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Evaluating the confidence level of Traditional Chinese Medicine in nursing undergraduates at Chinese medical university†

Original Article

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Abstract: **Objective:** To observe the confidence level prevailing with regard to the practice of Traditional Chinese Medicine (TCM) among undergraduate nursing students who have undertaken TCM courses at Shanxi Medical University.

Methods: This cross-sectional study was conducted at Shanxi University of Chinese Medicine. A questionnaire survey was administered through the Questionnaire Star website (https://www.questionstar.com/). The confidence level was examined from 6 aspects, namely cognition of TCM culture and theory, advantages and characteristics of TCM diagnosis and treatment, feelings about TCM achievements, personal behaviors related to TCM, attitudes toward Western medicine, and the future of TCM. The mean score of the observed items was calculated, and was found to be positively related to the confidence level concerning TCM (the score was between 1 and 5).

Results: A total of 120 participants voluntarily enrolled themselves in the study. The results showed that the mean score of observed items were generally about 4. A relatively strong confidence was shown in understating TCM advantages and characteristics in diagnosis and treatment, and also in feelings toward TCM achievements.

Conclusions: The majority of nursing undergraduates had confidence in TCM. However, some aspects such as the understanding of TCM culture and the correlation between TCM and Western medicine may need to be improved through education.

Keywords: *Chinese medical university • confidence level • nursing undergraduate • TCM questionnaire • Traditional Chinese medicine*

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1. Introduction

Traditional Chinese medicine (TCM) originated in China and has been developed for at least 5000 years, for which time it has been continually making significant contributions to medical care and public health.[1] Nowadays, TCM finds a high degree of acceptance among a steadily increasing number of Chinese people and

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even foreigners worldwide, which has been made possible owing to the relentless efforts of the Chinese government along various directions, such as formulating strategies and preparing documents conductive to TCM development. In these strategies and documents, it has been specifically mentioned that TCM undergraduates play a key role in developing TCM. They are required to undergo a comprehensive and systematic education in TCM, and once qualified, most of them will work in the medical field. Therefore, the extent to which they can make original contributions to the development of TCM will largely be determined by the extent up to which they believe in TCM.[2]

Nursing is a highly demanded occupation, and is on the first-line of essential patient services. Hence, the quality level of nursing care may influence the extent of trust that patients place on the medical system as a whole. Most lectures designed for nursing belong to Western medicine, which is guided by nursing-study objectives.[3] However, nursing in Shanxi Medical University has a TCM specialty, and thus all nursing students need to obtain some degree of exposure to TCM lectures.

However, the scientific research in this field is sparse, and there is a lack of data revealing undergraduates' TCM confidence, especially that among nursing students. In the present study, the participants are nursing junior-undergraduates from Shanxi Medical University. The aim is to observe their TCM confidence level, to improve their TCM education, and finally to enhance students' TCM contributions.

2. Methods

2.1. Aim

This study aimed to observe the confidence level concerning TCM among nursing undergraduate students at Shanxi Medical University.

2.2. Study subjects

The participants in the current study are nursing junior-undergraduates who have completed their program of attendance at all TCM lectures prescribed as part of their syllabus at Shanxi Medical University. All participants have been voluntarily recruited pursuant to notification by the relevant tutors.

2.3. Data tools and collection

The data were collected by a questionnaire designed according to a previous Chinese study investigating the TCM confidence in undergraduates who studied TCM[4] and other related studies.[5–7] The questionnaire includes 2 parts, namely demographics and confidence concerning TCM. The confidence level was examined from 6 aspects, namely the cognition of TCM culture and theory, advantages and characteristics of TCM diagnosis and treatment, feelings about TCM achievements, personal behaviors related to TCM, attitudes toward Western medicine, and the future of TCM. Answers to the questions are designated into 5 degrees according to Likert scale and assigned a value from scores 1 to 5. The mean score is positively related to the confidence level concerning TCM. The questionnaire validity index is 0.802 and the coefficient of Cronbach α is 0.935. The data were obtained online from June to August 2021 through the website of Questionnaire Star (https://www.questionstar.com/).

