

## Exploring the Relationship Between Self-Concept and Mental Health Among Undergraduate Nursing Students: A Cross-Sectional Study

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### ABSTRACT

**Background:** Mental health in nursing undergraduates is well documented, while research focusing on the relationship of self-concept and mental health in nursing students is rarely conducted. The actuality of the nursing undergraduate's self-concept and mental health was investigated and the relationship between them was explored.

**Methods:** The survey was conducted in 210 nursing undergraduates studying at Henan University by applying with Tennessee Self-Concept Scale (TSCS, undergraduate version) revised by Zhina Chen and Symptom Checklist -90 (SCL-90) drawn up by Zhengyu Wang.

**Results:** The total score of nursing undergraduate's SCL-90 was higher than the nation-wide norm. There was significant difference in the level of mental health in the different grades. The students whose major choice was voluntary or involuntary had a significant effect on the score of their mental health and self-concept. The scores of self-concept were negatively related to the scores of SCL-90. Regression analysis indicated that the three factors of self-concept including moral self, social self and personal self could predict the mental health level of the nursing undergraduates.

**Conclusions:** The mental health of the nursing undergraduates is influenced closely by their self-concept. It is necessary to helping nursing undergraduates to build a high level of mental health.

### KEYWORDS

Nursing Undergraduate; Self-Concept; Mental Health; Nursing Education.

### INTRODUCTION

Self-concept refers to a personal views and opinions on himself or herself, which is the subjective perception, judgment or evaluation about himself or herself and covers all aspects of the physical, mental, moral and social. Self-concept is actually the basis of motivated behaviors and evolves during the process of individual growth and socialization. Domestic and international researches showed that positive and stable state of self-concept benefits in regulating one's mental health status, and the poor mental health was related to a lower self-concept [1-3]. The shortage of nurses seems to be the global problem, which has a big influence on the health of billions of people in the world. The traditional opinions are that the stressful working force and the working environment

both lead to the crisis of shortage in nurses. Currently the development of nursing higher education is accelerated. The research on the nursing undergraduate is also plentiful in order to perfect the education of nursing undergraduate. There was increasing research on the self-concept and mental health for the nurses, but it limited to the clinical nurses. However, there is little research on the relationship between nursing undergraduate self-concept and mental health conducted in China. Nursing undergraduates will make great contribution to the development of health care in the near future. They will be the healthcare workers who provide high-quality services for patients. Therefore, it is worthwhile to investigate the status of nursing undergraduate self-concept and mental health.

## MATERIALS AND METHODS

### Participants and the procedure

During March to July 2016, 210 nursing undergraduates (women 188, men 22) from the three grades of the nursing college of a university in China were sampled randomly as the subjects. The questionnaire survey was handed out to the subjects in their class break after statement of the purpose of study, the requirement of the format and the matters needing attention. The questionnaire was adopted the anonymous and handed in before the class end. All the 210 questionnaires were collected and were checked as the valid questionnaires. In this questionnaire, the Tennessee Self-Concept Scale (TSCS) and the Symptom Checklist-90 (SCL-90) were employed to test the students. All the participants, aging from 18 to 23 years old, had no significant illness or disability. They all followed the principle of voluntary participation. There were 69 freshmen, 78 sophomores and 63 junior students enrolled in the study. Among these students, there were 145 students whose major choices were voluntary when they were enrolled in the nursing college. In other words, they were matriculated by the nursing specialty they declared. The other 65 students were enrolled in the nursing college involuntarily including those who were transferred from the other specialty in the university. All the subjects conducted a questionnaire survey.

### INSTRUMENTS

#### Tennessee Self-Concept Scale (TSCS)

The Tennessee Self Concept Scale (for college students) employed in this questionnaire was revised aimed at the college students by domestic scholar Zhina Chen in 2005 who reduced the self-descriptive items from 70 to 40 based on the revised version of TSCS made in 1978 by Taiwan scholar Bangjie Lin [4]. The TSCS scale was designed to measure five external aspects of a person including physiological self, psychological self, moral self, family self and social self. The scale is intended to summarize an individual's feeling of self-worth, the degree to which the self-image is realistic, and whether or not that self-image is a deviant one. All the responses for these items were scored by 1-5 point system ('not at all', 'a little', 'sometimes', 'somewhat', and 'very much'). The total score of self-concept is the sum of the value of five factors. The higher of the total score indicates the better of self-concept of the subjects. The reported value of Cronbach's alpha coefficient for all of the items was 0.9287 [4], indicating acceptable internal consistency.

