Investigating Health Worker's Awareness on Telemedicine in Hospitals and Health Homes of Guilan Province

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Abstract

Telemedicine provides effective solutions to the provision of medical services for everyone in any place and time. The implementation and development of this technology requires the creation of cultural, legal, political and social infrastructure. Therefore, the purpose of this study is to investigate health workers' knowledge about telemedicine in hospitals and health nursing homes of Guilan province. This research is a cross-sectional and applied on 150 health workers in 96 year. Data were analyzed by using SPSS software. Due to the staffs awareness of different part and available facilities , it is possible to carry out the most basic levels of telemedicine counseling in special situations between health centers, but it is not able to provide services in rural and remote health care homes.

Keywords:

Telemedicine, Attitude, Knowledge

Introduction

Today, rapid advances in information technology and informatics have encounted health, life and work environments, such as hospitals, to major changes in the acquisition of new infrastructures and new skills to provide quality medical services around the world[1,2]Telemedicine is defined as the exchange of electronic medical data between two countries.[3]The WHO defines telemedicine as such: Providing health care services by healthcare professionals using information and communication technology in diagnosing, treating and preventing diseases and injuries,research, evaluation, and continuing training of service providers for the people's health as much as possible and society where geographical distances are considered to be an important factor. [4] The telemedicine has been raised according to the theoretical foundations since the middle of the decade in our country, and in recent years, some measures have been carried out to implement some of the systems and software such as the Electronic Health Record etc. With the help of remote counseling and the transfer of information through the Internet in remote areas, it can reduce the costs and travel of patients and save their time and extend healthcare and medical care as well as patient monitoring and surveillance and daily care. [5] The results of the studies show that such issues as lack of human resources and credit, lack of telecommunication technical infrastructure, medical professionals and global diseases, lack of knowledge and sensitivity of the medical community, constraints on legal protections and lack of development Telemedicine, poor organizational design, high equipment costs, issues related to insurance repayments, and problems such as how to pay to service providers, the fear of patients using this method of treatment, the fear of some physicians , is the reason of appearing medical errors in this method and uncertainty about some sites Medical internet and counseling. [6,7,8,9] And problems such as social acceptance of new methods of receiving services and technology from providers are the reasons behind the failure of the implementation of telemedicine projects.[9]

Guilan province is one of the most densely populated provinces in the country, with a population of more than 2480000 people, and dispersed urban and rural areas with a shortage of human resources specializing in various medical areas. On the other hand, some centers in remote areas, the direct referral of the patient to the specialist has encountered problems. Given that telemedicine provides effective solutions to the provision of telemedicine services for everyone at any place and at any time, the implementation and development of telemedicine and the development of cyberspace in hospitals require the creation of the following Constructs in the field of cultural, legal, political and social technology. To implement, implement and use this technology, at first, we need to examine the knowledge and attitudes of health care providers at different levels, including health care providers, technology officials, general practitioners, doctors,specialist, executive directors and nurses to accept this technology in the current state of Guilan University of Medical Sciences. Finally, based on the results, we provide solutions for the

correct and efficient use of telemedicine.

Research method

This study was a cross-sectional and applied study that was conducted to assess the health workers' knowledge of the University of Medical Sciences for the implementation of telemedicine in Guilan province. The research population consisted of 150 specialist doctors, general practitioners, executive directors, nurses, technology administrators, health care workers in Guilan University of Medical Sciences. These centers consisted of educational hospitals of Poursina, Velayat, Amiralmomenin, Heshmat, Shafa, Alzahra (AS), 17th of shahrivar, and the hospitals of Amlash, Lahijan, Sinalak, Langroud, Astara, Masal, Shafte, Fouman, Talesh, Anzliyo ,centers and health houses. The data gathering tool used in this study was a questionnaire that was sent to the research participants in the studied places or by email. The data collection tool is a researcher-made questionnaire that was the result of a review of the texts that included: demographic characteristics including age, gender, educational level, place of employment (occupation) and occupation, work experience and comprehensive health centers, as well as questions about information literacy ,the status of communication systems and attitudes of health service providers. Valuable in five Likert scale from very high to very little by scoring (one to five) and then validated by the opinion of supervisors and consultants.

The sample size or statistical population of the participants in the study was calculated using the following formula.

N= Number of people in the community
 : The value of the unit's normal value, corresponding to a confidence level of 95%(
: The amount of mistakes allowed

P=The probability of success is considered using the precautionary method of 0.5.
$n=(\square(1.96)\square^2 \ (0/5)(0/5))/\square(0/08)\square^2 =150$
As a result, the sample size is 150.
Considering the fact that in this research efforts have been made to increase the level of knowledge and attitude of health care workers from the new technology such as telemedicine, the data obtained from this study were analyzed by Pearson statistical method using SPSS version 22.

Research findings

In this research, 150 specialist doctors, general practitioners, executive directors, nurses, technology officials, health care workers at Guilan University of Medical Sciences participated. Of these, 70 men (46.6%) and 80 (53.6%) Were women. Half of the participants in the

study were 49% more than 40 years old, 45.7% were between 30 and 40 years old and 3.5% were less than 30 years old. Most research participants have an academic degree of about 75%, and 25% have a diploma and a sub-diploma. The highest number of participants in the study, with a frequency of 40, was related to health care providers with 26.5% and the lowest number was 19 with specialist physicians with 12.6%. More than half of the participants in the study were in their service centers in the educational and non-teaching hospitals of the city, in which the 53% (35.1%) educational hospital was the most involved. Also, the comprehensive health center with the abundance of 10 (6.6%) had the lowest participation in terms of place of service.