2.4. Data analysis

Results were described and analyzed using Statistics Package for the Social Sciences (SPSS) version 22.0. A P value ≤ 0.05 was considered significant. The data were normally distributed and tested using Shapiro–Wilk test and visual inspection of Q–Q plots. The TCM confidence was indicated by mean score. The difference between groups was tested by t test and one-way ANOVA.

3. Results

3.1. Demographics

A total of 120 participants participated in the present study. The majority are aged between 21 years and 24 years (90%). Surprisingly, nearly 83% come from rural areas, and about 88% are female; and the latter figure coincides with the proportion of females in the total number of students (Table 1).

Item	N	%
Gender		
Male	14	11.7
Female	106	88.3
Age, years		
19–20	12	10
21–24	108	90
Grade		
Senior	120	100
Living place		
Rural	99	82.5
Urban	21	17.5
Family background of TCM		
Yes	13	10.8
No	107	89.2

Note: TCM, Traditional Chinese Medicine.

Table 1. Demographic characteristics of participants (N = 120).

3.2. The confidence level concerning TCM

3.2.1. The cognition of TCM culture and theories

Concerning the cognition of TCM culture and theory, the mean score of the observed questions was reckoned at around 3.5 (Table 2).

3.2.2. Advantages and characteristics of TCM diagnosis and treatment

For advantages and characteristics of TCM diagnosis and treatment, the mean score of the examined questions was reckoned at higher than 4 (Table 3).

3.2.3. Feelings about TCM achievements

Concerning feelings about TCM achievements, the mean score of the examined questions was about 4.6 (Table 4).

3.2.4. Attitudes toward the association between TCM and Western medicine

We observed the participants' attitudes about association between TCM and Western medicine; the mean score of the asked questions was 4.27 ± 0.99 and 2.77 ± 1.14 (Table 5).

Item	Do not know at all	Nearly do not know	Know a little	Partly know	Know very well	Mean ± SD
People foremost	3 (2.5)	7 (5.8)	42 (35)	47 (39.2)	21 (17.5)	3.63 ± 0.93
Benevolent mind and heart	2 (1.7)	9 (7.5)	34 (28.3)	50 (41.7)	25 (20.8)	3.73 ± 0.94
The story of *Shen Nong tasted hundreds of herbs gotten poisoned by 70 poisons*	2 (1.7)	20 (16.7)	51 (42.5)	30 (25.0)	17 (14.2)	3.33 ± 0.97
Harmony between humans and nature	2 (1.7)	4 (3.3)	38 (31.7)	54 (45.0)	22 (18.3)	3.75 ± 0.85
Famous doctors such as Hua Tuo, Bian Que, and Li Shizhen	3 (2.5)	7 (5.8)	38 (31.7)	52 (43.3)	20 (16.7)	3.66 ± 0.91
Yin-yang and 5 elements, organs, meridians theory organs, and meridians theory	2 (1.7)	6 (5.0)	44 (36.7)	49 (40.8)	19 (15.8)	3.64 ± 0.87

Note: TCM, Traditional Chinese Medicine.

Table 2. The cognition of TCM culture and theory (*n*, %).

Item	Completely disagree	Generally disagree	Slightly agree	Mostly agree	Completely agree	Mean ± SD
Syndrome differentiation and treatment and *holistic treatment*	2 (1.7)	1 (0.8)	15 (12.5)	47 (39.2)	55 (45.8)	3.63 ± 0.93
TCM is naturally sourced	2 (1.7)	2 (1.7)	16 (13.3)	47 (39.2)	53 (44.2)	3.73 ± 0.94
TCM is economical, effective, easy to administer, and offers immense convenience	2 (1.7)	3 (2.5)	28 (23.3)	44 (36.7)	43 (35.5)	3.33 ± 0.97
TCM focuses on health preservation and preventive treatment of disease	2 (1.7)	1 (0.8)	17 (14.2)	42 (35.0)	59 (49.2)	3.75 ± 0.85
TCM has flexible and diverse treatment methods	1 (0.8)	3 (2.5)	19 (15.8)	46 (38.3)	51 (42.5)	3.66 ± 0.91
TCM is good at treating several diseases such as those concerning breathing, digestion, gynecology rheumatism, joints, etc.	1 (0.8)	3 (2.5)	25 (20.0)	45 (37.5)	47 (39.2)	3.64 ± 0.87

