition and component of Thai Moral Integrity Scale (TMIS). The theme of concept guideline of this study based on the comprehensive literature review and expert interview. There were some different of the themes of moral integrity in professional nurses in the original themes that consist three themes of definitions and dimensions. In the result of exploratory analysis (EFA) found that there were four dimension that were consists in the construct of moral integrity.

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According to the previous definition of moral integrity in the literature reviewed, there were some meaning that the same of meaning of the dimension of courage to express and action follow the moral principle in professional nurses. Moral courage is one component of moral integrity (Janet, 2007; Gray, 2008). Moral courage as a response to threat or challenge, real in the present, recognized in the pass, and anticipated in the future (Kidder, 2005). Moral courage has to speak out and do the right thing even when constraints or forces to do otherwise are present. It mean, person have to do what they believe is the right thing in the situation; they make a personal sacrifice by possibly standing alone, but will feel a sense of peace in

their decision. Nurses need moral courage to act according to their beliefs and value (Janet, 2007). Lachman (2007) defined moral courage as the confronting a situation or person that are not within reasonable standard or care.

The finding is parallel to the previous studied in which the meaning of moral integrity was the same with courage to express the word or action in professional nurses (Janet, 2007; Gray, 2008; Kidder, 2005; Lachman , 2007)

2. The psychometric properties testing of the moral integrity scale for professional nurses

According to the result of psychometric properties testing, including the validity testing and reliability testing. This instrument was the acceptable of the construct validity by used CVI score that evaluated by five expert which S-CVI equal to 1.00, and the internal consistence by used Cronbach's alpha more than 0.80 (0.96). This is acceptable for develop the new instrument (DeVellis, 2012; Polit and Beck, 2014).

3. Implications for nursing knowledge and nursing practice

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This research will add to the research knowledge involving associate moral integrity in nurse practiced. In essence, this research could benefit in nurse practice, health care provider, policy maker, and leader of organization that involved with professional nurses' action or nursing care in clinical practice. This research could specifically benefit nurse who develop moral integrity in practiced. Nurse researchers could continue to research what specific variables may influence moral integrity development in nurse or other area.

It is important to help nurse to perceived situations as threats to their personal moral codes or moral principle that guide knowledge or promote moral integrity in nursing care to improve patient care. Thus, influenced the likelihood for remaining in nursing is unknown. The result from study may help guide the way that nurse will use to managing and solving the ethical problem and complex situation in context of nurse ethical. Given the gaps in knowledge, determining how nurses perceived moral integrity and how they plan to maintain their moral integrity in the face of moral conflict in caring patient with cancer may assist in the development of strategies to reduce the moral distress in this area.

Otherwise, there is no study find out the level of moral integrity or factors related to moral integrity of professional nurses in each setting or special area in Thailand. Therefore, full understanding moral integrity, the variables or factors that associated with moral integrity of nurses is needed before develop an appropriate intervention to promote, support, and encourage moral integrity that may decreased moral distress and help nurse have good management or dueling with ethical problem in practice and bring about significant improvement in moral context in nursing.

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The explicating significance of research study to health of Thai population, nursing science, and nursing profession from this study will provide useful recommendations for the allocation of resource for promote moral integrity program for professional nurses in Thailand. Moreover, the knowledge derived from theory and research will more effectively explain nursing phenomena and provide a valuable tool to nursing science. The result in this study were provides a basic knowledge base to explain and examine the phenomenal of moral integrity in professional nurses, the research contributes to the body of knowledge concerning the instrument. The

findings supported the validity of the instrument, and explained the relationship of the relevant aspects of the theory in the phenomena of moral integrity in professional nurses.

4. Recommendations for the further research

1. Moral integrity should be develop and motivation in organization such as provide the opportunity to have moral training, provide opportunity to discuss the moral situation in clinical teaching.

2. The social variable should be studies such as the hospital environment, the hospital care systems, working time, work setting, and satisfaction of professional nurses.

3. The association of moral integrity and demographic characteristics such as moral knowledge, experience, status, age, gender, duty, and the moral opinion. In order to find the relationship or to predict the moral behavior and other factors in professional nurses.

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4. The associated between moral integrity and nursing dilemmas or moral distress should be studies.

5. The moral integrity should be evaluated all elements of the service system such as the patients, employer, supervisor, and co-worker.

6. Focusing the group of professional nurses that were low of moral integrity score for find the factors that effected or related to moral integrity in professional nurses.

7. It should be conduct the reliability in grater professional group from all area of Thailand to generalization of the instrument.

Conclusions

This part describes the conclusion of the study. The goal of this study was to create an instrument based on perspective of profession nurses. The process of instrument development that includes instrument formation and psychometric property test of Thai Moral Integrity Scale (TMIS)in validity and reliability testing. The availability of the professional nurse' attitude and perception of moral integrity will facilitate collection of the data.

This study provided evidence of four dimension of moral integrity in professional nurses with good reliability, and established content and construct validity in moral integrity. The finding of this study suggest that the evaluated moral integrity in professional nurses' attitude and ability are valid for use professional nurses. More research is needed before this instrument is used with other populations or focus on the level of nurse, level of hospital, level of experience of nurses, or different of area and setting.

In summary, the study result showed the empirical evidence to support the TMIS that was consists of 27 items which could be accepted as a valid and reliable instrument. The factor construction of the TMIS measurement model was confirmed have four dimensions.

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Chulalongkorn University

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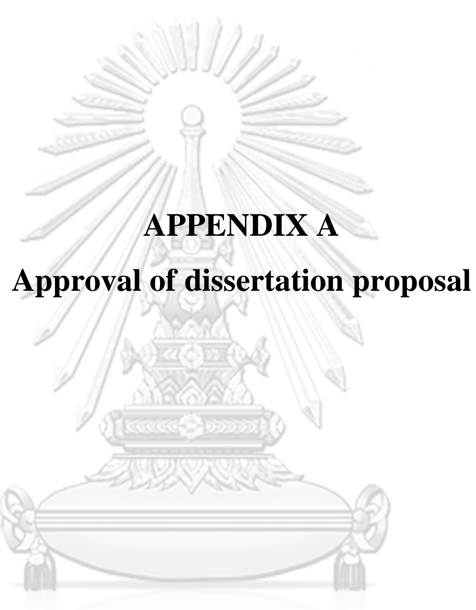
CHULALONGKORN UNIVERSITY