Table 1. Distribution of absolute and relative abundance of research samples in terms of organizational aspect

Variable	Abundance	Percent
health care	40	26/5
Information Technology Officer	20	13/2
General practitioner	20	13/2
specialist	19	12/6
Administration Manager	25	16/6
Nurse	26	17/2
total	150	100

Table of results for awareness-raising charts:

1- Using computer

The response of health care workers to the use of computers with a total of 44% is moderate. Health care providers (47.5%), technology director (5%), general practitioner (60%), physician (47.36%), executive director (48%), nurse (50%), comparedto other the highest rates of response, was related to specialist doctors (47.36%) and the lowest belonged to the health care providers (15%)

Table 2. Comparison of Frequency Distribution of Health Staff Responses Regarding Computer Use

Response Group	a lot		Many		Average		few		A few	
health care	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Numb
Technology Officer	0	0	2	5	19	47/5	13	32/5	6	15
General practitioner	11	55	8	40	1	5	0	0	0	0
specialist	0	0	7	35	12	60	1	5	0	0
Admin-istration Manager	1	5/26	9	47/36	9	47/36	0	0	0	0
Nurse	0	0	11	44	12	48	1	4	1	4
total	2	7/6	10	38/46	13	50	1	3/8	0	0
health care	14	9/33	47	31/33	66	44	16	10/66	1	4/66

2- Internet usage skills

The response of health staffs about Internet usage skill is 39.33% at a moderate rate. Health care providers (37.5%), technology director (15%), general practitioner (55%), specialist physician (31.57%), The executive director (56%), the nurse (38.46%), the highest level of response belonged to the specialist physician, with 63.15% and the lowest was related to the health care providers with 22.5%.

Table 3. Comparison of frequency distribution of health staff's responses tothe Internet use skills

Response Group	a lot		Many		Average		few		A few	
health care	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Numb
Technology Officer	0	0	3	7/5	15	37/5	13	32/5	9	22/5
General practitioner	12	60	5	25	3	15	0	0	0	0
specialist	0	0	8	40	11	55	1	5	0	0
Admin-istration Manager	1	5/26	12	63/15	6	31/57	0	0	0	0
Nurse	0	0	9	36	14	56	1	4	1	4
total	2	7/6	13	50	10	38/46	1	3/8	0	0
health care	15	10	50	33/33	59	39/33	16	10/66	10	6/66

3-Introduction to Telemedicine:
The response of health staff to the introduction of tele- medicine with a total of 33.31% is moderate, with health care providers (27.5%), technology director (25%), gener- al practitioner (55%), specialist physician (89%). / 57%), executive director (56%), nurse (38.46%), compared with other responses, with the highest response rates, for tech- nology officials with 35% and the lowest statistics be- longed to health care providers 47.5%.

4-The desire to use telemedicine
Health workers' response to the desire to use telemedi- cine is moderate to a total of 38.66%, with health care providers (37.5%), technology director (30%), general practitioner (45%), physician specialist (36.47%), the ex- ecutive director (44%), nurse (30.76%), compared to the other responses the highest response rates were related to technology officials with 35% and very low statistics be- longed to nurses 19.23%.

5- The willingness of families to develop telemedicine

The response of health staffs about the family's willing- ness to develop medicine is at a moderate scale, with a total of 56%. Health care providers (42.5%), technology director (40%), general practitioner (70%), 73%), execu- tive director (60%), nurse (61.53%), compared with other responses, the highest response rates, were related to the technology officials 20% and very low statistics belonged to the health care providers 10%.

6-Sending file via mobile or computer or tablet

The health workers' response to the file transfer via mo- bile, computer, or tablet is 32% to a large extent. Health care providers (2.5%), technology director (40%), general practitioner (45%), physician (57) / 31%), executive di- rector (64%), nurse (30.76%), compared with the other responses the highest response rates were related to the executive directors with 64% , and very low statistics belonged to the health care providers 32.5%.

7- Familiarity with telemedicine networks in other countries

The response of health staffs about the introduction of telemedicine networks in other countries with a total of 36.66% is to a small extent with health care providers (25%), technology director (30%), general practitioner (65%), specialist physician 36.47%), the executive direc- tor (32%), nurse (34.16%), that the highest level of re- sponse belonged to the technology directors 25% , and the lowest was related to the health workers with 75%.

Discussion
In the awareness-raising section, according to the results, the Internet use skill (39.33%), family inclination with (56%), and the desire to use telemedicine with (38.66%), use of computers With (44%), familiarity with telemed- icine (41.33%) was moderate, Among them, the largest number of votes were highly relevant to specialized phy- sicians and technology officials and executive directors This indicates the tendency to benefit from specialized medical services by modern technology and the possibil- ity of remote counseling and reduction of medical error, familiarity with telemedicine networks in other coun- tries was at a small extend with 36.36%, uploading files through PC, mobile, or tablet is up to 32%, with the dif- ference that the highest level of "very little awareness" in familiarizing with telemedicine is related to the health workers. Therefore, it is necessary to provide information about treatments made in the world through telemedicine for people, such as therapies in pathology, telemedicine and tracheal dermatology, or the prevention of diseases that are carried out in different areas based on research Epidemiology. The level of awareness and attitude of people to telemedicine in this province is such that if the telemedicine is set up between the hospitals of the pro- vincial capital and the hospitals of the city and the homes of health in rural and remote areas, it is necessary to hold classes on the use of communication devices such as tab- lets And mobile computers etc, to provide the necessary medical, nursing and patient care training in order to have a growing trend in the adoption of telemedicine, which re- quires the organization of information and benchmarking of a number of international standards.

Conclusion:
Considering the results obtained from health workers' awareness, educational hospitals and health houses seem to be, regarding the remoteness of the medical system in our country's health care system and its lack of routine implementation, it is necessary to increase the awareness of health workers at all levels to provide services to the people.

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