

# A Survey on Limiting Factors of “Internet plus Nursing Service”

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**Objective** This study aimed to investigate the limiting factors of “Internet plus Nursing Service”, a new form of nursing care, and the current working conditions of visiting nurses.

**Methods** A questionnaire was conducted among 80 visiting nurses involved in the “Internet plus Nursing Service” program in a tertiary hospital in Zhuhai City. The questionnaire covered the general information of the visiting nurses and their understanding and practical experience on the “Internet plus Nursing Service”.

**Result** A total of 80 effective questionnaires were collected. All nurses were willing to participate in “Internet plus Nursing Service”. Among them, 76.25% of nurses participated in “Internet plus Nursing Service” through hospital training; 48.75% of nurses liked this job because of the sense of professional achievement. Nevertheless, 55% of nurses believed that the high cost, medical safety and nurse safety are the factors hindering the development of “Internet plus Nursing Service”, and various related training and policies may be needed to improve the quality and safety of this new form of nursing care.

**Conclusion** This survey demonstrated that nurses are optimistic regarding the “Internet plus Nursing Service”. However, high cost and potential safety issues of both nursing staff and patients are potential factors limiting the development of this new form of nursing care.

**Keywords** Internet; Nursing care; Visiting nurses; Survey; Aging

## INTRODUCTION

“Internet plus Nursing Service” is a new form of home care. It refers to that physical medical institutions harness internet information technology, through online appointments and offline services, for providing nursing care for discharged patients (disabled or semi-disabled elderly with mobility impairments), rehabilitation patients, or others <sup>[1]</sup>. As China rapidly enters an aging society, the spectrum of diseases is changing, especially in the elderly. Patients with chronic diseases, disabilities, especially those who live alone, have an increasing demand for home care <sup>[2]</sup>. Studies by *Zhao Hongmei et al.* <sup>[3]</sup> showed that 7% of families have elderly members who need long-term care, and home care is the major form of care for the elderly. Despite the urgent and high demand, few centers in China have the experience of implementing this new form of nursing care.

In 2019, the National Health Commission issued the “Internet plus Nursing Service” Pilot Program. Since then, as the first tertiary public hospital in Zhuhai City to implement this new form of nursing care, we have completed 938 home care services (visits) without any adverse events or complaints. With the aim to facilitate the establishment and development of the “Internet plus Nursing Service” program, a questionnaire survey was conducted to investigate the related knowledge and work experience of nurses on the topic of “Internet plus Nursing Service”.

## METHODS

### Research participants

This study was conducted using a cross-sectional survey method. From November 2019 to June 2021, 96 visiting nurses from the “Internet plus Nursing Service” program in three hospitals in Zhuhai City were selected for the questionnaire survey. Among them, 80 effective questionnaires were returned, and the effective recovery rate was 83.3%. The inclusion criteria are listed below. 1) All the visiting nurses participating in this study have a nurse practitioner qualification certificate. 2) They have more than five years of clinical nursing work experience and have passed the training and assessment of the “Internet plus Nursing Service” in the hospital. 3) They are willing to participate in this study. Nurses who do not meet the requirements of visiting nurses were excluded.

### Questionnaire

Based on the literature review <sup>[4-6]</sup>, the researchers designed a questionnaire covering three parts. The first part is the basic information of participants, including gender, age, working years, working department, highest degree, job title, and position. The second part is the knowledge of the “Internet plus Nursing Service” program and the management system, including the degree of understanding, the ways of understanding, and the times of visiting services performed. The third part is the practical experience of the “Internet plus Nursing Service” program, including the expected number of nurses for each visiting service, the expected time of visiting service, the expected service remuneration, the ideal service duration, the reasons for willingness to participate in the “Internet plus Nursing Service” program, the potential concerns at service, and the expectation of training programs, etc.

### Data collection method

The researchers sent the questionnaire star QR code containing the questionnaire to the WeChat (an online APP) group of visiting nurses in the “Internet plus Nursing Service” program, and the visiting nurses filled out the questionnaire by scanning the QR code. The research subjects included in this research were all informed. This study was approved by the ethics committee of our hospital. The researcher informed all the respondents of the research purpose through the WeChat “group announcement” function. All participants were voluntary to participate in this project.

### Statistical analysis

All the data from the questionnaire star website were exported to an Excel sheet, and the SPSS 20.0 statistical analysis software was used for descriptive analysis.

## RESULTS

### General information of the participants

As shown in Table 1, the majority (98%) of the participants were female (98%), with ages between 26 to 45 years old. Moreover, 96% of them had an undergraduate degree with extensive working years; 70% of them are Head nurses. The comprehensive information of the participants is listed in Table 1.