APPENDIX



APPENDIX A
Approval of dissertation proposal

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

ประกาศ

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

เรื่อง การอนุมัติหัวข้อดุษฎีนิพนธ์ ครั้งที่ 2/2559 ประจำปีการศึกษา 2559

ตามที่คณะพยาบาลศาสตร์ ได้มีประกาศ เรื่อง การอนุมัติหัวข้อดุษฎีนิพนธ์ ครั้งที่ 13/2557 ประจำปีการศึกษา 2557 ประกาศ ณ วันที่ 11 กันยายน 2558 แล้วนั้น เนื่องจากมีการปรับแก้บางส่วน จึงขอยกเลิกประกาศหัวข้อวิทยานิพนธ์ ของ **นางจินดา นันทวงษ์** ในประกาศฉบับดังกล่าว และใช้ประกาศฉบับนี้แทนดังนี้

นิสิตผู้ทำวิจัยและอาจารย์ที่ปรึกษาดุษฎีนิพนธ์

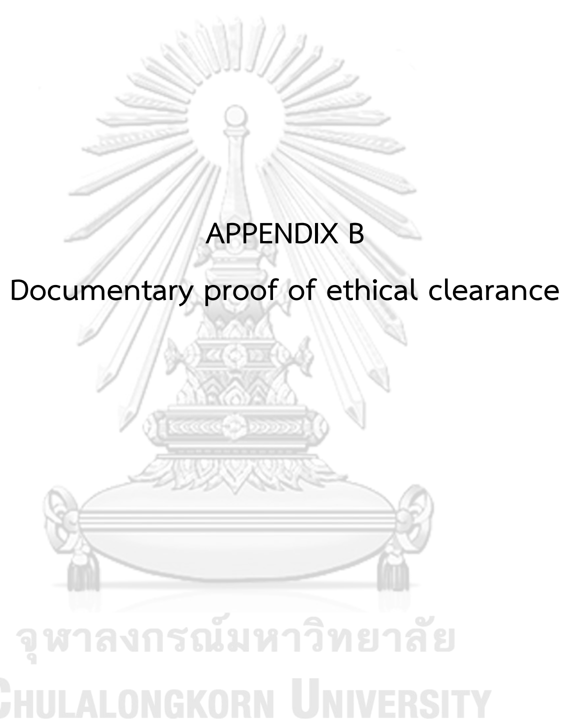
รหัสนิสิต	5577401636
ชื่อ-นามสกุล	นางจินดา นันทวงษ์
สาขาวิชา	พยาบาลศาสตร์ (นานาชาติ)
ประธานกรรมการ	รองศาสตราจารย์ ร.ต.อ.หญิง ดร. ยุพิน อังสุโรจน์
อาจารย์ที่ปรึกษาหลัก	**รองศาสตราจารย์ ดร. จินตนา ยูนิพันธุ์**
อาจารย์ที่ปรึกษาร่วม	**รองศาสตราจารย์. ดร. วราภรณ์ ชัยวัฒน์**
กรรมการ	รองศาสตราจารย์ ดร. สุรีพร ธนศิลป์
กรรมการ	**รองศาสตราจารย์ ดร. ศิริเดช สุชีวะ**
กรรมการภายนอก	**รองศาสตราจารย์ เนื่องน้อย บุณยเนตร**
ชื่อหัวข้อดุษฎีนิพนธ์	การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ DEVELOPMENT OF MORAL INTEGRITY SCALE FOR PROFESSIONAL NURSES
ครั้งที่อนุมัติ	2/2559
ระดับ	ปริญญาเอก

ประกาศ ณ วันที่ 1 มิถุนายน พ.ศ. 2560

สุรีพร ธนศิลป์

(รองศาสตราจารย์ ดร. สุรีพร ธนศิลป์)

คณบดีคณะพยาบาลศาสตร์



APPENDIX B

Documentary proof of ethical clearance

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
๒๗๐ ถนนพระราม ๖ แขวงทุ่งพญาไท เขตราชเทวี กทม. ๑๐๔๐๐
โทร. (๐๒) ๒๐๑-๑๐๐๐

Faculty of Medicine Ramathibodi Hospital, Mahidol University.
270 Rama VI Road, Ratchathewi, Bangkok 10400, Thailand
Tel. (662) 201-1000

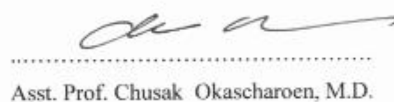
Documentary Proof of Ethical Clearance
Committee on Human Rights Related to Research Involving Human Subjects
Faculty of Medicine Ramathibodi Hospital, Mahidol University

MURA2017/528

Title of Project	Development of Moral Integrity Scale for Professional Nurses
Protocol Number	ID 07-60-59
Principal Investigator	Mrs. Jinda Nunthawong M.Sc.
Education Address	Faculty of Nursing Chulalongkorn University

The aforementioned project has been reviewed and approved by the Committee on Human Rights Related to Research Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Chairman
Committee on Human Rights Related to
Research Involving Human Subjects



....
Asst. Prof. Chusak Okascharoen, M.D.

Date of Approval	August 31, 2017
Duration of Study	12 Months

คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
๒๗๐ ถนนพระราม ๖ แขวงทุ่งพญาไท เขตราชเทวี กทม. ๑๐๔๐๐
โทร. (๐๒) ๒๐๑-๑๐๐๐

Faculty of Medicine Ramathibodi Hospital, Mahidol University.
270 Rama VI Road, Ratchathewi, Bangkok 10400, Thailand
Tel. (662) 201-1000

เอกสารรับรองโดยคณะกรรมการจริยธรรมการวิจัยในคน
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
มหาวิทยาลัยมหิดล

เลขที่ ๒๕๖๐/๕๒๘

ชื่อโครงการ	การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ
เลขที่โครงการ/รหัส	ID ๐๗-๖๐-๕๙ ย
ชื่อหัวหน้าโครงการ	อาจารย์จินดา นันทวงษ์
สถานศึกษา	คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ขอรับรองว่าโครงการดังกล่าวข้างต้นได้ผ่านการพิจารณาเห็นชอบโดยสอดคล้องกับแนวปฏิญญา เฮลซิงกิ จากคณะกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

ลงนาม	______________________
ประธานกรรมการจริยธรรมการวิจัยในคน	(ผู้ช่วยศาสตราจารย์นายแพทย์ชูศักดิ์ โอกาศเจริญ)
วันที่รับรอง	๓๑ สิงหาคม ๒๕๖๐
ระยะเวลาในการศึกษา	๑๒ เดือน

ที่ ปท ๐๐๓๒.๒๐๓.๓ / ๒๔๑๓

โรงพยาบาลปทุมธานี
ถนนปทุมธานี-ลาดหลุมแก้ว ปท ๑๒๐๐๐

๑๓ กุมภาพันธ์ ๒๕๖๑

เรื่อง อนุญาตให้เก็บข้อมูลงานวิจัยและรับรองจริยธรรมการวิจัยในมนุษย์

เรียน คณบดีคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ตามที่ คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ขออนุญาตให้ นางจินดา นันทวงษ์ นิสิตปริญญาดุษฎีบัณฑิต คณะพยาบาลศาสตร์ เข้าเก็บข้อมูลเพื่อการศึกษาวิจัย เรื่อง"การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ"

