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The status of professional identity and professional self-efficacy of nursing students in China and how the medical documentaries affect them: A quasi-randomized controlled trial

Bingmei Guo ^{a, b}, Lin Zhao ^a, Yuanpeng Gao ^a, Xue Peng ^a, Yun Zhu ^{c, *}^a School of Nursing, Shandong University, Jinan, People's Republic of China^b Qilu Hospital of Shandong University, Jinan, People's Republic of China^c Party Committee Office, Shandong Provincial Hospital Affiliated to Shandong University, Jinan, People's Republic of China

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ABSTRACT

Objectives: Professional identity and self-efficacy are important for the education and career development of students. However, how to improve these factors among Chinese nursing students needs further study. This quasi-randomized control trial was designed to explore the effect of medical documentaries on professional self-efficacy and identity among nursing students in Chinese technical schools.

Methods: A total of 277 nursing students were enrolled in this study and divided into an experimental group ($n = 135$) and a control group ($n = 142$). The experimental group was invited to watch Chinese medical documentaries, whereas the control group remained on a waiting list. A self-designed general questionnaire, along with professional identity and professional self-efficacy questionnaires, was completed by the nursing students.

Results: No significant change in professional self-efficacy was observed (-3.55 ± 14.23 , $P = 0.173$) in the experimental group, while professional identity significantly declined (-6.24 ± 12.85 , $P = 0.002$) after the intervention. No significant change was found in the two aspects in the control group.

Conclusion: Medical documentaries negatively affect professional identity but do not affect professional self-efficacy. Further researches should be conducted to explore the real reasons.

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1. Introduction

Nurses are important in healthcare institutions. However, the continued decline in annual recruitment [1] and attrition rate of nurses [2] have led to a growing worldwide shortage [3], which may affect the quality of care they provide. Finding a qualified nurse is money and time consuming; hence, nursing educational facilities should develop a teaching system that encourages nursing students to continue in this career and prepares them to an ever-changing healthcare environment [4].

Nursing students in Chinese technical schools are trained for 3 years in basic medical knowledge and operating techniques after they finish junior high school. These students share unique features. First, most of the students are approximately 18 years old;

student of this age may not have any strong opinions about a future job, which means their professional value could still be shaped through education [5]. Second, the educational system of Chinese technical schools is poorly developed. More attention is paid to theoretical knowledge and practical skills than to cognition and perceived abilities, which are needed in the nursing career. Moreover, required courses such as “Introduction to nursing,” “Nursing ethics,” and other similar topics are lacking. Few studies in China have examined pedagogical skills for elevating the professional psychological status of nursing students in technical schools.

Several theories, including socialization theory, have been proposed to achieve this objective. Socialization is classically defined as the process by which individuals acquire and internalize the values, norms, roles, and skills that enable them to function as members of their cultural group [6]. Four mechanisms underlie socialization: internal reinforcement, external reinforcement, social comparison, and self-identity. In internal reinforcement, individuals can reinforce their existing beliefs based on their experience and then build their evaluation criteria. In external

* Corresponding author.

E-mail address: gbm1991@mail.sdu.edu.cn (Y. Zhu).

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reinforcement, the behavior of people with similar social characteristics can greatly affect belief building. In social comparison, people can decide what to do or what to think by comparing themselves with people having similar social characteristics. In self-identity, people can transform what they have heard, seen, and felt into their own thoughts. The socialization process in professions has been studied widely. Some researchers have proposed that the socializing influences to which students are exposed during their professional education may have a greater impact on their future practice than the academic and clinical information they learn [7]. The goal of professional training is to prepare its participants to enter new roles. This preparation entails learning new skills, behavior patterns, and norms; internalizing values and attitudes; and acquiring self-identification with a specific role [8,9]. Among these goals, two key concepts are discussed in this study.

One concept is professional identity, which is known in the social sciences as career, occupational, or vocational identity [10] and refers to “one’s professional self-concept based on attributes, beliefs, values, motive, and experiences” [11]. Professional identity is a critical factor in providing a high level of care to optimize patient outcomes [12,13]. This factor elicits negative effects in a stressful workplace [14–16] and minimizes attrition rates [17,18]. The lack of a professional identity may contribute to why nursing students and nurses leave the program or their vocations [19]. Moreover, professional identity is a constant preoccupation when recognizing a well-defined nursing role [20]. Thus, strategies that help create a well-defined role are essential in forming professional identity.

