Attitude of Nursing Students towards Internet Plus Nursing Service

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Abstract

Background: In 2019, China completed the pilot project “Internet plus Nursing Service.” As undergraduate nursing students are the future of nursing, their attitude, willingness, and motivation toward “Internet plus Nursing Service” deserves study. The study aimed to investigate the attitude, willingness, and motivation of third-year undergraduate nursing students toward “Internet plus Nursing Service,” providing a reference for the development of “Internet plus Nursing Service” and related nursing education.

Methods: This cross-sectional study comprised 508 third-year undergraduate nursing students from a public University of Traditional Chinese Medicine, using a self-designed survey.

Results: Most students held a positive attitude towards “Internet plus Nursing Service,” and were willing to choose “Internet plus Nursing Service” as their future career choice.

Conclusion: School education should develop a diversified nursing service model, and professional training programs that meet social demands and professional needs, and address the opportunities and challenges brought by the Internet era should be implemented.

Background

In the last decade, the trend of aging population in China has become increasingly apparent. By the end of 2018, there were 249 million people aged 60 or over, accounting for 17.9% of the total population. Among them, the number of older persons with chronic diseases was about 150 million and the disabled or semi-disabled elderly population numbered approximately 44 million.¹ The impact of disease spectrum change, the aging process, and an elderly home care-based traditional concept has led to an increased demand for long-term care and home health care services.² Meeting this demand has been difficult due to the lack of nurses, and has therefore become an urgent problem within the current Chinese medical industry.³ To address the challenge, the Chinese government implemented a pilot project of “Internet plus Nursing Service” in six provinces and cities from February to December, 2019. “Internet plus Nursing Service” utilizes a form of “online application and offline service” which relies on internet-based information technologies to provide chronic disease management, rehabilitation care, health education, hospice palliative care, and other care services for elderly patients.

Although undergraduate nursing students are not only the important forces to cope with social aging and rebuild the image of the public health system, they are the main group that would work with “Internet plus Nursing Service”.⁴ Thus, their attitude, willingness and motivation towards “Internet plus Nursing Service” are worthy of respect and in-depth research. This study aims to investigate the attitude of third-year undergraduate nursing students towards “Internet plus Nursing Service” and the influencing factors, providing a reference for the long-term development of “Internet plus Nursing Service” within nursing professional education.

Methods

Objects

A total of 510 third-year undergraduate nursing students in 11 classes from the Nursing School of a public University of Traditional Chinese Medicine in northern China that implements a four-year undergraduate nursing education program, including three-years theoretical study and one-year clinical practice, were recruited for this study from March to April 2019. The ethics committee approved this study, and all nursing students volunteered to participate in this survey and signed the informed consent.

Preparation before Survey

To ensure the nursing students fully understood “Internet plus Nursing Service”, they were instructed to study the subject in class, including its concept, generation background, management system, service model, service specifications and operating mechanism. They also consulted literature on the topic of “Internet plus Nursing Service” prior to completing a paper related to the topic.

Survey Tools

The self-designed survey was developed through a series of revisions based on the preliminary trial. The contents of the survey were divided into two parts: questions related to the undergraduate nursing students, and information on the attitude, willingness and motivation of undergraduate nursing students towards “Internet plus Nursing Service”.

Data Collection

The survey link was generated from “Questionnaire Star,” which is a Chinese online survey platform. The nursing students independently and anonymously completed the survey without the impacts of other factors to ensure the expression of their true willingness. The survey was considered valid if every question was answered.

Statistical Analysis

The researchers downloaded the raw data through “Questionnaire Star,” and analyzed the data using “Questionnaire Star” software and SPSS version 22.0 software. The statistical description of nursing students’ general data and answers for each item were expressed in the form of mean, standard deviation (SD), frequency, and percentage. The willingness of nursing students with different characteristics to “Internet plus Nursing Service” was compared using chi-square test. Pearson’s chi-square test was used to

make comparison among groups. The data that failed to meet the conditions of Pearson’s chi-square test were processed with Fisher exact test with $\alpha = 0.05$ as the test standard.

Results

Related Data of Nursing Students Participating in the Survey

A total of 510 nursing students completed the surveys through the “Questionnaire Star” platform. Two unqualified surveys with ambiguous expressions were excluded. Finally, 508 valid surveys were collected and analyzed. The percentage of valid survey collection was 99.61%. The mean age of 508 nursing students was 21.25 ± 0.91 years. The related data of nursing students who participated in the survey is shown in table 1.