ในการนี้ โรงพยาบาลปทุมธานี โดยคณะกรรมการวิจัยได้พิจารณาแล้วและมีมติอนุมัติในหลักการและรับรองด้านจริยธรรมการวิจัยในมนุษย์ ทั้งนี้การเข้าร่วมการวิจัยให้ขึ้นอยู่กับความยินยอมของกลุ่มเป้าหมาย

จึงเรียนมาเพื่อโปรดทราบและดำเนินการต่อไป

ขอแสดงความนับถือ

(นายสุรัตน์ สุขประเสริฐ)
นายแพทย์(ด้านเวชกรรม สาขาศัลยกรรม) ระดับเชี่ยวชาญ
รองผู้อำนวยการฝ่ายการแพทย์ ปฏิบัติราชการแทน
ผู้อำนวยการโรงพยาบาลปทุมธานี

กลุ่มงานพัฒนาทรัพยากรบุคคล
โทร. ๐ ๒๕๙๘ ๘๗๐๒
โทรสาร. ๐ ๒๕๙๘ ๘๗๖๖

CHULALONGKORN UNIVERSITY

คณะกรรมการพิจารณาจริยธรรมการศึกษาวิจัย
ด้านการแพทย์และสาธารณสุขในคน จังหวัดปทุมธานี

สำนักงานสาธารณสุขจังหวัดปทุมธานี
๑๔ ถนนรัฐอำนวย อำเภอเมืองปทุมธานี ๑๒๐๐๐

ใบรับรองจริยธรรมการวิจัย

การวิจัยนี้และเอกสารประกอบของการวิจัยตามรายการแสดงด้านล่างนี้ ได้รับการพิจารณาจากคณะกรรมการพิจารณาจริยธรรมการศึกษาวิจัยด้านการแพทย์และสาธารณสุขในคน จังหวัดปทุมธานี แล้ว คณะกรรมการฯ มีความเห็นว่าการวิจัยที่ดำเนินการมีความสอดคล้องกับหลักจริยธรรมสากล ตลอดจนกฎหมาย ข้อบังคับ และข้อกำหนดภายในประเทศ จึงเห็นสมควรให้ดำเนินการวิจัยตามข้อเสนอการวิจัยนี้ได้

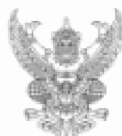
ชื่อการวิจัย : "การพัฒนาแบบวัดคุณธรรมบูรณภาพ"
รหัสการวิจัย (ถ้ามี) : -
หน่วยงานที่สังกัด : คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ผู้วิจัยหลัก : นางจินตา นันทวงษ์
เอกสารที่พิจารณาทบทวน

๑.ข้อเสนอการวิจัย	ฉบับที่ ๑	วันที่ ๑๗ เมษายน ๒๕๖๑
๒.เอกสารคำอธิบายสำหรับอาสาสมัคร	ฉบับที่ ๑	วันที่ ๑๗ เมษายน ๒๕๖๑
๓.แบบบันทึกข้อมูล	ฉบับที่ ๑	วันที่ ๑๗ เมษายน ๒๕๖๑
๔.งบประมาณการวิจัย	ฉบับที่ ๑	วันที่ ๑๗ เมษายน ๒๕๖๑
๕.ประวัติและผลงานวิจัย	ฉบับที่ ๑	วันที่ ๑๗ เมษายน ๒๕๖๑
๖.อื่นๆ (ถ้ามี)	ฉบับที่ -	วันที่ -

(นายณรงค์ ตั้งตรงไพโรจน์)
นายแพทย์สาธารณสุขจังหวัดปทุมธานี
ประธานคณะกรรมการพิจารณาจริยธรรมการศึกษาวิจัย
ด้านการแพทย์และสาธารณสุขในคน จังหวัดปทุมธานี

หมายเลขรับรอง : PPHO-REC ๒๕๖๑ / ००๖
วันที่ให้การรับรอง : ๑๘ เมษายน ๒๕๖๑
วันหมดอายุใบรับรอง : ๑๗ ตุลาคม ๒๕๖๑

ฝ่ายเลขานุการคณะกรรมการพิจารณาจริยธรรมการศึกษาวิจัย
ด้านการแพทย์และสาธารณสุขในคน จังหวัดปทุมธานี
โทรศัพท์ ๐ ๒๕๘๑ ๖๑๔๐ ต่อ ๔๐๓
โทรสาร ๐ ๒๕๘๑ ๖๑๔๐ ต่อ ๔๔๔



เลขที่ 156/2561

คณะกรรมการจริยธรรมเพื่อการวิจัยสถาบันโรคทรวงอก
กรมการแพทย์
กระทรวงสาธารณสุข

โครงการวิจัย : "การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ" (Development of Moral Integrity Scale for Professional Nurses)

ผู้ดำเนินการวิจัย : นางจินดา นันทวงษ์
นิสิตหลักสูตรพยาบาลศาสตร์ดุษฎีบัณฑิต
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

สถานที่ทำการวิจัย : สถาบันโรคทรวงอก

เอกสารที่ได้รับการพิจารณามีดังนี้

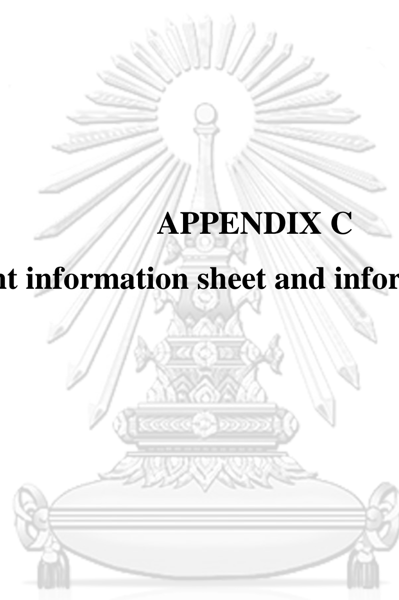
1. หนังสือขออนุมัติดำเนินการวิจัยในสถาบันโรคทรวงอก
2. แบบสรุปโครงการวิจัยโดยย่อเพื่อขออนุมัติดำเนินการวิจัยในสถาบันโรคทรวงอก กรมการแพทย์
3. เครื่องมือที่ใช้ในการวิจัย
4. หนังสือขอความยินยอม
5. แผ่นบรรจุข้อมูลโครงการวิจัย

คณะกรรมการจริยธรรมเพื่อการวิจัยสถาบันโรคทรวงอก กรมการแพทย์ กระทรวงสาธารณสุข อนุมัติในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้