Another important concept is professional self-efficacy. According to Bandura’s social cognitive theory (1997), self-efficacy is the belief in one’s capabilities to organize and execute a course of actions to fulfill particular objectives [21]. Successful past experiences, vicarious learning, verbal persuasion, and physiological and psychological states comprise the foundations for the development of self-efficacy [21]. Self-efficacy determines our motivations, emotions, and behaviors [22,23]. It varies in different situations [24], and specific self-efficacy can capably predict behaviors and attitudes in specific situations [25]. Hackett and Betz [26] introduced professional self-efficacy into career fields and suggested that it can produce desired outcomes and change environmental perceptions. A meta-analysis by Stajkovic and Luthans [27] revealed a positive association between professional self-efficacy and job-related performance on the basis of the effect size of 144 studies. People with low professional self-efficacy have low motivation to confront problems. Furthermore, nurses with high self-efficacy are motivated more internally compared with outside pressures for their careers [28]; hence, they are able to understand and perform practical tasks [29]. Thus, schools need to improve the levels of professional self-efficacy.

For a number of reasons, a tense relationship exists in China between medical professionals and patients [30]. This relationship has drawn societal attention. Researchers are trying to ease this tension through various means, including medical documentaries, which are produced by the media and shown on television. These medical documentaries seek to familiarize people with actual hospital situations so they could appreciate medical professionals instead of blame them. In some sense, medical documentaries can be viewed as tools for professional socialization. However, few trials have been conducted to prove its effects. Consequently, we wondered if these medical documentaries could influence the professional identity and self-efficacy of nursing students.

Therefore, the purposes of this study are twofold: 1) Explore the status of professional identity and self-efficacy of nursing students in technical schools; 2) Explore the effects of medical documentaries on nursing students’ professional identity and self-efficacy.

2. Materials and methods

Our method is a quasi-randomized controlled trial in a three-year nursing technical school in China. This study was conducted from September 2015 to January 2016.

All students involved in the study signed an informed consent before completing the measures (guardians of students under 18 years old received a call to ask for their permission). This study has been approved by the local Research Ethics Committee.

2.1. Participants

A convenience sampling method was used to recruit participants. Criteria for selecting the subjects were as follows: 1) full-time students of the school; 2) students who had completed courses in accordance with the teaching program; 3) physically and psychologically healthy students; 4) students who agreed to participate in this study; and 5) students who had never watched a medical documentary.

2.2. Randomization

To avoid communication between students in the same class, the researchers recruited students by taking a whole class as one unit. Six classes were involved in this study. Computer-generated random numbers were used to assign three classes to the experimental group and the other three to the control group.

2.3. Intervention

The medical documentaries, which were used as interventions, were of a serial program named “Life Ties” that is played on Beijing TV. One episode is broadcasted weekly, and each episode lasts for approximately an hour. These medical documentaries have two components. First, they tell real stories that highlight the dedication of medical professionals as they work together to save lives and respond to various demands. Some scenes show how this trait earns people’s respect. Second, the documentaries show the difficulties medical professionals face when confronted with various work contradictions and challenges. These medical documentaries seek to familiarize people with actual situations in the hospital so that they would appreciate medical professionals. Video clips were shown once weekly; each showing lasted 4 h, and the whole study lasted four months. After watching each documentary, the students were encouraged to express and discuss their feelings with each other. We made sure that all of the included students have never watched the documentary before. The control group was included on a waiting list and received standard teaching methods consistent with the existing program.

2.4. Instruments

2.4.1. Demographics questionnaire

The questionnaire was self-designed and sought to collect demographic data, including gender, age, living situation (urban or rural), family status (only child or with siblings), part-time employment experience (if yes, whether the job is related to nursing), and other organized experiences and activities.

