

A Scoping Review on the Professional Self-Concept of Undergraduate Nursing Students

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Abstract: *Objective:* To conduct a scoping review of research on the professional self-concept (PSC) of undergraduate nursing students, comprehensively analyzing its status, influencing factors, and significance, and providing a reference for enhancing the PSC of undergraduate nursing students in China. *Methods:* Using the methodological framework of Arksey and O'Malley's scoping review, six literature databases were searched, including CNKI, Wanfang, Chinese Biomedical Literature Database, PubMed, Web of Science, and ScienceDirect. Studies on the factors influencing undergraduate nursing students' PSC from database inception to July 31, 2023, were reviewed and data extracted. *Results:* A total of 1,955 articles were retrieved, and 27 studies were included. The current status of PSC primarily focuses on self-perception. Factors influencing undergraduate nursing students' PSC are mainly individual and demographic, while external factors include various teaching methods and environments. PSC impacts professional maturity, mental health, self-concept, and pre-internship stress among nursing students. *Conclusion:* PSC profoundly influences undergraduate nursing students' future career choices and professional development. Nursing educators and administrators should adopt measures to enhance and improve PSC levels, thereby fostering a larger pool of nursing professionals.

Keywords: Undergraduate nursing students; Professional self-concept; Scoping review

Online publication: February 13, 2025

1. Introduction

Professional self-concept (PSC) refers to one's current understanding and full experience of their role, encompassing emotional and ideological expressions regarding this role^[1]. The professional self-concept of nurses is an internalized set of values and beliefs formed through their work processes, serving as a critical indicator and influencing factor for personal growth and career planning^[2,3]. Nursing students, as the reserve force of the nursing profession, have PSC levels directly tied to their job intentions, work enthusiasm, and clinical competencies.

In the nursing field, the PSC of nursing students has garnered increasing attention^[4]. However, a systematic review and evaluation of the definition and influencing factors of PSC in nursing are lacking in China. This deficiency hinders accurate guidance for subsequent interventions aimed at enhancing PSC levels among nursing

students.

A scoping review can provide a comprehensive overview of PSC research progress, significance, and practical applications, offering valuable information for its improvement. This study, based on the methodological framework of Arksey and O'Malley, aims to conduct a scoping review of PSC's definition, influencing factors, and significance, with the goal of offering effective recommendations for enhancing the PSC of undergraduate nursing students in China.

2. Materials and methods

2.1. Identifying the research questions

Currently, nursing schools lack a systematic review and evaluation of the definition of nursing PSC and its influencing factors on undergraduate nursing students. Therefore, this study focuses on the following questions:

- (1) What is the current status of nursing PSC?
- (2) What are the influencing factors of nursing PSC?
- (3) How does nursing PSC impact undergraduate nursing students?

2.2. Literature search

The search keywords in this study were developed based on the PCC framework ^[5], where the population (P) is undergraduate nursing students (baccalaureate nursing students/nursing undergraduates), the concept (C) is PSC, and the context (C) involves the definition, influencing factors, and significance of PSC.

Key search terms included “baccalaureate nursing students,” “nursing undergraduates,” “professional self-concept,” “护理本科生” (nursing undergraduates), “本科护生” (baccalaureate nursing students), and “专业自我概念” (professional self-concept). Searches were conducted in six databases: CNKI, Wanfang, Chinese Biomedical Literature Database, PubMed, Web of Science, and ScienceDirect. The search covered the inception of each database through July 31, 2023.

For Chinese databases, the CNKI search example was: (SU= ‘专业自我概念’) AND (SU= ‘本科护生’ OR ‘护理本科生’).

For English databases, the PubMed search example was: ((baccalaureate nursing students OR nursing undergraduates) AND (professional self-concept)).