(นายแพทย์เฉลียว พูลศิริปัญญา) ประธานกรรมการ

(นายอุดม แท้วิริยะกุล) รักษาราชการแทนเลขานุการกรรมการ

รับรองวันที่ : 11 เม.ย. 2561
วันหมดอายุ : 10 เม.ย. 2562



APPENDIX C

Participant information sheet and informed consent form

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

เอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้เข้าร่วมการวิจัย

(Participant Information Sheet)

ชื่อโครงการ การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ

ชื่อผู้วิจัย นางจินดา นันทวงษ์

บุคคลและวิธีการติดต่อเมื่อมีเหตุฉุกเฉินหรือความผิดปกติที่เกี่ยวข้องกับการวิจัย

นางจินดา นันทวงษ์

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

อาคารบรมราชชนนีศรีศตพรรษ ชั้น 11

ถนนพระราม1แขวงวังใหม่ เขตปทุมวัน กรุงเทพฯ 10330

โทรศัพท์ 081-869-9980

ข้าพเจ้า นางจินดา นันทวงษ์ นิสิตปริญญาเอก คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย มีความประสงค์ที่จะขอความร่วมมือจากท่านเพื่อให้เป็นผู้มีส่วนร่วมในการวิจัยเรื่อง "การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ" โดยรายละเอียดเกี่ยวกับการวิจัยมีดังนี้

1. การศึกษาวิจัยนี้เป็นการพัฒนาเครื่องมือเพื่อประเมินคุณธรรมบูรณภาพของพยาบาลวิชาชีพ

2. ประโยชน์ที่ได้จากงานวิจัยในครั้งนี้ จะช่วยให้พยาบาลวิชาชีพตลอดจนวิชาชีพทางสุขภาพสามารถประเมินคุณธรรบูรณภาพของพยาบาลได้ ซึ่งจะช่วยให้ทราบสถานการณ์ของวิชาชีพในปัจจุบัน ซึ่งผลการศึกษาจะสามารถนำไปพัฒนานโยบายในด้านปฏิบัติการพยาบาลและการพัฒนาคุณธรรมจริยธรรมในการพยาบาลทางด้านสมรรถนะทางจริยธรรม ซึ่งจะส่งผลให้การพยาบาลมีคุณภาพมากยิ่งขึ้น อีกทั้งยังสามารถนำผลการศึกษาไปใช้ในการวางแผนหรือสร้างโครงการเพื่อลดปัญหาทางจริยธรรมและ ภาวะคับข้องใจทางจริยธรรมในพยาบาลวิชาชีพได้

3. ผู้เข้าร่วมโครงการวิจัยในครั้งนี้คือพยาบาลวิชาชีพที่ พูด อ่าน เขียน ภาษาไทยได้ ไม่มีปัญหาเรื่องความคิดหรือเป็นโรคทางจิตประสาท

4. ผู้ร่วมวิจัยจะได้รับการชี้แจงจากผู้วิจัยถึงวัตถุประสงค์ ขั้นตอนการเก็บข้อมูล หลังจากนั้นผู้ร่วมวิจัยจะได้รับแบบสอบถามจำนวน 2 ชุด คือ แบบสอบถามข้อมูลทั่วไป และ แบบสอบถามเรื่องคุณธรรมบูรณภาพในพยาบาลวิชาชีพ

ทั้ง 2 แบบสอบถามจะใช้เวลาทั้งหมดประมาณ 10 นาที

5. การศึกษาครั้งนี้ใช้วิธีการโดยให้ผู้ร่วมวิจัยตอบแบบสอบถาม จึงไม่มีผลข้างเคียงที่กระทบต่อด้านร่างกาย กรณีที่ไม่สะดวกที่จะตอบคำถามในแบบสอบถาม ผู้เข้าร่วมวิจัยสามารถมีสิทธิที่จะปฏิเสธการตอบแบบสอบถาม หรือถอนตัวออกจากการศึกษาครั้งนี้ได้ทุกเวลาที่ต้องการ ทั้งนี้การ

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ปฏิเสธจะไม่ก่อให้เกิดอันตราย หรือผลกระทบใดๆ ต่อผู้เข้าร่วมวิจัย

6. หากผู้เข้าร่วมวิจัยมีข้อสงสัยสามารถสอบถามเพิ่มเติมจากผู้วิจัยโดยสามารถสอบถามได้โดยตรง หรือติดต่อผู้วิจัยได้ตลอดเวลาที่ นางจินดา นันทวงษ์ หรือทางโทรศัพท์ 089-1290174 หรือตามที่อยู่ด้านบน และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ผู้เข้าร่วมวิจัยทราบอย่างรวดเร็ว เพื่อให้ผู้เข้าร่วมวิจัยทบทวนว่ายังสมัคใจจะอยู่ในโครงงานวิจัยต่อไปหรือไม่

7. ข้อมูลที่ได้จากการตอบแบบสอบถามของผู้เข้าร่วมวิจัยจะถูกนำไปรวมกับข้อมูลของผู้เข้าร่วมวิจัยคนอื่น ๆ ที่เข้าร่วมในการศึกษาครั้งนี้ โดยข้อมูลจะถูกเก็บเป็นความลับและผู้วิจัยจะใช้รหัสแทนที่ชื่อและนามสกุลของผู้เข้าร่วมวิจัยในแบบบันทึกข้อมูล หากผู้วิจัยตีพิมพ์ผลการศึกษา การรายงานผลการวิจัยจะเป็นข้อมูลส่วนรวม การเปิดเผยข้อมูลเกี่ยวกับผู้ป่วยต่อหน่วยงานต่างๆ ที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น และ ผู้วิจัยจะทำการทำลายแบบสอบถามเหล่านั้นด้วยตนเองภายหลังเสร็จสิ้นการวิจัย

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หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

(Informed Consent Form)

ชื่อโครงการ การพัฒนาแบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ
ชื่อผู้วิจัย นางจินดา นันทวงษ์
*ชื่อผู้เข้าร่วมการวิจัย ....
อายุ ....

คำยินยอมของผู้เข้าร่วมการวิจัย

ข้าพเจ้า นาย/นาง/นางสาว .... ได้ทราบรายละเอียดของโครงการวิจัยตลอดจนประโยชน์ และข้อเสี่ยงที่จะเกิดขึ้นต่อข้าพเจ้าจากผู้วิจัยแล้วอย่างชัดเจน ไม่มีสิ่งใดปิดบังซ่อนเร้นและยินยอมให้ทำการวิจัยในโครงการที่มีชื่อข้างต้น และข้าพเจ้ารู้ว่าถ้ามีปัญหาหรือข้อสงสัยเกิดขึ้นข้าพเจ้าสามารถสอบถามผู้วิจัยได้ และข้าพเจ้าสามารถไม่เข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบต่อการรักษาที่ข้าพเจ้าพึงได้รับ นอกจากนี้ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ลงชื่อ..(ผู้เข้าร่วมการวิจัย)

....(พยาน)

....(พยาน)

วันที่ ....