2.4.2. Professional identity questionnaire for nursing students

This questionnaire was a 17-item, self-reporting scale with five dimensions: professional self-image, benefit of retention and risk of turnover, social comparison and self-reflection, independence of career choice, and social modeling. Items were graded from 1 (completely disagree) to 5 (completely agree), with scores ranging

from 17 to 85. A high score denoted a high professional identity. The questionnaire was designed by a Chinese researcher [31] and was broadly used to assess the level of professional identity among Chinese nursing students. In the present study, Cronbach's alpha and split-half reliability were 0.827 and 0.842, respectively.

2.4.3. Professional self-efficacy questionnaire for nursing students

This questionnaire was a 27-item, self-reporting scale with six dimensions: professional attitude and belief, problem-solving ability, capacity for professional information collection and professional plan, professional cognition, professional value, and professional choices. Items were graded from 1 (completely disagree) to 5 (completely agree), with scores ranging from 27 to 135. A high score indicated a high level of professional self-efficacy. The questionnaire was designed by Hao Yufang, a Chinese researcher [31], and was broadly used to measure the level of professional self-efficacy among Chinese nursing students. In the present study, Cronbach's alpha was 0.841.

The general questionnaire was assessed at the baseline, whereas the professional identity and self-efficacy scales were assessed before and after the intervention.

2.5. Statistical analysis

Mean (M) and standard deviation (SD) were used for continuous variables and percentages for categorical variables in the descriptive analysis. To examine the association among professional identity, self-efficacy, and socio-demographic variables, one-way ANOVAs were performed. Covariance analysis was used to explore the effects of the intervention on the primary outcomes. All analyses were conducted using SPSS 20.0.

3. Results

A total of 277 students were involved in the study and completed the baseline data collection, with 135 in the experimental group and 142 in the control group. Eventually, 237 students completed the data collection after the intervention. Students absent from the second data collection had no significant difference in the demographic data compared with the collected data. The flowchart is shown in Fig. 1.

3.1. Demographic data

The ages of all students in this study ranged from 16 to 21 years, with an average of 18.15 years. All students were female. Compared with the experimental group, the control group had a lower proportion of those who chose the nursing major of their own accord. No significant difference was found between the control and experimental groups in other aspects. The demographic data are shown in Table 1.

3.2. Primary outcomes at the baseline

According to the outcomes, professional self-efficacy is in the medium range, with an average of 84.68 in the control group and 86.09 in the experimental group. Among the five dimensions, professional choice significantly differed between the intervention and control groups. As for professional identity, the outcome indicated a medium level, with an average of 58.02 in the control group and 58.81 in the experimental group. Among the five dimensions, the intervention and control groups were not significantly different. The results are shown in Table 2.

3.3. Association between demographic data and primary outcomes

One-way ANOVA showed that only the “voluntary choice of the nursing major” item was closely related to professional self-efficacy and identity. Hence, students who voluntarily chose to be nurses obtained high levels of professional self-efficacy and identity ($P < 0.05$).

3.4. Impact of the intervention on the primary outcome

Regarding the imbalance between the control and experimental groups in the “voluntary choice of the nursing major” item, the relevant analysis indicated that this item affected professional self-efficacy and identity. Consequently, we used the covariance analysis to explore the impact of the intervention on these two outcomes. The outcomes showed that the medical documentaries negatively affected professional identity ($P < 0.05$) but had no effect on professional self-efficacy ($P > 0.05$) (Table 3).

4. Discussion

This article explored the professional efficacy and identity among nursing students in Chinese technical schools and how medical documentaries influence them.

This study shows that professional self-efficacy and identity are both in the medium levels, which are lower than previous results [31]. This finding could be explained by various reasons. First, the participants in the previous study were undergraduate nursing students, whereas those in the current study had lower degrees. Research shows that self-efficacy positively correlates with educational level [32]. Undergraduate nursing students have a chance to undergo a highly developed educational program that involves more than theoretical knowledge that could positively affect their self-efficacy and identity [33], as well as increase employee retention rates [34]. Second, different geographic locations are crucial for the outcomes. The previous study was performed in Beijing and Shanghai, which are more economically advanced and have a better-developed educational system than Jinan, where the present study was performed. Advanced educational systems pay attention not only to technical skills but also to professional psychology, as well as students' overall quality; moreover, the students who are surrounded by advanced educational resources have improved chances to get in touch with news related to their career, thereby improving their understanding of it and increasing their confidence to be qualified nurses; these findings are consistent with previous results [35].