2.3. Inclusion and exclusion criteria

- (1) Inclusion criteria:
 - (a) Articles published in Chinese or English with full-text availability.
 - (b) Studies with participants who are nursing undergraduates.
- (2) Exclusion criteria:
 - (a) Duplicate publications or articles without full-text access.
 - (b) Studies of other types, including systematic reviews, protocols, editorials, book reviews, conference abstracts, and news reports.

2.4. Literature screening and data extraction

The retrieved articles were imported into EndNote for duplicate removal. At least two researchers reviewed the

titles and abstracts to perform an initial screening based on the inclusion and exclusion criteria, removing irrelevant articles. A secondary screening was conducted by reading the full text to finalize the included articles.

Data extraction from the final included studies covered details such as the authors, year of publication, country, research objectives, research tools, and findings.

3. Results

3.1. Literature screening results

A total of 1,955 articles were retrieved. After removing 178 duplicates, 1,700 articles unrelated to the topic were excluded based on title and abstract screening. After a full-text review, 50 more articles were excluded, leaving 27 articles for final inclusion. Among them, 21 were in Chinese, and 6 were in English, published between 2009 and 2023. The literature screening process is shown in **Figure 1**.

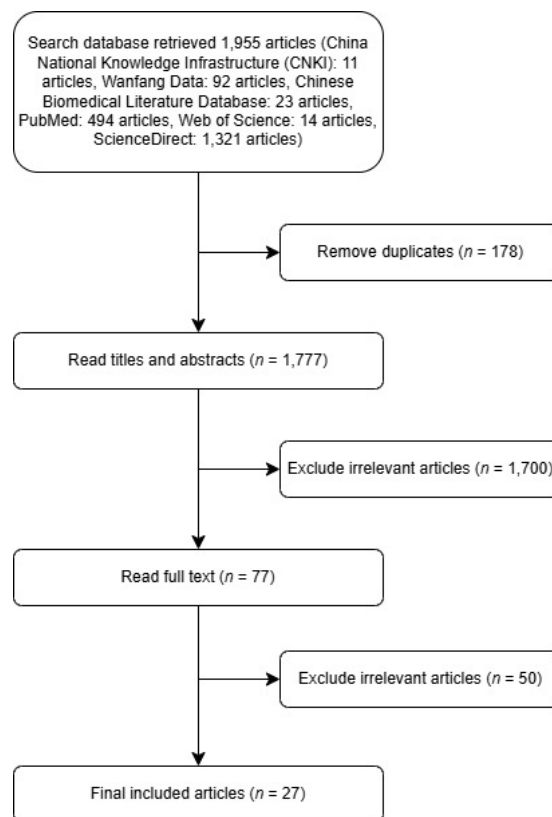


Figure 1. Flowchart of literature screening

The basic information of the included articles is shown in **Table 1**.