**Table 1. The general information of participants (visiting nurses) in the “Internet plus Nursing Service” program.**

Items	Category	Number (n)	Percentage
<b>Gender</b>	Female	78	98%
	Male	2	3%
<b>Age (years old)</b>	26-35y	36	45%
	36-45y	35	44%
	46-55y	9	11%
<b>Highest degree</b>	Undergraduate	77	96%
	Junior college	3	4%
<b>Working years</b>	5 to 10	12	15%
	11 to 15	28	35%
	16 to 20	21	26%
	Over 20	19	24%
<b>Title</b>	Chief Nurse	1	1%
	Deputy Chief Nurse	9	11%
	Head nurse	56	70%
	Nurse	14	18%
<b>Position</b>	Nurse in charge	19	24%
	Specialist nurse	11	14%

Nursing team leader	38	48%
Others	12	15%

### The knowledge of the “Internet plus Nursing Service” program and the management system

As shown in Table 2, 75% of the participants were familiar with the “Internet plus Nursing Service” program and they learned about it mainly through hospital training. The surveyed nurses were diverse in terms of visiting experience.

**Table 2. Visiting nurses’ knowledge and visiting times on the “Internet plus Nursing Service” program**

Items	Category	Number (n)	Percentage
<b>Knowledge on “Internet plus Nursing Service”</b>	Very well	17	21.25%
	well	41	51.25%
	Moderately	14	17.50%
	Slightly	6	7.50%
	Not at all	2	2.50%
<b>How do you learned about the “Internet plus Nursing Service” program</b>	Hospital training	61	76.25%
	Department communication	8	10.00%
	Colleague	2	2.50%
	Internet advertising	6	7.50%
	Others	3	3.75%
<b>Visiting times for home care</b>	Over 21	3	3.75%
	11 to 20	7	8.75%
	6 to 10	11	13.75%
	1 to 5	33	41.25%
	None	26	32.50%

### The expectation of visiting nurses factors limiting the “Internet plus Nursing Service” program

As shown in Table 3, around 70% of the participants expected to perform the vising services with one or more colleagues, probably due to the potential concerns of safety issues. The surveyed participants were diverse in terms of the expected time of visiting and service duration. However, most nurses believed the high cost and safety issues were the limiting factors of “Internet plus Nursing Service”, and the supports from hospitals and policy makers, like prevention and measurements for potential medical accidents, are expected.

**Table 3. The expectation of visiting nurses and the limiting factors of “Internet plus Nursing Service” program according to the survey.**

Items	Category	Number (n)	Percentage
<b>Expected number of nurses for each visiting service</b>	One	9	11%
	Two	55	69%
	Doesn't matter	16	20%
<b>Expected time of visiting service</b>	Working hour	29	36%
	After working hour	28	35%
	Doesn't matter	23	29%
<b>Expected service remuneration</b>	200 Yuan	27	34%
	300 Yuan	45	56%
	400 Yuan	8	10%
<b>Expected service duration</b>	0.5-1h	8	10%
	1-2h	38	48%
	2-3h	31	39%
	3-4h	3	4%
<b>Potential factors limiting the “Internet plus Nursing Service” program</b>	High cost	30	38%
	Nurse safety	19	24%
	Medical safety	25	31%
	Health perception	2	3%
	Insufficient publicity	1	1%
	Medical waste disposal	1	1%
	Others	2	3%
<b>The reason of willing to participant for the program</b>	Professional accomplishment	39	49%
	Higher income	11	14%
	Expertise improvement	25	31%
	Life fulfillment	3	4%
<b>Potential concerns at service</b>	Time conflict	23	28.75%
	Personal safety	29	36.25%
	Medical safety	28	35%
	Loss of interest	0	0%
<b>Expected support from the hospital</b>	Laws and regulations	9	11%
	Disease subspecialty	3	4%
	Service items	11	14%

Communication skills	11	14%
Prevention and measurements on medical accidents	46	58%

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## DISCUSSION

### **“Internet plus Nursing Service” could increase nurses’ sense of professional achievement.**

Most visiting nurses believe that “Internet plus Nursing Service” can meet the health needs of the public without leaving home, and that patients can enjoy hospital services at home, which can benefit patients with limited mobility. Moreover, nurses believe that professional values can be well-reflected. According to the results of this survey, 13.75% and 31.25% of nurses hope to increase their income and work exercise through “Internet plus Nursing Service”. Moreover, the results show the visiting nurses engaged in “Internet plus Nursing Service” are mainly nurses with intermediate titles, with 56 Head nurses accounting for 70%, and working years of 10-20 years accounting for 61.25%. The study by *Dongmei Ma et al.* [7] indicated that nursing staffs gradually deepen their knowledge and skills over the working years and post-graduate education, and their job competence also increases. The visiting nursing team formed by these nurses could help ensure meeting the need of patients in the “Internet plus Nursing Service” program.

