Empathy Among Nursing Undergraduates at a Chinese Private University

Yuanyuan Zhang
Chapman University, 565304663@qq.com

Follow this and additional works at: https://digitalcommons.chapman.edu/education_dissertations

Recommended Citation
Empathy Among Nursing Undergraduates

at a Chinese Private University

A Dissertation by

Yuanyuan Zhang

Chapman University

Orange, CA

Attallah College of Educational Studies

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Education

August 2021

Committee in charge:

Randy Busse, Ph.D., Co-Chair

Dawn Hunter, Ph.D., Co-Chair

Penny S. Bryan, Ph.D.
The dissertation of Yuanyuan Zhang is approved.

Randy Busse, Ph.D., Co-Chair

Dawn Hunter, Ph.D., Co-Chair

Penny S. Bryan, Ph.D.

June 2021
ACKNOWLEDGEMENTS

As time flies, I’ve reached the terminal of my doctoral study. The journey has been accompanied by toughness, sweat, tears, as well as joy and harvest. In the continuous process of striving, I learned to see the world with new perspectives, cherish, let go, face challenges bravely, handle affairs calmly, and treat everything with peace. I’d like to extend my gratitude to everyone close in my life, as well as for my ability to continue striving. At this moment, there is too much to say. Please just allow me to extend my heartfelt gratitude to those who have been helping me during this period. My present achievements would never be possible without your continued help, support, and encouragement.

First of all, I’d like to extend my greatest gratitude to my dissertation committee: Dr. Dawn Hunter, Dr. Randy Busse, Dr. Penny S. Bryan. Dawn, you are the kindest, most optimistic, patient, and empathetic person I have met. Since the first time we met, you have helped and encouraged me in my study, research, and life in a considerate manner. I still remember your lectures and the course at 4 o'clock in the morning. Your consideration, rigorous and serious style will guide and inspire me for my whole life. I will appreciate all the possible opportunities to continue to be your student, as they will be my lifetime treasure. Randy, I sincerely appreciate your efforts taken as the co-chair. Your wisdom, humor, and erudition have left a deep impression on me. You can always play a key role at critical moments. Thank you for your selfless help and valuable guidance from the proposal defense to the revision and improvement of the final paper. Your wisdom and sense of responsibility are a model for me to learn from. Penny, thank you for participating in and guiding my research throughout the process and giving comments on how to integrate leadership. During this journey, it was my luck to forge ahead along with your company.
I also want to extend sincere gratitude to Drs. Ryan Allen, Whitney McIntyre Miller, Kelly Kennedy, Scot Danforth, Keith Howard, and Suzanne Soohoo, who taught me over the past 3 years. You’ve led my way into the research field of sociology to learn about philosophy, research design, essay writing, statistical analysis, evaluation, and leadership. In addition to knowledge, I’ve also learned how to be an excellent teacher. Every minute spent with you is extremely precious to me.

I’d like to show appreciation for efforts from my leaders, colleagues, and friends: Yan Xu, Haiying Meng, Li Li, Wanlu Li, Yuanyuan Zheng, Feifei Gu, Jing Hu, and Dr. Lindsey Katherine Dippold, for continuously helping, understanding, supporting, and encouraging me along the way. I’m so fortunate to have you all accompany me along this journey. You have made my life full of warmth and happiness; I wish you happiness and success in the future.

In the end, I want to express my deep thanks to my family. Your trust, encouragement, love, and support have been the driving force for me to forge forward. Your love and tolerance have supported me to overcome hardships and achieve continuous self-breakthrough regardless of being frustrated and tired. My gratitude and love are expected to accompany you in the future.
ABSTRACT

Empathy Among Nursing Undergraduates at a Chinese Private University

by Yuanyuan Zhang

Empathy is an indispensable professional quality in nursing. It correlates positively with the quality of caring, the nurse-patient relationship, patient satisfaction, and the outcomes of treatment. Understanding and cultivating empathy of nursing undergraduates has been one of the main focuses of nursing education. Taking into account the lack of quantitative research into the empathy of nursing undergraduates at China’s private colleges and the inconsistencies in the current literature in terms of assessments of the empathy levels of nursing undergraduates, this study used the Interpersonal Reactivity Index scale to examine the empathy levels of 644 nursing undergraduates at a private university in China. The findings revealed nursing students at the private university reported moderate levels of empathy, with highest scores on an empathy concern subscale and the lowest on a personal distress subscale. Furthermore, nursing students who perceived empathy as very important and loved their profession reported relatively higher average empathy scores, and contrary to some previous research, no significant differences were found across cohorts/year of study.

Based on the findings, suggestions are proferred regarding China’s current nursing education policies and practices. It is suggested that researchers consider assessing the empathy ability of nursing students more comprehensively in this field and that schools should provide assessment and intervention to address empathy in their nursing students.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS............................................................................................................. IV

ABSTRACT.................................................................................................................................... VI

LIST OF TABLES.......................................................................................................................... IX

LIST OF FIGURES......................................................................................................................... X

CHAPTER 1: INTRODUCTION........................................................................................................ 1
  The Problem................................................................................................................................. 2
  Purpose of the Study.................................................................................................................... 4
  Definitions of Key Terms............................................................................................................. 5
  Theoretical Framework................................................................................................................. 6
  Research Questions....................................................................................................................... 7
  Significance of Study.................................................................................................................... 7
  Chapter Summary........................................................................................................................ 7

CHAPTER 2: LITERATURE REVIEW.............................................................................................. 8
  Origin and Conceptual Development of Empathy............................................................... 8
  Biological Basis of Empathy..................................................................................................... 13
  Components of Empathy............................................................................................................ 14
    Affective Empathy.................................................................................................................... 14
    Cognitive Empathy.................................................................................................................. 15
  Empathy-Related Measurements............................................................................................. 18
    Emotional Empathy Tendency Scale.................................................................................... 18
    Hogan Empathy Scale........................................................................................................... 19
    Jefferson Scale of Empathy................................................................................................... 19
    Reynolds Empathy Scale....................................................................................................... 20
    Empathy Construct Rating Scale............................................................................................ 20
    The Empathy Quotient.......................................................................................................... 21
    The Interpersonal Reactivity Index....................................................................................... 22
  Current Literature on Empathy Among Nursing Students....................................................... 24
  Factors Related to Empathy Among Nursing Students............................................................. 31
    Demographic Factors............................................................................................................. 31
    Empathy-Related Factors....................................................................................................... 32
    Factors Related to Clinical Experience................................................................................ 32
    Factors Related to Choice of Profession.............................................................................. 34
  Interventions Used to Enhance Empathy............................................................................... 34
    Communication and Interpersonal Skills Training Intervention..................................... 34
    Reflective Practice and Meditation Intervention.............................................................. 39
    Intervention Through Art...................................................................................................... 40
    Narrative Intervention.......................................................................................................... 41

VII
LIST OF TABLES

Table 1: Definitions of Empathy by Authors in Varying Fields ........................................ 10
Table 2: Overview of Studies on Nursing Students' Empathy ........................................ 25
Table 3: Overview of Intervention Studies on Empathy .................................................. 36
Table 4: Distribution of Nursing Students at the Participating University ...................... 47
Table 5: Structure and Content of IRI Scale .................................................................... 50
Table 6: Participant Demographics .............................................................................. 56
Table 7: Data Analysis Method ..................................................................................... 57
Table 8: Overall Empathy Scores of Nursing Undergraduates by IRI-C ....................... 61
Table 9: Empathy Scores of Nursing Undergraduates by Program Type ................. 62
Table 10: Empathy Scores of Nursing Undergraduates by IRI-C ................................. 64
Table 11: Total Empathy Scores of Nursing Undergraduates in Different Grades ......... 66
Table 12: Comparisons of Mean Empathy Scores of Different Groups of Nursing
Undergraduates ............................................................................................................ 72
Table 13: Post-Hoc Tests for Total IRI-C Score ............................................................ 75
LIST OF FIGURES

Figure 1: Total Empathy Scores of Nursing Undergraduates in Different Grades ........ 66
Figure 2: Histograms of IRI-C Scores of Different Grades........................................... 68
Figure 3: Perceptions Nursing Undergraduates Have of Empathy and of the Nursing Profession....................................................................................................................... 71
CHAPTER 1: INTRODUCTION

Empathy refers to the ability to experience the sentiments and ideas of others, to understand their standpoints and feelings, and to grasp their perspectives on problems, thereby realizing the goal of mutual understanding and emotional harmony and putting oneself in position to defend others’ dignities and interests (Morse et al., 1992). In short, empathy motivates people to care about others and work toward their benefit; it is seen as a fundamental prerequisite of harmonious relations among individuals (G. M. Chen, 2001).

The fundamental task of nursing is to provide care (Nightingale, 1992). As the development and reform of the field of medicine proceeds, what is viewed as appropriate caring has continued to change. In 1977, George L. Engel, an American medical educator, led a reform of the medical model from the traditional biomedical one to a model combining the aspects of biological, psychological, and social health. Nursing was also reformed, from following a function-oriented model to a systemically holistic one, emphasizing a perspective that embraces a wide-ranging concern for bodies, mental states, social circumstances, and other factors that can affect the health of patients, instead of focusing only on their physical function issues (Boschma, 1994). According to the American Nurses Association (2021), nursing in the 21st century aims to guarantee that nurses see their patients from this holistic point of view, which means that caring should not only focus on meeting the physical needs of patients, but also on their psychological and social needs, and to make unremitting efforts to maintain a basic respect for patients’ dignities, and take their demands seriously throughout treatment.

In recent decades, researchers have conducted studies on nurses' levels of empathy and their patient outcomes. Some have asserted nurses cannot be expected to show empathy to or build equally close relationships with all patients (Kinman & Leggetter, 2016; Mann & Cowburn,
2005; Van Zyl & Noonan, 2018). However, several studies have shown that patients tend to find the emotional component of their care to be more important than the technical aspects of care (Duffy et al., 2004; Kieft et al., 2014; Sheldon, 2005). According to Klitzman (2006), patients expect doctors or nurses to understand the nonmedical aspects of their conditions and treat them as humans instead of only focusing on their illnesses. The levels of empathy nurses demonstrate have been shown to correlate positively with the quality of the nursing they offer, patient satisfaction, harmony of the nurse-patient relationship, and patient outcomes (La Monica et al., 1987; Reynolds & Scott, 2000; Teófilo et al., 2019). Thus, assuming a major purpose of nursing is to help ease emotional pain rather than only treat physical illness, empathy is an indispensable professional quality of nurses.

Empathy's inherent importance in nursing and the transformation of the nursing model imply challenges for nursing education. Nursing students, especially undergraduates, dominate clinical practice, and their empathy levels may determine how ready they are to care for their patients (Peddle et al., 2019). However, a retrospective study from the United States reported that empathy levels of college students have declined by over 40% during the last 30 years (Levett-Jones et al., 2017). It is crucial to understand the empathy levels of undergraduate nursing students and emphasize the cultivation of empathy in them and the development of their interpersonal skills, especially during internships.

**The Problem**

Despite the potential significance of empathy in nursing and other medical disciplines, some researchers have found empathy levels of undergraduate nursing students declined during their time in nursing school, especially in their junior year (Hojat et al., 2009; Neumann et al., 2011). This decline, according to the literature, likely may not be helpful in terms of developing
nurse professionalism and can have negative effects on the clinical competence, mental states, and stability of nurses once they have entered the workforce (Hojat et al., 2002; Lauder et al., 2002; Thomas et al., 2007). Therefore, focusing on and understanding nursing students' empathy levels in a timely manner, developing empathy-related skills during follow-up nursing education, and intervening both during education and clinical practice are warranted.

Although the empathy of nursing students has been explored to some extent, findings concerning their empathy levels have been inconsistent. As noted previously, some results have shown that empathy of undergraduate nursing students tends to decline over the course of their schooling, especially in junior year (Hojat et al., 2009; Ward et al., 2012). However, other researchers, such as Magalhães et al. (2011) and Lei et al. (2018), have suggested the opposite. The results of studies by Ferri et al. (2019) and Ma and Li (2012) imply the ability of undergraduate nursing students to experience empathy remains at a medium to high level throughout nursing school.

Most existing studies of nursing-student empathy have been carried out in Western countries. The nursing education system in China is different from that in the West. For example, countries such as the United States offer 4 years of full-time study based on a credit system, with clinical internships beginning in the third year. China, meanwhile, requires 4 to 5 years of study based on the academic-year requirement, with clinical internships often beginning in the final year (H. Y. Li et al., 2014). These differences in years of study may be related to the different levels of empathy nursing students demonstrate in China and the United States (Lian & Li, 2016).

Furthermore, the investigations of the empathy of undergraduate nursing students in China have concentrated on students attending public universities. In contrast, students at private
universities have unique characteristics that may influence their empathy levels. In China, students from public and private universities have similar demographic profiles; however, interpersonal sensitivity, compulsion, hostility, depression, paranoia, and other psychological problems have been found to be higher at private universities (Zhang, 2003). This finding suggests the research results regarding empathy obtained so far may not be applicable to undergraduate nursing students at private universities, making it necessary to look more closely at these particular students.

**Purpose of the Study**

This study aimed to examine the empathy levels and other characteristics of undergraduate nursing students at a private university in China, with the independent variables of gender, grade, program type, empathy-related experiences, and perceptions of empathy and of the nursing profession. The dependent variables in this study are empathy and four dimensions (i.e., perspective taking, PT; fantasy, FS; empathy concern, EC; and personal distress, PD). The purposes of this research are to:

(a) Examine levels of empathy among undergraduate nursing students at a private university in China, identifying any changes in empathy during their time at the university.

(b) Explore perceptions the undergraduate nursing students have of empathy and the nursing profession.

(c) Identify variables (demography, empathy-related experiences, and perceptions of empathy and the nursing profession) related to the overall empathy levels, perspective taking, fantasy, empathy concern, and personal distress of undergraduate nursing students.
Definitions of Key Terms

The key terms used in this study are empathy, affective empathy, cognitive empathy, perspective taking, fantasy, empathy concern, and personal distress. Each of these terms is defined.

**Empathy**

In this research, empathy is defined as the ability to understand another person's situation and share the mental states and emotions of others when an individual observed the experiences of another.

**Affective Empathy**

Affective empathy is the ability to share (or feel) the emotional experiences of others and consists of an instantaneous emotional recognition of mental states (Hoffman, 1984; Jankowiak-Siuda et al., 2011).

**Cognitive Empathy**

Cognitive empathy means that an individual takes on another's perspective at a conscious intellectual level, understanding that person’s ideas, inferring their causes, and predicting the next steps they will take by entering their inner worlds (Decety & Jackson, 2006).

**Perspective Taking**

Perspective taking in this study reflects the tendency or ability to see things from the standpoints of others (M.H. Davis, 1983).

**Fantasy**

Fantasy refers to the tendency or ability to envision oneself in a fictional scenario (such as a movie or novel; M.H. Davis, 1983).
Empathy Concern

Empathy concern is defined as the desire to provide compassionate care (M.H. Davis, 1983).

Personal Distress

Personal distress in this study is defined as the fear and discomfort felt at the sight of another person's suffering (M.H. Davis, 1983).

Theoretical Framework

The study adopts the trait theory of empathy, positing that individuals have an innate capacity to understand the internal world of others and to feel and appreciate their emotions (Decety & Jackson, 2006; Kaplan & Iacoboni, 2006). It is a process that is spontaneous and unperceived due to mirror neurons that are hypothesized to be the basis of empathy (Preston & De Waal, 2002). As a natural ability, empathy is not something that needs to be taught; it is recognizable and capable of enhancement (Pithers, 1999). Those who theorize about empathy tend to associate it with phrases such as "biological instincts," "biological dispositions," "empathic dispositions," and "interpersonal orientations" (Greif & Hogan, 1973).

The trait theory of empathy refers to the ability to understand and appreciate the senses of others and what their emotions mean to them. Empathic skills vary from person to person and are often measured via cognitive and affective aspects, and many other traits underpinned by genetics. According to M.H. Davis (1983) and Hoffman (1984), empathy is a combination of cognitive and affective empathy. The cognitive aspect is used to distinguish and represent the affective states of others, whereas the affective aspect is used to respond to affective capacity. According to Hoffman (1984), the interaction of the two abilities generates empathy in individuals.
**Research Questions**

This study posed the following three questions:

**Research Question 1 (RQ1):** What is the level of empathy among undergraduate nursing students at a private university in China?

**RQ1a:** Are empathy levels different between student cohorts (i.e., year of study)?

**Research Question 2 (RQ2):** What perceptions do undergraduate nursing students have of empathy and the nursing profession?

**Research Question 3 (RQ3):** Are there differences across groups related to the empathy of undergraduate nursing students at a private university in China?

**Significance of Study**

Studying the empathy of undergraduate nursing students at a private university in China may help promote the development of nursing, and possibly the field of medicine. This research expected to: (a) add to the understanding of the nature and features of empathy in nursing students; (b) contribute to our understanding of the empathy of nursing undergraduates at private universities; and (c) provide new information to add to the equivocal findings of existing studies.

**Chapter Summary**

In this chapter, I described the importance of empathy to nursing and nursing students, purpose of my study, definitions of the key terms, major research questions, and the study's significance. In the next chapter, I provide a detailed review of relevant research on empathy and nursing students and identify the knowledge gaps within empathy research.
CHAPTER 2: LITERATURE REVIEW

In this chapter, I review the literature on empathy regarding its origins, mechanisms and components, the means of assessing it, and potential factors influencing it. In addition, I summarize the current situation of research based on a review of findings related to empathy in undergraduate nursing students in China and in the West.