Note: TCM, Traditional Chinese Medicine.

Table 3. Advantages and characteristics of TCM diagnosis and treatment (*n*, %).

Item	Not proud at all	It's ok	Little proud	Partly proud	Very proud	Mean ± SD
You have won the Nobel Prize in Literature	1 (0.8)	3 (2.5)	9 (7.5)	23 (19.2)	84 (70.0)	4.55 ± 0.81
Chinese acupuncture has been listed in the representative list of human intangible cultural heritage in 2010	1 (0.8)	1 (0.8)	13 (10.8)	21 (17.5)	84 (70.0)	4.55 ± 0.79
TCM is the crucial prevention method and treatment for Novel Coronavirus	1 (0.8)	1 (0.8)	12 (10.0)	20 (16.7)	86 (71.7)	4.58 ± 0.77

Note: TCM, Traditional Chinese Medicine.

Table 4. Feelings about TCM achievements (*n*, %).

Item	Completely disagree	Generally disagree	Slightly agree	Mostly agree	Completely agree	Mean ± SD
TCM and Western medicine should complement each other in the treatment of diseases	3 (2.5)	5 (4.2)	14 (11.7)	33 (27.5)	65 (54.2)	4.27 ± 0.99
Not clear about the characteristics and advantages of TCM combined with Western medicine in treating diseases	23 (19.2)	14 (11.7)	63 (52.5)	8 (6.7)	12 (10.0)	2.77 ± 1.14

Note: TCM, Traditional Chinese Medicine.

Table 5. Attitudes toward the association between TCM and Western medicine (*n*, %).

Item	Very pessimistic	Largely pessimistic	Slightly optimistic	Largely optimistic	Very optimistic	Mean ± SD
The government policies enhance the development of TCM	2 (1.7)	2 (1.7)	20 (16.7)	53 (44.2)	43 (35.8)	4.11 ± 0.86
Modern technology improves the development of TCM	2 (1.7)	3 (2.5)	17 (14.2)	54 (45.0)	44 (36.7)	4.13 ± 0.87
China's economic development provides conditions for boosting TCM	2 (1.7)	2 (1.7)	17 (14.2)	52 (43.3)	47 (39.2)	4.17 ± 0.85
Road and Belt Initiative" strengthens the influence of TCM	3 (2.5)	1 (0.8)	13 (10.0)	48 (40.0)	55 (45.8)	4.26 ± 0.87
The health needs of human beings are optimally addressed by TCM	3 (2.5)	1 (0.8)	14 (11.7)	50 (41.7)	52 (43.3)	4.23 ± 0.87

Note: TCM, Traditional Chinese Medicine.

Table 6. Attitudes toward the future of TCM (*n*, %).

Item	Absolutely unwilling	Not really willing	Generally willing	Quite willing	Absolutely willing	Mean ± SD
Engaged in TCM related work	1 (0.8)	3 (2.5)	32 (26.7)	52 (43.3)	32 (26.7)	3.92 ± 0.84
Tell others about the advantages of TCM diagnosis and treatment, and also about the knowledge and skills involved in achieving health preservation using TCM	1 (0.8)	2 (1.7)	21 (17.5)	58 (48.3)	38 (31.7)	4.08 ± 0.80
Apply TCM health care methods such as Qigong and Tai Chi in your daily life	1 (0.8)	2 (1.7)	24 (20.0)	53 (44.2)	40 (33.3)	4.07 ± 0.82

Note: TCM, Traditional Chinese Medicine.