คำอธิบายของผู้วิจัย

ข้าพเจ้าได้อธิบายรายละเอียดของโครงการ ตลอดจนประโยชน์ของการวิจัย รวมทั้งข้อเสี่ยงที่อาจจะเกิดขึ้นแก่ผู้เข้าร่วมการวิจัยทราบแล้วอย่างชัดเจนโดยไม่มีสิ่งใดปิดบังซ่อนเร้น

ลงชื่อ..(ผู้วิจัย)

วันที่................................

หมายเหตุ : กรณีผู้เข้าร่วมการวิจัยไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในหนังสือยินยอมฯ นี้ให้แก่ผู้เข้าร่วมการวิจัยฟังจนเข้าใจดีแล้ว และให้ผู้เข้าร่วมการวิจัยลงนามหรือพิมพ์ลายนิ้วหัวแม่มือรับทราบในการให้ความยินยอมดังกล่าวข้างต้นไว้ด้วย

* ผู้เข้าร่วมการวิจัย หมายถึง ผู้ยินยอมตนให้ทำวิจัย

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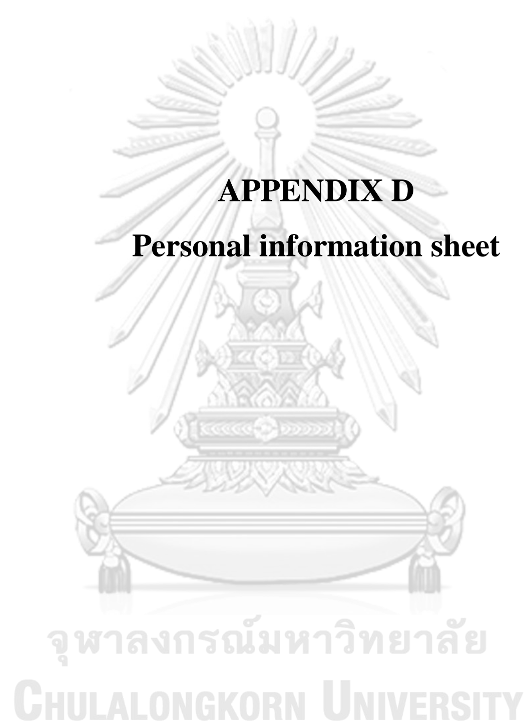


APPENDIX D

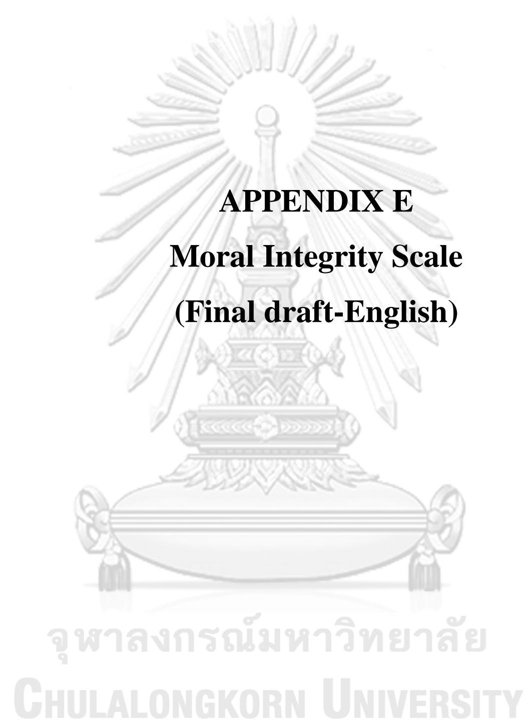
Personal information sheet

Code | | |

Personal data sheet

General information of the respondents.

No.	Item									
1.	Gender	1	○	Male	2	○	Female			
2.	Age ………………………….years									
3	Religion	1	○	Buddhist	2	○	Christian	3	○	Muslim
4	Marital Status	1	○	Single	2	○	Married	3	○	Widowed/□Divorced/ Separated
5	Educational	1	○	Bachelor Degree						
		2	○	Master Degree						
6	Hospital level	1	○	Tertiary care hospital						
		2	○	Secondary care hospital						
		3	○	Primary care hospital						
		4	○	Special care hospital						
7	Department	1	○	Outpatient Department						
		2	○	Inpatient Department						
8	Workplace	1	○	Medical	2	○	Surgical			
		3	○	Emergency	4	○	Gynecology			
		5	○	Pediatric	6	○	Operating room			
		7	○	Psychiatric	8	○	ENT			
		9	○	Home health care						
9	Position	1	○	Register nurse						
		2	○	Head nurse						
		3	○	Head of Department						
10	Occupational	1	○	Government						
		2	○	Employee						
11	Experience ……………………….years									
12	Income …………………………..years									



APPENDIX E
Moral Integrity Scale
(Final draft-English)

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Moral Integrity Scale

Instructions: This moral integrity scale was devised to evaluate your opinions, emotions and actions that reflect the meaning of moral integrity of registered nurses. The scale is divided into 5 levels. Since there are no right or wrong answers, please rank the following statements to reflect your opinions as accurately as possible so that the information obtained can qualify for analysis and the scale can be further developed to be more applicable to registered nurses.

Thank you for your kind cooperation and your information will be kept strictly confidential. The findings will be presented as general findings.

Level of o opinions
1 = Strongly disagree
2 = Disagree
3 = Not sure
4 = Agree
5 = Strongly agree

No.	Moral Integrity	Level of the opinions				
		Strongly disagree	Disagree	Not sure	Agree	Strongly agree
		1	2	3	4	5
1	I consider honesty my first priority when providing nursing care.					
2	I am determined to always tell the service recipients the truth.					
3	I am ready to be responsible for the service recipients for whom I provide nursing care no matter what happens.					
. . .						
27	I am confident that the nursing care plans that I have provided to service recipients since I started working at my organization follow the moral principle in nursing profession that I always adhere to.					