Our study showed that willingness in choosing nursing as a major is significantly different between the intervention and control groups. This difference was unexpected, considering the class was randomly allocated once the program began. Moreover, the study indicated that willingness in choosing nursing as a major is related to professional identity and self-efficacy. This finding can be explained with several reasons. First, the students must have performed their own investigations before choosing. Thus, these nurses' professional identities are based on what they have seen before beginning their professional study. Furthermore, the negative opinions about nursing are important during the professional identity building process [36]. A negative personal identity means a greater chance for them to choose to become a nurse by considering the pressure of the job environment and other objective reasons. Similarly, if they do not believe they can handle a nursing career, which equates to low professional self-efficacy, they will not choose nursing as a major. Therefore, covariance analysis was used to eliminate the effects of “willingness in choosing nursing as a major” on the effects of interventions during our statistical

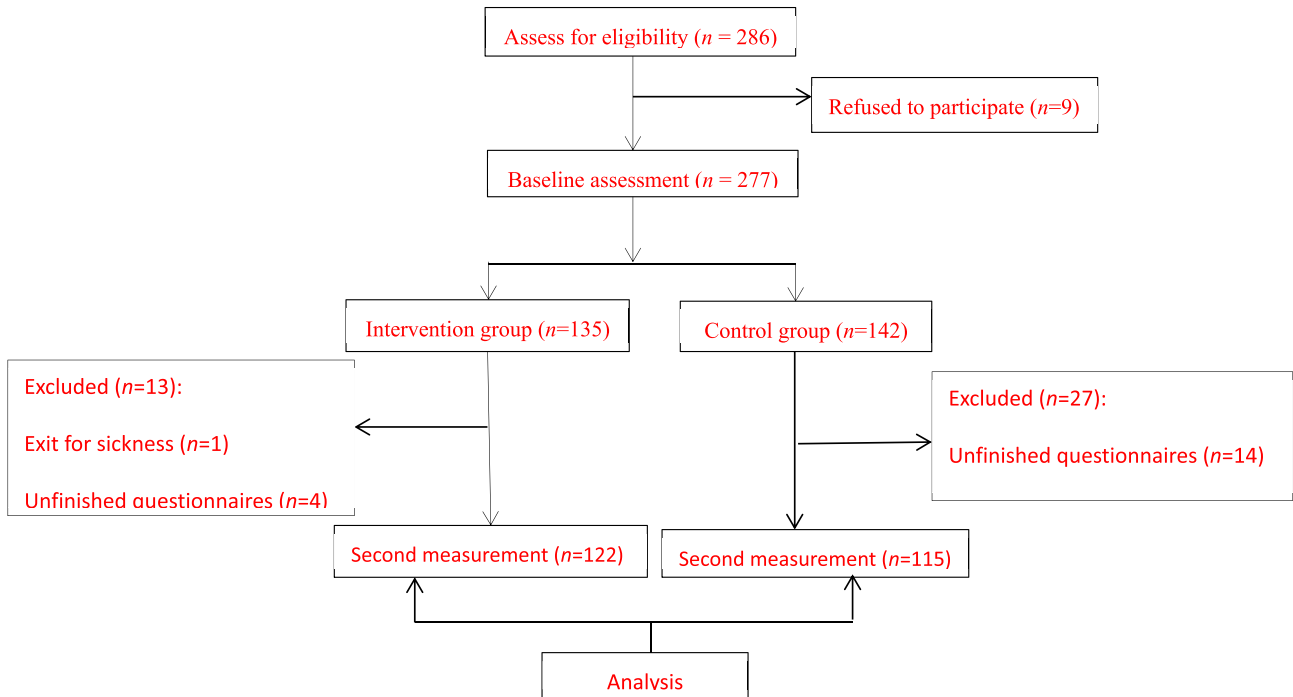


Fig. 1. Flowchart of the trial.