Origin and Conceptual Development of Empathy

The term empathy originates from an English translation of the German word *Einfühlung* by the American psychologist Titchener in 1909 (Sezov, 2002). Over time, empathy has evolved from an aesthetic concept to one that some view as vital to medical practice (Hojat et al., 2004). In reviewing definitions of the word, there are numerous perspectives on its components. Most researchers now tend to approach empathy from a multidimensional perspective (M.A. Davis, 2009; Gosselin et al., 2016; Morse et al., 1992). Some researchers asserted that empathy needs to be understood in terms of both emotion and cognition (Neumann et al., 2011). This perspective provides a basis for understanding empathy-related capabilities of nursing students that are deemed important: (a) cognitive capacity is required to understand the patients’ perspectives, experiences, and meanings; and (b) affective ability is needed to penetrate the psyches of patients and generate empathy with them. Having this perspective enables clinical practitioners to express their understanding of patients accurately and respond positively to their thoughts, feelings, difficulties, and personal situations. Moreover, in the field of health care, Morse et al. (1992) proposed that the ethical aspect of empathy needed to be considered; however, other authors have suggested that nursing students should avoid excessive emotional involvement with their patients (Kinman & Leggetter, 2016; Mann & Cowburn, 2005).
As noted previously, empathy originates from the German word *einfühlung*, which connotes the projection of psychological experiences to the people and things perceived in daily life (Sezov, 2002) and referred to the process by which one person enters another’s inner world. Since then, the notion of empathy has permeated many aspects of psychology (Wispé, 1986) and has attracted the attention of researchers within the field. However, different researchers have different conceptual definitions for empathy, particularly considering there are a variety of research perspectives and understandings about the components of empathy itself. Table 1 provides an overview of the conceptual definitions of empathy provided by relevant researchers.
Table 1  
**Definitions of Empathy by Authors in Varying Fields**

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Definition of Empathy</th>
<th>Component(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ludemann (1968)</td>
<td>Empathy is the ability to apply scientific expertise extensively to synthesizing, reasoning, analyzing, and thinking critically about the behavior, both past and present, of others.</td>
<td>Cognitive</td>
</tr>
<tr>
<td>Mehrabian &amp; Epstein (1972)</td>
<td>Empathy is an affective phenomenon that involves being able to perceive and share the mental states and emotions of others.</td>
<td>Affective and behavioral</td>
</tr>
<tr>
<td>Rogers (1975)</td>
<td>Empathy means having an accurate, experiential understanding of another’s inner world, and being capable of feeling the emotions of others as if they were one’s own. The empathetic listener is capable of entering a private perceptual world, and experiencing the other person’s thoughts and feelings, including anger, fear, and frustration. Without judging, this listener can communicate what they know, and show the other person that they have been understood.</td>
<td>Cognitive, affective, and behavioral</td>
</tr>
<tr>
<td>M. H. Davis (1983)</td>
<td>Empathy consists of four components: perspective taking, empathetic concern, fantasy, and personal distress, with perspective taking and fantasy making up “cognitive empathy,” and empathetic concern and personal distress “affective empathy.”</td>
<td>Cognitive and affective</td>
</tr>
<tr>
<td>Kalliopuska (1984)</td>
<td>The cognitive components of empathy include perspective taking, which is the ability to make sense of the views of others and anticipate their ideas.</td>
<td>Cognitive</td>
</tr>
<tr>
<td>Feshbach &amp; Feshbach (1987)</td>
<td>Empathy has an affective component and two cognitive components. The former refers to the ability to respond affectively; the latter connotes the ability to identify and name the affective states of others while learning to take their perspectives.</td>
<td>Cognitive and affective</td>
</tr>
<tr>
<td>Author (Year)</td>
<td>Definition of Empathy</td>
<td>Components</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Morse et al. (1992)</td>
<td>There are four aspects to physician empathy: affective, moral, cognitive and behavioral. Affective empathy refers to the ability to subjectively experience and share the mental states and emotions of others; ethical empathy emphasizes that a helper should be motivated to actively empathize with the patient; cognitive empathy emphasizes the intellectual ability to recognize and understand the feelings and perspectives of others objectively; and behavioral empathy is the expression of understanding of another’s point of view.</td>
<td>Affective, ethical, Cognitive and behavioral</td>
</tr>
<tr>
<td>Wiseman (1996)</td>
<td>The features of empathy include perceiving the world as others do; understanding their feelings; being nonjudgmental; and communicating shared understanding.</td>
<td>Cognitive and behavioral</td>
</tr>
<tr>
<td>Coulehan et al. (2001)</td>
<td>The concept of empathy has three important components. First, the cognitive component means that the clinician understands the patient’s perspective and experience through verbal and nonverbal communication but retains their own perspective and clinical distance. Second, the affective component means that the clinician puts himself or herself in the patient’s shoes, “striking a chord.” Finally, the behavioral component is the feedback from the physician that allows the patient to feel understood. The clinician expresses understanding, and the patient assesses it, and can adjust or revise the doctor’s statement. The physician, by demonstrating a desire to listen, strengthens the bond between them.</td>
<td>Affective, cognitive, and behavioral</td>
</tr>
<tr>
<td>Looi (2008)</td>
<td>Empathy is an intricate structure that includes the ability to understand the views and feelings of others, while communicating that one is capable of such understanding.</td>
<td>Cognitive and behavioral</td>
</tr>
</tbody>
</table>
Table 1 continued.

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Definition of Empathy</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. A. Davis (2009)</td>
<td>In a clinical setting, empathy includes not only cognitive and affective components, but also the behavioral component of expressing one’s understanding to the patient.</td>
<td>Affective, cognitive, and behavioral</td>
</tr>
<tr>
<td>Gosselin et al. (2016)</td>
<td>Empathy has three components: a cognitive component, or the ability to understand the feelings, experiences and perspectives of others; an affective component, or the ability to feel what others feel; and a behavioral component, or the ability to communicate one’s understanding of these perspectives and feelings to the patient.</td>
<td>Affective, cognitive, and behavioral</td>
</tr>
</tbody>
</table>
Biological Basis of Empathy

Although many researchers have studied empathy, they disagree about what it comprises and why it is relevant to psychology. According to Brothers (1989), empathy is a product of biological evolution and is essential to the development of human society. Maslow’s hierarchy of needs theory states that humans are born with an emotional need to establish social relationships (Doyal & Gough, 1991). Through empathy, people gain situational information that can help toward judging others’ actions and feelings, thereby making social relationships easier to build; this biological reality promotes altruistic behavior (Stocks et al., 2009). Thus, empathy is seen to play an active role in the altruistic aspects of moral development, along with social interaction.

As technology has evolved, researchers in the field of cognitive neuroscience have proposed that mirror neurons, combined with simulation, can partially explain why and how empathy develops (Iacoboni, 2009). Mirror neurons are proposed to be the basic mechanism of empathy, enabling perception of the actions of others to excite areas of the human motor cortex corresponding to the instigation of that action (Gallese, 2001). For example, a study of the neurology of empathy has shown an infant will cry in response to hearing another infant cry (Sagi & Hoffman, 1976). This mechanism becomes the basis of social interaction.

By considering mirror neurons, researchers have proposed that empathy can be understood fundamentally as a phenomenon of simulation, making experience the basis of assessing the internal world of others (Gordon, 1992; Singer & Lamm, 2009; Zahavi, 2008). Individuals construct perceptions of others in their inner worlds and gauge their mental states (Gallese & Goldman, 1998; Wolf et al., 2001). In addition, some researchers have recommended the idea of a “theory of mind” as a way of understanding empathy (O’Connell, 1995). These scholars developed these theories, describing the motives behind their own behaviors, allowing
them to understand the mental states of others based on their understanding. This mechanism links personal experiences with those of others and, as we accrue experiences, we become better able to relate to other people (Gallese & Goldman, 1998).

All these suppositions about empathy assume it is not possible to observe the visceral states of others directly. In addition, they provide partial explanations for why some individuals develop empathy but are incapable of addressing the complexity and variability of empathetic activity and how it relates to and is influenced by context and situation.

**Components of Empathy**

The literature has shown that scholars have varying ideas regarding the components of empathy; however, they generally agree affective empathy and cognitive empathy are key components (Duan & Hill, 1996; Singer, 2006).

**Affective Empathy**

Affective empathy enables momentary affective recognition of another’s mental state (Hoffman, 1984; Jankowiak-Siuda et al., 2011). It motivates an individual to consider the interests of the other person and ascertain their desires and motivations. Preston and de Waal (2002) stated that when individuals experience affective processes, they intuitively perceive the emotional states of others and make affective connections with them. The responses of affective empathy occur automatically and are not under the control of the individual (Preston & de Waal, 2002).

In modern brain-imaging studies, the brain regions activated when a person witnesses an unpleasant expression on someone’s face are the same as those activated by the experience that causes that expression, and this is thought to underpin empathy (Jabbi et al., 2007; Kerem et al., 2001). According to this perspective, affective empathy is ostensibly innate. As noted previously,
when an infant hears or sees another crying, they will also cry; this affective reaction is seen as the initial stage of the formation of empathy (Sagi & Hoffman, 1976; Singer & Lamm, 2009). These responses are also present in mammals closely related to humans genetically (de Waal & Preston, 2017). This ‘emotional infection’ is the basis and most primitive form of affective empathy. As the emotional-response regions (the limbic system) of the human brain develop, the ability to experience empathy manifests and appears at an early stage of physical and social development (Brothers, 1989; Zillmann, 2013). The limbic system is the brain region most relevant to emotions and memory. The limbic system is comprised of the hypothalamus, thalamus, amygdala, and hippocampus, among other regions. The limbic system controls physical and emotional reactions to environmental stimuli. As part of emotional reaction, the hypothalamus plays a key role in the activation of the sympathetic system; the thalamus is the center of feeling transmission, and its neurons project signals to the amygdala and higher cortex for further processing. The amygdala plays a key role in processing emotional information and transferring the information to the cortical structure along with the hippocampus, which combines emotional experiences and cognition (Brothers, 1989).

**Cognitive Empathy**

Cognitive empathy is a branch of a psychological theory that asserts empathy has its foundations in emotional responses. According to Decety and Jackson (2006), cognitive empathy means an individual takes on another’s perspective at a level of awareness, understanding that person’s ideas, inferring their causes, and predicting their next steps by entering their inner/personal worlds. The level of cognitive processing affects empathetic experience and its strength (O’Connell, 1995). A person progresses from being self-centered to being receptive to
the emotions of others. As the person matures, they become able to understand and experience the mental states of others.

Other areas of the brain are implicated in empathy. According to brain-imaging studies, the primary role of the medial-prefrontal cortex is processing and executing emotion. It is related to the cognition of empathy and mediates responses to the emotions of others (Jankowiak-Siuda et al., 2011). It appears from the research that affective and cognitive empathy are distinct from each other in many ways. Yet, connections exist. Affective empathy enables one to sense the affective states of others, and cognitive empathy enables understanding of others, which potentially leads to altruism. According to Hojat et al. (2009), cognitive empathy in the context of medical education and patient care is of greater importance than affective empathy. The researchers asserted that what is actually required in clinical contexts is the practitioner’s understanding of the experiences, concerns, and perspectives of patients, and the ability to communicate such understanding, thereby contribute to alleviating suffering (Hojat et al., 2009). However, in terms of individual development, the two types of empathy complement each other and are somewhat co-dependent. A lack of sensitivity to the emotional states of others translates into limitations on understanding their experiences, concerns, and perspectives.

A growing number of scholars argue that empathy has both an affective and a cognitive component. Gladstein (1977) was the first to propose a two-component theory of empathy to reconcile the tension between affective and cognitive dispositions. In Gladstein’s view, cognitive empathy typically grasps the views of another at a conscious intellectual level and assesses the inner world of that person. In contrast, affective empathy resonates with the feelings of that person.
In 1977, Gladstein proposed a third component, behavioral empathy, premised on the first two: cognitive and affective empathy. In this context, cognitive empathy denotes the capacity to understand the manner of thinking and feeling of another; affective empathy, the ability to feel what that person feels; and behavioral empathy, the expression or performance of empathy, either through words or gestures.

With the development of brain-imaging techniques such as event-related potentials and functional magnetic resonance imaging, cognitive neuroscientists have developed novel perspectives on empathy with an anatomical basis. Decety and Jackson (2006) asserted that empathy refers to the capacity to experience and understand the feelings of others without confusing them with one’s own emotions in relation to affect sharing, perspective taking, and regulation of emotion; their view is premised on findings concerning the brain mechanisms of empathy.

According to M.H. Davis (1983), empathy should be viewed in a multidimensional framework within which a person engaging in empathy experiences both emotional and nonemotional processes. Within this perspective, empathy can be divided into numerous branches, including perspective taking, fantasy, personal distress, and empathetic concern (M.H. Davis, 1983). Furthermore, Singer and Lamm (2009) stated that the elements necessary for the generation of empathy include the person empathized with others being emotional. It is also deemed important that the empathizer’s emotion is equivalent to that of the other person because this emotion is derived from observation as a kind of imitation. The person experiencing empathy must also realize that their emotion results from the emotions of the other individuals. Next, I present measurements used in the literature to assess empathy.
Empathy-Related Measurements

Two forms of assessment tools are typically used to assess the empathy of nurses. The first of these is a unidimensional empathy scale, which measures a single aspect of empathy, such as cognitive or affective empathy. The other is a multidimensional empathy scale, which measures two or more aspects of empathy, conceivably more than just the cognitive or affective. The following sections summarize the dimensions, assessment methods, developmental contexts, and validity and reliability of empathy-related measures.

Emotional Empathy Tendency Scale

Mehrabian and Epstein (1972) described empathy as a vicarious response to the affective experience of another person and developed the Emotional Empathy Tendency Scale for assessing the empathy of U.S. college students. According to Mehrabian and Epstein, the questionnaire measures the affective component of empathy using self-assessment and consists of 33 items and seven dimensions: emotional contagiousness, extreme emotional reactions, emotional judgement of strangers, tendency to be influenced by the positive emotions of others, tendency to sympathize with others, tendency to be influenced by the negative emotions of others, and willingness to spontaneously help people in trouble. The scale demonstrates adequate internal consistency with the split-half reliability of the scale at 0.84, and the measure exhibits adequate validity.

This questionnaire has been the most widely used research tool for measuring affective empathy (Lei et al., 2018). However, researchers (An, 2008; Neumann et al., 2011) have questioned the structural validity of the scale, because its items do not all measure affective empathy; some measure the cognitive component of empathy.
Hogan Empathy Scale

Hogan (1969) stated that empathy is an intellectual and imaginative understanding of other people’s situations or states of mind and is essential to understanding various social phenomena. Hogan developed a scale to measure the cognitive status of American individuals experiencing empathy. The scale measures cognitive empathy via self-assessment and consists of 64 items with an internal consistency coefficient of 0.71, which is rather low; the reliability of the retest, taken 2 months later, is strong at 0.84, with low to moderate correlations regarding its structural validity (Hogan, 1969). Froman and Peloquin (2001) applied the Hogan Empathy Scale to measure the empathy of nursing students and reported the results could not be replicated, the evidence of effectiveness was also disappointing, and it was unclear what problems the scale was measuring.

Jefferson Scale of Empathy

In 2001, Dr. Hojat of the Center for Research in Medical Education & Health Care at Jefferson University developed the Jefferson Scale of Empathy (JSE), which included a physician-version, medical-student versions, health professional version, and a health professional student version to measure empathy among healthcare practitioners and medical students. The JSE uses self-assessment to measure cognitive empathy and consists of 20 items, with a questionnaire completion time of 5 minutes (Tavakol et al., 2011). In 2014, Hojat concluded that the scale consisted of three factors, namely perspective taking, compassionate care, and walking in a patient’s shoes (Hojat & LaNoue, 2014). This scale has been translated into more than 20 languages and has been available for use in the United Kingdom, Iran, Brazil, Italy, Germany, Japan, and China (Tavakol et al., 2011).
A Chinese scholar, An Xiuqin (2008), amended the scale to make it applicable to Chinese nurses; the new version contained the same final items, number of factors, and nomenclature, but had slight differences in the attributes of the factors. Stansfield et al. (2016) asserted it was difficult to distinguish between the factors of perspective taking and walking in a patient’s shoes because both the names of the factors and the items appeared to express the same latent, underlying variables and the wording of the items seemed best suited to healthcare providers with clinical experience, which may limit its applicability.

**Reynolds Empathy Scale**

Reynolds (2000), a British scholar, developed the Reynolds Empathy Scale to measure the behavioral empathy of clinical nurses. It consists of 12 items assessed on a 7-point Likert scale, and has strong reliability, with a Cronbach’s $\alpha$ of 0.90 and test-retest reliability of 0.90. Six experts from the fields of nursing and clinical psychology examined the face and content validity of the scale. In addition, the responsiveness of the scale was examined in relation to the nurses who took part in the empathy-training program. The nurses in the test group, who received training, ended up with higher empathy scores than the untrained nurses of the control group. However, the scale is not widely used. According to Yu and Kirk (2009), this is probably because when the Reynolds Empathy Scale was developed, the empathy of nurses was assessed from the perspectives of patients, but when it was applied, other people (not the patients) evaluated their empathy.

**Empathy Construct Rating Scale**

The Empathy Construct Rating Scale was developed in 1981 by the American scholar La Monica with a sample of 173 nurses, 127 nursing students, and 300 patients. The scale is designed to measure cognitive and behavioral empathy using self-assessment and patient and
peer evaluation. It contains five dimensions: (a) nonverbal behaviors (including physical contact), (b) personality traits (including openness and honesty with self and others), (c) sensitivity to the worlds of others (perception and listening), (d) responsiveness (including encouragement, support, and pro- or anti-social behavior), and (e) respect for self and others (La Monica et al., 1987). The scale has 100 items, 46 focusing on negative empathetic behaviors and traits, and 54 on positive behaviors and traits on a 6-point Likert scale. Cronbach’s α coefficient is 0.97, and retest reliability is 0.98, indicating strong internal and temporal reliability. However, the validity is poor and there is no evidence of convergent validity or interrater reliability.

The scale was developed in consultation with members of the nursing community and has been widely used in the nursing field (La Monica et al., 1987). However, the scale’s pool of items was formed based on the views on empathy of female graduate students in psychology and nursing, neglecting nurse–patient communication aspects, and males (Neumann et al., 2011).

**The Empathy Quotient**

British scholars Baron-Cohen and Wheelwright (2004) asserted that empathy is the ability to understand the mental states of others and involves an appropriate affective response to the observed affective states of other individuals. Baron-Cohen and Wheelwright developed the Empathy Quotient (EQ) based on a two-component model of empathy for people with high-functioning autism (or Asperger’s syndrome) and for neurotypical populations. The scale is comprised of 60 items designed to measure cognitive and affective empathy via self-assessment and has been used to assess empathy in adults (Baron-Cohen & Wheelwright, 2004).

Wakabayashi et al. (2006) argued empathy should include an affective component (e.g., feeling another person’s emotional states), a cognitive component (e.g., understanding and predicting what another might think, feel, or do), and a mixed component (cognitive and
affective together). Wakabayashi et al. revised the scale to a shortened version; the 22-item Empathy Quotient Short Form, which has a Cronbach’s α of 0.88 (Wakabayashi et al., 2006), indicating strong internal consistency.

Guan et al. (2012) of Peking University developed a Chinese version based on the Empathy Quotient Short Form for nursing practitioners and students, containing one dimension and 15 items, with adequate Cronbach’s α of between 0.82 and 0.83. Thirty-nine nursing students were retested after 6 weeks, and the reliability was 0.72, which indicates good temporal stability. However, factor analysis showed the scale items mainly measured the cognitive component, and it was difficult to distinguish the cognitive and affective elements (Guan et al., 2012).

The Interpersonal Reactivity Index

In 1980, an American scholar, M.H. Davis, developed the Interpersonal Reactivity Index (IRI) questionnaire for individuals using self-assessment based on a multidimensional theory of empathy (as described previously). The questionnaire is designed to measure both cognitive and affective empathy. This 28-item scale includes four subscales: perspective taking, fantasy, empathetic concern, and personal distress (M.H. Davis, 1980). According to M.H. Davis (1980), the Cronbach’s α coefficient ranged from 0.71 to 0.78, and test-retest reliability was 0.61–0.81, indicating adequate internal consistency for research purposes, and low to strong temporal stability. Also, the scale has been shown to have good discriminant and convergent validity. As with virtually all other empathy measures, significant sex differences existed for each scale, with females scoring higher than males on each of the four scales (M.H. Davis, 1983).

In 1987, Zhan revised the IRI scale and developed a Chinese version of it, with 22 items and four dimensions. It included the same subscales as the IRI. Cronbach’s α coefficients were
low to adequate, ranging from 0.53 to 0.80, with test-retest reliability of 0.56–0.82, which indicated low to high temporal stability (Zhan, 1987). In 2010, Zhang et al. used the Chinese version of the IRI scale to assess the empathy levels among 529 healthy individuals and 365 people with schizophrenia. Cronbach’s α coefficient ranged from 0.53–0.76, indicating low to adequate internal consistency, and the scale evidenced good test-retest reliability at 0.74, as well as high cross-sample consistency and validity (Zhang et al., 2010). In 2014, Cheng and Yu used this scale with 168 clinical nurses to evaluate its reliability; the Cronbach’s α coefficient ranged from low to adequate at 0.53 to 0.71, and the four factors cumulatively explained 76% of the total variance (Cheng & Yu, 2014). This scale has been the most widely used empathy-measurement scale in China, exhibits good overall reliability and validity for research purposes, and is used in the current study.

To summarize, the JSE scale has been widely used to measure the levels of empathy of medical students and professionals and has been shown to possess a high degree of reliability and validity (Ward et al., 2012). However, the JSE scale is more suitable for use with people who have clinical experience than for those lacking it (such as first-year students). The Hogan Empathy Scale is a common tool for measuring cognitive empathy and mainly measures empathetic ability from that perspective. The Emotional Empathy Tendency Scale is used to evaluate the content of affective empathy, and the Reynolds Empathy Scale measures behavioral empathy. M.H. Davis’s multidimensional IRI scale measures empathy more comprehensively and its reliability and validity are acceptable.

The objective of the current study was to identify the empathy level and characteristics among nursing students at a private Chinese university. The IRI was chosen for this study
because it assesses empathy from a variety of perspectives and can be used to assess the empathy of nursing students of all levels of training/practice.