Thank you for your kind cooperation once again
Your information is valuable for the nursing profession
Sincerely yours

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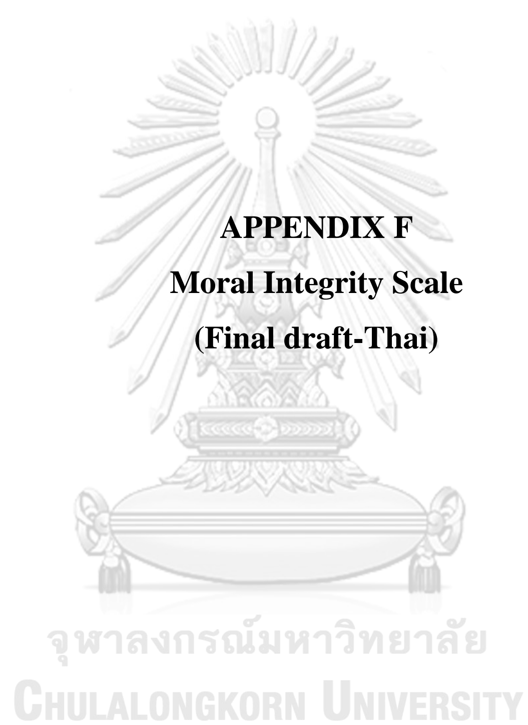
Chulalongkorn University



APPENDIX F
Moral Integrity Scale
(Final draft-Thai)

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

แบบวัดคุณธรรมบูรณภาพสำหรับพยาบาลวิชาชีพ
Moral Integrity Scale

คำชี้แจง: แบบวัดฉบับนี้จัดทำขึ้นเพื่อประเมินความคิด ความรู้สึก และการกระทำที่สะท้อนถึงความหมายของคำว่าคุณธรรมบูรณภาพ ของพยาบาลวิชาชีพ ซึ่งไม่มีคำตอบที่ถูกหรือผิด โดยแบ่งระดับความคิดเห็นออกเป็น 5 ระดับ ผู้จัดทำจึงใคร่ขอความร่วมมือจากท่านในการตอบแบบวัดนี้ด้วยข้อมูลที่ตรงกับระดับความคิดเห็นของท่านมากที่สุด เพื่อความสมบูรณ์ในการวิเคราะห์และพัฒนาแบบวัดนี้เพื่อประโยชน์สำหรับวิชาชีพพยาบาลต่อไป

ขอขอบพระคุณที่ท่านได้กรุณาให้ความร่วมมือเป็นอย่างดี โดยผู้จัดทำจะเก็บข้อมูลที่ไดรับจากท่านเป็นความลับ และนำเสนอในภาพรวมเท่านั้น

ระดับความคิดเห็น

ระดับที่ 1 = ไม่เห็นด้วยอย่างยิ่ง

ระดับที่ 2 = ไม่เห็นด้วย

ระดับที่ 3 = ไม่แน่ใจ

ระดับที่ 4 = เห็นด้วย

ระดับที่ 5 = เห็นด้วยอย่างยิ่ง

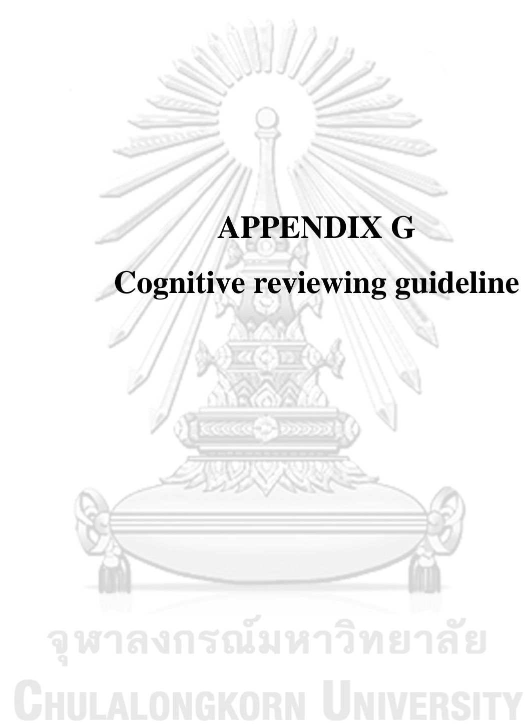
ข้อ	คุณธรรมบูรณภาพของพยาบาลวิชาชีพ	ระดับความคิดเห็น				
		ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
		1	2	3	4	5
1	ฉันยึดถือความซื่อสัตย์เป็นลำดับแรกเสมอเมื่อให้การพยาบาลแก่ผู้รับบริการ					
2	ฉันตั้งใจแน่วแน่ในการพูดแต่ความจริงต่อผู้รับบริการเสมอมา					
3	ฉันพร้อมรับผิดชอบผู้รับบริการที่ฉันให้การพยาบาลทุกครั้งไม่ว่าจะเกิดอะไรขึ้น					
. .						
27	ฉันมั่นใจว่าการให้การพยาบาลแก่ผู้รับบริการของฉันตั้งแต่วันเรกที่ทำงานจนถึงปัจจุบันเป็นไปตามหลักจริยธรรมในวิชาชีพพยาบาลที่ฉันยึดมั่นเสมอมา					

ขอบพระคุณทุกท่านที่ได้กรุณาตอบแบบสอบถามนะคะ

ผู้วิจัยจะนำข้อมูลที่ได้ไปพัฒนาเพื่อเป็นประโยชน์แก่วิชาชีพการพยาบาลต่อไปค่ะ

ด้วยความเคารพยิ่ง

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University



APPENDIX G

Cognitive reviewing guideline

Cognitive Interviewing Guidelines

โปรดแสดงความคิดเห็น หลังจากที่ท่านทำแบบสอบถาม

1. มี**คำ** ใดในแบบสอบถามที่ท่านไม่เข้าใจหรือเข้าใจยาก (โปรดระบุ.......................................)

   ท่านคิดว่าควรใช้คำอะไรแทน

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

2. คำถามข้อใด**เข้าใจยากหรือสับสน**

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

3. ข้อใด **ตอบยากหรือไม่รู้จะตอบว่าอะไร**

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

4. คำถามข้อใด **ยาวเกินไป**

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

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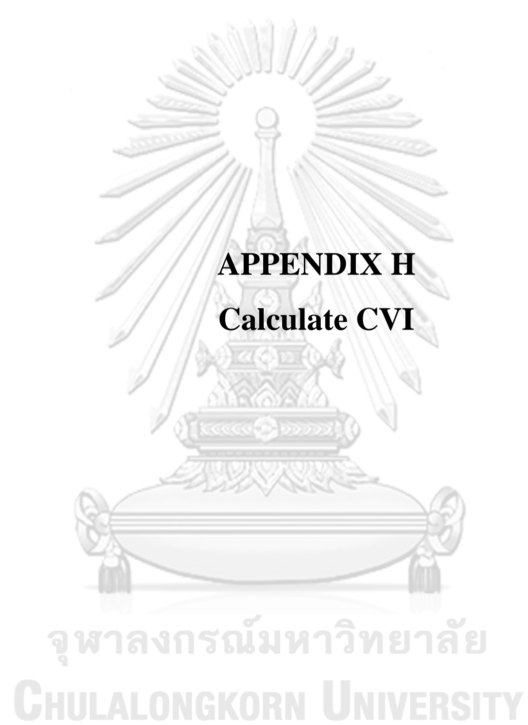
5. มีคำถามข้อใดอ่านแล้วรู้สึก**ไม่อยากตอบ**