#### Self-reporting Inventory

The Self-Reporting Inventory employed in this survey is also called the Symptom Checklist 90 (SCL-90). The SCL-90 adopted in this study was revised by Chinese scholar Zhengyu Wang in

1984 [5]. It was firstly drawn up by L.R. Derogatis in 1975. The questionnaire of symptom checklist-90 was used to determine the level of mental health. The SCL-90 scale consists of 90 items and are divided into nine dimensions, including somatization, compulsion, sensitivity of interpersonal relationship, depression, anxiety, hostile, fear, paranoid and psychotic. The response to each item was rated a score value based on the 1-5 point system. The higher score indicates the severity of the symptom, that is to say, the level of the mental health of the subjects was lower. The validity of each symptom of the scale was 0.77-0.90 [6].

### DATA ANALYSIS

SPSS software (version 19.0) was used for analyzing the data. Descriptive statistics analysis, such as mean score and standard deviation were employed to illustrate the items of students' mental health and self-concept. The relationship among different grades was tested by one-way ANOVA. An independent sample t-test was applied to assess the effects of the students' willingness to choose the major. Correlation analyses and multiple linear regression analysis were conducted to explore the relationship between items of mental health and self-concept.

### RESULTS

#### The actuality of nursing undergraduate's self-concept and mental health

The sample size for the male student in this study is small and there were no obvious differences between the male and female students groups on the measures of the total score of self-concept ( $t = 1.493$ ,  $P = 0.152$ ) and the mental health ( $t = 1.473$ ,  $P = 0.142$ ), so they were combined into a single sample for the subsequent statistical analysis. The results show that the total score of the self-concept for the nursing undergraduates was  $112 \pm 8.79$  including the score of physiological self ( $19.91 \pm 2.58$ ), moral self ( $29.22 \pm 4.13$ ), psychological self ( $23.22 \pm 3.14$ ), family self ( $21.80 \pm 2.73$ ) and social self ( $17.84 \pm 2.02$ ). Among these the score of moral self is highest. These scores showed that the status of self-concept of nursing undergraduates in this college presented a positive situation, in which the score of moral self was the highest and the social self scored lowest indicating that there were some problems in social self level. In order to compare the mental health level of the nursing undergraduates in this study with the national norms of SCL-90 of the domestic college students, we divided the score of the mental health by the number of question items to get the standard value of each dimension. The results show that the score of SCL-90 in nursing undergraduates in dimensions (except for interpersonal sensitivity and depression) and the mean score were significantly higher than those of national norms of college students (see table 1).

**Table 1:** The nursing undergraduates' mental health and domestic SCL-90 norm (Score value).

Dimensions	Nursing undergraduates	National norms	T	P
	(n=210)	(n=1388)		
Somatization	1.49±0.34	1.37±0.48	5.364	<0.01
Compulsion	1.71±0.64	1.62±0.58	2.024	0.044
Interpersonal sensitivity	1.47±0.49	1.65±0.51	5.226	<0.01
Depression	1.30±0.39	1.50±0.59	7.754	<0.01
Anxiety	1.48±0.47	1.39±0.43	2.161	0.028
Hostile	1.58±0.49	1.48±0.56	2.473	0.014
Fear	1.39±0.46	1.23±0.41	4.978	<0.01
Paranoid	1.61±0.53	1.43±0.57	5.114	<0.01
Psychotic	1.47±0.35	1.29±0.49	4.559	<0.01
Mean score	1.54±0.37	1.43±0.50	1.741	0.023

**The difference of the level of self-concept in students with different grades and major choices voluntarily or involuntarily.**

There was no difference in the score of self-concept in each dimension among the three grades except for in the psychological self in which the scores of the juniors were a significant higher than that of the freshmen ( $t = 4.061, P < 0.001$ ) and the sophomores ( $t = 3.278, P = 0.001$ ). As for the effects of the ways of major choice on self-concept of nursing undergraduates, the results show that the scores of physiological self, moral self and social self in students who chose their major voluntarily were significantly higher than that of students who chose their major in voluntarily. There was no difference for the score of psychological self and family self between the students with voluntary major choice and involuntary major choice (see table 2).