Table 1
Demographic Characteristics and Measured Variables of the Participants (*n*=508)

Variable	n (%)	Variable	n (%)
Gender		Only child	
Female	463 91.14%	Yes	89 17.52%
Male	45 8.86%	No	419 82.48%
Home location		Experience of community activities or part-time job	
Countryside	413 81.30%	Yes	257 50.59%
Town	95 18.70%	No	251 49.41%
Experience of elderly care		Choice of nursing profession	
Yes	212 41.73%	Voluntary	196 38.58%
No	296 58.27%	Non-voluntary	312 61.42%
Willingness to engage in nursing care after graduation		Knowledge and skills required for elderly care	
Willing	255 50.20%	Completely know	83 16.34%)
Unwilling	29 5.71%	Partially know	314 61.81%)
Unclear	224 44.09%	Not know	111 21.85%)
Satisfaction with nursing profession		Willingness to engage in elderly nursing care after graduation	
Very dissatisfied	20 3.94%	Willing	263 51.77%
Dissatisfied	75 14.76%	Unwilling	88 17.32%
Basically satisfied	401 78.94%	Unclear	157 30.91%
Very satisfied	12 2.36%		

Attitude of Nursing Students towards “Internet plus Nursing Service” Project

Of these 508 nursing students, 314 (61.81%) expressed support for the implementation of “Internet plus Nursing Service,” 150 (29.52%) remained neutral and 44 (8.66%) expressed disapproval.

Willingness and Motivation of Nursing Students on “Internet plus Nursing Service”

Of these 508 nursing students, 279 (54.92%) were willing to choose “Internet plus Nursing Service” as their future career choice, 51 (10.04%) were unwilling, and 178 were unsure. The motivation of nursing students’ willingness or unwillingness to choose “Internet plus Nursing Service” as their future career choice or not is shown in tables 2 and 3.

Table 2
The motivation of nursing students’ willingness to choose
“Internet plus

Variable	n	%
Added income	401	87.75
High autonomy and flexibility	367	80.31
Good job prospects	322	70.46
Meeting the needs of the service object	282	61.71
Self-improvement	274	59.96

Table 3
The motivation of nursing students’ unwillingness to
choose “Internet plus Nursing Service” as their future
career choice n = 229

Variable	n	%
Safety concern	192	83.84
<i>Lack of time and energy</i>	167	72.93
Unwilling elderly care	135	58.95
Unwilling nursing	87	37.99
Worrying about not qualified for this	73	31.88

Comparison of the Willingness of Nursing Students with Different Characteristics to Participate in “Internet plus Nursing Service”

Gender, whether an only child or not, home location, and degree of knowledge and skills required for elderly care were not significantly associated with the willingness of nursing students to participate in “Internet plus Nursing Service” ($P > 0.05$). Experience of community activities or part-time job, experience of elderly care, choice of nursing profession, satisfaction with nursing profession, willingness to engage in nursing work after graduation and willingness to engage in elder care work were significantly associated with the willingness of nursing students to participate in “Internet plus Nursing Service” ($P < 0.05$). This data are shown in table 4.

Table 4

Comparison of the willingness of nursing students with different characteristics to participate in "Internet plus Nursing Service" n = 508

Variable	n(%)	Willing n(%)	Unwilling n(%)	Unclear(%)	χ^2	P
Gender					2.092	0.337
Female	463 91.14%	255 (55.08)	49 (10.58)	159 (34.34)		
Male	45 8.86%	24 (53.33)	2 (4.44)	19 (42.22)		
Only child					1.306	0.520
Yes	89 17.52%	51 (57.30)	6 (6.74)	32 (35.96)		
No	419 82.48%	228 (54.42)	45 (10.74)	146 (34.84)		
Home location					1.614	0.446
Countryside	413 81.30%	224 (54.24)	39 (9.44)	150 (36.32)		
Town	95 18.70%	54 (56.84)	12 (12.63)	29 (30.53)		
Experience of community activities or part-time job					106.256	0.000
Yes	257 50.59%	199 (77.43)	5 (1.95)	53 (20.62)		
No	251 49.41%	83 (33.07)	41 (16.33)	127 (50.60)		
Experience of elderly care					14.132	0.001
Yes	212 41.73%	137 (64.62)	15 (7.08)	60 (28.30)		
No	296 58.27%	142 (47.97)	36 (12.16)	118 (39.86)		