Table 1
Difference between the control and experimental groups in demographic data at baseline(n).

Variable	Category	Control group	Experimental group	t/X ²	P
Age, Mean (SD)		18.19 (0.68)	18.09 (0.69)	1.574	0.211
Living status	Urban	25	14	2.921	0.232
	Rural	97	99		
Family status	Only child	23	14	3.856	0.145
	With siblings	99	99		
Voluntary choice of the nursing major	Yes	75	104	28.603	<0.001
	No	46	10		
Part-time job experience	Yes	6	6	0.015	0.904
	No	116	108		
Organization experience	Yes	68	53	2.119	0.347
	No	60	50		

Table 2
Difference between the control and experimental groups on primary outcomes at baseline[Mean (SD)].

Variable	Intervention group	Control group	t	P
Professional Self-efficacy	86.09(12.25)	84.68(9.79)	-0.985	0.326
Professional attitudes and beliefs	26.36(6.51)	25.19(5.88)	-1.448	0.149
Problem-solving ability	20.06(3.30)	20.04(2.78)	-0.053	0.958
Capacity for professional information collection and professional planning	14.28(3.64)	14.00(3.10)	-0.675	0.500
Professional cognition	8.66(2.00)	8.49(1.94)	-0.638	0.524
Professional value	9.92(1.98)	9.77(1.70)	-0.631	0.529
Professional choice	6.81(1.39)	7.19(1.51)	2.020	0.044
Professional identity	58.81(10.35)	58.02(10.58)	-0.578	0.563
Professional self-image	21.52(5.19)	20.96(5.06)	-0.848	0.397
Benefit of retention and risk of turnover	11.83(3.15)	11.89(3.15)	0.141	0.888
Social comparison and self-reflection	10.61(2.40)	10.57(2.00)	-0.158	0.875
Independence of career choice	7.46(1.65)	7.11(1.67)	-1.619	0.107
Social modeling	7.37(1.61)	7.48(1.48)	0.572	0.568

Table 3
Effects of the medical documentaries on the participants [Difference, Mean (SD)].

outcome	Experimental group	Control group	F	P
Professional self-efficacy	–3.55(14.23)	–0.54(17.13)	1.867	0.173
Professional attitudes and beliefs	–2.20(7.30)	–1.40(8.15)	0.568	0.452
Problem-solving ability	–1.71(4.57)	–0.62(5.13)	3.040	0.083
Capacity for professional information collection and professional planning	–0.08 (4.72)	1.04(4.96)	2.099	0.149
Professional cognition	0.92(2.42)	–0.22(2.69)	9.433	0.002
Professional value	–0.35(2.59)	0.38(3.06)	3.433	0.065
Professional choice	–0.12(1.86)	0.29(2.18)	1.879	0.172
Professional identity	–6.24(12.85)	–0.36(13.56)	10.299	0.002
Professional self-image	–2.02(6.05)	–0.67(6.82)	2.279	0.133
Benefit of retention and risk of turnover	–1.35(3.83)	0.62(3.84)	14.476	<0.001
Social comparison and self-reflection	–0.79(2.86)	0.14(3.25)	3.818	0.052
Independence of career choice	–1.18(1.92)	–0.37(2.18)	7.431	0.007
Social modeling	–0.90(2.21)	–0.07(2.32)	8.162	0.005

analyses.

This study shows that medical documentaries do not affect professional self-efficacy. Possible reasons for this outcome exist. Vicarious learning, which is one of the foundations for the development of self-efficacy, is the main factor that is expected in promoting professional self-efficacy. However, the results showed no significant difference before and after the experiment. A possible reason is the more similar the model is, the more self-efficacy people will get from the model [37]. The result makes sense, considering the gap between the professionals in the documentary and the nursing students enrolled in the study, which is consistent with previous research [38]. As for professional identity, many people entering nursing have a romantic vision of working in hospitals because it involves caring for and curing the sick. In reality, the job is often demanding, unpleasant, and tedious, creating a conflict between expectation and reality [39]. The students expressed great interest in their future jobs and expect great satisfaction, given the teacher's description of the field before any clinical experience. However, the videos showed different contents. The media are inclined to include complicated cases in their shows to highlight the efforts of medical professionals to solve problems and cure patients. Exaggerating the difficulties of hospital work advances the documentaries' objective of convincing the public to respect and appreciate healthcare workers. When the video showed them real work in the hospital, they experienced a "psychological drop" compared with their expectations, which dealt a significant incongruence between students' expectations and reality [40]. As a result, the students started to doubt their ability to handle the profession.