**Table 2:** The score of self-concept in students with different grades and ways of major choice (score, mean ± SD).

Dimension	Grades					The ways of major choices			
	Freshmen	Sophomores	Juniors	F	P	Voluntary	Involuntary	F	P
Physiological self	19.9±2.7	20.0±2.6	19.8±2.5	0.20	0.816	20.2±2.5	19.3±2.6	2.30	0.022
Moral self	28.8±4.4	30.0±4.3	28.8±3.4	2.10	0.125	29.8±4.1	27.9±4.0	3.12	0.002
Psychological self	22.5±2.6	22.8±3.1	24.6±3.4	9.49	0.000	23.4±3.1	22.7±3.1	1.12	0.264
Family self	21.5±2.9	21.6±2.7	22.4±2.6	1.85	0.159	21.8±2.7	21.8±2.8	0.00	1.000
Social self	17.8±2.2	17.6±1.8	18.1±2.2	1.26	0.285	18.1±2.1	17.2±1.8	2.97	0.003
Total score	110.5±9.0	112.0±8.8	113.6±8.3	2.09	0.127	113.3±8.7	109.1±8.5	3.25	0.001

**The difference of the level of mental health in students with different grades and ways of major choice (mean ± SD).**

In all the dimensions of mental health, the freshmen scored higher than sophomores or juniors students. As for the group differences in grades, there was a main effect of grade for the dimensions of compulsion, depression, anxiety, paranoid and total score. Post hoc analyses indicated that there are significant difference between freshmen and juniors for all these five dimensions ( $P < 0.05$ ). Also there are significant difference be-

tween freshmen and sophomores for compulsion ( $P = 0.006$ ) and depression ( $P = 0.050$ ). In addition, there are significant different between sophomores and juniors for compulsion ( $P = 0.048$ ) and paranoid ( $P < 0.001$ ). For the ways of major choices, the results show that there is a significant difference between voluntary and involuntary in somatization and hostile. The level of mental health of students who choose the major voluntarily was better than those who were involuntary in the dimensions of somatization and hostile (see table 3).

**Table 3:** The effects of different grades and the ways of major choice on the level of mental health (score, mean±SD).

Dimension	Grades					The ways of major choices			
	Freshmen	Sophomores	Juniors	F	P	Voluntary	Involuntary	T	P
Somatization	15.3±4.20	15.2±4.5	14.2±3.5	1.443	0.213	14.5±3.7	15.9±4.9	2.008	0.047
Compulsion	19.6±6.4	16.7±6.6	14.9±5.3	1.968	0.000a	16.7±6.0	17.9±7.3	1.184	0.238
Interpersonal sensitivity	14.2±4.0	13.1±4.9	12.5±4.1	2.975	0.083	12.9±4.1	14.1±5.0	1.731	0.085
Depression	18.0±5.6	16.3±4.9	16.0±4.4	2.047	0.040b	16.4±4.5	17.7±6.0	1.474	0.144
Anxiety	15.1±5.2	13.5±4.7	12.9±4.0	1.427	0.023c	13.4±4.2	14.8±5.6	1.837	0.069
Hostile	8.8±3.0	8.4±3.1	7.9±2.6	2.311	0.196	8.1±2.7	9.1±3.4	2.170	0.032
Fear	8.4±2.6	7.9±2.5	7.6±1.9	1.936	0.174	9.5±2.9	10.2±3.7	1.136	0.257
Paranoid	10.6±3.4	9.6±3.6	8.8±2.1	1.923	0.004d	7.8±2.2	8.2±2.7	1.282	0.203
Psychotic	13.7±3.6	12.7±3.7	12.8±3.0	2.057	0.193	12.8±3.0	13.5±4.3	1.052	0.296
Total score	123.7±30.6	113.4±32.7	107.5±27.0	2.476	0.009e	112.2±27.5	121.2±36.9	1.757	0.082

- a Post hoc analysis showed that there is a significant difference for compulsion between freshmen and sophomore (P = 0.006), freshmen and juniors (P < 0.001), and sophomores and juniors (P = 0.048).
- b Post hoc analysis showed that there is a significant difference for depression between freshmen and sophomores (P =0.050), freshmen and juniors (P = 0.022).
- c Post hoc analysis showed that there is a significant difference between freshmen and juniors (P = 0.008) for anxiety.
- d Post hoc analysis showed that there is a significant difference for paranoid between freshmen and juniors (P < 0.001), sophomores and juniors (P < 0.001).

e Post hoc analysis showed that there is a significant difference between freshmen and juniors (P = 0.002) for mental health total score.