**Current Literature on Empathy Among Nursing Students**

Studies on empathy in the medical field have focused on clinical staff and medical students, with relatively few studies concentrated on levels of empathy among nursing students. This is a population worth considering because future nurses will have the closest and most extended interactions with patients of any clinical practitioner. After screening empirical investigations of empathy among nursing students, I extracted relevant factors to include in the analysis, and the results of studies on empathy (see Table 2).

Along with examining current levels of empathy, it obviously is of value to examine whether empathy levels among nursing students change during their schooling as this has been a concern in this field. The available studies have reported inconsistent results; some showed nursing students experienced a decrease in empathy during their schooling (Ward et al., 2012), others, an increase (Håkansson Eklund et al., 2019; Lei et al., 2018; Q. Li, 2017; Ozcan et al., 2010). For example, Ferri et al. (2019) examined the empathy levels of 3-year nursing students in Italy and found moderate to high levels of nurse empathy throughout their time in school. Other studies (Ma & Li, 2012; McKenna et al., 2012; Mendes et al., 2019; Wilson et al., 2012; G. Yang et al., 2015; Zhu et al., 2016) demonstrated similar results.
Table 2

Overview of Studies on Nursing Students’ Empathy

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Participants (Sample Size)</th>
<th>Sampling Method</th>
<th>Measurement</th>
<th>Related Factors Included</th>
<th>Significant Factors Extracted</th>
<th>Empathy Score (Full Mark)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altwalbeh et al. (2018)</td>
<td>4-year nursing undergraduates (245)</td>
<td>Convenience sampling</td>
<td>JSE- HP</td>
<td>Gender, age, GPA rank, if they underwent communication skills course, if their preference was to study nursing, if they have the intention to work as a nurse after graduation, and about the preferred ward in which they wished to work</td>
<td>-</td>
<td>92.9 ± 16.40</td>
</tr>
<tr>
<td>Cao &amp; Wang (2020)</td>
<td>4-year nursing undergraduates (Grade 3, 107)</td>
<td>Purposive sampling</td>
<td>JSPE-S</td>
<td>-</td>
<td>-</td>
<td>106.26 ± 14.33</td>
</tr>
<tr>
<td>Carol B Dulay et al. (2018)</td>
<td>4-year nursing undergraduates (Senior, 250)</td>
<td>Purposive sampling</td>
<td>JSE-HPS</td>
<td>Gender, age, religion, reason for choosing nursing, engaging, efficiency, emic, erratic, encumbering, enduing, emotive, embracing, and enervating factors.</td>
<td>Engaging, efficiency, erratic and encumbering factors</td>
<td>-</td>
</tr>
<tr>
<td>Chen et al. (2013)</td>
<td>4-year nursing undergraduates (150)</td>
<td>Convenience sampling</td>
<td>IRI-C</td>
<td>Age, gender, grade, student leader, only child, place of birth, nationality, internship experience</td>
<td>Gender, only child, student leader, place of birth</td>
<td>57.45 ± 7.64</td>
</tr>
</tbody>
</table>
Table 2 continued.

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Participants (Sample Size)</th>
<th>Sampling Method</th>
<th>Measurement</th>
<th>Related Factors Included</th>
<th>Significant Factors Extracted</th>
<th>Empathy Score (Full Mark)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christina (2012)</td>
<td>5-year nursing undergraduates (1st;3rd;4th and 6th semester, 279)</td>
<td>Convenience sampling</td>
<td>JSPE (Nursing student version)</td>
<td>Sex, age, semester of studying, nationality, religion, religiosity, their willing to work as nurses after their graduation, if it was their preference to studying nursing, if they had the ability to sense others’ perspective, if they had taken emotional care of their family, if they had received training during their studies in understanding patients’ perspectives, if clinical instructors approached patients with emotional understanding</td>
<td>Sex, age, semester of studying, nationality, religion, willing to work as nurses after their graduation, if it was their preference to studying nursing, if they had the ability to sense others’ perspective, if they had taken emotional care of their family, if they had received training during their studies in understanding patients’ perspectives, if clinical instructors approached patients with emotional understanding</td>
<td>88.63 ± 8.93 (140)</td>
</tr>
<tr>
<td>Ferri et al. (2019)</td>
<td>3-year nursing undergraduates (142)</td>
<td>Convenience sampling</td>
<td>BEES</td>
<td>-</td>
<td>Gender, grade</td>
<td>Year 1: 37.0 ± 19.5(-) Year 2: 33.5 ± 22.6(-) Year 3: 35.4 ± 16 (-)</td>
</tr>
</tbody>
</table>
Table 2 continued.

<table>
<thead>
<tr>
<th>Author</th>
<th>Participants (Sample Size)</th>
<th>Sampling Method</th>
<th>Measurement</th>
<th>Related Factors Included</th>
<th>Significant Factors Extracted</th>
<th>Empathy Score (Full Mark)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Håkansson Eklund et al. (2019)</td>
<td>3-year nursing students (2nd and 6th semesters, as well as master nursing students, 329)</td>
<td>Convenience sampling</td>
<td>JSPE</td>
<td>Gender, age, education level, previous work experience</td>
<td>Education level, previous work experience</td>
<td>106.12 ± 16.08 (140)</td>
</tr>
<tr>
<td>Lei et al. (2018)</td>
<td>4-year nursing undergraduates (300)</td>
<td>Random sampling</td>
<td>JSPE-S</td>
<td>Age, gender, grade, student leader, only child, place of birth, relationship with mother, empathy-related learning experience, working environment</td>
<td>Grade</td>
<td>106.7 ± 11.33 (140)</td>
</tr>
<tr>
<td>Li (2017)</td>
<td>3-year vocational and 4-year undergraduate nursing students (740)</td>
<td>Cluster sampling</td>
<td>IRI-C</td>
<td>Age, gender, program type, grade, student leader, only child, place of birth, educational level of parents</td>
<td>Place of birth, grade, educational level of father</td>
<td>53.46 ± 8.39 (88)</td>
</tr>
<tr>
<td>Author (Year)</td>
<td>Participants (Sample Size)</td>
<td>Sampling Method</td>
<td>Measurement</td>
<td>Related Factors Included</td>
<td>Significant Factors Extracted</td>
<td>Empathy Score (Full Mark)</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Ma &amp; Li (2012)</td>
<td>4-year nursing undergraduates (208)</td>
<td>Convenience sampling</td>
<td>IRI-C</td>
<td>Age, gender, grade, student leader, only child, place of birth, interpersonal environment, empathy-related learning experience, relationship with mother, love for reading</td>
<td>Interpersonal environment, place of birth, student leader</td>
<td>50.13 ± 9.35 (88)</td>
</tr>
<tr>
<td>McKenna et al. (2012)</td>
<td>3-year nursing undergraduates (106)</td>
<td>Convenience sampling</td>
<td>JSPE-HP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mendes et al. (2019)</td>
<td>4-year and 5-year nursing undergraduates (Grade 1, 399)</td>
<td>Convenience sampling</td>
<td>EI</td>
<td>-</td>
<td>Gender, program type; 4-year:144.06 ± 15.82(200); 5-year:145.03 ± 18.30(200)</td>
<td>-</td>
</tr>
<tr>
<td>Ozcan et al. (2010)</td>
<td>4-year nursing undergraduates (438)</td>
<td>Convenience sampling</td>
<td>ECSS</td>
<td>Age; grade; family environment; living place; only child; educational level; employed or not</td>
<td>Grade</td>
<td>ECSS:140.70 ± 22.26(-); ETS: 72.36 ± 9.02 (100)</td>
</tr>
<tr>
<td>ETC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrucci et al. (2016)</td>
<td>Health professional students (1st year, 502; Nursing = 298)</td>
<td>Convenience sampling</td>
<td>JSE-HPS</td>
<td>Gender, love for reading books, degree courses, Upper-secondary schools attended, volunteer programs</td>
<td>Gender, degree courses, love for reading books</td>
<td>Nursing: 113.52 (140)</td>
</tr>
</tbody>
</table>
Table 2 continued.

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Participants (Sample Size)</th>
<th>Sampling Method</th>
<th>Measurement</th>
<th>Related Factors Included</th>
<th>Significant Factors Extracted</th>
<th>Empathy Score (Full Mark)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward et al. (2009)</td>
<td>Nursing undergraduates at different levels of training (333)</td>
<td>Convenience sampling</td>
<td>JSPE</td>
<td>Gender, ethnicity, marriage status, academic major prior to nursing school, clinical experiences in nursing school, and future career plans</td>
<td>Gender; clinical experiences in nursing school</td>
<td>-</td>
</tr>
<tr>
<td>Ward et al. (2012)</td>
<td>Nursing students from three undergraduate nursing programs (214)</td>
<td>Convenience sampling</td>
<td>JSE</td>
<td>Gender, age, ethnicity, previous undergraduate academic major, exposure to clinical experiences during academic year, work experience prior to nursing school</td>
<td>Previous undergraduate academic major, exposure to clinical experiences during academic year, work experience prior to nursing school</td>
<td>-</td>
</tr>
<tr>
<td>Williams et al. (2014)</td>
<td>3-year undergraduates from emergency health, nursing, and midwifery (948)</td>
<td>Convenience sampling</td>
<td>JSE-HP</td>
<td>Course enrolled in, course year, age, sex</td>
<td>Course enrolled in, course year, age, sex</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 2 continued.

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Participants (Sample Size)</th>
<th>Sampling Method</th>
<th>Measurement</th>
<th>Related Factors Included</th>
<th>Significant Factors Extracted</th>
<th>Empathy Score (Full Mark)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson et al. (2012)</td>
<td>Health professions students (pharmacy and nursing) and nonhealth professions (law) students (282, nursing students = 96)</td>
<td>Convenience sampling</td>
<td>JSPE-S</td>
<td>-</td>
<td>Discipline, gender, grade</td>
<td>-</td>
</tr>
<tr>
<td>Yang et al. (2019)</td>
<td>4-year nursing undergraduates (150)</td>
<td>Convenience sampling</td>
<td>IRI-C</td>
<td>Gender, grade, student leader, only child, health condition, in-hospital experience, experience of caring for others, educational level of parents, desire to be a nurse after graduation</td>
<td>Only child, health condition, desire to be a nurse after graduation</td>
<td>51.67 ± 9.40 (88)</td>
</tr>
<tr>
<td>Zhu et al. (2016)</td>
<td>3-year vocational nursing students and 4-year nursing undergraduates (344)</td>
<td>Convenience sampling</td>
<td>JSPE (Nursing student version)</td>
<td>Age, gender, grade, program type, student leader, only child, place of birth, nationality, internship experience</td>
<td>Program type, student leader, internship experience</td>
<td>104.71 ± 15.54 (140)</td>
</tr>
</tbody>
</table>

*Note.* “-” means not reported in the study
In addition, Lian and Li (2016) assessed the empathy of nursing interns and found their empathy at a late stage of internship was intermediate to high. The literature indicates that room remains for further exploration of changes in nursing students’ empathy during their time at school.

**Factors Related to Empathy Among Nursing Students**

Based on previous research, I analyzed and outlined the factors researchers indicated may be related to empathy. These results implied that individual differences in empathy and its associated responses may largely be attributed to demographic factors, empathy-related factors, factors related to clinical experience, and factors related to choice of profession.

**Demographic Factors**

The demographic factors included in this dissertation were gender, age, religion, grade level, whether the student was an only child, class-leadership background, educational background, and place of birth. In 2019, Ferri et al. investigated the empathy profiles of nursing students and found differences in the levels of empathy between the genders (defined binarily as female/male). Female nursing students had significantly higher levels of empathy than their male counterparts. Other studies have had similar findings. (Chen et al., 2013; Christina, 2012; Petrucci et al., 2016).

Christina (2012) employed a descriptive cross-sectional survey with Greek nursing students and found differences in religious affiliation and devotion had an impact on empathy levels. Religious respondents displayed statistically higher levels of empathy, particularly if they were Christian. Chen et al. (2013) conducted a survey of empathy levels of undergraduate nursing students at a private university in China and found that the empathy levels of nursing students with siblings were significantly higher than those without. In addition, rural students
exhibited significantly higher levels of empathy than urban students, and student leaders showed higher levels of empathy than those who had never held leadership positions. Similar results were obtained in other studies (Chen et al., 2013; Li, 2017; Ma & Li, 2012; Zhu et al., 2016).

In 2019, Håkansson Eklund et al. conducted a survey of the empathy of undergraduate and graduate nursing students in Sweden and concluded those in their third year of undergraduate studies had the highest levels of empathy, with no statistically significant difference in the empathy level of second-year students and first-year undergraduates. These results indicated that educational background may affect empathy levels. A similar study by Mendes et al. (2019) examining the empathy of first-year nursing students in 4- and 5-year programs in Brazil found considerable differences in the empathy of undergraduate nursing students by program type, with those in the undergraduate program showing lower levels of empathy than those in the nursing and teaching diploma programs.

**Empathy-Related Factors**

Empathy-related factors concern the ability of nursing students to perceive the perspectives of others, whether they have taken empathy-related courses, and whether they have had experience caring for family members. According to Christina (2012), nursing students who identified themselves as highly capable of perceiving the perspectives of others had significantly higher levels of empathy than other students. In addition, nursing students with experience providing care for family members and those with training in understanding the perspectives of patients reported higher levels of empathy.

**Factors Related to Clinical Experience**

For this review, factors related to clinical experience included whether the student was involved in clinical practice prior to enrollment, what relevant prior work experience they had,
and in what kind of setting the clinical practice took place. Håkansson Eklund et al. (2019) found nursing students with relevant work experience prior to enrollment had significantly higher levels of empathy than other nursing students. In contrast, Ward et al. (2012) found that the time U.S. undergraduate nursing students spent in clinical contact during their studies and related work experience prior to enrollment was associated with lower empathy.

Dulay et al. (2018) undertook an exploratory study of factors related to the empathy levels of fourth-year nursing students and found four major variables that affected empathy levels in their study: engaging, efficiency, erratic, and encumbering. Engaging referred to the degree to which nursing students were engaged with patients, patient families, clinical instructors, and working nurses during treatment and care. Efficiency related to their ability to use their nursing skills and therapeutic-communication techniques. Erratic referred to their degree of perceptions of alienation in clinical settings from others, including patients and healthcare professionals. Encumbering related to whatever pity, embarrassment, or over-familiarity nursing students might experience in the presence of their patients. This study found that the engaging factor had the greatest impact on nursing student empathy followed by the efficiency factor. Erratic and encumbering factors were negatively related to empathy.

Similarly, Lian and Li (2016) studied the empathy of nursing students in clinical placement and its correlation with the placement environment (i.e., mainly in terms of instructors, teaching methods, learning opportunities, interpersonal relationships, climate, and relationships with executives). They found that nursing students’ empathy levels were positively correlated with the clinical placement environment. Favorable interpersonal relationships were of particular importance to the students, with learning opportunities, competent instructors, a harmonious and supportive climate, and the support of the hospital’s executive team. Furthermore, the results of
Christina’s (2012) study showed that nursing students learning from clinical instructors with a greater emotional understanding of their patients reported higher levels of empathy.

Factors Related to Choice of Profession

Factors potentially related to choice of profession include reasons for choosing a nursing program and willingness to work as a nurse after graduation. According to a study by Christina (2012), nursing students interested in working in the profession after graduation had higher empathy levels than those who were not, or who were uncertain about it. In addition, nursing students who had chosen the field of their own accord had higher empathy levels than those who did not (e.g., those who have entered it on the insistence of their parents). Similarly, Yang et al.’s (2019) survey of empathy among 4-year undergraduate nursing students in China showed that nursing students who wished to enter clinical practice after graduation had higher empathy levels than other nursing students.

Interventions Used to Enhance Empathy

Given the potential importance of empathy in the medical sphere, ways to effectively improve students’ empathy levels have become important topics in the field. Research has focused on strategies to enhance empathy and has included communication or interpersonal skills training, reflective practice and meditation, patient narrative and creative-artistic interventions, simulated and experiential learning, and comprehensive interventions (see Table 3).

Communication and Interpersonal Skills Training Intervention

Interpersonal communication is purported to be closely related to empathy (Bays et al., 2014; Vogel et al., 2018). The expression of empathy, whether by way of body language or verbal language, is viewed as based on communication and sharing emotions (Vogel et al., 2018). Therefore, interpersonal communication is deemed to be required for empathy development.
According to Bays et al. (2014), interpersonal communication skills can be enhanced through practice seminars. Researchers suggested it is important to identify communication problems between clinical staff and patients, especially when it comes to bad news, thereby enriching the theoretical understanding of communication that the students have (Bays et al., 2014; García et al., 2013).

Airagnes et al. (2014) introduced the Balint-groups method, which features group explorations of day-to-day resident-patient problems as a method to instill empathy. For typical cases, the psychological processes behind the emotions of the people concerned (e.g., medical staff, patients, or patient families) are analyzed using role transition, imagination, and empathy. Within this method, the emotions, moods, and behaviors of patients and their families need to be understood and considered by trainees who are taught how to treat and respond to patients with an inclusive attitude to improve their communication skills.
<table>
<thead>
<tr>
<th>Authors (year)</th>
<th>Location</th>
<th>Design</th>
<th>Participants</th>
<th>Sample Size</th>
<th>Intervention Strategy (Length)</th>
<th>Time-points measured</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airagnes et al. (2014)</td>
<td>France</td>
<td>Quant</td>
<td>4th-year students</td>
<td>Brilliant 34</td>
<td>Balint groups (20 hours)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control 129 Total 163</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bays et al. (2014)</td>
<td>America</td>
<td>Quant.</td>
<td>residents and nurse practitioner students</td>
<td>145</td>
<td>Code talk: an experiential communication skill-building workshop (32 hours)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Bas-Sarmiento et al. (2017)</td>
<td>Spain</td>
<td>Quant</td>
<td>2nd-year nursing students</td>
<td>48</td>
<td>Role-playing, behavior assay, and a flipped classroom (20 hours)</td>
<td>Pretest Post-test One-month follow up Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Bentley et al. (2018)</td>
<td>American</td>
<td>Mixed</td>
<td>1st-year residents</td>
<td>7</td>
<td>A training course based on relational mindfulness (1.5 h weekly, 8 weeks)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Chen et al. (2017)</td>
<td>China</td>
<td>Quant</td>
<td>physicians, dentists, nurses and so on.</td>
<td>142</td>
<td>Narrative medicine competition program (2 month)</td>
<td>Pretest Post-test 1.5 years follow up Pretest Post-test</td>
<td>+</td>
</tr>
<tr>
<td>Collins et al. (2017)</td>
<td>America</td>
<td>Quant</td>
<td>1st–3rd-year students</td>
<td>Intervention 11</td>
<td>literary fictional reading intervention (8 weeks)</td>
<td>Pretest Post-test</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control 10 Total 21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demirören et al. (2016)</td>
<td>Turkey</td>
<td>Quant</td>
<td>5th year student</td>
<td>Intervention 98</td>
<td>written and verbal reflection practices for student experience in interview with patients during psychiatry clerkship (2.5 weeks)</td>
<td>Pretest Post-test</td>
<td>N</td>
</tr>
<tr>
<td>Authors (year)</td>
<td>Location</td>
<td>Design</td>
<td>Participants</td>
<td>Sample Size</td>
<td>Intervention Strategy (Length)</td>
<td>Time-points measured</td>
<td>Results</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>--------</td>
<td>-----------------------------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Diaz-Agea et al. (2017)</td>
<td>Spain</td>
<td>Mixed</td>
<td>4th-year nursing students real patients</td>
<td>81</td>
<td>using patient as co-debriefer (1 hour per week)</td>
<td>Pretest Post-test</td>
<td>+</td>
</tr>
<tr>
<td>Hogan et al. (2018)</td>
<td>Australia</td>
<td>Quant</td>
<td>undergraduate midwifery</td>
<td>55</td>
<td>an educational workshop based on the Inter-professional Empathy Behaviour Education Toolkit for undergraduate healthcare students</td>
<td>Pretest Post-test 28 days follow up</td>
<td>+*</td>
</tr>
<tr>
<td>Kiosses et al. (2017)</td>
<td>Greece</td>
<td>Quant</td>
<td>4th-year or beyond medical students</td>
<td>Intervention 42 Control 45 Total 87</td>
<td>“Empathize with me, Doctor!” training program / 60 hours</td>
<td>Pretest Post-test 6 months follow up</td>
<td>+*</td>
</tr>
<tr>
<td>Lee et al. (2018)</td>
<td>China</td>
<td>Quant</td>
<td>2nd-year students</td>
<td>Intervention 48 Control 55 Total 103 390</td>
<td>classroom-based role play, self-reflection, situated learning and acting / 4 months</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Levett-Jones et al. (2017)</td>
<td>Australia</td>
<td>Quant</td>
<td>2nd-year nursing students</td>
<td>20</td>
<td>An immersive point-of-view simulation /-</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Lim et al. (2016)</td>
<td>New Zealand</td>
<td>Quant</td>
<td>1st-year medical students</td>
<td>Intervention 39 Control 40 Total 79</td>
<td>actor-led empathy workshop / 1 hour</td>
<td>Pretest Post-test Follow up</td>
<td>+</td>
</tr>
<tr>
<td>Lor et al. (2015)</td>
<td>America</td>
<td>Quant</td>
<td>2nd-year student</td>
<td>Intervention 20 Control 20 Total 40 230</td>
<td>a designated simulation activity with loss of dominant hand usage, vision, and speech / 3 days</td>
<td>Pretest Post-test 7 days Post-test 90 days</td>
<td>+*</td>
</tr>
<tr>
<td>Lucchetti et al. (2017)</td>
<td>Brazil</td>
<td>Quant</td>
<td>1st-year medical students</td>
<td>“experiencing aging” “myths of aging” (2 hours)</td>
<td>Pretest Post-test empathy+* attitude--*</td>
<td>Pretest Post-test 90 days</td>
<td>+*</td>
</tr>
</tbody>
</table>
Table 3 continued.