4.1. 4.1 Limitations

This study has numerous limitations. First, the self-reporting instruments decreased the trustworthiness of the outcome. Second, this study was based on a convenience sample, thereby limiting the outcomes to the generalized society. Third, the study instructions were developed by a Chinese researcher, thereby decreasing the ability for the outcome to be compared with studies in other countries. However, the reliability and validity are sufficient to ensure outcome accuracy. Fourth, no male students were enrolled in the study, which rendered gender differences in the outcomes impossible to explore.

5. Conclusion

This study indicated that medical documentaries do not affect professional self-efficacy and, surprisingly, negatively affect professional identity. Multi-center randomized controlled trials with a

large sample size will be conducted in the future to confirm these conclusions.

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Author contributions

ZHU conceived the study, designed the trial. GUO supervised the conduct of the trial and data collection. ZHAO AND GAO undertook recruitment of participating centers and patients and managed the data, including quality control. GUO provided statistical advice on study design and analyzed the data; ZHU chaired the data oversight committee. Peng drafted the manuscript, and all authors contributed substantially to its revision. ZHU takes responsibility for the paper as a whole.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.ijnss.2017.03.006>.

References

- [1] Inc NS. National healthcare & RN retention report. U. S. A NSI. 2016.
- [2] Thomas KS, Mor V, Tyler DA, Hyer K. The relationships among licensed nurse turnover, retention, and rehospitalization of nursing home residents. *Gerontologist* 2013;53(2):211–21.
- [3] Buchan J, Twigg D, Dussault G, Duffield C, Stone PW. Policies to sustain the nursing workforce: an international perspective. *Int Nurs Rev* 2015;62(2):162–70.
- [4] Jo Mary. Gilmer PhD R N. beginning students' definitions of nursing: an inductive framework of professional identity. *J Nurs Educ* 2003;42(7):311.
- [5] Kaya H, Işık B, Şenyuva E, Kaya N. Personal and professional values held by baccalaureate nursing students. *Nurs Ethics* 2016;23(1):1–16.
- [6] Wentworth WM. Context and understanding: an inquiry into socialization theory. New York: Oxford University Press; 1980.
- [7] Sabari JS. Professional socialization: implications for occupational therapy education. *Am J Occup Ther* 1985;39(2):96–102.
- [8] Reinharz S. On becoming a social scientist. New Brunswick, NJ: Transaction Publishers; 1984.
- [9] Sherlock BJ, Morris RT. The evolution of the professional: a paradigm. *Acta Ophthalmol Scand* 2005;75(3):236–8.
- [10] Schwartz SJ, Luyckx K, Vignoles VL. Handbook of identity theory and research. Springer; 2011.
- [11] Slay HS, Smith DA. Professional identity construction: using narrative to understand the negotiation of professional and stigmatized cultural identities.