### **Personal safety and medical safety are the critical concerns of visiting nurses.**

When providing nursing services at home, due to changes in the working environment, insufficient medical equipment, facilities, and team support, nurses are afraid that their personal safety cannot be guaranteed or the patient’s condition changes in response to inadequate response to medical care safety. It can be seen from Table 3 that 36.35% of visiting nurses are worried about personal safety, 35% of staff are worried about medical accidents, and 68.75% of those who hope that they prefer to visit with other nurses. It can be seen that medical institutions may need to improve the management system of visits, provide more insurance (liability insurance, medical accident insurance, personal accident insurance), and strengthen supervision in the service process (e.g., location tracking, one-click alarm), etc. to maximize the safety guarantee of nurse practitioners.

At the same time, according to Table 2 and Table 3, it can be seen that medical institutions also need to regularly train the nurses for the “Internet plus Nursing Service” program. The training should focus on the prevention and handling of medical accidents, communication skills and nursing service items. Similar to the study by *Liting Wang et al.* and *Bing Xu et al.* [8-9], most nurses can perceive the value of “Internet plus Nursing Service”, and home nursing requires higher quality and ability of nurses. In order to better serve patients and ensure the safety of medical care, hospitals should strengthen the training of nurse practitioners. To this end, it may be necessary to integrate laws and regulations, ethics, disease-related professional knowledge, nursing technology operations, risk prevention, emergency treatment, communication skills, and humanistic care.

## **The cost is an important factor limiting the development of “Internet plus Nursing Service”.**

It has been learned from practice that the No.1 factor that concerns patients and their families to access “Internet plus Nursing Service” is the high cost. Except for Guangzhou and Shenzhen, the two biggest cities in Guangdong Province, the expenses involved in “Internet plus Nursing Service” have not been included in the scope of medical insurance reimbursement. At present, the cost for the “Internet plus Nursing Service” in our hospital includes the nurse visit fee, nursing operation fee, consumables fee, and platform construction and maintenance fee. When patients place an order, depending on the project, the cost range is between 273-430 Chinese Yuan. Compared with the charges for outpatient care, home care costs are high and cannot be included in the medical insurance reimbursement system. Given that home care for patients at home is mostly long term, the cost for “Internet plus Nursing Service” could be a huge financial burden, which is a critical factor limiting the development of “Internet plus Nursing Service” .

The study by *Yi Qin et al.* <sup>[10]</sup> showed that 56.07% of patients hope that the cost could be covered by medical insurance, while only 1.17% of patients are willing to pay at their own expense. It is recommended that the government should consider adding the long-term home care cost into the coverage of health insurance <sup>[11]</sup>. Since an aging society has a huge rigid demand for services such as medical care, nursing, rehabilitation, and life care, if the government could include these services in medical insurance, the economic pressure of patients will be significantly reduced, and the “Internet plus Nursing Service” program will be more easily implemented <sup>[12]</sup>.

## **The labor value of nursing needs to be further improved.**

The service fee for each order of “Internet plus Nursing Service” in our hospital is 200 yuan, all of which is paid to the visiting nurses. However, more than half of the nurses believe that 200 yuan does not fully reflect the labor value of nursing. For each on-site service, the average working time of the visiting nurse is 1-3 hours, including the evaluation before receiving the order, the journey back and forth, home operation, case collation, etc. The nurse bears many psychological pressure and safety risks during the whole process. Increasing the service fee can not only increase the income of nurses but also mobilize the enthusiasm of nurses, but increasing the service fee will increase the burden on patients and affect the willingness of patients to place orders. In order to promote the enthusiasm of nurses to participate in “Internet plus Nursing Service”, the support of government departments and medical insurance policies could be the key to solve this problem.

## **SUMMARY**

“Internet plus Nursing Service” is an inevitable trend in the development of an aging society. The survey results in this study demonstrate that the visiting nursing team formed by experienced nurses provides good quality of home care. However, service cost, staff safety and medical safety remain major concerns that may restrict the development of “Internet plus Nursing Service”, and relevant policies and measurements are needed.

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## STATEMENT

There is no conflict of interest in this article.

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