<table>
<thead>
<tr>
<th>Authors (year)</th>
<th>Location</th>
<th>Design</th>
<th>Participants</th>
<th>Sample Size</th>
<th>Intervention Strategy (Length)</th>
<th>Time-points measured</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potash et al. (2014)</td>
<td>China</td>
<td>Quant</td>
<td>3rd-year medical students</td>
<td>161</td>
<td>Attend an arts-making workshop (10 weeks)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Rosenzweig et al. (2016)</td>
<td>France</td>
<td>Quant</td>
<td>4th-year dental students</td>
<td>Intervention 78 Control 283 Total 361</td>
<td>Person-centered care training including arts-based approaches, narrative dentistry activities, and workshops on communication based on the Calgary-Cambridge guide (20 hours)</td>
<td>Pretest Post-test</td>
<td>+</td>
</tr>
<tr>
<td>San-Martin et al. (2017)</td>
<td>Spain</td>
<td>Quant</td>
<td>3 private medical school students</td>
<td>165</td>
<td>A semiotic-based curriculum which emphasize students’ communication skills (4 months)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Schweller et al. (2014)</td>
<td>Brazil</td>
<td>Quant</td>
<td>4th-year student and 6th-year student</td>
<td>247</td>
<td>Weekly meeting, simulation activity &amp; debriefing (30 days)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
<tr>
<td>Sweeney et al. (2018)</td>
<td>UK</td>
<td>Mixed</td>
<td>2 years of basic medical sciences</td>
<td>48</td>
<td>A novel teaching program based on the videos of patients talking about their hospital experiences and reflective group discussion (approximately 10 Hours)</td>
<td>Pretest Post-test</td>
<td>+</td>
</tr>
<tr>
<td>Zazulak et al. (2015)</td>
<td>Canada</td>
<td>Qual</td>
<td>2nd-year – 4th-year students</td>
<td>Intervention 10 Control 9 Total 19</td>
<td>A visual literacy program at the McMaster Museum of Art (42 hours)</td>
<td>Pretest Post-test</td>
<td>Cognitive+ N</td>
</tr>
<tr>
<td>Zazulak et al. (2017)</td>
<td>Canada</td>
<td>Quant</td>
<td>Medical students from 2nd year to 5th year</td>
<td>Intervention 15 Control 20 Total 35</td>
<td>Art of Seeing (12 hours)</td>
<td>Pretest Post-test</td>
<td>+*</td>
</tr>
</tbody>
</table>

Note: Location, if not specified, is the location of the primary author’s affiliation; + indicates increase in the score of empathy while * means statistically significant, N with no significance.
**Reflective Practice and Meditation Intervention**

In empathy intervention, reflection is a potentially effective way of helping trainees to feel and understand the emotions and experiences of others (Díaz-Agea et al., 2017). In most cases, it is a process of interpreting and retelling the experiences and feelings of patients, such as through reflective writing and oral reflective practices. These activities require medical students to think about and describe diseases, deepening their understanding of patients’ feelings, and helping them to have appropriate empathic responses.

Written reflection aims to improve the understanding students have of their experiences and increasing self-awareness of others. The purpose of verbal reflection is to help students share their experiences and understanding with peers. Demirören et al. (2016) examined the effectiveness of reflective writing and verbal reflection and found that these practices helped students attain higher empathy scores; however, the oral reflective exercises were found to be more effective than written reflection. Díaz-Agea et al. (2017) affirmed the value of reflective practices in their study and suggested patients be involved in reflection meetings and become co-reporters. This approach enriches the learning experience, allowing medical students to understand patients’ views, and has therapeutic implications for patients or their relatives (Demirören et al., 2016; Díaz-Agea et al., 2017).

Apart from reflective practices, intervention methods like meditation and mindfulness-based stress reduction are also used to cultivate empathy in medical students. According to Bentley et al. (2018) and Bond et al. (2013), meditation and mindfulness practices
can alleviate the pressure medical students experience, reinforce their self-awareness, and increase their ability to connect with patients, thereby affecting their ability to empathize.

**Intervention Through Art**

Existing studies indicated that interventions through art, such as reading and discussing literature, writing poetry, art-making workshops, and visiting art museums to understand emotional expressions in literature or other artistic works, have resulted in increased empathy scores (Collins et al., 2017; Potash et al., 2014; Zazulak et al., 2015; Zazulak et al., 2017). These activities might be conducive to cultivate the humanism of medical students. For instance, Zazulak et al. (2015) carried out a visual literacy program at the McMaster Museum of Art to strengthen the empathy of students majoring in health science. Students who participated in the intervention group were asked to learn the elements of art at the beginning, then appreciate works of art, and analyze the artist’s intention and thoughts at length. Finally, they need to think and reflect on how their experiences bias their observation and interpretation. Results showed that the art program could improve the empathy scores of health science students, and the increase was significant, especially on the cognitive component. Furthermore, similar results were obtained in other studies (Potash et al., 2014; Zazulak et al., 2017). However, Collins et al. (2017) reported the improvement of empathy was not statistically remarkable through art intervention, which may require further examinations.
Narrative Intervention

According to Chen et al. (2017), activities based on narrative (i.e., storytelling, drama, poetry, novels, seeing movies) are considered to have the capacity to strengthen the humane qualities and cultivate the empathy of medical students. In the medical field, intervention by way of patient narrative usually refers to students listening with understanding to patients as they tell their stories. Intervention by artistic creation means students are given a chance to express their understanding and responses to the experiences and emotions of patients through art, such as expressing themselves through poetry. These training methods require medical students to put themselves into the situations of others.

Chen et al. (2017) examined whether a narrative research method, which allowed students in an intervention group to watch videos related to the patient experience, would improve empathy scores and found small improvements. A follow-up study reported the improved empathy scores lasted for at least a year and a half. However, improvements did not reach statistical significance.

Simulated and Experiential Learning Intervention

It may be difficult to foster empathy through instruction alone because emotional interaction and expression need to be developed in practice (Levett-Jones et al., 2017). Given this, experiential intervention through simulation is widely used to cultivate students’ empathy and has shown that it may be effective (Schweller et al., 2014).
In this kind of intervention, students take on the patient’s role and experience their feelings, opinions, needs, and concerns in various situations. For example, Eymard et al. (2010) used physical limitation suits in their study to enable the students to experience the feelings and demands of the patients with stiff joints and immobility. By having the students wear blurred goggles and gloves for a while, Peng et al. (2020) enabled the students to experience impaired eyesight and sensory deprivation.

Other researchers also have conducted simulations of aging, having students experience blindness and loss of hearing with the help of physical limitation equipment (Lucchetti et al., 2017). After these simulated activities, the organizers brought those who had taken part together to review and discuss the activities and describe their feelings and thoughts about them. This gave the students a deeper understanding of how to transfer what they had learned into practice. However, other researchers found that the effects of such an intervention may not be maintained (Lor et al., 2015; Sweeney & Baker, 2018). Therefore, further research is needed to establish whether simulations such as those used in the current research base resulted in increased empathy that is generalized and maintained across time.

**Comprehensive Intervention**

Bas-Sarmiento et al. (2017) and Kiosses et al. (2017) tried combinations of several different intervention methods to create synergies among them in cultivating empathy in medical students. For example, these researchers integrated role play, reflection, interpersonal skills (including verbal and nonverbal communication, therapeutic guidance, and appropriate touching),
and behavioral analysis. These combinations have led to the creation of patient-oriented empathy training programs (Bas-Sarmiento et al., 2017; Kiosses et al., 2017).

On this basis, other researchers have formed new training programs or modules, mixing patient narrative with art or mindfulness practice. For example, medical students’ empathy is being cultivated and their humanistic knowledge is being strengthened and strengthened to a great extent (Hogan et al., 2018; Rosenzweig et al., 2016). According to the research presented in this review, comprehensive interventions can significantly enhance and maintain the degree of empathy in medical students.

**Chapter Summary**

This literature review focused on the definition of empathy, its components, measures, related factors, and intervention strategies designed to increase empathy in students from the medical field. From this review, empathy is viewed in the literature as an important professional quality that nursing undergraduates should possess. Although scholars have different perspectives regarding understanding and defining empathy, its importance and overall characteristics of empathy generally have been agreed upon. These characteristics include recognition of and understanding the perceptions of others, along with the emotional contagion and interaction that takes place as part of the process of empathy.

I also reviewed and summarized the aspects in which distinctions may exist in the abilities of nursing students to experience and display empathy. These aspects include demographic factors, empathy-related factors (such as whether the student has studied empathy...
or their opinions regarding it), factors related to clinics, and factors affecting selection of a major.

At present, there are many instruments to measure and evaluate empathy, with most of them conducting measurements based on the various aspects of the ability to experience and display it. However, more and more researchers prefer to adopt comprehensive and multi-dimensional empathy-ability evaluation tools with the expectation of gaining a more comprehensive understanding of empathy. I also reviewed the tactics employed to enhance the empathy-related abilities of clinicians, including communication or interpersonal-skills training, reflective practice and meditation, patient-narrative and creative-artistic interventions, simulated and experiential learning, and comprehensive interventions. The results indicated that most types of intervention held promise as ways of enhancing empathy scores.

However, some gaps continue to persist within the literature, such as inconsistencies in the findings relating to undergraduate nursing students as well as limited research with nursing students in particular, which indicates that further exploration is warranted. In the next chapter, a cross-sectional survey method is presented for examining empathy with a sample of nursing students from a private university in China.
CHAPTER 3: METHODOLOGY

In this chapter, I provide a description of the research methodology employed for this study. The purpose of this study was to (a) examine the levels and characteristics of empathy among undergraduate nursing students at a private university in China; (b) understand nursing students’ perceptions toward empathy and nursing profession; and (c) identify independent variables related to undergraduate nursing students’ empathy. The dependent variables in this study were empathy, perspective taking, fantasy, empathy concern, and personal distress. The independent variables were gender, age, place of birth, family income, program type, grade, birth status, student-leadership, empathy-related experiences, and perceptions on empathy and nursing profession. For the purpose of providing answers to these research questions, a cross-sectional survey method, which is a quantitative research method, was utilized. Davis’ Interpersonal Reactivity Index - Chinese Version (IRI-C) was used to assess the empathy of undergraduate nursing students at a private university in China.

Research Questions

The objective of this study was to examine the empathy level and characteristics of undergraduate nursing students at a private university in China. The specific research questions are:

Research Question 1 (RQ1): What is the level of empathy among undergraduate nursing students at a private university in China?

RQ1a: Are empathy levels different between student cohorts (i.e., year of study)?

Research Question 2 (RQ2): What perceptions do undergraduate nursing students have of empathy and the nursing profession?
Research Question 3 (RQ3): Are there differences across groups related to the empathy of undergraduate nursing students at a private university in China?

Quantitative Paradigm

The design and implementation of scientific research are based on paradigms, which explain how researchers view the world and the place of research in the world (Guba & Lincoln, 1994). Using paradigms can help researchers build a bridge between research goals and how to achieve them (Houghton et al., 2012). This is the foundation of various research methodologies and will be further reflected in the research methods, the means used in the research, and the description of the results (Scotland, 2012).

Positivism and post-positivism are two widely used paradigms in the field of social science, which are also philosophical perspectives that guide quantitative research. A systematic and logical exploration of laws and causality through scientific methods is proposed, which can expose the realistic viewpoint (Guba & Lincoln, 1994) as far as possible. Therefore, the research process of quantitative research is often deductive, starting with specific research problems, then putting forward hypotheses, and obtaining results through falsification of hypotheses. The researcher emphasizes control of the research process, which includes the neutrality and objectivity of the researcher and the rigor of the research procedure.

Research Design

This study adopted a cross-sectional survey method to answer the research questions, the results of which were analyzed by descriptive and inferential statistical analysis methods. The participants were nursing students at a private university in China. Elements of the research design are presented in this section.
Setting

The setting was a full-time private university in China. The school provides two types of education, including a 4-year undergraduate education and a 2-year undergraduate education for vocational students (the latter is continuing education for graduates of vocational colleges; see Table 4).

Table 4

Distribution of Nursing Undergraduate Students at the Participating University

<table>
<thead>
<tr>
<th>Student type</th>
<th>Academic year</th>
<th>Number of students</th>
<th>Total number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-year undergraduate students</td>
<td>First</td>
<td>116</td>
<td>585</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third</td>
<td>169</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fourth (internship)</td>
<td>174</td>
<td></td>
</tr>
<tr>
<td>2-year undergraduate students</td>
<td>First</td>
<td>58</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>Second (internship)</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

Cross-Sectional Survey Method

For this study, I adopted the cross-sectional survey method to collect data. Survey research is one of the key methods of quantitative research in the social sciences (Leavy, 2017). According to Leavy (2017), survey research allows the researchers to ask the target sample a series of questions and generalize the main characteristics through their answers to describe the group from which the sample is drawn. The key tool for data collection used in the survey research is the questionnaire, which researchers employ to ask standardized questions of the respondents for statistical analysis.
According to Trochim and Donnelly (2001), investigations include not only cross-sectional, but also longitudinal surveys. A longitudinal survey study refers to the investigation of the same sample (or at least a comparable sample) at different time points to describe the change of a certain phenomenon and its connections. The cross-sectional survey involves the investigation of a certain phenomenon or population at a certain time point to analyze and compare the distribution status and characteristics of the sample in a defined period or certain point in time. Therefore, to achieve the aims of this study (i.e., to examine the empathy levels and characteristics of undergraduate nursing students at a private university in China), either a longitudinal survey or cross-sectional survey is suitable. Due to time constraints and the COVID-19 epidemic, this study adopted the method of cross-sectional survey to collect data from the participants to examine the level and characteristics of empathy among undergraduate nursing students.

**Sampling Method**

Although quantitative researchers often prefer to use large sample sizes and random sampling methods (Leavy, 2017), due to the limited resources available to the researcher and restricted access to the relevant institutions, a convenience sampling method was employed in this study, which involved the researcher determining the unit to be included in the sample based on convenience/availability (Leavy, 2017). Because it is a nonrandom sampling method, convenience sampling may result in sample results not being representative of the target group. Yet it is a nonprobability sampling method social scientists frequently use in survey research (McMillan, 2016). Further, convenience sampling is conducive for researchers to understand the possible characteristics and relationships if the sample size is large enough to cover the main characteristics that the researcher is about to study (Leavy, 2017; McMillan, 2016).
Instrumentation

The measurement instrument involved in this study consisted of two major sections. The first section consisted of general questions designed by the researcher, which included: (1) demographic variables (i.e., gender, age, place of birth, family income, program type, grade, birth status, and student-leadership); (2) empathy-related experiences (i.e., learning, community-service, clinical-internship, and clinical-visit experiences); and (3) perceptions on empathy and nursing profession (i.e., attitudes toward empathy, whether the student enjoys nursing, whether the student would like to become a nurse after graduation, and their view of the patient-nurse relationship; see Appendix A for the measurement).

For the second section, the study employed the Chinese version of the Interpersonal Reactivity Index-C (IRI-C) scale. The IRI-C is a 5-point Likert-type scale which reflects the empathy state in terms of four dimensions related to empathy: perspective taking, fantasy, empathetic concern, and personal distress.

Interpersonal Reactivity Index-C

The Interpersonal Reactivity Index (IRI) was originally developed by the American scholar M.H. Davis in 1980 and is based on a multidimensional perspective of empathy. The scale encapsulates four dimensions, which are perspective taking (PT), fantasy (FS), empathy concern (EC), and personal distress (PD), comprising a total of 28 items. The four dimensions primarily measure empathy from cognitive and affective underpinnings. Perspective taking and fantasy reflect cognitive empathy, and empathy concern and personal distress are indicative of
affective empathy (M.H. Davis, 1983). A description of the structure and survey items of the IRI scale are provided in Table 5.

### Table 5

*Structure and Content of IRI Scale*

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective Taking (7 items)</td>
<td>Tendency to spontaneously adopt the points of view of others from a psychological standpoint</td>
</tr>
<tr>
<td>Fantasy (7 items)</td>
<td>Taps respondents' tendencies to transpose themselves imaginatively into feelings and actions of fictitious characters in books, movies, and plays</td>
</tr>
<tr>
<td>Empathy Concern (7 items)</td>
<td>Assesses &quot;other-oriented&quot; feelings of sympathy and concern for others experiencing unfortunate events</td>
</tr>
<tr>
<td>Personal Distress (7 items)</td>
<td>Measures &quot;self-oriented&quot; feelings of personal anxiety and unease in tense interpersonal settings</td>
</tr>
</tbody>
</table>

M.H. Davis (1980) tested the reliability and validity of the scale with 221 males and 206 females from introductory psychology classes, and the results showed that the Cronbach's $\alpha$ coefficients of the four dimensions of the scale were from 0.70 to 0.78, with test-retest reliability from 0.61 – 0.81, indicating acceptable internal and temporal reliability. In addition, a separate Jöreskog Factor analysis was conducted for both male and female respondents, and the four-factor structure remained constant for both samples. Likewise, the scores on the four
subscales indicated differences between females and males, an outcome consistent with most empathy research. These differences (male vs female) are as follows: for perspective taking, 16.78 vs. 17.96, $F(1,1180) = 18.25, p < .001$; for empathy concern, 19.04 vs. 21.67, $F(1,1180) = 129.09, p < .001$; for fantasy, 15.73 vs. 18.75, $F(1,1176) = 96.28, p < .001$; and for personal distress, 9.46 vs. 12.28, $F(1,1181) = 103.10, p < .001$.

M.H. Davis (1983) also examined the discriminative validity of the IRI scale by comparing the relationship between the social ability, self-esteem, and emotion components of each subscale with tools to evaluate sensitivity toward others. As expected, perspective taking related to better social functioning and higher self-esteem, a finding that matches the theoretical view of it as a social skill. The empathy-concern subscale also demonstrated a high correlation to an emotional-empathy scale.