Table 1. Basic information of included articles

First author (year)	Country	PSC definition category	Research objective	Research tool	Key findings
Yanan Leng (2019) ^[1]	China	①④	To explore the relationship among PSC, clinical practice behaviors, and professional identity during internships	PSCNI, Self-Assessment Scale for Clinical Practice Behaviors, PIQNS	A clearer understanding of PSC is linked to more active clinical behaviors and a stronger professional identity
Chunzhi Yang (2023) ^[2]	China	①	To explore the relationship between professional self-concept (PSC) and career maturity in nursing undergraduates before internships	General information questionnaire, PSCNI, CMS	Higher PSC levels correlated with higher career maturity levels
Saumisa Mohajer (2023) ^[6]	Malaysia	④	To examine the impact of a hybrid professional portfolio learning model on PSC during internships	General information questionnaire, NPSC	The hybrid portfolio model improved various dimensions of PSC
Lu Zhou (2022) ^[7]	China	②	To explore how self-compassion and PSC mediate the relationship between perceived social support and mental health	SEM, Multigroup SEM	Increased perceived social support, self-compassion, and PSC promoted mental health, with PSC mediating between self-compassion and work practice
Guyong Yang (2022) ^[8]	China	②	To investigate the relationship between career ability development and PSC during clinical internships	PSCNI, General information questionnaire, Undergraduate Career Ability Scale	PSC increased during clinical practice; higher PSC linked to higher professional competence
Fangfei Lyu (2022) ^[9]	China	②⑤	To examine the levels and interrelationship of career maturity, psychological resilience, and PSC in senior nursing students	CMS, CD-RISC2, PSCNI	PSC directly or indirectly influenced career maturity via psychological resilience; PSC positively correlated with career maturity and resilience
Miao Huang (2021) ^[10]	China	②	To investigate the redefinition of PSC among nursing students during COVID-19 and its impact on professional attitudes	PSCNI, Nursing Professional Commitment Scale, Nursing Career Identity Scale	A deeper understanding of PSC was associated with stronger professional commitment and career identity
Yi-Chuan Chang (2021) ^[11]	China	②	To examine the growth trajectory of PSC over two years in students pursuing two-year or four-year nursing degrees	NSCI-C, CCTDI	Positive correlation between critical thinking affective disposition, classroom atmosphere, and PSC growth trajectory
Jing Zhang (2020) ^[12]	China	③	To explore the correlation between PSC and future time perspective among nursing undergraduates	PSCNI, GFTP	Broader future time perspective correlated with higher PSC levels
Min Zhu (2019) ^[13]	China	④	To investigate the status and influencing factors of PSC among applied nursing undergraduates	General information questionnaire, PSCNI	Gender, grade, choice of nursing as a preference and affinity for the profession influenced PSC
Aizhen Chen (2018) ^[14]	China	⑤	To assess the application of reflection-based teaching methods in clinical nursing education	PSCNI, Clinical Practice Ability Scale, Clinical Nursing Teacher Evaluation Scale	Reflection-based teaching improved PSC scores
Guirong Yang (2017) ^[15]	China	②	To investigate the correlation between self-concept and PSC	Tennessee Self-Concept Scale, PSCNI	Moderate positive correlation between self-concept and PSC
Shengfeng Wang (2017) ^[16]	China	④	To explore trends and factors influencing PSC in four-year nursing undergraduates	General information questionnaire, PSCNI	A positive influence of research participation, desired future job rank, and planned nursing career duration on PSC

Table 1 (Continued)