Knowledge and skills required for elderly care					20.665	0.300
Completely know	83 (16.34)	35 (42.17)	5 (6.02)	43 (51.81)		
Partially know	314 (61.81)	81 (25.80)	85 (27.07)	148 (47.13)		
Not know	111 (21.85)	38 (34.23)	28 (25.23)	45 (40.54)		
Choice of nursing profession					25.347	0.000
Voluntary	196 (38.58)	127 (64.80)	20 (10.20)	49 (25.00)		
Non-voluntary	312 (61.42)	165 (52.88)	57 (18.27)	90 (28.85)		
Satisfaction with nursing profession					36.775	0.000
Very dissatisfied	20 (3.94)	7 (35.00)	1 (5.00)	12 (60.00)		
Dissatisfied	75 (14.76)	21 (28.00)	20 (26.67)	34 (45.33)		
Basically satisfied	401 (78.94)	231 (57.61)	35 (8.73)	135 (33.67)		
Very satisfied	12 (2.36)	10 (83.33)	0 (0)	2 (16.67)		
Willingness to engage in nursing care after graduation					72.909	0.000
Willing	255 (50.20)	180 (70.59)	22 (8.63)	53 (20.78)		
Unwilling	29 (5.71)	8 (27.59)	10 (34.48)	11 (37.93)		
Unclear	224 (44.09)	91 (40.63)	19 (8.48)	114 (50.89)		

Willingness to engage in elderly nursing care after graduation				52.010	0.000
Willing	263 [51.77]	188 (71.48)	12 (4.56)	63 (23.95)	
Unwilling	88 [17.32]	37 (42.05)	24 (27.27)	27 (30.68)	
Unclear	157 [30.91]	54 (34.39)	15 (9.55)	88 (56.05)	

Discussion

Most Nursing Students Hold a Positive Attitude toward “Internet plus Nursing Service”

The nursing students participating in this survey are from generations that have grown up with the Internet, and who are not only familiar with but have a preference for “Internet plus.” The majority of nursing students expressed support for the implementation of the “Internet plus Nursing Service” project, and they were willing to choose it as their future career choice. These nursing students believed that “Internet plus Nursing Service” could break the limitations of hospital services and extend the nursing service to the family; thereby meeting the patient’s needs for home health care and alleviating the problem of nursing shortages in the hospitals. Moreover, nurses could increase their income by making use of “Internet plus Nursing Service” in their spare time, thereby enhancing their personal value.⁵⁻⁷ However, about one third of nursing students still held a neutral or unsupportive attitude in “Internet plus Nursing Service.” The home and school education they received made them identify with nursing within hospital. Therefore, in their views, medical institutions are important components of their professional safety. Their inherent cognition makes them skeptical about “practice outside the hospital” and their capacities to be qualified for nursing work outside the medical institutions. In addition, nursing students with the experience of community activities or part-time jobs were more willing to accept the concept of “Internet plus Nursing Service,” indicating that school education ought to remain sensitive and concerned about the changes in social development and enhance the cognition of nursing students on “Internet plus Nursing Service.” Furthermore, it should encourage nursing students to actively participate in community activities as well as extracurricular practice activities, and consciously cultivate their professional ethics, attitudes, and style, along with other qualities such as communication skills, cultural sensitivity, interdisciplinary cooperation capacity, responsibility, professional dedication, team awareness, and professional integrity. It should also encourage them to keep good psychological as well as physical qualities and enhance their ability to cope with stress and frustration.⁸⁻¹⁰

Pay Attention to the Professional Loyalty and Career Planning

About 51 nursing students (10.04%) were unwilling to accept “Internet plus Nursing Service” as their future career choice while 178 (35.04%) responded unclear. Of the latter, the ones who were non-voluntary to choose nursing profession accounted for 66.78%, those who were satisfied with nursing profession accounted for 52.34%, and those who did not want to or were unclear whether they will engage in nursing work after graduation accounted for 47.80%. Their identification degree to nursing profession was not high. They also felt confused about being a clinical nurse in the future. Thus, we should pay attention to the professional loyalty of nursing students firstly prior to investigating whether nursing students could accept “Internet plus Nursing Service.”¹¹ School education should pay attention to the emotions and attitudes of nursing students beginning at enrollment, thereby helping these students make good career choices based on correct understanding of themselves and the relevant environment. Projects such as alumni association and career development forum could help nursing students face their career choices rationally to avoid wasting of human resource.^{12,13}

Strengthen the Nursing Education of Elderly Care and Arouse the Interest of Nursing Students in Elderly Care

The key service focus of “Internet plus Nursing Service” is the elderly or disabled/semi-disabled elderly population. Considering the physiological and psychological specificity of the above population, professional geriatric nurses are urgently needed to meet their health needs.¹⁴ The survey suggested that nursing students did not master the knowledge and skills required for elderly care sufficiently, and they lacked confidence in caring for the disabled/semi-disabled elderly population. Additionally, they lacked the willingness to engage in elderly care after graduation.