In 1987, the Taiwanese scholar Zhan Zhiyu developed the revised Chinese version of the IRI scale (IRI-C). The IRI-C scale included 22 items, using the Likert 5-point score (see Appendix B), scoring between 0 and 4 points (i.e., response choices being $0 = \text{doesn't describe me at all}$ to $4 = \text{describes me very well}$; total score range 0–88), respectively, with a higher score indicative of a higher level of empathy. The psychometric properties of the IRI-C were tested among 896 individuals (i.e., 430 middle-school students, 400 undergraduates, and 66 employees of a training organization). Factor analysis showed that the attribution of the items belonging to the four dimensions were no different from that of IRI. The IRI-C scale’s Cronbach's $\alpha$ coefficient was from 0.53 to 0.80, indicating low to adequate internal consistency, and the retest
reliability was 0.56 to 0.82, indicating low to strong temporal stability. Additionally, the study inspected criterion-related validity with a comparison to the Mehrabian and Epstein emotional-empathy scale. Matching the research results of M.H. Davis (1983), the four IRI subscales and the Mehrabian and Epstein emotional-empathy scale turned out to be positively related, with correlation coefficients between 0.53 and 0.82. In 2017, Chinese mainland scholar Li Qingwen used the IRI-C scale to investigate the empathy of 740 nursing students. The results showed the total internal consistency of the full scale was 0.78 and the internal consistency of each dimension ranged from 0.73 to 0.82 (Li, 2017), indicating each scale possessed a good level of internal consistency. The retest coefficient of each factor of the IRI-C ranged from 0.63 to 0.74 (Zhang et al., 2010) and the four factors cumulatively explained 76% of the total variation (Cheng & Yu, 2014). It is, therefore, a reliable and valid research tool to measure empathy.

Research Procedures

This section describes the research procedures: Entering the site, pilot test, data collection process and data analysis methods, as well as how ethical considerations were addressed.

Entering the Site

As the first step, I applied for and obtained permission from the University along with the IRB of the institution where the research was conducted and from Chapman University. After obtaining permission, I wrote an email to the Dean of the School of Nursing, explaining my research topic, objective, and plan and requesting permission to implement the survey in the school. Following receipt of this approval, I looked for the assistance of four counselors from the School of Nursing to recruit students and organize the survey. Given that most current university student classes form online groups (often on WeChat), I sent a recruitment letter to each class
group through their counselor inviting students to participate in the survey. For those willing to partake, the link and Quick Response code of the questionnaire was sent to participants through their counselors via WeChat.

**Pilot Test**

To ensure that the instructions given concerning the questionnaire and the presentation of the entries in the general data section were clear and unambiguous, I recruited and randomly selected 30 students from the participating university (not majoring in nursing) and conducted a pilot test under their informed consent before the period of official data collection. The pilot test was carried out in the same way as the formal test, using an online questionnaire, via the online Wen JuanXing platform. After they completed the questionnaire, I organized a focused group meeting with the students, collected their opinions on the clarity of the survey, and if they encountered troubles when completing the survey. Based on student feedback, I revised the form of the age item from a choice question to a gap fill question to get detailed age data; and deleted the item “do you have experience of taking care of others?” for clarity.

Also, I sent the questionnaire to five experts to review the accuracy and relevance of my questionnaire. According to their suggestions, I added questions about nursing students’ empathy-related experiences and perceptions toward the nursing profession. The second section (IRI-C) was already validated among nursing students in China and did not require additions or revisions.

**Data Collection Process**

The survey and procedure were approved by the Institutional Review Board of Chapman University. The survey was distributed through an online platform Wen JuanXing, which is powered by www.wjx.cn. The platform WJX is known as the Chinese version of
Qualtrix and is currently the largest online survey platform in China. According to McMillan (2016), online questionnaires are reliable and relatively less costly than traditional paper-based surveys. When the researcher enters the questionnaire, WJX generates a Quick Response code and a survey link that can be scanned by the students to complete the questionnaire.

Due to the epidemic of COVID-19, the university delayed the opening time of semester until October 2020. Therefore, the survey was sent out in early December 2020. The counselors involved assisted the researcher in recruiting students and forwarded the questionnaire link. Respondents completed the questionnaire on WJX by scanning the Quick Response code. The questionnaire was released on the WJX platform on December 8, 2020 and was kept on the website for approximately 4 weeks. The survey was sent out to 700 potential participants and was completed by 644 nursing students, with an effective response rate of 92%.

Participants

A total sample of 644 participants completed the survey (see Table 6). Of the 644 participants, the age range was 18–24, with an average age of 19.98 ($SD = 1.49$). Among them, 83.7% of respondents were female and 16.3% male. Except for two students whose registered permanent residence was unknown, 71.7% of nursing undergraduates were from cities, 15.8% from small towns, and 12.3% from rural areas. Of the students, 75.9% were only children, and 24.1% had siblings. Two types of undergraduate nursing students exist at the private university: 4-year undergraduates and those studying for 2-year post-secondary degrees. Students of both types were included in this research, with 87.6% of participants being 4-year undergraduates and 12.4% 2-year post-secondary students. In terms of family socioeconomic status, 17.7% of participants were uncertain of household income; 21.3% had a monthly household income of
15,000 Renminbi Yuan or more; 88.7% of 8,000–15,000 Renminbi Yuan; and 18.6% of
5,000–8,000 Renminbi Yuan. The remaining 8.7% of participants had a monthly household
income of less than 5,000 RMB. Furthermore, 58.1% of participants had served as student
leaders at university, while the remaining 41.9% had not. Regarding empathy-related experiences,
24.5% of 644 respondents reported that they had participated in related training, and the
remaining 75.5% had not; 74.1% of participants had experienced community service, 37.4% had
undertaken clinical practice, and 58.9% had experiences of clinical visits. The specific numbers
and distributions are provided in Table 6.
### Table 6

*Participant Demographics*

<table>
<thead>
<tr>
<th>Background</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>105</td>
<td>16.3</td>
</tr>
<tr>
<td>Female</td>
<td>539</td>
<td>83.7</td>
</tr>
<tr>
<td><strong>Only child?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>155</td>
<td>24.1</td>
</tr>
<tr>
<td>No</td>
<td>489</td>
<td>75.9</td>
</tr>
<tr>
<td><strong>Program type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year undergraduate</td>
<td>564</td>
<td>87.6</td>
</tr>
<tr>
<td>2-year undergraduate</td>
<td>80</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman (4-year undergraduate)</td>
<td>198</td>
<td>30.7</td>
</tr>
<tr>
<td>Sophomore (4-year undergraduate)</td>
<td>128</td>
<td>19.9</td>
</tr>
<tr>
<td>Junior (4-year undergraduate)</td>
<td>146</td>
<td>22.7</td>
</tr>
<tr>
<td>Senior (4-year undergraduate)</td>
<td>92</td>
<td>14.3</td>
</tr>
<tr>
<td>Freshman (2-year undergraduate)</td>
<td>34</td>
<td>5.3</td>
</tr>
<tr>
<td>Sophomore (2-year undergraduate)</td>
<td>46</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Student leader?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>374</td>
<td>58.1</td>
</tr>
<tr>
<td>No</td>
<td>270</td>
<td>41.9</td>
</tr>
<tr>
<td><strong>Empathy-related learning experience?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>158</td>
<td>24.5</td>
</tr>
<tr>
<td>No</td>
<td>486</td>
<td>75.5</td>
</tr>
<tr>
<td><strong>Community-service experience?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>477</td>
<td>74.1</td>
</tr>
<tr>
<td>No</td>
<td>167</td>
<td>25.9</td>
</tr>
<tr>
<td><strong>Clinical-practice experience?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>241</td>
<td>37.4</td>
</tr>
<tr>
<td>No</td>
<td>403</td>
<td>62.6</td>
</tr>
<tr>
<td><strong>Clinical visits?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>379</td>
<td>58.9</td>
</tr>
<tr>
<td>No</td>
<td>265</td>
<td>41.1</td>
</tr>
</tbody>
</table>
**Data Analysis**

The data collected in this study were entered into SPSS 26.0 for descriptive and inferential statistical analysis. The researcher conducted a descriptive analysis of data for all independent and dependent variables in the study, including means, standard deviations, ranges of scores, and frequency distributions for each score variable. Inferential statistics were independent t tests, ANOVA, MANOVA, and effect sizes (see Table 7).

**Table 7**

*Data Analysis Method*

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Analysis Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 1: What is the level of empathy among undergraduate nursing students at a private university in China?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>Research Questions 1a: Are empathy levels different between student cohorts (i.e., year of study)?</td>
<td>(Mean, SD, ranges of the score, etc.)</td>
</tr>
<tr>
<td>Research Question 2: What perceptions do undergraduate nursing students have of empathy and the nursing profession?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td></td>
<td>(Numbers, frequency, etc.)</td>
</tr>
<tr>
<td>Research Question 3: Are there differences across groups relate to the empathy of undergraduate nursing students at a private university in China?</td>
<td>t test</td>
</tr>
<tr>
<td></td>
<td>ANOVA</td>
</tr>
<tr>
<td></td>
<td>MANOVA</td>
</tr>
<tr>
<td></td>
<td>Effect size</td>
</tr>
</tbody>
</table>
Ethical Considerations

This study utilized a cross-sectional survey method and no known harm was caused to any participants. The data collected were centered upon general information about undergraduate nursing student at a private university and their self-reported perceptions regarding empathy and feelings. Likewise, the questionnaire was anonymous and did not request personal privacy information. The questionnaire was reviewed and approved by the Institutional Review Board of both universities. Care was taken to respect the informed consent of the research participants by not forcing them to complete the questionnaire. During the completion process, the questionnaire was completed anonymously without any identifiable information, adhering to the principle of privacy protection of research participants. The data collected were used solely for the purposes of the research study.

Chapter Summary

This chapter introduced the factors that are important to be considered in the cross-sectional survey and design, and reviewed the research purpose, the relevant research problems, and the research paradigms. It also introduced the research design and process, particularly the development, reliability, and validity of the Interpersonal Reactivity Index, and how it has been applied and verified cross-culturally in China. This supports the reliability and feasibility of the project. Seven hundred (700) surveys were distributed on WeChat (a popular Chinese social media platform), with 644 returned, for a response rate of 92%. Finally, the chapter described the demographics of the participants and the procedures adopted for distributing the surveys. In the next chapter, I will present the results of descriptive and inferential statistical analyses based on the survey data to answer the research questions.
CHAPTER 4: RESULTS

This study was an examination of the empathy of undergraduate nursing students at a private university in China, and aimed to: (a) examine the empathy levels of nursing students at this university, (b) examine whether empathy levels change during their time at school; (c) understand the perceptions of students regarding empathy and the nursing profession; and (d) identify differences in empathy levels in terms of demographic variables, empathy-related experiences, and perceptions of empathy and of the nursing profession.

Study participants completed an anonymous survey that included: (a) eight items collecting demographic information (i.e., age, gender, family income, program type, place of birth, grade, birth status or whether an only child, and student-leadership background); (b) four questions concerning empathy-related experiences (i.e., learning, community-service, clinical-internship, and clinical-visit experiences); (c) four questions concerning perceptions of empathy and of the nursing profession (i.e., attitudes toward empathy, whether the student enjoys nursing, whether the student would like to become a nurse after graduation, and their view of the patient-nurse relationship); and (d) the IRI-C scale, which contained 22 items rated on a Likert-type 5-point scale (0 = doesn’t describe me at all to 4 = describes me very well), with possible scores ranging from 0 to 88. The higher the score, the greater the empathy level (there are no specified cut-off scores to indicate whether a respondent has lower or higher levels of empathy).
Research Purpose and Research Questions

The purpose of this study was to examine the empathy levels and characteristics of undergraduate nursing students at a private university in China, with the independent variables of gender, grade, program type, empathy-related experiences, and perceptions of empathy and of the nursing profession. Three specific research questions were explored.

**Research Question 1:** What is the level of empathy among undergraduate nursing students at a private university in China?

**Research Question 1a:** Are empathy levels different between student cohorts (i.e., year of study)?

**Research Question 2:** What perceptions do undergraduate nursing students have of empathy and the nursing profession?

**Research Question 3:** Are there differences across groups relate to the empathy of undergraduate nursing students at a private university in China?

The statistical analyses procedures used to answer these research questions included a two-tailed t test, one-way analysis of variance (ANOVA), multivariate analysis of variance (MANOVA), and effect size. In this section, the results of the descriptive and inferential analyses by each research question are presented.

**Research Question 1**

The first research question regards the empathy level of undergraduate nursing students at a private university in China, assessed using the IRI-C scale. A subquestion was included, and
data from the 644 students who completed the questionnaire were analyzed. For empathy levels of participants, the results showed that the mean empathy score of nursing students was 53.56 ± 8.98 (total score = 88), which indicates a moderate level of empathy. Detailed results are presented in Table 8.

**Table 8**

*Overall Empathy Scores of Undergraduate Nursing Students by IRI-C (N = 644)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective taking</td>
<td>12.39</td>
<td>3.29</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Personal distress</td>
<td>10.82</td>
<td>3.91</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Fantasy</td>
<td>15.04</td>
<td>3.41</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Empathy Concern</td>
<td>15.32</td>
<td>3.08</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Total IRI-C score</td>
<td>53.56</td>
<td>8.98</td>
<td>20</td>
<td>88</td>
</tr>
</tbody>
</table>

Despite the result of a moderate overall empathy level of nursing undergraduates, further analysis was necessary because the empathy levels of the two different types of students may have different characteristics, and these data require separate statistical analysis. The separate analysis result showed that 2-year post-secondary students scored slightly lower than 4-year undergraduate nursing students in terms of personal distress and fantasy, while scores in the other two dimensions were similar (see Table 9).
Table 9

Empathy Scores of Undergraduate Nursing Students by Program Type (N = 644)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-year undergraduate (N = 564)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspective taking</td>
<td>12.39</td>
<td>3.27</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Personal distress</td>
<td>10.86</td>
<td>3.88</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Fantasy</td>
<td>15.12</td>
<td>3.43</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Concern</td>
<td>15.31</td>
<td>3.09</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Total IRI-C score</td>
<td>53.68</td>
<td>8.85</td>
<td>20</td>
<td>88</td>
</tr>
<tr>
<td>2-year undergraduate (N = 80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspective taking</td>
<td>12.35</td>
<td>3.47</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Personal distress</td>
<td>10.51</td>
<td>4.13</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Fantasy</td>
<td>14.51</td>
<td>3.26</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Concern</td>
<td>15.36</td>
<td>2.99</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Total IRI-C score</td>
<td>52.74</td>
<td>9.84</td>
<td>20</td>
<td>79</td>
</tr>
</tbody>
</table>

The scores for the three items that were the highest were: (a) Item 1, “For those less fortunate than me, I often feel tender and concerned” (M = 2.99, SD = 0.82); (b) Item 3, “I get involved with the feelings of the characters in novels” (M = 2.8, SD = 0.99); and (c) Item 15, “I believe every issue has two sides, and I try to see both” (M = 2.73, SD = 0.87). The scores for the bottom three items were: (a) Item 21, “I break down when I see someone who has had an accident and is in desperate need of help” (M = 1.55, SD = 1); (b) Item 12, “After watching a
film or play, I feel as if I am one of the characters” ($M = 1.91, SD = 1.07$); and (c) Item 18, “I lose control during emergencies” ($M = 1.91, SD = 1.06$). Detailed results are presented in Table 10.

**Research Question 1a**

The two different types of students may have different characteristics; therefore, it was necessary to analyze the 4-year and 2-year undergraduates separately to examine whether there were differences in empathy levels of nursing undergraduates at a private university in China during their time at university. According to Pallant (2011), a line chart allows the variations of dependent-variable mean values in relation to a series of categorical variables to be determined. In this study, a normality test of the data, a line chart with error bars (95% confidence intervals), a two-tailed $t$ test, a one-way ANOVA, a MANOVA, and effect sizes were used to answer this question.

Descriptive analysis was first used to display the overall change in empathy levels. Table 11 and Figure 1 indicate that, for 4-year nursing undergraduates, the total score was higher after the beginning of their sophomore year but decreased for those in their senior year, while 2-year students showed a decline in empathy scores in the second year.
<table>
<thead>
<tr>
<th>Items</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 For those less fortunate than me, I often feel tender and concerned.</td>
<td>0</td>
<td>4</td>
<td>2.99</td>
<td>0.82</td>
</tr>
<tr>
<td>2 I do not feel sorry for people who are in trouble.</td>
<td>0</td>
<td>4</td>
<td>2.58</td>
<td>1</td>
</tr>
<tr>
<td>3 I get involved with the feelings of characters in novels.</td>
<td>0</td>
<td>4</td>
<td>2.8</td>
<td>0.99</td>
</tr>
<tr>
<td>4 I tend to feel apprehensive and ill-at-ease in emergencies.</td>
<td>0</td>
<td>4</td>
<td>2.62</td>
<td>0.97</td>
</tr>
<tr>
<td>5 I usually watch movies or plays without feeling engaged.</td>
<td>0</td>
<td>4</td>
<td>2.6</td>
<td>1.00</td>
</tr>
<tr>
<td>6 I tend to see things from the standpoint of everyone else in an argument before taking a position.</td>
<td>0</td>
<td>4</td>
<td>2.51</td>
<td>0.89</td>
</tr>
<tr>
<td>7 I want to protect someone I see being taken advantage of.</td>
<td>0</td>
<td>4</td>
<td>2.47</td>
<td>0.93</td>
</tr>
<tr>
<td>8 I tend to feel helpless and indecisive when I am emotional.</td>
<td>0</td>
<td>4</td>
<td>2.26</td>
<td>1.04</td>
</tr>
<tr>
<td>9 I sometimes see things from another’s point of view in order to better understand them.</td>
<td>0</td>
<td>4</td>
<td>2.65</td>
<td>0.86</td>
</tr>
<tr>
<td>10 I rarely devote myself completely to reading a good book or watching a good film.</td>
<td>0</td>
<td>4</td>
<td>2.52</td>
<td>1.07</td>
</tr>
<tr>
<td>11 Other people’s misfortunes do not usually trouble me a great deal.</td>
<td>0</td>
<td>4</td>
<td>2.23</td>
<td>0.94</td>
</tr>
<tr>
<td>12 After watching a film or play, I feel as if I were one of the characters.</td>
<td>0</td>
<td>4</td>
<td>1.91</td>
<td>1.07</td>
</tr>
<tr>
<td>13 I panic or feel scared in tense emotional situations.</td>
<td>0</td>
<td>4</td>
<td>2.47</td>
<td>0.96</td>
</tr>
<tr>
<td>Items</td>
<td>Minimum</td>
<td>Maximum</td>
<td>Mean</td>
<td>Std. deviation</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>------</td>
<td>----------------</td>
</tr>
<tr>
<td>14 I don’t often pity people being treated unfairly.</td>
<td>0</td>
<td>4</td>
<td>2.39</td>
<td>1.04</td>
</tr>
<tr>
<td>15 I believe every issue has two sides, and I try to see both.</td>
<td>0</td>
<td>4</td>
<td>2.73</td>
<td>0.87</td>
</tr>
<tr>
<td>16 I perceive myself as a somewhat soft-hearted person.</td>
<td>0</td>
<td>4</td>
<td>2.65</td>
<td>0.95</td>
</tr>
<tr>
<td>17 When I watch a good film, it is easy for me to put myself in the lead character’s shoes and understand his or her feelings.</td>
<td>0</td>
<td>4</td>
<td>2.66</td>
<td>0.90</td>
</tr>
<tr>
<td>18 I lose control during emergencies.</td>
<td>0</td>
<td>4</td>
<td>1.91</td>
<td>1.06</td>
</tr>
<tr>
<td>19 When I am mad at someone, I usually try to place myself in his or her position.</td>
<td>0</td>
<td>4</td>
<td>2.19</td>
<td>0.95</td>
</tr>
<tr>
<td>20 When I read an attractive story, I imagine what it would feel like to be in it.</td>
<td>0</td>
<td>4</td>
<td>2.54</td>
<td>0.95</td>
</tr>
<tr>
<td>21 I break down when I see someone who has had an accident and is in desperate need of help.</td>
<td>0</td>
<td>4</td>
<td>1.55</td>
<td>1</td>
</tr>
<tr>
<td>22 Before criticizing someone, I imagine what I would do in his or her place, and how I would feel.</td>
<td>0</td>
<td>4</td>
<td>2.31</td>
<td>0.94</td>
</tr>
</tbody>
</table>
Table 11

Total Empathy Scores of Nursing Undergraduates in Different Grades

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Minimum score</th>
<th>Maximum score</th>
<th>F/t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman (4-year)</td>
<td>198</td>
<td>53.03</td>
<td>10.09</td>
<td>20</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore (4-year)</td>
<td>128</td>
<td>54.55</td>
<td>7.79</td>
<td>32</td>
<td>80</td>
<td>$F = 2.27$</td>
<td>0.43</td>
</tr>
<tr>
<td>Junior (4-year)</td>
<td>146</td>
<td>54.71</td>
<td>7.99</td>
<td>34</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior (4-year)</td>
<td>92</td>
<td>52.23</td>
<td>8.48</td>
<td>31</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman (2-year)</td>
<td>34</td>
<td>53.76</td>
<td>11.29</td>
<td>20</td>
<td>79</td>
<td>$t = 0.80$</td>
<td>0.08</td>
</tr>
<tr>
<td>Sophomore (2-year)</td>
<td>46</td>
<td>51.98</td>
<td>8.66</td>
<td>38</td>
<td>72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1

Total Empathy Scores of Nursing Undergraduates in Different Grades
Further analysis examined whether statistical differences could be found among these empathy changes. According to Pallant (2011), tests of normality examined using Kolmogorov-Smirnov statistics always suggest violations of the assumptions of normality in larger samples; therefore, results of histograms and normal Q-Q plots are recommended for use in examining normal distributions in larger samples. Results such as the shape of the distribution in a histogram and the reasonable straight line in a Q-Q plot indicate normal distributions (Pallant, 2011). For the different grades, the total empathy scores appear to have reasonably normal distributions (see Figure 2); therefore, parametric tests, including the two-tailed $t$ test and one-way ANOVA were used to compare the means of the empathy scores of different grades. The findings ultimately indicated there were no statistically significant differences among nursing undergraduates’ empathy scores during their time at university.