The bold p-values indicate those that were statistically significant.

### Correlation Analysis on the nursing undergraduate Students' Self-concept and Mental Health

The correlation relationships between the nursing undergraduate student's self-concept and mental health were all negative. The dimension of social self and moral self have reached a very significant correlation to mental health (p < 0.01). Physiological self, psychological self and family self were also related to each dimension of mental health (p < 0.05) (see table 4).

**Table 4:** The correlation analysis about nursing undergraduates' self-concept and mental health.

Dimen-sions	Somatiza-tion	Compul-sion	Inter-personal sensitivity	Depression	Anxiety	Hostile	Fear	Paranoid	Psychotic
Physiologi-cal self	-.162*	-.149*	-.152*	-.248**	-.151*	-.161*	-.228**	-.151*	-.198**
Moral self	-.280**	-.177**	-.287**	-.271**	-.286**	-.273**	-.306**	-.230**	-.258**
Psychologi-cal self	-.154*	-.248**	-.190**	-.212**	-.122*	-.171*	-.201**	-.226**	-.159*
Family self	-.085	-.157*	-.211**	-.185**	-.166*	-.160*	-.170*	-.173*	-.132
Social self	-.246**	-.247**	-.209**	-.247**	-.237**	-.296**	-.208**	-.208**	-.243**

\*p<0.05; \*\*p<0.01

### Regression analysis about nursing undergraduates' self-concept and mental health

Taking the total scores of mental health as the dependent variable and each dimension of self-concept as a predictable variable, we applied multiple regression analysis. Eventually, moral self, social self and personal self have a great influence on mental health (see table 5).

**Table 5:** Regression Analysis about undergraduate nursing students' self-concept and mental health.

Predictable variable	R	R <sup>2</sup>	F	Beta	Sig.
Moral self	.300	.090	20.570	-.238	.000
Social self	.374	.140	16.830	-.206	.000
Personal self	.411	.169	13.918	-.172	.000

## DISCUSSIONS

Research shows that the status of nursing students' mental health in the nursing college is quite below the national norm level of the university students [6, 7]. As a medical academic student, the academic pressure is relatively larger for them than others. Just like other college students, it is inevitable that there will be emotional fluctuations when they meet some difficulties and troubles. Depression and anxiety will also generate among them. The fact that nursing college consists mostly of the females who are with the delicate, fragile and sensitive personality. It is not unavoidable that some con-

flicts will produce among them. Additionally, this study found there was a remarkable difference about the level of mental health in different grades especially between the freshmen and juniors. Both the mental health and self-concept in the freshmen were relatively low in comparison with the other two grades. Both levels were gradually getting better in sophomores and juniors. This is consistent with the study conducted by Yongping Jin et al[8]. Nursing students in grade one have just move out of the intense study from high school. In the college, they are confronted with a completely different environment from high school. Thus, it is much easier for them to have a lot of psychological issues, such as homesickness, anxiety, loneliness, and not to accommodate to the new university environment. More importantly, they have access to the professional knowledge for the first time, so everything is very confused for most of the freshmen. They have to spend more time in the study on the new field. They are filled with both of the pressures and challenges in their life [9, 10]. In contrast, for the junior students, the status of both of self-concept and mental health seem higher than the other two grades. It is probably because junior students have basically established their own "Three Outlooks", and they have increasingly possessed some professional knowledge and expertise. Furthermore, the juniors have already are with the awareness of their future career and have had a rational as well as objective