- Hum Relat 2011;64(1):85–107.
- [12] Izumi S. Educating nurses: a call for radical transformation. *Jpn J Nurs Sci* 2011;55(1):81.
- [13] Cronenwett L, Sherwood G, Barnsteiner J, Disch J, Johnson J, Mitchell P, et al. Quality and safety education for nurses. *Nurs Outlook* 2007;55(3):122–31.
- [14] Arthur D, Randle J. The professional self-concept of nurses: a review of the literature from 1992–2006. *Aust J Adv Nurs A Q Publ R Aust Nurs Fed* 2007;24(3):60–4.
- [15] Hensel D, Stoelting-Gettelfinger W. Changes in stress and nurse self-concept among baccalaureate nursing students. *J Nurs Educ* 2011;50(5):290–3.
- [16] Siebens K, Casterlé BD, Abraham I, Dierckx K, Braes T. The professional self-image of nurses in Belgian hospitals: a cross-sectional questionnaire survey. *Int J Nurs Stud* 2006;43(1):71–82.
- [17] Cowin LS, Johnson M, Craven RG, Marsh HW. Causal modeling of self-concept, job satisfaction, and retention of nurses. *Int J Nurs Stud* 2008;45(10):1449–59.
- [18] Cowin LS, Hengstberger-Sims C. New graduate nurse self-concept and retention: a longitudinal survey. *Int J Nurs Stud* 2006;43(1):59–70.
- [19] Deppoliti D. Exploring how new registered nurses construct professional identity in hospital settings. *J Contin Educ Nurs* 2008;39(6):255–62.
- [20] Marie-Francoise C. *Promover la vida: de la práctica de las mujeres cuidadoras a los cuidados de Enfermería*. Madrid: Interamericana-Mcgraw-Hill; 1993.
- [21] Bandura A. *Self-efficacy: the exercise of self-control*. New York: Freeman; 1997.
- [22] Bandura A. Social cognitive theory: an agentic perspective. *Annu Rev Psychol* 2001;52(1):1–26.
- [23] Garrido Martín E. Autoeficacia en el mundo laboral. *Apunt Psicol* 2000;18(1):9–38.
- [24] Pajares F. Current directions in self-efficacy research. *Adv motivation Achiev* 1997;10(149):1–49.
- [25] Sherer M, Maddux JE, Mercandante B, Prenticedunn S, Jacobs B, Rogers RW. The self-efficacy scale: construction and validation. *Psychol Rep* 1982;51(2):663–71.
- [26] Betz NE, Hackett G. The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *J Couns Psychol* 1981;28(5):399.
- [27] Stajkovic AD, Luthans F. Self-efficacy and work-related performance: a meta-analysis. *Psychol Bull* 1998;124(2):240.
- [28] Baghban I, Malekiha M, Fatehizadeh M. The relationship between work-family conflict and the level of self-efficacy in female nurses in Alzahra Hospital. *Iran J Nurs midwifery Res* 2010;15(4):190.
- [29] Rischel V, Larsen K, Jackson K. Embodied dispositions or experience? identifying new patterns of professional competence. *J Adv Nurs* 2008;61(5):512–21.
- [30] Hesketh T, Wu D, Mao L, Ma N. Violence against doctors in China. *BMJ* 2012;345:e5730.
- [31] Hao Y. *Study of the model of self-education in enhancing the level of professional identity and professional self-efficacy in nursing students*. Shanghai: Second Military Medical University; 2011.
- [32] Jenerette CM, Valrie CR. The influence of maternal behaviors during childhood on self-efficacy in individuals with sickle cell disease. *J Fam Nurs* 2010;16(4):422–34.
- [33] Kim SC, Oliveri D, Riingen M, Taylor B, Rankin L. Randomized controlled trial of graduate-to-undergraduate student mentoring program. *J Prof Nurs* 2013;29(6):e43–9.
- [34] Shelton EN. A model of nursing student retention. *Int J Nurs Educ Scholarsh* 2012;9:6.
- [35] Madsen W, McAllister M, Godden J, Greenhill J, Reed R. Nursing's orphans: how the system of nursing education in Australia is undermining professional identity. *Contemp Nurse* 2009;32(1–2):9–18.
- [36] Cook TH, Gilmer MJ, Bess CJ. Beginning students' definitions of nursing: an inductive framework of professional identity. *J Nurs Educ* 2003;42(7):311–7.
- [37] Braaksma MA, Rijlaarsdam G, Van den Bergh H. Observational learning and the effects of model-observer similarity. *J Educ Psychol* 2002;94(2):405.
- [38] Chan JC, Lam SF. Effects of competition on students' self-efficacy in vicarious learning. *Br J Educ Psychol* 2008;78(1):95–108.
- [39] Arthur D. Measuring the professional self-concept of nurses: a critical review. *J Adv Nurs* 1992;17(6):712–9.
- [40] O'Donnell H. Expectations and voluntary attrition in nursing students. *Nurse Educ Pract* 2011;11(1):54–63.