In summary, the results for this research question showed empathy levels of undergraduate nursing students at a private university in China assessed on the IRI-C scale were moderate. They demonstrated higher levels of empathy in the perspective taking, fantasy, and empathy concern subscale than in the personal distress subscale. The empathy score of the 2-year students was slightly lower than that of the 4-year nursing undergraduates, and the descriptive analysis of the overall change in the empathy of nursing undergraduates showed an increase for the sophomore 4-year nursing students and a decline for the seniors, while for the 2-year students, empathy scores declined in the second year. However, these changes were not statistically significant.
The second research question explored the perceptions undergraduate nursing students have of empathy and of the nursing profession. The results showed that most of the 644 students (78.1%) considered empathy to be very important, 20.2% important, and the remainder (1.7%)
not important at all. Meanwhile, 34.9% of participants said they liked nursing, 6.7% said they did not, and 58.4% were unsure. As for whether they desired to enter the nursing profession after graduation, 64.4% said yes, 6.8% no, and 28.7% were unsure. Figure 3 presents a detailed breakdown of the results.

Most participants considered empathy to be important and desired to enter nursing after graduation. However, the attitude of most toward the nursing profession was uncertain, and most of them were not satisfied with the nurse-patient relationship as they had heard about or experienced it.

**Research Question 3**

The third research question used the IRI-C scale to probe the differences across groups regarding the empathy of undergraduate nursing students at a private university in China.

After examination of the normality of the distribution, an independent-samples $t$ test and effect size were conducted to compare the means of the total empathy scores for two-group demographic data (i.e., gender, birth status—only child or not, program type, and student-leadership background), and two-group empathy-related experiences (i.e., empathy-related learning, community-service, clinical-practice and clinical-visit experiences).

According to Cohen (1988), effect size represents the magnitude of the differences among the total mean values of different treatments and can be compared from study to study. According to Becker (2000), Hedges’s $g$ is better suited than Cohen’s $d$ for use as effect-size measurement for two groups whose $N$'s are not equal. Hedges’s $g$ can be interpreted similarly to Cohen’s $d$, with
0.2 considered a small effect size, 0.5 a medium one, and 0.8 large. No statistical significance was found in the two-group data and most of the effect sizes were very small. Detailed results are presented in Table 12.

For comparing the means of the empathy scores with more than two-group demographic data (including place of birth and family income) and perceptions of empathy and of the nursing profession, a one-way ANOVA and effect size were used. According to Becker (2000), partial eta squared is used as an effect-size measurement for more than two groups. Field (2009) and Pallant (2011), suggested interpretation for partial eta-squared as small = 0.01, medium = 0.06, and large = 0.14.

The results showed that statistical significance exists in relation to the perceptions of empathy and of the nursing profession. In terms of perceptions of the importance of empathy, participants were divided into three groups (Group 1 = not important at all; Group 2 = important; Group 3 = very important). There was a statistically significant difference at the \( p < .05 \) level in the empathy scores of these three groups: \( F(2, 641) = 35.35, p = .000 \). Despite reaching statistical significance, the actual differences in mean scores of the groups were moderate. The effect size, calculated using partial eta squared, was 0.099. Post-hoc comparisons using the Scheffe test indicated the mean score of Group 1 (\( M = 44.55, SD = 14.02 \)) was significantly lower than of Group 2 (\( M = 48.38, SD = 8.86 \)), and that the mean score of Group 2 (\( M = 48.38, SD = 8.86 \)) was significantly lower than Group 3’s mean (\( M = 55.05, SD = 8.30 \)).
Figure 3

Perceptions Nursing Undergraduates Have of Empathy and of the Nursing Profession

Figure 3.1 Perceptions on the Importance of Empathy

Figure 3.2 Perceptions on Nursing Profession

Figure 3.3 Perceptions on Desire to be A Nurse After Graduation

Figure 3.4 Perceptions on Nurse-Patient Relationship
Table 12

Comparisons of Mean Empathy Scores of Different Groups of Nursing Undergraduates

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
<th>df</th>
<th>t/F</th>
<th>p</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>105</td>
<td>52.93</td>
<td>9.59</td>
<td>0.94</td>
<td>642</td>
<td>t = -0.78</td>
<td>.43</td>
<td>Hedges' g = 0.08</td>
</tr>
<tr>
<td>Female</td>
<td>539</td>
<td>53.68</td>
<td>8.85</td>
<td>0.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only child?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>155</td>
<td>54.42</td>
<td>7.87</td>
<td>0.63</td>
<td>301.59</td>
<td>t = 1.49</td>
<td>.14</td>
<td>Hedges' g = 0.13</td>
</tr>
<tr>
<td>Yes</td>
<td>489</td>
<td>53.29</td>
<td>9.29</td>
<td>0.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year</td>
<td>564</td>
<td>53.68</td>
<td>8.85</td>
<td>0.37</td>
<td>642</td>
<td>t = 0.88</td>
<td>.38</td>
<td>Hedges' g = 0.10</td>
</tr>
<tr>
<td>2-year</td>
<td>80</td>
<td>52.74</td>
<td>9.84</td>
<td>1.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student leader?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>270</td>
<td>53.64</td>
<td>9.28</td>
<td>0.56</td>
<td>642</td>
<td>t = 0.18</td>
<td>.86</td>
<td>Hedges' g = 0.01</td>
</tr>
<tr>
<td>Yes</td>
<td>374</td>
<td>53.51</td>
<td>8.76</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>462</td>
<td>53.22</td>
<td>9.33</td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County/Township</td>
<td>102</td>
<td>54.24</td>
<td>8.52</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village</td>
<td>79</td>
<td>54.67</td>
<td>7.27</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't know</td>
<td>1</td>
<td>57</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family income (monthly)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;¥5000</td>
<td>56</td>
<td>53.95</td>
<td>9.49</td>
<td>1.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>¥5000~¥8000</td>
<td>120</td>
<td>54.15</td>
<td>8.14</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>¥8000~¥15000</td>
<td>217</td>
<td>53.02</td>
<td>7.84</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;¥15000</td>
<td>137</td>
<td>54.51</td>
<td>9.60</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't know</td>
<td>114</td>
<td>52.64</td>
<td>10.65</td>
<td>0.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathy-related learning experiences?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>486</td>
<td>53.28</td>
<td>8.99</td>
<td>0.41</td>
<td>642</td>
<td>t = -1.41</td>
<td>.16</td>
<td>Hedges' g = 0.13</td>
</tr>
<tr>
<td>Yes</td>
<td>158</td>
<td>54.44</td>
<td>8.91</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12 continued.

<table>
<thead>
<tr>
<th>Variables</th>
<th>$N$</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
<th>$df$</th>
<th>$t$</th>
<th>$p$</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical-practice experiences?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>403</td>
<td>53.56</td>
<td>9.09</td>
<td>0.45</td>
<td>642</td>
<td>$t = -0.01$</td>
<td>.99</td>
<td>Hedges' $g = 0.00$</td>
</tr>
<tr>
<td>Yes</td>
<td>241</td>
<td>53.56</td>
<td>8.80</td>
<td>0.57</td>
<td>642</td>
<td>$t = -0.64$</td>
<td>.52</td>
<td>Hedges' $g = 0.05$</td>
</tr>
<tr>
<td>Clinical visits?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>265</td>
<td>53.29</td>
<td>9.44</td>
<td>0.58</td>
<td>642</td>
<td>$t = -0.64$</td>
<td>.52</td>
<td>Hedges' $g = 0.05$</td>
</tr>
<tr>
<td>Yes</td>
<td>379</td>
<td>53.75</td>
<td>8.65</td>
<td>0.44</td>
<td>642</td>
<td>$t = -0.64$</td>
<td>.52</td>
<td>Hedges' $g = 0.05$</td>
</tr>
<tr>
<td>Perceptions of the importance of empathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not important at all</td>
<td>11</td>
<td>46.55</td>
<td>14.02</td>
<td>4.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Important</td>
<td>130</td>
<td>48.38</td>
<td>8.86</td>
<td>0.78</td>
<td>(2,641)</td>
<td>$F = 35.35$</td>
<td>.00*</td>
<td>$\eta^2 = 0.099$</td>
</tr>
<tr>
<td>Very important</td>
<td>503</td>
<td>55.05</td>
<td>8.30</td>
<td>0.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of the nursing profession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Like</td>
<td>225</td>
<td>55.53</td>
<td>7.99</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t like</td>
<td>43</td>
<td>50.98</td>
<td>13.37</td>
<td>2.04</td>
<td>(2,108.43)</td>
<td>Welch = 9.26</td>
<td>.00*</td>
<td>$\eta^2 = 0.15$</td>
</tr>
<tr>
<td>Not sure</td>
<td>376</td>
<td>52.68</td>
<td>8.72</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desires to become a nurse after graduation?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>415</td>
<td>54.13</td>
<td>8.28</td>
<td>0.41</td>
<td>(2,106.87)</td>
<td>Welch = 2.12</td>
<td>.08</td>
<td>$\eta^2 = 0.038$</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
<td>51.70</td>
<td>12.28</td>
<td>1.85</td>
<td>(2,106.87)</td>
<td>Welch = 2.12</td>
<td>.08</td>
<td>$\eta^2 = 0.038$</td>
</tr>
<tr>
<td>Not sure</td>
<td>185</td>
<td>52.72</td>
<td>9.47</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of the nurse-patient relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied</td>
<td>123</td>
<td>54.89</td>
<td>9.86</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>276</td>
<td>53.09</td>
<td>8.42</td>
<td>0.51</td>
<td>(2,641)</td>
<td>$F = 1.76$</td>
<td>.17</td>
<td>$\eta^2 = 0.005$</td>
</tr>
<tr>
<td>Don’t know</td>
<td>245</td>
<td>53.43</td>
<td>9.09</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* the mean difference is significant at the 0.05 level

In terms of enjoyment of nursing, participants were divided into three groups (Group 1 = yes; Group 2 = no; Group 3 = unsure). Statistically significant differences at the $p < .05$ level in
the empathy scores of these groups were also apparent: $F (2, 108) = 9.26, p = .000$. Not only were the statistical differences significant, but the effect size was large. The effect size, calculated using partial eta squared, was 0.15. Post-hoc comparisons using the Dunnett test indicated that the mean score of Group 1 ($M = 55.53$, $SD = 7.99$) differed significantly from that of the other groups, while Group 2 ($M = 50.98$, $SD = 13.37$) did not differ significantly from Group 3 ($M = 52.68$, $SD = 8.72$).

There were no statistically significant differences at the $p \leq .05$ level in empathy scores related to other factors, including place of birth, family income, desire to be a nurse after graduation, and perceptions of the nurse-patient relationship. Detailed results are presented in Tables 12 and 13.

In summary, the results show a statistically significant difference in perception of the importance of empathy; however, the effect size is small. In addition, a statistically significant difference was found in perceptions of the nursing profession, and the effect size was large. Those participants who perceived empathy as being particularly important, and enjoyed nursing, had higher scores than their peers.

For the differences in dimensions of empathy in undergraduate nursing students at a private university in China with demographic data, empathy-related experiences, and perceptions of empathy and of the nursing profession, a one-way between-groups MANOVA was conducted to explore the empathy differences of nursing undergraduates in the four dimensions of the IRI-C scale. These included perspective taking, personal distress, fantasy, and empathy concern and were used as dependent variables. The independent variables were demographic data, empathy-related experiences, and perceptions on the importance of empathy and nursing profession.
Table 13

Post-Hoc Tests for Total IRI-C Score

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean difference (I-J)</th>
<th>Std. error</th>
<th>Sig.</th>
<th>95% CI</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions of the importance of empathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(I)</td>
<td>(J)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Important</td>
<td>Important</td>
<td>-1.83916</td>
<td>2.67893</td>
<td>.790</td>
<td>-8.4119</td>
<td>4.7335</td>
</tr>
<tr>
<td></td>
<td>Very Important</td>
<td>-8.50822*</td>
<td>2.60029</td>
<td>.005</td>
<td>-14.8880</td>
<td>-2.1285</td>
</tr>
<tr>
<td>Important</td>
<td>Very Important</td>
<td>-6.66906*</td>
<td>.83940</td>
<td>.000</td>
<td>-8.7285</td>
<td>-4.6096</td>
</tr>
<tr>
<td>Perceptions of the nursing profession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(I)</td>
<td>(J)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Like</td>
<td>Don’t Like</td>
<td>4.55214</td>
<td>2.10784</td>
<td>.103</td>
<td>-.6557</td>
<td>9.7600</td>
</tr>
<tr>
<td>Not sure</td>
<td></td>
<td>2.84804*</td>
<td>.69740</td>
<td>.000</td>
<td>1.1775</td>
<td>4.5186</td>
</tr>
<tr>
<td>Not sure</td>
<td>Don’t Like</td>
<td>1.70411</td>
<td>1.42677</td>
<td>.490</td>
<td>-1.7964</td>
<td>5.2046</td>
</tr>
</tbody>
</table>

*Note.* the mean difference is significant at the 0.05 level

Results of preliminary assumption testing showed that there were no serious violations with the majority of the data, and I used Pillai’s criterion to evaluate multivariate significance to address instances where there were violations of the homogeneity of variance-covariance matrices (Tabachnick & Fidell, 2007).

Differences Between Only Children or Not Only Children

As to whether participants were only children or not, a statistically significant relationship was found for the combined dependent variables: $F(4, 639) = 3.63, p = .006$; Wilks’ $\Lambda = 0.98$; $\eta^2_p = 0.02$. When results for the dependent variables were considered separately,
the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of 0.0125, was empathy concern: \( F(1, 642) = 9.07, p = .003, \eta^2_p = 0.01 \). An inspection of the mean scores indicated that undergraduate nursing students who had siblings reported slightly higher levels of empathy concern \( (M = 15.96, SD = .25) \) than undergraduate nursing students who were only children in their families \( (M = 15.11, SD = .14) \).

**Differences Between Having Empathy-Related Training Experiences or Not**

A statistically significant difference was found between nursing undergraduates who did and did not have empathy-related training experience on the combined dependent variables: \( F(4, 639) = 2.51, p = .04; \) Wilks’ Lambda = 0.99; \( \eta^2_p = 0.02 \). When results for the dependent variables were considered separately, one area reached statistically significant differences using a Bonferroni adjusted alpha level of 0.0125: perspective taking: \( F(1, 642) = 7.49, p = .006, \eta^2_p = 0.01 \). An inspection of the mean scores indicated that undergraduate nursing students who had empathy-related training experience-reported slightly higher levels of empathy concern \( (M = 13.01, SD = 3.41) \) than those who did not \( (M = 12.19, SD = 3.23) \).

**Differences Between Having Community Service Experiences or Not**

There was a statistically significant difference for the combined dependent variables between nursing undergraduates who had community service experience and those who had not: \( F(4, 639) = 5.77, p = .00; \) Pillai’s Trace = 0.035; \( \eta^2_p = 0.04 \). When results for the dependent variables were considered separately, there were differences when arriving at statistical significance using a Bonferroni adjusted alpha level of 0.0125, for fantasy: \( F(1, 642) = 7.88, p = .005, \eta^2_p = 0.01 \), and empathy concern: \( F(1, 642) = 14.49, p = .000, \eta^2_p = 0.02 \). An inspection of the mean scores indicated that undergraduate nursing students who had community service
experience reported slightly higher levels of fantasy \( (M = 15.26, SD = 3.42) \) than undergraduate nursing students who did not have community service experience \( (M = 14.41, SD = 3.33) \), and undergraduate nursing students who had community service experience also presented with slightly higher levels of empathy concern \( (M = 15.59, SD = 3.06) \) than undergraduate nursing students without \( (M = 14.55, SD = 3.00) \).

**Differences Between Perceptions on the Importance of Empathy**

For perceptions on the importance of empathy, there was a statistically significant difference for the combined dependent variables: \( F(8, 1278) = 11.83, p = .000 \); Pillai’s Trace = 0.14; \( \eta^2_p = 0.07 \). When results for the dependent variables were considered separately, two differences evidenced statistical significance using a Bonferroni adjusted alpha level of 0.0125, which were perspective taking: \( F(2, 641) = 23.85, p = .000 \), \( \eta^2_p = 0.07 \); fantasy: \( F(2, 641) = 10.41, p = .000 \), \( \eta^2_p = 0.03 \), and empathy concern: \( F(2, 641) = 34.51, p = .000 \), \( \eta^2_p = 0.097 \).

Post-hoc comparisons using the Scheffe test indicated the mean score on perspective taking of nursing undergraduates who perceived empathy as being very important \( (M = 11.36, SD = 5.5) \) was slightly higher than nursing undergraduates who perceived empathy as being important \( (M = 10.71, SD = 3.43) \). The mean score of fantasy of nursing undergraduates who perceived empathy was very important \( (M = 15.35, SD = 3.43) \) was slightly higher than those who perceived empathy as being important \( (M = 14.03, SD = 3.17) \) and not important \( (M = 12.82, SD = 2.44) \). The mean score on empathy concern of nursing undergraduates who perceived empathy was very important \( (M = 15.82, SD = 2.96) \) was slightly higher than nursing undergraduates who perceived empathy as being important \( (M = 13.58, SD = 2.75) \) and nursing undergraduates who perceived empathy as not being important \( (M = 12.73, SD = 3.47) \). There
was no statistically significant difference between students who perceived empathy as important and those who did not for perspective taking, fantasy, or empathy concern.