understanding to their future career after some internships in the hospital. The state of their self-concept reaches a relatively stable period and have seldom psychological problems [11, 12]. Besides, in China there exists a widely accepted concept that nursing has not yet been recognized by people in the works. When some students choose their major, they may follow their parents' willingness and not follow their own. Or perhaps the scores of college entrance examination restrict them choosing the major they like. They have no choice to entering the major that they don't like. Another reason may be the conventional opinion that the incomes of the nurse are high. Perhaps for nursing students, they do not have a professional understanding [13]. When they realize the unavoidable gap between their ambitions and self-worth, they will feel disappointed for not achieving their goals. Students who choose the major voluntarily always have some enthusiasm and interest to nursing and they have been willing to engage in this field. Whenever they make some achievements, confidence will encourage them to have a stronger intrinsic motivation. Anne and other studies have shown that a person's motivation to do something results in having a higher level of self-concept [14]. Both domestic and foreign research demonstrates that professional self-concept is formed substantially in the process of the transition from a nursing student to a professional nurse. The higher of a person's self-concept, the higher the level of their professional self-concept, which will affect their future career development [15].

The psychological level of nursing undergraduates is now in a period of continuous development. During the process, if they are positively and correctly guided or led, it will make great contribution to the individual's overall development. According to the correlation analysis of the two factors about nursing undergraduates, we can make a conclusion that both of them have a significant correlation level. That's to say, if students get a higher score about self-concept, they will have a much healthier state of mental health[16]. Among them, each factor of social self and mental health has a very significant correlation, indicating that if nursing students interact with others with enough confidence, their psychological level will be better than others. Most of the importance is to communicate with patients, their families and doctors. The improved communication level in nursing students during their mental health development has played an important role. To some extent, the physiological self also affects the mental health. The satisfied image of their temperament and health surely will make them feel good about themselves. Therefore, when they are working in the hospital, they will have a more positive mood and devote to their jobs[17].

Moral self refers to the concept of the "Three Outlooks", the moral values and the understanding about whether it is

good and bad. According to the analysis of theory concerning Maslow's Hierarchy of Needs, we can conclude that self-realization is the highest level of needs, including the need for pursuing the truth of life, achieving the personal aspirations and realizing their greatest individual ability at the greatest extent. That will conduce to the establishment of a good outlook on life and on the positive attitude towards life. Except for the moral self, social and personal self are also the pretty important predictors. Nursing students should be enabled to acquire the capability to evaluate their own values and the ability to have an accurate judgment about themselves [3]. Learning to improve the skills of interpersonal communication and to deal with all kinds of relationships can guarantee a good foundation for their future development. At the same time, actively participating in various social activities can also exercise their ability of coordination and organization, accumulate the knowledge, and constantly perfect them as well as improve the overall level of competence. Students who have a higher level of mental health demonstrate that they have a more objective and rational opinion. They are able to put themselves into a more appropriate position.

## CONCLUSIONS

The psychological health education for university students is the basis for cultivating comprehensive quality of the students during the higher education. However, undergraduate nursing students' psychological health level is not optimistic[18]. Offering psychological health courses is an important way to promote the healthy growth of students and cultivate qualified personnel. What's more, this curriculum must be the compulsory course which will have important implications for them. Similarly, the curriculum of "shape and aesthetics" also improves nursing students' awareness of their own image temperament. While, in general, students' self-concept status is relatively well-formed, but still get lower scores in social self, suggesting that nursing students should focus on the confidence in the interpersonal communication. Nursing students' self-concept is the basis of the formation of professional self-concept. In return, it deepens the inner understanding of self and sets one's feet along the path toward adulthood and faces the challenges of life with fresh knowledge and courage. Lack of self-awareness, they will not make the correct choice about their future[19]. Currently, it is still rare about the research concerning nursing students' self-concept in the field of basic nursing education and they just concentrate on clinical nursing. Nursing educators should recognize the importance of self-concept for nursing students and attach great importance to the relationship between self-concept and mental health. By cultivating their active self-concept, they can guide them to have a good psychological state.

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## RESEARCH HIGHLIGHTS

1. The mental health level of the nursing undergraduates was lower than the nation norm.
2. The self-concept level was better in students who chosen the major voluntarily.
3. The mental health level of the juniors is better than that of the freshmen.
4. Each dimension of self-concept had negative correlation to the mental health.
5. Moral self, social self and personal self had a great influence on mental health.

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