First author (year)	Country	PSC definition category	Research objective	Research tool	Key findings
Yumei Qi (2017) ^[17]	China	②⑤	To examine the impact of industry-academic collaboration on PSC	PSCNI	Industry-academic teaching models improved PSC levels
Wen Zhang (2016) ^[18]	China	②⑥	To analyze the correlation between anticipatory adaptation and PSC	Anticipatory Adaptation Scale, PSCNI	Stronger anticipatory adaptation linked to more positive PSC
Yansheng Ye (2016) ^[19]	China	②⑥	To explore the relationship between emotional resilience and PSC during internships	Adolescent Emotional Resilience Questionnaire, PSCNI	Better emotional resilience linked to higher PSC
Lingci Ou (2016) ^[20]	China	⑥	To study the relationship between nursing education environment, PSC, and critical thinking ability in private colleges	General information questionnaire, DREEM, PSCNI, CTDI-CV	A positive educational environment promotes the formation of positive PSC
Meichun Wu (2015) ^[21]	China	④⑥	To analyze the relationship between PSC and subjective career barriers and assess the impact of attribution training on PSC	General information questionnaire, PSCNI, Subjective Career Barriers Questionnaire	PSC is influenced by attitudes toward nursing, academic performance, and family income; attribution training stabilized professional attitudes
Qian Wu (2015) ^[22]	China	④	To explore the relationship among emotional intelligence (EI), PSC, and caring ability in undergraduate nursing students	General information questionnaire, EIS, PSCNI, CAI	Higher emotional intelligence is associated with stronger PSC and greater caring ability
Fangfei Lv (2015) ^[23]	China	②	To study the impact of case-based learning (CBL) on the PSC of nursing interns	PSCNI	Case-based learning significantly improves PSC in nursing interns
Wenping Zhang (2014) ^[24]	China	④⑥	To examine the relationship between depressive emotions and PSC in nursing undergraduates	PSCNI, SCL-90	Higher PSC levels are associated with lower scores on depressive factors, indicating better mental health
Li Zhang (2014) ^[25]	China	⑥⑦	To investigate the relationship among PSC, learning strategies, and learning engagement	PSCNI, College Student Learning Strategies Scale, College Student Learning Engagement Scale	Learning engagement and strategies are positively correlated with PSC
Hui Yuan (2014) ^[26]	China	④⑥	To explore the relationship between pre-internship stress and PSC in nursing undergraduates	Pre-Internship Stress Questionnaire for Nursing Undergraduates, PSCNI	PSC is negatively correlated with pre-internship stress
Yuxia Rao (2014) ^[27]	China	④⑥	To investigate the relationship between PSC and mental health in nursing undergraduates	PSCNI, SCL-90	PSC is negatively correlated with mental health issues
Xue Bai (2014) ^[28]	China	⑥	To investigate the status and influencing factors of PSC in intern nursing students	General information questionnaire, PSCNI	Gender, institutional attributes, origin, and choice of nursing influenced PSC dimensions
Haifeng Kang (2011) ^[29]	China	⑧	To explore the status and influencing factors of PSC among nursing undergraduates	PSCNI	Demographic variables have a predictive effect on PSC
Jose Maria (2009) ^[30]	Scotland	②	To explore the role of perceived emotional intelligence in the personality control dimension of PSC	TMMMS, NEO-FFI, TSCS	Positive correlation between clarity, emotional repair in perceived emotional intelligence, and PSC

Note: PSC definition categories: ①, Values and beliefs; ②, Self-perception; ③, Self-attitude; ④, Perception; ⑤, Key indicator of professional philosophy; ⑥, Reflection of professional behavior orientation; ⑦, Self-esteem; ⑧, Personal and self-characteristics related to occupation.

3.2. Definition of professional self-concept in nursing

Some studies suggest that professional self-concept is essentially a form of self-cognition. Lu Zhou ^[7], Guyong Yang ^[8], and Miao Huang ^[10] propose that professional self-concept in nursing is a self-cognition formed by nursing students during their transition to becoming nurses, reflecting their professional philosophy.

Other studies argue that professional self-concept is a type of perception. Research by Saumisa Mohajer ^[6], Min Zhu ^[13], and Yanan Leng ^[11] suggests that professional self-concept in nursing represents a sustained series of professional attitudes associated with the profession, reflecting nursing professionals' perceptions of their knowledge, self-esteem, and professional behavioral orientation.

Chunzhi Yang and colleagues ^[2] describe professional self-concept in nursing as internalized values and beliefs, encompassing information and beliefs about roles, values, and behaviors. Other studies argue that professional self-concept is a form of self-attitude ^[12], self-esteem ^[25], or a collection of professional, self-related traits ^[30].

3.3. Influencing factors of undergraduate nursing students' professional self-concept

3.3.1. Personal factors

An analysis of the included literature reveals that demographic factors influencing nursing students' professional self-concept include gender, whether they are the only child, academic year, place of origin, and affinity for nursing.

Haifen Kang ^[29] found that gender significantly impacts the overall score and satisfaction dimension of professional self-concept among nursing undergraduates, with male students scoring lower in overall professional self-concept, flexibility, and skill dimensions than female students. This finding aligns with Min Zhu's research ^[13]. Additionally, being an only child affects the skill dimension, with non-only children scoring higher than only children ^[29].