**Differences Between Those Who Enjoyed the Nursing Profession and Those Who Did Not**

A statistically significant difference was found for those who enjoyed the nursing profession based on the combined dependent variables: $F(8, 1278) = 5.33, p = .000$; Pillai’s Trace = 0.07; $\eta^2_p = 0.03$. A separate consideration of the results for the dependent variables revealed disparities in reaching statistical significance using a Bonferroni adjusted alpha level of 0.0125, which were perspective taking: $F(2, 641) = 8.32, p = .000, \eta^2_p = 0.03$; fantasy: $F(2, 641) = 9.28, p = .000$, partial eta squared = 0.03, and empathy concern: $F(2, 641) = 11.27, p = .000, \eta^2_p = 0.03$.

Post-hoc comparisons employing the Dunnett test indicated that the mean score on perspective taking of those who enjoyed the profession ($M = 13.06, SD = 3.09$) was slightly higher than that of individuals who did not ($M = 11.37, SD = 4.49$); the mean score on fantasy of nursing undergraduates who liked the profession ($M = 15.82, SD = 3.23$) was slightly higher than that of the unsure subjects ($M = 14.63, SD = 3.36$); the mean score on empathy concern of nursing undergraduates who liked the profession ($M = 16.00, SD = 3.02$) was moderately higher than that of students who were not sure ($M = 15.06, SD = 2.94$), and nursing undergraduates who did not like nursing profession ($M = 13.98, SD = 3.77$), and the mean score of nursing undergraduates who were not sure that of participants who did not like it.

**Other Statistically Significant Differences**

A statistically significant difference was also found among all grades on the combined dependent variables: $F(20, 2552) = 1.97, p = .006$; Pillai’s Trace = 0.06; $\eta^2_p = 0.015$. When
results for the dependent variables were considered separately, the only difference to reach statistical significance using a Bonferroni adjusted alpha level of 0.0125, was empathy concern: $F(5, 638) = 4.16, p = .001, \eta^2_p = 0.03$. Post-hoc comparisons using the Scheffe test indicated the mean score of junior students’ empathy concern ($M = 16.15, SD = 2.99$) was slightly higher than sophomore students ($M = 14.91, SD = 2.83$) in the 4-year program.

The results also indicated a statistically significant difference between males and females on the combined dependent variables: $F(4, 639) = 4.77, p = .00; \text{Wilks’ Lambda} = 0.97; \eta^2_p = 0.03$. There was also statistical significance on the combined dependent variables adjusted for whether the participant was a student leader: $F(4, 639) = 2.71, p = .03; \text{Wilks’ Lambda} = 0.98; \eta^2_p = 0.02$. A statistically significant difference was found among different family monthly income groups on combined dependent variables: $F(16, 2556) = 1.31, p = .19; \text{Pillai’s Trace} = 0.03; \eta^2_p = 0.01$. In addition, a statistically significant difference was found on the combined dependent variables when factoring in the relevance of clinical practical experience: $F(4, 639) = 2.93, p = .02; \text{Wilks’ Lambda} = 0.98; \eta^2_p = 0.02$. Moreover, there was a statistically significant difference between nursing undergraduate students who had clinical visit experience and those who had not on the combined dependent variables: $F(4, 639) = 2.93, p = .02; \text{Wilks’ Lambda} = 0.98; \eta^2_p = 0.02$. However, when these results for the dependent variables were considered separately, none reached statistical significance when using a Bonferroni adjusted alpha level of 0.0125 to adjust for Type I error (false positive).
No Significant Differences Were Found Among Other Variables

No significant differences were found on the combined dependent variables across other data, including place of birth, course type, desire to be a nurse after graduation, nursing undergraduate students’ perceptions of the nurse-patient relationship.

The results of differences on the four dimensions or subscales of the IRI-C for undergraduate nursing students at a private university in China indicated no differences in the personal distress dimension. For the empathy concern dimension, junior nursing undergraduates presented higher levels than sophomore students in the 4-year program. Nursing students who had siblings, community service experience, and enjoyed the nursing profession all reported higher levels. However, these were not significant. In addition, the scores of nursing undergraduates who perceived empathy as being very important were higher than others, but the magnitude of the effect was moderate.

In summary, for the dimension of perspective taking, nursing undergraduates who had empathy-related learning experiences and enjoyed the nursing profession presented with a higher level than others, although the effects of both were relatively minor. Also, nursing students who perceived empathy as being very important reported a higher score than nursing undergraduates who perceived empathy as being important, with a moderate effect. Finally, for the fantasy dimension, nursing undergraduates who had community service experience and perceived empathy as being very important reported higher scores than others. In addition, nursing students who liked the nursing profession also presented with a higher score than those who were unsure. However, the effects of these were all insignificant.
Chapter Summary

This chapter presented the findings of this study regarding empathy levels and characteristics of undergraduate nursing students at a private university in China which were examined using the IRI-C scale. Three research questions were answered and numerous findings derived from the investigation.

The first research question explored empathy levels of undergraduate nursing students at a private university in China. The results indicated students had moderate levels of empathy, and higher scores in the perspective taking, fantasy, and empathy concern subscales than they did in the personal distress subscale.

The second research question sought to determine students’ perceptions regarding empathy and the profession. The results from descriptive analysis showed that across the entire sample, the majority considered empathy to be important and desired to be a nurse after graduation. However, the majority of their attitudes toward the nursing profession remained uncertain.

The third research question related to identifying factors concerning different empathy characteristics in undergraduate nursing students at a private university in China, as measured by the IRI-C scale. The t-test results, a one-way between-groups ANOVA, and effect sizes demonstrated statistically significant differences in perceptions of the importance of empathy and enjoyment of the profession on the total empathy score of the IRI-C scale. Participants who perceived empathy as being very important, along with a positive view of the nursing profession, had a higher score than others. The next chapter provides a summary and discussion of the findings, presents the strengths and limitations of this study, and provides future directions and implications for the field.
CHAPTER 5: DISCUSSION

This chapter begins with a review of methodology and research questions, followed by a summary and discussion of the findings. The chapter concludes with the strengths and limitations of the study, its potential implications for the field, and future directions for research and practice.

Review of Methodology and Research Questions

A cross-sectional study was conducted to gather data related to the research questions. In China, first-year nursing students primarily study general courses (e.g., English, computers, politics, history, literature) and basic medical courses (e.g., human anatomy, biochemistry, physiology). Hence, they lack sufficient clinical practice or understanding of clinical situations. Nursing undergraduates of all levels were involved in this study, and for this reason, the IRI-C scale, which is suitable for all students, was used. The participants completed questionnaires on Wen Juanxing (a platform resembling Qualtrics), with 644 out of 700 students completing the full IRI, for a response rate of 92%. The statistical analysis procedures included descriptive statistics, two-tailed t-tests, one-way analysis of variance, multivariate analysis of variance, and effect size.

Summary and Discussion of the Findings

Research Question 1

What is the level of empathy among undergraduate nursing students at a private university in China?

The research results indicated that, on the IRI-C scale, the overall empathy level of nursing undergraduates at the private university in China was moderate, scoring 53.56 ± 8.98 (full mark 88). This result might be related to the recent call for nursing-education reform, which
has emphasized the development of the capacity to provide humane care (including empathy), with faculty encouraged to make a conscious effort to cultivate empathy as part of their teaching. For example, at the private university in this study, teaching methods such as role-playing and integrated simulation have been used in professional training courses and could have contributed to undergraduate nursing students’ empathy scores.

Also, compared with related studies on nursing undergraduates’ empathy at public universities in China, the empathy score in this study was closest to that obtained by Li (2017) in a survey of 3-year higher vocational college students and 4-year undergraduate nursing students (53.46 ± 8.39). Furthermore, the empathy scores were slightly higher than results obtained by Yang et al. (2019) in a survey of 4-year undergraduate nursing students (51.67 ± 9.40), and Ma and Li (2012) in a survey of 4-year undergraduate nursing students (50.13 ± 9.35). However, the empathy score was lower than results obtained by Chen et al. (2013) in their study of empathy among undergraduate nursing students (57.45 ± 7.64). These differences may be related to regional differences, students' academic levels, curricula, and instructional settings, as mentioned in Chapter 2.

Among the four dimensions assessed, the empathy concern dimension received the highest score, and the personal distress dimension the lowest. As mentioned in Chapter 3, among the four IRI dimensions, fantasy measures the tendency or ability to envision oneself in a fictional scenario (e.g., movie or novel); perspective taking reflects the tendency or ability to see things from others’ perspectives. In short, they reflect the degree to which one is able or likely to put oneself in other people’s shoes. The other two dimensions reflect reactions to observed emotions, with empathy concern evaluating an individual’s desire to provide compassionate care and personal distress describing the potential fear and discomfort felt at the sight of another
person’s suffering (M.H. Davis, 1980). This finding is consistent with those of Zhu et al. (2016) and Li (2017), indicating that, in general, the empathy levels of nursing undergraduates studied here were moderate in terms of being able to grasp the perspectives of others and wanting to care for and help them. The fear and discomfort scores felt in the presence of suffering were slightly lower in comparison.

**Research Question 1a**

Are empathy levels different between student cohorts (i.e., year of study)?

The descriptive results showed there were differences in terms of overall empathy scores between cohorts. There was an increase in empathy for nursing undergraduates in the 4-year program from the first to sophomore year and a drop from junior to senior year. Also, there was a decline in empathy from the first year to the second year for nursing undergraduates who had upgraded from junior college. However, inferential analysis results showed the empathy score of nursing undergraduates at the private university in China did not change at a statistically significant level during their time at university.

This finding provided new evidence for the ongoing debate within the medical research field on changes in empathy levels. It partly supports findings that overall empathy of nursing students is relatively stable during their time at school and does not differ significantly between grades/years at study (Ferri et al., 2019; Ma & Li, 2012; McKenna et al., 2012; Mendes et al., 2019; Wilson et al., 2012; Yang et al., 2019; Zhu et al., 2016). This inconsistency with the results of other studies also needs to be considered (Hojat et al., 2009).

As mentioned in Chapter 2, the structure of empathy is multidimensional and complex, with various factors that may affect an individual’s level of empathy (e.g., national culture, religion, the current state of medical education, applicable policies, curricula, and the teaching
methods of faculty). Likewise, multiple instruments have been used in research to assess different aspects of empathy (e.g., cognitive, affective, behavioral, moral). Therefore, two aspects may contribute to the inconsistency found regarding empathy changes: (a) the assessment of different aspects of empathy in these studies, and (b) the possibility change may not occur in every aspect of empathy.

**Research Question 2**

What perceptions do undergraduate nursing students have of empathy and the nursing profession?

The second question asked nursing undergraduates about perceptions of empathy and the nursing profession: whether they believe empathy matters, whether they like nursing as a profession, and whether they would like to enter the nursing profession after graduation. The descriptive analysis indicated most respondents endorsed the importance of empathy and would like to become nurses after graduation. However, for attitudes toward nursing, a little over one-third (34.9%) responded that they enjoyed nursing and the majority (58.4%) responded they were not sure.

Surprisingly, in this study, most nursing students intended to enter the clinical nursing profession after graduating, yet as stated previously, many were not sure whether they liked the nursing profession. This finding may be because it is affected by the gender expectations surrounding professions. According to Leppel (2001), student gender is an important independent factor affecting choice of degree programs, with women usually choosing academic areas traditionally dominated by women, such as nursing. However, China has a large population with considerable competition for jobs, and it is relatively easy for nursing students to find work. The survey was conducted at the end of 2020, and students’ willingness to find employment in
the field may have been affected by the ongoing Covid-19 pandemic and the positive light in which it placed the medical professions in many media outlets.

**Research Question 3**

Are there differences across groups relate to the empathy of undergraduate nursing students at a private university in China?

The third research question was whether IRI-C scores revealed differences in empathy levels of nursing undergraduates regarding demographic variables, empathy-related experiences, and perceptions of empathy and of the nursing profession. The basic information included nine items: age, gender, monthly family income, course type, place of birth, personality, grade, if they were the only child in the family, and if they were a student leader. Empathy-related experiences included empathy-related learning experiences, community-service experience, clinical-internship experience, clinical-visit experience, attitude toward empathy, attitude of nursing profession, desire to be a nurse after graduation, and view of the patient-nurse relationship.

No statistical differences were found in empathy scores in relation to the respondents’ demographic variables across groups. However, significant differences in relation to attitudes toward the importance of empathy and perceptions of the nursing profession were found. Those who considered empathy as very important and expressed fondness for the nursing profession had significantly higher empathy scores.

Nursing undergraduates who responded that empathy was especially important had higher empathy scores, possibly because their belief in the importance of empathy motivated them to make it a part of their own practice. Nursing students who were not sure if they liked the profession and those who did not like it reported lower empathy levels than those who did.
Nursing is a profession that emphasizes caring and love (Nightingale, 1992), and nursing students may work harder to learn how to take care of patients and help them to regain their health if they love the profession. In other words, students who love nursing may be more likely to make the effort it takes to learn how to take care of patients well and apply what they learn in clinical settings.

For differences on the four dimensions of empathy scores across groups, the results indicate that nursing undergraduates with different demographic backgrounds and empathy-related experiences demonstrated differences in some aspects. In terms of demographic variables, females displayed higher personal distress and empathy concern scores than males. This finding is consistent with previous studies that found that females were generally more empathetic than males (Chen et al., 2013; Christina, 2012; Ferri et al., 2019; Petrucci et al., 2016; Williams et al., 2014). Although this gender difference has been found in some studies, other studies did not find a significant difference in empathy between males and females (Håkansson Eklund et al., 2019; Li, 2017; Ward et al., 2012).

Some authors and researchers have viewed empathy as a feminine trait and attributed the difference in empathy between males and females to evolution, with males having evolved to be more rational than emotive and females more receptive to emotions (Hojat et al., 2009; Williams et al., 2015). However, this may also be due to participants acceding to sex-role stereotypes or biases rooted in societal pressures and cultural identity.

Furthermore, cognitive biases may be a factor in the observed differences among genders. According to Wang (2011), an individual’s cognitive bias can affect the ability to accept or adopt others’ opinions. Differences in cognitive bias have been found to exist between men and women, with male students demonstrating it to a greater extent than females (Wang, 2011). Related,
Singer (2006) found men felt less empathy than women for someone they disliked; it was not clear whether the same applied to women. Overall, in daily life, females have been found to demonstrate empathy more readily than males (Chen et al., 2013). In addition, nursing undergraduates with siblings reported higher empathy concerns than single children in their families. This finding is consistent with existing research results in China (Chen et al., 2013; Yang et al., 2019) and may be attributable to a family structure in China that focuses on children’s ability to communicate with and understand each other to foster peace in the family, thus stimulating empathy concern in the group of nursing students with siblings.

In terms of empathy-related experiences, participants with empathy-related learning experiences scored higher on the perspective-taking dimension of empathy. Those students with community-service experiences reported higher fantasy and empathy concern scores; those deeming empathy to be vital, who also expressed fondness for the nursing profession, reported higher perspective taking, fantasy, and empathy concern scores. This result was not unexpected because it supported the idea that empathy can be taught and nurtured (Hojat et al., 2009). Christina’s (2012) survey of empathy among Greek nursing students also found higher levels of empathy in students who had been trained in ways of taking the perspectives of patients into account than those who had not. However, undergraduate nursing students who considered empathy important had higher empathy scores on the IRI-C, which could be explained by greater motivation to gain empathy-related training. Undergraduate nursing students could also be expected to have higher empathy levels because nursing itself is a discipline that focuses on care for others. Nursing students who enjoy, have been well-informed about, and have freely chosen this field likely would endeavor to advance their caregiving techniques and to a higher level of empathy that would facilitate caregiving.
Field Implications

The findings of this research may facilitate an understanding of empathy levels and other characteristics of nursing undergraduates at private universities in China (and elsewhere). The results provide further evidence that might be used to assess the current discrepant research results and offer guidance to nursing educators, school and hospital administrators, and health administrators.

Implications for Nursing Educators

As nursing education has developed in China, enhancing nursing students’ humanism has become an important task for nursing educators. Empathy offers a bridge of communication between nursing staff and patients. This study found only a moderate level of empathy among undergraduate nursing students at a private university in China. It is not a disappointing result, but not yet a satisfactory one. For this reason, I propose ways nursing educators could attempt to bring about improvement to enhance the quality of clinical care and the nurse-patient relationship.

Reform Teaching Content and Approaches: Increasing Opportunities for Empathy-Related Instruction

This study aimed to help nursing educators learn more about (a) the current status of empathy, (b) ways to enhance it, and (c) other characteristics of nursing undergraduates that may impact their empathy for their patients. Some studies have shown that empathy is not a stable personality trait and can be inculcated through educational intervention (Hojat, 2007; Hojat et al., 2013). Nursing educators need to reexamine the current curriculum and pedagogy, paying close attention to strengthening the development of student empathy as part of the instruction provided. Related interventions and approaches, as mentioned in Chapter 2, include creating new
empathy-related modules to cultivate student understanding of empathy and enhance related practices. Certified nursing educators could also provide nursing students training with respect to communications and interpersonal skills, such as through practice seminars, code talk, or Balint groups.

In addition, increased opportunities for reflective practice in teaching and clinical-practice activities need to be provided to nursing students to deepen their understanding of patient feelings and to enable them to reflect on appropriate empathic responses. Nursing educators should consider making pedagogical reforms by incorporating narrative and offering simulation and experience-based teaching to increase student awareness of and experience with patient situations and accumulate experiences in emotional interactions and expressions.

**Tracking Nursing Student Empathy to Provide Targeted Training and Guidance**

According to Brunero et al. (2010), additional training for nursing students who already have high empathy scores might be expensive and unnecessary. However, given the role of empathy in nursing practice, I suggest nursing educators assess and track changes in the empathy profiles of their students, identify changes in their empathy levels in a timely manner, and offer additional relevant training and development to students with lower levels of empathy, such as creating empathy-related electives or setting up empathy-related extracurricular volunteer activities. Also, nursing educators should pay attention to the groups indicated in the research as needing additional empathy and offer them timely instruction and intervention. These may include male nursing undergraduates and those who are the only child in their families.

**Penetration of Professional Guidance, Enhancing Professional Identities of Students**

The research showed many current nursing undergraduates lacked a feeling of understanding and identification with the nursing profession. Generally, it appears the nursing
undergraduates who like the profession were those who had higher levels of empathy. Nursing educators should reflect on whether current nursing programs introduce the nursing profession appropriately to students. That is, nursing programs may want to consider (a) integrating professional activities and characteristics into nursing education, (b) paying more attention to enhancing the understanding nursing students have of the profession, and (c) cultivating nursing students’ sense of identification with the nursing profession.

**Implications for Nursing Undergraduates**

In accordance with the American Nurses Association document, the ability to empathize is a core competency of undergraduate nursing students. Students in undergraduate nursing programs will be the future leaders of patient care in clinical settings. They will take on leadership roles, interacting with other medical staff and patients and their families, so empathy is likely an important factor in nursing. Empathy also likely is important for improving the efficiency of teamwork and constructing healthy doctor-nurse and nurse-patient relationships (Li, 2017). Hence, there should be an awareness among undergraduate nursing students of the importance of empathy in the nursing profession. This study demonstrated that, although most nursing students agreed that empathy is important, they lacked a sense of identification with this profession.

In addition, the results of this study indicated most students were aware of the significance of empathy, and nursing students who considered empathy to be of great importance scored significantly higher on the empathy scale. This finding indicates a need for nursing students to expand their knowledge concerning the value of empathy as a foundation for shared leadership in providing high-quality holistic care to patients in clinical practice. If students realize the importance of empathy, their enthusiasm to proceed on the nursing profession path
might increase. Such a process may also prepare undergraduate nursing students to explore their potential contributions to clinical-practice outcomes and to develop the ability to provide humane care.

The results also indicated that the undergraduate nursing students in this study tended not to understand what the nursing profession is. Only by understanding the nursing profession and following the field’s requirements as they develop their core competencies in relation to future clinical work will they be able to become qualified nurses and top patient-care leaders. Accordingly, I suggest nursing students are made aware of the need to update their perceptions of the nursing profession throughout their studies, take an active part in professional development and career planning, and give thought to their post-graduate career plans.