Table 7. Personal behaviors related to TCM (*n*, %).

3.2.5. Attitudes toward the future of TCM

Results demonstrate that the mean scores corresponding to answers for the questions administered in relation to attitudes toward the future of TCM were above 4 in all the instances (Table 6).

3.2.6. Personal behaviors related to TCM

Investigating behaviors related to TCM, the mean score of the observed questions was 3.92 ± 0.84, 4.08 ± 0.80, and 4.07 ± 0.82, respectively (Table 7).

3.2.7. Association between TCM confidence and participants' demographic characteristics

In this study, no significant correlation was observed between TCM confidence and participants' demographic characteristics ($P > 0.05$).

4. Discussion

According to multiple instances of documentation in the literature, self-confidence in TCM should manifest in the form of a better understanding of Chinese traditional culture, knowledge of the unique features of TCM diagnosis and treatment, presence of a positive and acceptable emotion toward TCM, and a proper perspective on the correlation between TCM and western medicine; additionally, confidence in the future development of TCM and willingness to make original contributions to TCM are further manifestations.[5–7] Based on such theories and former studies, the questionnaire of the present study was designed and checked by educational and TCM experts, and the validity index was high.

The results of the present study indicated that the cognitive level of TCM culture and theories was not high (mean score below 4), and most participants answered

"know a little" and "partly know". On the other hand, when they knew the advantages and characteristics of TCM diagnosis and treatment very well (mean score >4), about 85% participants chose "mostly agree" and "completely agree". The reason may be that the knowledge of TCM advantages and characteristics is easy to acquire, but theories are comprehensive and relatively hard to understand.[8] Additionally, lectures and activities related to TCM culture were sparse.

Surprisingly, about 70% of students felt "very proud" of the TCM achievements, especially in effectively preventing and treating Novel Coronavirus. The explanation may be that the students had been witnessing the rapid expansion and intensification of the Covid-19 infection spread, and also the enormous suffering that it imposed on people; subsequently, they also witnessed the problem coming under control owing to the administration of TCM, and people vastly benefitting from the same.

Generally, the participants in this current study had sensible attitudes toward the correlation between TCM and Western medicine (mean score 4.27 ± 0.99). However, in about 50% of participants, there was an absence of clarity about the characteristics and advantages of TCM when combined with Western medicine in treating diseases. This leads us to suggest that, to improve nursing students' knowledge in and ability for advantageously combining these 2 systems of medicine in the prevention and treatment of diseases, the university needs to strengthen education on such aspects, the final result of such a measure being the provision of better medical services to the public.[9,10]

The data of this study also showed that the nursing students were confident with regard to the development of TCM in the future, and were willing to involve in TCM related works (the mean score was around 4). Thus, results may be taken as an indication that provision of TCM education to nursing students may be a meaningful measure to incorporate within the overall task of bringing the benefits of TCM to the public by supplying them with quality TCM health care.[11,12] Additionally, according to the results, it seems that gender, age, living place, and family background of TCM do not have an effect on the confidence concerning TCM.

5. Conclusions

The strength of the present study was that a relatively full picture of TCM confidence was obtained from 6 aspects focused on nursing students at a TCM University. The majority of the nursing students had confidence in TCM, especially in the aspects of understating TCM advantages and characteristics in diagnosis and treatment, and feelings toward TCM achievements. However, some aspects, such as the understanding of TCM culture and theories and the correlation between TCM and Western medicine, may need to be enhanced through TCM education. The limitation was that the number of participants was comparatively small. In the future, more participants with different grades and majors may need to be involved in studies to observe the level of TCM confidence.

Ethical approval

Ethical approval was obtained from the Shanxi University Human Ethics Committee: (code: LL038). Each participant voluntarily joined in the study, and confidentiality was maintained throughout the study.

Conflicts of interest

All contributing authors declare that no conflicts of interest exist.

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