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………

   …………………………………………………………………………………………………



APPENDIX H

Calculate CVI

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Calculation of the item-level for Content Validity Index (I-CVIs)

The Moral Integrity Scale for professional nurses

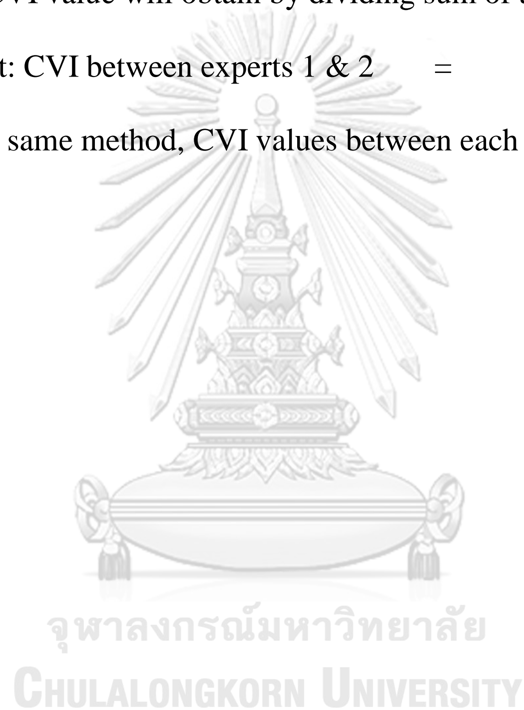
The I-CVIs will calculate as following:

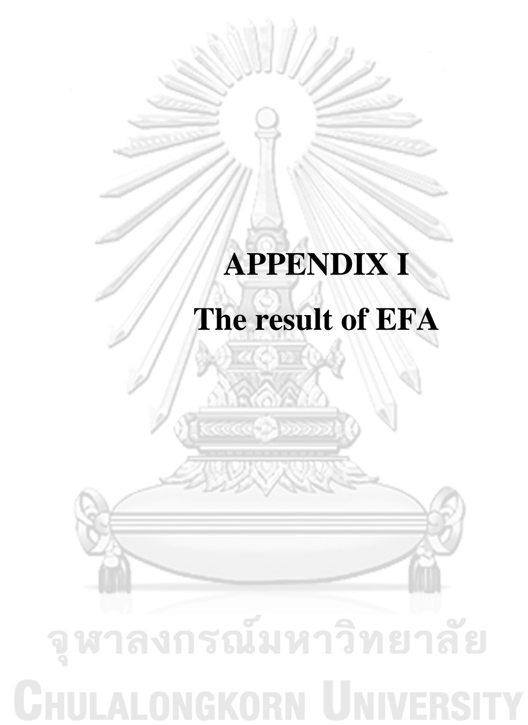
CVI = number of items rated 3 or 4 by all experts/ total items

CVI value of each pair of five experts will calculate, and then the average CVI value will obtain by dividing sum of all CVI value with 10

Ext: CVI between experts 1 & 2 = x1/x2

Using the same method, CVI values between each pair of experts





APPENDIX I
The result of EFA

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The result of EFA 27 items

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.949
Bartlett's Test of Sphericity	Approx. Chi-Square	6610.910
	df	351
	Sig.	.000

Communalities

	Initial	Extraction
item1	1.000	.665
item2	1.000	.629
item3	1.000	.650
item4	1.000	.691
item5	1.000	.372
item6	1.000	.499
item7	1.000	.498
item8	1.000	.454
item9	1.000	.494
item10	1.000	.561
item11	1.000	.463
item12	1.000	.502
item13	1.000	.585
item14	1.000	.540
item15	1.000	.534
item16	1.000	.503
item17	1.000	.517
item18	1.000	.517
item19	1.000	.692
item20	1.000	.630
item21	1.000	.600
item22	1.000	.493
item23	1.000	.567
item24	1.000	.468
item25	1.000	.697
item26	1.000	.622
item27	1.000	.669

Extraction Method: Principal Component Analysis.

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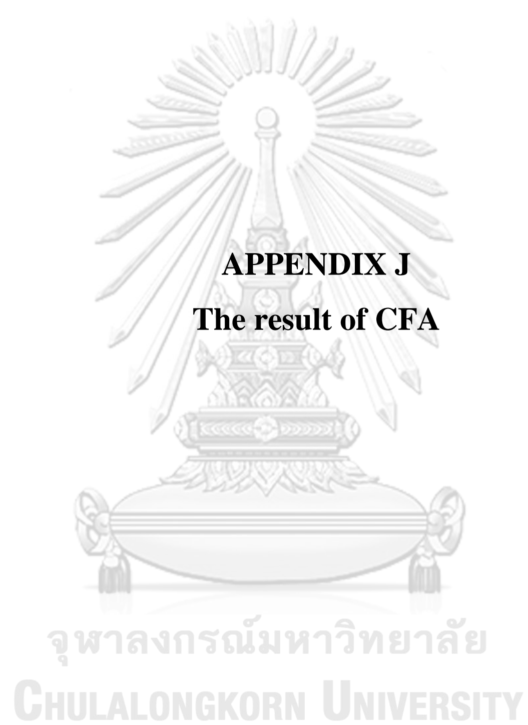
Component Matrixa

	Component			
	1	2	3	4
item1	.517	.511	.364	-.069
item2	.519	.341	.410	.276
item3	.568	.439	.365	.013
item4	.608	.463	.293	-.143
item5	.592	.114	.053	.077
item6	.573	.215	-.192	.294
item7	.580	.205	-.164	.305
item8	.628	-.131	-.127	.162
item9	.668	.084	-.155	.128
item10	.692	.168	-.226	.056
item11	.644	-.147	-.129	.099
item12	.669	.089	-.215	.018
item13	.718	.193	-.182	.003
item14	.683	.103	-.246	.042
item15	.616	.319	-.200	-.111
item16	.696	-.012	-.119	-.070
item17	.676	-.133	-.193	-.071
item18	.643	-.198	.058	-.247
item19	.739	-.163	-.056	-.343
item20	.708	-.211	-.051	-.285
item21	.722	-.062	-.051	-.268
item22	.664	-.087	.125	-.170
item23	.474	-.340	.074	.471
item24	.563	-.380	.081	.027
item25	.516	-.555	.221	.271
item26	.581	-.413	.336	-.012
item27	.672	-.361	.288	-.058

Extraction Method: Principal Component Analysis.