**Implications for Universities and Hospitals**

This study may help schools and hospital administrators gain insight into how nursing students are cultivated during their education. Schools and hospital administrators should keep a watchful eye on nursing students’ empathy when they are at school or engaged in hospital practice and reflect on how to provide them efficient and effective support. Administrators should also examine current policies to enhance nursing students’ empathy.

Empathy is viewed in the literature as fundamental to the nursing profession (Li, 2017); as such, schools and universities need to define its role and importance and consider it when formulating programs and teaching plans for undergraduate nursing students. This study found that undergraduate nursing students who had participated in social-service projects and had gained empathy-related learning experiences scored higher in areas such as empathy concern. Therefore, schools might explore additional ways to encourage these students to participate in
social-service or volunteer projects. Also, schools can consider conducting lecture series and preparing educational guidebooks to promote nursing students’ empathy-related learning.

For the current sample, once students enter clinical practice after their junior year, schools and hospitals may need to reemphasize the role of empathy in clinical work and train their clinical instructors to serve as role models. Also, I suggest that hospitals assess student empathy levels before they enter clinical settings and keep a watchful eye on their empathy progress during internship. Students with lower levels of empathy should first attend related training or study and pass this task before entering the clinic. Researchers have found a negative correlation between empathy levels and burnout for clinical nurses; therefore, hospitals should work to ensure reasonable work schedules and provide support to nursing students during their placements to try to stave off burnout.

**Implications for Policy Makers**

The findings from this study could also help health policy makers. In 2018, the National Health Commission of the People’s Republic of China stated that training nursing students and nurse clinicians in humane care would be implemented. This study provides feedback on the implementation of these policies for health policy makers regarding the importance of cultivating nursing students’ empathy while stressing the essence of nursing - caring and love (Nightingale, 1992). Health policy makers should investigate current policies and projects as a basis for improvements in the capacity of nursing students and nurse clinicians for human connections while enhancing their quality of care and patient satisfaction.

**Strengths of this Research**

This study’s first strength is that it provides potentially relevant information about nursing undergraduates’ empathy at a private university in China. According to a report by Li et
al. (2014), over the past 10 years, only a few papers have appeared related to the status of empathy among nursing undergraduates in China; and the undergraduates involved in these studies mainly came from public universities. Since 1993, the ANA has emphasized that nursing should shift focus toward a comprehensive and caring model and that nursing educators and clinical care administrators need to pay more attention to the empathy of nursing students and interns. Based on that call, the main purpose of this study was to supplement the understanding researchers have of the nursing students’ empathy and offer new evidence for changes that may take place in the levels of empathy of nursing undergraduates.

Another strength is the study had a high response rate, and the demographic distribution of the respondents was in accordance with that of Chinese nursing students overall, making it relatively representative. Moreover, the research tool (the IRI scale) used in this study has been extensively adopted in both China and the West. Studies conducted using the same research tool allow for the different groups being studied to be compared. Despite this strength, some of the items on the scale do not appear to measure empathy. For example, when someone scores a 0 on Item 18, “I lose control during emergencies,” it may not imply one lacks empathy, but one has a lot of empathy, and they stay calm during emergencies because they know that what is required to handle a tough situation. Therefore, the measure may be in need of revision.

**Limitations**

Given the constraints in terms of time and resources, this study inevitably had some limitations. The researcher gave priority to the convenience-sampling method, with the subject university being a private university in Eastern China. The institution’s regional characteristics, located in a relatively well-developed region of China, restricted the degree to which the results
can be generalized. In addition, with many factors related to nursing students’ empathy, this study could not include all of them.

Furthermore, this study was only able to analyze the levels of empathy and difference in these levels during the period in which nursing students attended a private university in China and completed the cross-sectional survey. Therefore, longitudinal research is needed before strong conclusions can be drawn.

**Directions of Future Research**

Researchers should seek to examine larger sample sizes, compare the empathy of nursing students cross-culturally across countries, provinces, and educational backgrounds to establish a model for understanding empathy of nursing students that could lead to more universal conclusions. The cross-sectional survey in this study provided information on whether nursing students’ empathy was different in regard to their time at school. Longitudinal studies should also be developed to explain why third-year students’ empathy has been found to decline dramatically at some schools while increasing significantly at others. Moreover, a greater understanding of what students are taught and when in their curricula and the points at which their empathy changes may highlight when interventions would be most successful. Case studies and qualitative studies are recommended to gain a greater understanding of the variables regarding potential changes in empathy across years of study.

Researchers also should focus on studying factors that might influence empathy to provide guidance on how to formulate effective intervention strategies to cultivate empathy in nursing students. Furthermore, due to the complex structure of empathy, researchers should consider adopting more than one assessment tool when conducting surveys to carry out comprehensive assessments and evaluations of empathy. Related, qualitative studies are
warranted that examine empathy in nursing students that could provide a more in-depth understanding of nursing students’ concepts regarding empathy and their lived experiences.

**Conclusion**

Understanding the level of empathy of nursing student undergraduates and its factors is important to the nursing profession, although results to this point have varied. The purpose of this study was to assess the empathy levels of nursing students by exploring the level and characteristics of empathy among Chinese nursing undergraduates at a private university. The results demonstrated that the empathy scores of these undergraduates were moderate and perhaps require enhancement. Further, more attention needs to be paid to male nursing undergraduates' empathy and those who are only children, given these variables were related to lower empathy scores. The understanding nursing students have of empathy and of the nursing profession should be strengthened. The current situation indicates that researchers should explore why nursing majors’ empathy levels change and effective means of intervention for those with lower empathy to support a move to increase empathy levels displayed by the future nurses of China.
REFERENCES


Curtis, J. R. (2014). Interprofessional communication skills training for serious illness:
evaluation of a small-group, simulated patient intervention. *Journal of Palliative
Medicine, 17*(2), 159–166. https://doi.org/10.1089/jpm.2013.0318
Bentley, P. G., Kaplan, S. G., & Mokonogho, J. (2018). Relational mindfulness for psychiatry
residents: A pilot course in empathy development and burnout prevention. *Academic
Bond, A. R., Mason, H. F., Lemaster, C. M., Shaw, S. E., Mullin, C. S., Holick, E. A., & Saper,
*Medical Education Online, 18*(1), 1–8. https://doi.org/10.3402/meo.v18i0.20699
https://doi.org/10.1111/j.1525-1446.1994.tb00194.x
146*(1), 10–19. https://doi.org/10.1176/ajp.146.1.10
Cao, X., & Wang, X. (2020). 护生共情能力现状调查及三维共情培育体系的构建
[Investigation on the status quo of empathy ability of nursing students and construction of three-dimensional empathy cultivation system]. China Higher Medical Education, 1, 74 – 76.

[Investigation and analysis on the empathy ability of undergraduate nursing students in Lanzhou University]. Medical and Health, 42(1), 95–96.


https://doi.org/10.3109/0142159X.2013.802300


https://doi.org/10.1046/j.1365-2923.2002.01234.x


https://doi.org/10.5116/ijme.533f.0c41


https://doi.org/10.1177/00131640121971158


https://doi.org/10.1097/ACM.0b013e3181b17e55


https://doi.org/10.1186/1472-6963-14-249


https://doi.org/10.1097/01.ACM.0000222271.52588.01


https://doi.org/10.1046/j.1365-2850.2002.00510.x


Nightingale, F. (1992). *Notes on nursing: What it is, and what it is not.* Lippincott Williams & Wilkins.


APPENDICES

Appendix A

A Survey on Empathy among Nursing students at a Chinese Private University

(Chinese Version)

亲爱的同学： 你好！ 本问卷调查是针对中国民办高校护理本科生同理能力的一项调查，

你的参与完全是自愿和匿名的。本问卷主要在中国一所民办高校中调查护理本科生的同理

能力的现状。问卷包括两个部分：个人信息和同理能力。问卷结果只用于学术研究，对你

的信息绝对保密。请同学们认真阅读并完成问卷中的每一个问题。非常感谢你的大力支持！

知情同意书

研究课题：中国民办高校护理学生生活态度的探索研究

学生研究员：张媛媛，文学硕士
13817988667(中国)

电子邮箱：yuazhang@chapman.edu

研究组带头人：Dawn Hunter 博士
7674(美国)

研究组带头人：Busse Randy 博士
(714)997-6783(美国)

重要信息

我们邀请您参加一项研究。研究只针对自愿选择参加的人。研究小组的一名成员将向您解
释这项研究，并回答您可能提出的任何问题。您可以慢慢来决定是否参加。

如果您同意参与本次研究，项目将包括：

- 年龄在 18-24 岁之间的护理本科大学生；
- 一份网络问卷调查；
- 完成这项调查将花费大约 10 分钟；
- 与这项研究相关的风险，不会超过通常在日常生活中会遇到的风险；
邀请

我们邀请您参加本次研究。此表中的信息旨在帮助您决定是否参加。如果您有任何问题，请提问。

我们为什么邀请您参加这个研究？

您被邀请参加这项研究是因为您是中国上海一所民办大学的护理大学生，而且您在这所学校的学

您被邀请参加本项研究的原因是什么？

护理是一门关于照护的科学。对待生活态度对护理学生而言非常重要。然而，有关本科护理学

在本次研究中，我们将做些什么？

您将被要求完成一项网络问卷调查。这项研究将要求您匿名提供一些例如您的年龄、性别等信

在这项研究中可能存在的风险是什么？

参与这项研究，您没有已知的风险。如果您在研究过程中有任何不舒服的感觉，您可以随时退出本研究。

参与这项研究，对您有什么好处？

您不会从这项研究中得到任何直接的好处。

对其他人可能的好处是什么？

对科学和/或社会的好处可能包括更好地理解本科护生的生活态度和特征。

参与这项研究将让您花费什么？

参与这项研究不会让您有任何花费。

您参与这项研究有报酬么？

您参与这项研究不会有任何报酬。

如果您在本次研究中遇到问题，您应该怎么做？

您的福祉是研究小组每个成员关心的主要问题。如果您的问题是因参与这项研究而直接产生的，您应该立即联系本知情同意书开头所列的人员中任何一人。
如何保护您的信息？
我们将采取合理措施保护您的隐私和研究数据的机密性。
这些数据将通过一个安全的服务器以电子方式存储，研究团队在研究期间和研究完成后的5年内只能看到这些数据。
只有研究团队成员、机构审查委员会以及法律要求的任何其他人、机构或赞助人才能查阅您的研究记录。来自这项研究的信息可能会在科学期刊上发表或在科学会议上陈述，但这些数据将以小组或汇总数据的形式报告，您的身份将被严格保密。

您作为研究对象的权利是什么？
您可以就本研究提出任何问题，并在同意参与研究前或研究期间回答这些问题。有关研究的相关问题，请与本表格开头所列的研究人员联系。有关您对本研究的权利或投诉的问题，请联系机构审查委员会(IRB)，电话(714) 628-2833或电子邮箱irb@chapman.edu。

如果您决定不参加这项研究，或者一旦开始就决定停止参与，会发生什么？
在研究开始之前、期间或之后的任何时间，因为任何原因，您可以决定不参加这项研究，或者您可以停止参加这项研究（即：退出）。决定不参加本次研究或决定退出不影响您与研究者、查普曼大学或上海杉达学院的关系。您不会失去任何您有权得到的利益。

知情同意文件记录
您自愿决定是否参加本次研究。签署本同意书即表示：(1) 您已阅读并理解本同意书；(2) 您已得到对本同意书的解释；(3) 您的问题已得到解答；(4) 您已决定参加本次研究。

参加人或合法监护人签名 日期

1. 知情同意书
我已阅读了“知情同意书”。在此，我同意在本研究项目中使用我提供的信息作为数据。我也会保留一份本同意书复印件作为个人记录保存。[单选题]
○同意
○不同意（请跳至第2问卷末尾，提交答卷）

第一部分 基本信息
以下是一些关于您的基本信息，请根据自己的实际情况选择相应答案即可。

1. 年龄【填空题】：__________________________
2. 性别：
   A. 男
   B. 女
3. 家庭生源地：
   A. 城市（市级）
   B. 县级与乡镇
   C. 农村
   D. 不知道
4. 课程类型：
   A. 普通本科课程
   B. 专升本课程
5. 年级：
   A. 大学一年级
   B. 大学二年级
   C. 大学三年级
   D. 大学四年级
6. 是否为独生子女？
   A. 是
   B. 否
7. 是否是学生领导？
   A. 是
   B. 否
8. 家庭月收入：
   A. 5000 元以下
   B. 5000–8000 元
C. 8000-15000 元
D. 15000 以上
E. 不知道

9. 是否接受过同理心相关的培训（例如沟通交流技巧、他人情感识别与回应、情商类培训等等）?
   A. 是
   B. 否

10. 是否参加过社会实践/社会服务?
    A. 是
    B. 否

11. 是否参与过临床实习类活动?
    A. 是
    B. 否

12. 是否参加过临床见习类活动?
    A. 是
    B. 否

13. 你认为同理心是否重要?
    A. 不重要
    B. 有点重要
    C. 非常重要

14. 你是否喜欢护理专业?
    A. 是
    B. 否
    C. 不知道

15. 毕业后是否计划从事临床护理工作?
    A. 是
    B. 否
    C. 不知道
16. 对于目前的医患关系，你的态度是（ ）
A. 满意
B. 不满意
C. 不确定

第二部分：人际反应指针量表

指导语：下面共有22个题目，每个题目用来描述你是否恰当，或说每个题目符合你的程度如何。0=完全不恰当，1=不恰当，2=还算恰当，3=恰当，4=非常恰当，就每一个题目当中，从0~4的5个数目当中哪一个数字适合你就在那个数字上打圆圈。

<table>
<thead>
<tr>
<th>题目</th>
<th>完全不恰当</th>
<th>不恰当</th>
<th>还算恰当</th>
<th>恰当</th>
<th>非常恰当</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) 对那些比我不幸的人，我经常有心软和关怀的感觉</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(2) 有时候当其他人有困难或问题时，我不为他们感到难过</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(3) 我的确会投入小说人物中的情感世界</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4) 在紧急的状况中，我感到担忧，害怕而难以平静</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(5) 在看电影或看戏时，我通常是旁观的，而且不经常全心投入</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(6) 在做决定前，我试着从争论中去看每个人的立场</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(7) 当我看到有人被别人利用时，我有点感到想要保护他们</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(8) 当我处于一个情绪非常激动的情况中时，我往往感到会无依无靠，不知如何是好</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(9) 有时我想像从我朋友的观点来看事情的样子，以便更了解他们</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(10) 对我来说，全心的投入一本好书或一部好电影中，是很少有的事</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(11) 其他人的不幸通常不会给我带来很大的困扰</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(12) 看完戏或电影之后，我觉得自己好像是剧中的某一个角色</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(13) 处在紧张情绪的状况中，我会惊慌害怕</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
当我看到有人受到不公平的对待时，我有时并不感到非常同情他们。

我相信每个问题都有两面观点，所以我尝试着从这不同的观点来看问题。

我认为自己是一个相当软心肠的人。

当我欣赏一部好电影时，我很容易站在某个主角的立场去感受他的心情。

在紧急状况中，我紧张的几乎无法控制自己。

当我对一个人生气时，我通常会尝试着去想一下他的立场。

当我阅读一篇引人的故事或小说时，我想像着：如果故事中的事件发生在我身上，我会感觉怎么样？

当我看到有人发生意外而极帮助的时候，我紧张的几乎精神崩溃。

在批评别人前我会试着想象：假如我处在他的情况，我的感受如何。

问卷到此结束，感谢您对本研究的大力支持！你的贡献对我们非常有帮助！
Appendix B
A Survey on Empathy among Nursing students at a Chinese Private University
(English Version)

Dear Students,

You are invited to participate in a survey on the Empathy of Nursing Undergraduates at a Chinese private University. Your participation is anonymous and totally voluntary. This survey consists of two parts: basic questions and the Interpersonal Reactivity Index Scale. The results will be used only for this research and your information will be kept confidential. Participation will only take approximately 10 minutes. Thanks a lot for your support.

Part I : General Information
The following questions aim to collect your general information, please choose your answers based on your own situations.

1. Age: _____________

2. Gender:
   A. Male       B. Female

3. Place of birth:
   A. City
   B. County or Township
   C. Rural areas
   D. I don’t know

4. Course type:
   A. 4-year Undergraduate Courses
   B. 2-year Undergraduate Courses

5. Academic year:
   A. First year
   B. Sophomore
   C. Junior
   D. Senior
6. Are you the only child in your family?
   A. Yes
   B. No

7. Are you a student leader?
   A. Yes
   B. No

8. Monthly family income:
   A. Less than 5,000 RMB Yuan
   B. 5000-8000 RMB Yuan
   C. 8,000-15,000 RMB Yuan
   D. Above 15,000 RMB Yuan
   E. I don’t know

9. Do you have empathy-related learning experience?
   A. Yes
   B. No

10. Do you have community-service experience?
    A. Yes
    B. No

11. Do you have clinical internship experience?
    A. Yes
    B. No

12. Do you have clinical visit experience?
    A. Yes
    B. No

13. What do you think about the importance of empathy?
    A. Not important at all
    B. Important
    C. Very Important
14. Do you like nursing profession?
A. Yes
B. No
C. I don’t know

15. Are you desire to be a nurse after graduation?
A. Yes
B. No
C. I don’t know

16. What is your attitude towards the current clinician-patient relationship?
A. Satisfied
B. Not satisfied
C. I don’t know

Part II:
Guidance: There are 22 statements below, each of which requires your indication on how it describes you or, more specifically, to what extent does it describe you. 0 = does not describe me well and 4 = describes me very well. When you have decided on your answer, please circle the answer.

| (1) For those who are less fortunate than me, I often have tender and concerned feelings. | Does not describe me well | Describe me somewhat | Describe me | Describes me well | Describes me very well |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

| (2) I would not feel sorry for those people who are in trouble. | Does not describe me well | Describe me somewhat | Describe me | Describes me well | Describes me very well |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |
(3) I do get involved with the feelings of the characters in novels.                  0  1  2  3  4
(4) I tend to feel apprehensive and ill-at-ease in emergencies.                 0  1  2  3  4
(5) I am usually objective when watching movies or plays, and I don’t often get engaged.  0  1  2  3  4
(6) I tend to see things from the standpoint of everyone else in an argument before making decisions.  0  1  2  3  4
(7) I would have a sense of protection when I see someone is being taken advantage of.  0  1  2  3  4
(8) I tend to feel helpless and don’t know what to do when I am in an emotional situation.  0  1  2  3  4
(9) I sometimes see things from my friends’ point of view in order to better understand them  0  1  2  3  4
(10) I rarely devote myself to reading a good book or watching a good film completely.  0  1  2  3  4
(11) Other people’s misfortunes do not usually trouble me a great deal.  0  1  2  3  4
(12) After watching a film or play, I would feel that I were one of the characters.  0  1  2  3  4
(13) I would panic or feel scared when I am in a tense emotional situation.  0  1  2  3  4
(14) I don’t often feel pity for them when I see people being treated in an unfair way.  0  1  2  3  4
(15) I believe that every question has two sides, thus I try to see the question through both sides.  0  1  2  3  4
(16) I would perceive myself as a pretty soft-hearted person. | 0 | 1 | 2 | 3 | 4
---
(17) When I watch a good film, it is easy for me to put myself in the leading character’s shoes to understand his or her feelings. | 0 | 1 | 2 | 3 | 4
---
(18) I would lose control during emergencies. | 0 | 1 | 2 | 3 | 4
---
(19) When I am mad at someone, I usually try to place myself in his or her position. | 0 | 1 | 2 | 3 | 4
---
(20) When I read an attracting story or novel, I would image what I would feel if these events were happening to me? | 0 | 1 | 2 | 3 | 4
---
(21) I would break down due to being nervous when I see someone having an accident and in desperate need of help. | 0 | 1 | 2 | 3 | 4
---
(22) Before criticizing someone, I would imagine what I would do if I were in his or her place and how I would feel. | 0 | 1 | 2 | 3 | 4

This is the end. Thanks a lot for your support.