Academic year significantly influences the overall average score and various dimensions of professional self-concept, with findings from Haifen Kang ^[29] and Min Zhu ^[13] showing that nursing students' professional attitudes have matured over the years. Place of origin notably affects communication dimensions ^[29], differing slightly from Xue Bai's findings ^[28], which suggest that students from urban areas score higher in communication and satisfaction dimensions than those from rural areas.

Some studies indicate that students' affinity for nursing positively correlates with higher professional self-concept scores ^[10,13,21]. Meichun Wu and colleagues ^[21] found that students' average grades and family per capita income also influence their professional self-concept. Regarding voluntary choice, research by Xue Bai ^[28] and Min Zhu ^[13] shows statistical significance only in the satisfaction dimension.

Shengfeng Wang ^[16] found that factors such as teachers' enthusiasm for nursing research, future career duration, and desired professional titles significantly influence professional self-concept.

Beyond demographic factors, personal attributes such as self-concept, emotional intelligence, learning strategies, and critical thinking also play roles. Guirong Yang ^[15] found a moderate positive correlation between self-concept and professional self-concept. Research by Yansheng Ye ^[19], Qian Wu ^[22], and Jose Maria ^[30] show that emotional intelligence, emotional resilience, and perceived emotional abilities are positively correlated with professional self-concept.

Li Zhang ^[25] concluded that higher levels of learning strategies lead to a more positive professional self-concept. Yi-Chuan Chang ^[11] found that critical thinking promotes positive growth in professional self-concept

over a 2–4 year trajectory. Jing Zhang^[12] demonstrated that broader future time perspectives correlate with higher professional self-concept levels, while Wen Zhang^[18] noted that stronger forward adaptability predicts a more positive professional self-concept among nursing interns.

During the COVID-19 pandemic, Miao Huang^[10] observed that professional commitment and occupational identity positively influenced professional self-concept. However, Guyong Yang^[8] found that while professional self-concept increased during clinical practice, the impact of professional competence on self-concept remains unverified.

3.3.2. External factors

Teaching methods influence undergraduate nursing students' professional self-concept. Research by Aizhen Chen^[14], Yumei Qi^[17], and Fangfei Lv^[23] indicates that reflective teaching methods based on objective teaching and case-based learning (CBL) can enhance professional self-concept. Industry-education-research teaching models also improve professional self-concept.

Saumisa Mohajer^[6] discovered that professional portfolio learning plans enhance nursing undergraduates' professional self-concept in clinical practice. Social and environmental factors also play a role. Lingci Ou^[20] found that better nursing education environments foster more positive professional self-concepts. Lu Zhou^[7] showed that social support promotes professional self-concept, while Yi-Chuan Chang^[11] found that classroom atmosphere positively impacts professional self-concept growth.

Institutional attributes also influence professional self-concept. Xue Bai^[29] found that students from Western medical universities scored higher in professional self-concept than those from traditional Chinese medical universities.

3.4. Significance of professional self-concept in nursing

Professional self-concept significantly impacts the career development of undergraduate nursing students. Studies by Chunzhi Yang^[2], Fangfei Lyu^[9], Miao Huang^[10], and Yanan Leng^[1] indicate that higher professional self-concept levels correlate with greater career maturity and stronger professional identity.

Notably, there is debate regarding the impact of professional self-concept on mental health. Research by Lu Zhou^[7] and Wenping Zhang^[24] suggests that higher professional self-concept scores indicate better mental health among nursing students. In contrast, Yuxia Rao^[27] found that higher professional self-concept levels correlate with poorer mental health.

Guyong Yang^[8] observed that professional self-concept affects the development of professional competence. Guirong Yang^[15] found a positive correlation between professional self-concept and self-concept, with both exerting positive influences. Earlier studies by Hui Yuan^[26] found that higher awareness of professional self-concept reduces pre-internship stress among nursing undergraduates.