APPENDIX J
The result of CFA

```
                              L I S R E L  8.72

                                    BY

                         Karl G. J”reskog & Dag S”rbom



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 The following lines were read from file
C:\Users\Admin\Desktop\CFA1\CFA1.SPJ:

 Raw Data from file
'C:\Users\Admin\Desktop\CFA1\DATA1.psf'
 Latent Variables  AWA OPN CON COR
 Relationships

Number of Iterations = 13

 LISREL Estimates (Maximum Likelihood)

         LAMBDA-X

                  AWA        OPN        CON        COR
            --------   --------   --------   --------
     AWA1       0.31       - -        - -        - -
              (0.02)
               13.05

     AWA2       0.43       - -        - -        - -
              (0.03)
               15.06
```

AWA3	0.38 (0.03) 11.92	- -	- -	- -
AWA4	0.41 (0.03) 13.58	- -	- -	- -
OPN5	- -	0.33 (0.02) 13.52	- -	- -
OPN6	- -	0.32 (0.02) 13.71	- -	- -
OPN7	- -	0.29 (0.02) 12.75	- -	- -
OPN8	- -	0.35 (0.03) 11.67	- -	- -
OPN9	- -	0.31 (0.02) 12.77	- -	- -
OPN10	- -	0.33 (0.03) 13.21	- -	- -
OPN11	- -	0.36 (0.03) 13.67	- -	- -
OPN12	- -	0.32 (0.03) 11.83	- -	- -
OPN13	- -	0.37 (0.02) 16.99	- -	- -
OPN14	- -	0.37 (0.02) 16.32	- -	- -

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OPN15	- -	0.31 (0.02) 13.02	- -	- -
OPN16	- -	0.26 (0.02) 11.96	- -	- -
CON17	- -	- -	0.33 (0.02) 13.31	- -
CON18	- -	- -	0.38 (0.03) 13.99	- -
CON19	- -	- -	0.39 (0.02) 17.37	- -
CON20	- -	- -	0.43 (0.03) 16.83	- -
CON21	- -	- -	0.41 (0.03) 16.14	- -
CON22	- -	- -	0.40 (0.02) 17.83	- -
COR23	- -	- -	- -	0.42 (0.05) 8.96
COR24	- -	- -	- -	0.35 (0.03) 10.12
COR25	- -	- -	- -	0.44 (0.03) 14.11
COR26	- -	- -	- -	0.57 (0.03) 21.77

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```
COR27          - -          - -          - -          0.48
                                                     (0.03)
                                                      18.76

                    Goodness of Fit Statistics

                       Degrees of Freedom = 242
             Minimum Fit Function Chi-Square = 272.91 (P = 0.084)
     Normal Theory Weighted Least Squares Chi-Square = 266.32 (P =
0.14)
              Estimated Non-centrality Parameter (NCP) = 24.32
            90 Percent Confidence Interval for NCP = (0.0 ; 68.18)

                    Minimum Fit Function Value = 0.54
             Population Discrepancy Function Value (F0) = 0.049
             90 Percent Confidence Interval for F0 = (0.0 ; 0.14)
            Root Mean Square Error of Approximation (RMSEA) = 0.014
            90 Percent Confidence Interval for RMSEA = (0.0 ; 0.024)
             P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

               Expected Cross-Validation Index (ECVI) = 1.07
            90 Percent Confidence Interval for ECVI = (1.03 ; 1.16)
                     ECVI for Saturated Model = 1.51
                    ECVI for Independence Model = 37.19

    Chi-Square for Independence Model with 351 Degrees of Freedom =
18577.11
                      Independence AIC = 18631.11
                          Model AIC = 538.32
                        Saturated AIC = 756.00
                      Independence CAIC = 18772.02
                         Model CAIC = 1248.05
                       Saturated CAIC = 2728.63

                      Normed Fit Index (NFI) = 0.99
                    Non-Normed Fit Index (NNFI) = 1.00
                  Parsimony Normed Fit Index (PNFI) = 0.68
                    Comparative Fit Index (CFI) = 1.00
                    Incremental Fit Index (IFI) = 1.00
                     Relative Fit Index (RFI) = 0.98

                       Critical N (CN) = 544.58


                Root Mean Square Residual (RMR) = 0.012
                       Standardized RMR = 0.033
                   Goodness of Fit Index (GFI) = 0.96
              Adjusted Goodness of Fit Index (AGFI) = 0.94
             Parsimony Goodness of Fit Index (PGFI) = 0.62
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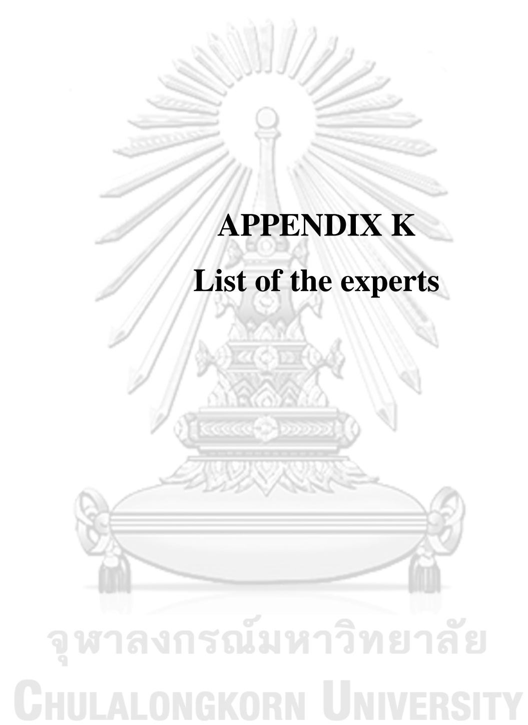

APPENDIX K

List of the experts

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Chulalongkorn University

List of experts

1. Associate Professor Dr. Aranya Chaowalit, PhD
   Faculty of Nursing Prince of Songkla University
2. Associate Professor Dr. Siraya Summavaj, PhD
   Faculty of Medicine, Ramathibodi School of Nursing, Mahidol University
3. Assistance Professor Dr. Khannika Suwonnakote, PhD
   The Nurses' Association of Thailand
4. Associate Professor Dr. Manee Arpanantikul, PhD
   Faculty of Medicine, Ramathibodi School of Nursing, Mahidol University
5. Associate Professor Dr. Sangthong Terathongkum, PhD
   Faculty of Medicine, Ramathibodi School of Nursing, Mahidol University

VITA

Jinda Nunthawong was born in 1974 at Bangkok, Thailand. She is an instructor of Ramathibodi School of Nursing. Her education background include Bachelor of Nursing Science (2nd Class Honors) at Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University. Master degree of Science (Biostatistic) at Mahidol University. The contact information is Ramathibodi School of Nursing, Mahidol University, Bangkok, 10400, Thailand.