Elderly care education is also limited in the insufficient courses in the school of nursing. Poor practice results in fewer opportunities for nursing students to understand older persons at a close distance.¹⁵ Many nursing students pay inadequate attention to the courses in elderly care due to the lack of corresponding professional examinations. Only a minority of undergraduate nursing students are willing to engage in elderly care.¹⁶ The related knowledge and skills on elder care are included in the category of registered nurse examination in USA, elderly care practicing certificate is set, nurse’s practice on elderly care is encouraged and student’s study on elderly care course is strengthened in order to promote the development of elderly care.¹⁷

The nursing students with experience of elderly care were more willing to engage in elderly care than those without experience of elderly care. Thus, developing an elderly care education program that combines theory, experiment, and practice as a whole into nursing education is needed. A practical training base of elderly care should be built for professional practice experience. The awareness of

nursing students on nursing profession, life, and elderly should be strengthened to arouse their responsibility and nursing professional emotions and accurately meet the diversified and differentiated health needs of elderly patients. In a systemic evaluation on medical students' attitude intervention study towards the elderly.^{18,19} Samra et al.²⁰ proposed to add empathy building into elderly care courses and encouraged students to have direct contact with the elderly to listen to their stories. Fisher and Walker²¹ made the students feel the situation of their old age through simulation-based teaching, where the elderly were taken as themselves, thereby increasing the students' awareness of the elderly population and improving their attitudes towards older persons.

Safety and Salary of “Internet plus Nursing Service” Key issues for Nursing Students

This survey showed that safety concern was the main reason to block students from accepting “Internet plus Nursing Service” as their career choice. The personal safety issue in the case of going to an unfamiliar environment to provide home nursing services is one part of the safety concern mentioned above. “Nobody knows what kind of person the patients and families behind the door belong to. It's full of unknown and risks.” The nursing students were also worried about the medical security for themselves and patients in the case of providing out-of-hospital care service for high-risk population such as the elderly or disabled people. Any nursing procedure is not absolutely smooth and safe. Medical teams and equipment support could act as strong backing in a hospital if it encounters a tricky problem. However, how to deal with the possible thorny problem when provide out-of-hospital nursing service?” Nursing Students were interested in the added income from “Internet plus Nursing Service,” and they regarded it as a crucial problem due to that it fully reflected the personal value of nurse and met the requirement for high income. The majority of nursing students believed that “the nursing work was very hard. If the salary obtained was not satisfactory after spending the rest time in part-time job, the participation enthusiasm of nurses would be affected.”

The government should pay attention to the concerns of nursing students and reinforce the service procedure and salary managements of “Internet plus Nursing Service.” School education should also strengthen the practice of safety education for nursing students and training for professional knowledge and skills to enhance their abilities to withstand risks.^{22,23}

Conclusions

“Internet plus Nursing Service” is the in-depth integration and application of “Internet plus” and Nursing fields, which enriches the connotation of nursing, expands the field of nurse practice, and achieves healthy aging from a scientific perspective. School education should develop a diversified nursing service model, formulate a training program for the nursing profession according to social and professional needs, and further improve the quality of personnel training that addresses social and economic development, thereby meeting the opportunities and challenges brought on by the Internet era.

Declarations

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We would like to thank all the participants for their contributions to this research. Declarations:

Authors' contributions

HZ was a major contributor in writing the manuscript. The questionnaire was designed by HZ, PZ and YNW. PZ and YNW helped acquire the data. HZ and PZ helped analyze the statistic and interpret the data. All authors read and approved the submitted version of the manuscript.

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Ethics approval and consent to participate

Prior to obtain the data, students were briefed about the purpose of the study. Shanxi University of Chinese Medicine ethics committee approved this study, and all nursing students volunteered to participate in this survey and signed the informed consent.

Consent for publication

Not applicable.

Competing interests

The authors have no conflicts of interest to declare.

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