4. Discussion

4.1. Nursing professional self-concept reflects professional behavioral orientation

American occupational psychologist Super proposed in his career development theory that professional self-concept is a component of an individual's overall self-concept and plays a central driving role in career choice and development^[31]. Earlier international studies provided valuable data and insights for clinical nursing practitioners,

educators, and managers, expanding the scope of nursing research and advancing the global exploration of self-concept and professional self-concept in the nursing field ^[32].

With the increasing number of undergraduate nursing graduates each year, they are becoming the backbone of the nursing workforce in China. Therefore, nursing educators should assess the professional self-concept of nursing students early, implement measures to stabilize their professional self-concept and help establish clear professional behavioral orientations.

4.2. The complex factors influencing undergraduate nursing students' professional self-concept

The factors influencing PSC are complex, encompassing personal factors as well as educational methods, teaching environments, and the broader healthcare system ^[2,22]. Variations in whether a student is an only child, family income, or place of origin ^[21,28,29] may result from differences in familial and societal circumstances. Differences in PSC scores across academic years stem from varying levels of exposure to the nursing profession, shaping students' perceptions ^[13,29]. Subjective factors like affinity for nursing and choice of major also lead to differences in PSC scores ^[13,28].

Beyond personal factors, the impact of the teaching environment and educational methods on PSC cannot be ignored. Classroom atmosphere, for instance, can create a positive learning environment that increases students' interest in nursing ^[11]. Reflective teaching models based on objective-oriented teaching, CBL, and industry-education-research models effectively combine theory with practice to enhance PSC ^[6,14,17,23].

Nursing educators should prioritize understanding students' attitudes toward nursing, develop actionable strategies to cultivate positive and stable professional attitudes, and continuously improve PSC. They should also recognize the unique characteristics of students at different educational levels and academic years, paying special attention to those in the bottom one-third of academic performance ^[25].

To achieve this, efforts should focus on optimizing humanities courses, strengthening practical training, and increasing clinical behavior practice. Effective teaching models such as CBL and industry-education-research approaches should be employed during academic study. During internships, hospitals should select competent clinical nursing instructors as mentors. Nursing managers could encourage undergraduate nursing students to actively participate in nursing research to foster positive PSC, ensure workforce stability, promote nursing discipline development, and enable hierarchical management within clinical hospitals. This approach allows nurses with different educational backgrounds and qualifications to maximize their potential and ignites enthusiasm among undergraduate nurses ^[16].

4.3. Insights for the rational application of professional self-concept

PSC has a significant impact on nursing students' future career choices, and improving and stabilizing PSC is crucial for the nursing profession's development. Nursing educators should update training programs in line with clinical changes to enhance students' understanding of PSC, internalize professional commitment, and strengthen professional identity ^[10].

PSC not only affects career maturity but also has implications for students' mental health. A study analyzing the prevalence of depression among Chinese university students from 1997 to 2015 found a prevalence rate of 23.8% ^[33]. In the context of PSC, perceptions of satisfaction and skills are key factors contributing to depressive emotions. Affirming professional values and abilities is critical for preventing depression among nursing

undergraduates.

Therefore, educators should pay close attention to students' daily lives and mental health, focusing on improving professional satisfaction and comprehensive skills. They can also encourage students to enhance their PSC through extracurricular resources, such as books and online materials, to support nursing PSC education.

5. Conclusion

This study systematically reviewed and analyzed the meaning, influencing factors, and significance of PSC in undergraduate nursing students. Current research, both domestically and internationally, has focused primarily on the status quo and influencing factors of PSC in undergraduate nursing students, with limited exploration of systematic and standardized strategies to enhance PSC. Future research should prioritize qualitative and interventional studies in this area to develop effective strategies for improving PSC. Such efforts will provide theoretical guidance and practical evidence for enhancing the professional self-concept of undergraduate nursing students, increasing their career maturity, stabilizing and improving their employment rates in the nursing industry, and cultivating more qualified nursing professionals to advance the field.

Disclosure statement

The authors declare no conflict of interest.

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