RESEARCH ARTICLE

Individual innovativeness features of family health personnels and their attitudes towards technology

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Abstract

Objectives: To investigate family health personnel's innovativeness features and their attitude towards technology.

Methods: The cross-sectional descriptive study was conducted from April to June, 2017, at Family Health Centres located in two cities in eastern Turkey. It comprised family health personnel working with the two centres. Data was collected using socio-demographic form, Individual Innovativeness Scale, and the Attitudes towards Technology Scale. SPSS 23.0 version was used for data analysis.

Results: There were 137 subjects, all (100%) females, with a mean age of 28.70±6.42 years (range: 18-48 years). Individual Innovativeness Scale total mean score was 42.62±9.46. Overall, 89(65%) subjects were Traditionalists, 40(29.2%) were Late Majority, 6(4.4%) Early Majority, and 2(1.5%) were Early Adopters. Attitudes towards Technology Scale total mean score was 130.85± 17.30.

Conclusion: Family health personnel had positive attitudes towards technology, but majority of them were Traditionalists.

Keywords: Attitude, Family health personnel, Individual innovativeness, Nursing, Technology. (JPMA 69: 1079; 2019)

Introduction

Innovativeness, which has become the symbol of transition to creativity economy in the age of knowledge, is the development process of new approaches, technologies and working styles. Innovation starts with a good idea, but it continues with more than a good idea.[1] What is expected from innovativeness is that an idea in the field of science and technology turns into benefit in terms of theory, action and result, and this benefit happens with a concrete outcome. In other words, innovativeness is not a simple renewal; it is a process which involves the innovative product starting from the institutional phase of renewal and which acknowledges the nature of marketability.[2-4]

Innovativeness has vital importance for the health sector. Innovations and developments in the health sector directly affect human life and quality of life. Structure of the diseases goes through changes with the increase in population and the gradual ageing of the population, which brings in the need for long-term care with chronic diseases.[5,6] It is unimaginable for the health team, which is one of the most important groups for human life, to be away from technological developments. Rapid developments in both health and computer fields connect these two sectors; they even show a compatible development. While scientific knowledge increases rapidly, information technology (IT) has a gradually increasing fundamental role for providing services in the healthcare field, and recording, storing, sharing and managing information.[7,8]

The main purpose in the development of technology in the medicine field is to conduct faster and more qualified health services, and use all the rapidly developing technologies in the most effective way. It is evident that healthcare and quality of life have increased, and there has been a dramatic decrease in healthcare expenses parallel to the rapidly developing technological developments and reflections on daily life and adaptations to medicine field. Therefore, more expensive hospital services have given place to more effective home care services.[5]

Spread of the communication technology in every field of life and easier access to information led to the use of technology in the diagnosis and treatment of the diseases, communication between the patient and health professionals, and even regulation of many clinical practices.[9] The developing technology increases the possibility of providing an effective and productive service in the education and health fields; it has become increasingly important not only in nursing but also in all professions in our country as well. In this regard, scientific, economic, social and ethical aspects should continuously be evaluated so that the developing technology could be used accurately and effectively, which creates the need

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for having professional personnel and nurses who have the knowledge, skills, attitudes and behaviours to make the necessary regulations.[10,11]

Health professions and nursing have gone through important changes with the development of computer and IT. Effects of the developments of sharing nursing documentation and nursing knowledge could be seen in all countries. IT has made it easier to publish nursing data and knowledge, share them and access information, and provide support to nurses in clinical decision-making phases.[12]

All definable, accomplishable and promising things could be used as tools in developing health, preventing diseases, and improving patient care management.[1] Innovativeness is important for improving the quality of care in health services. Nurses should be innovative in order to protect and improve health, prevent diseases, find better ways for the care and treatment of the diseases, and learn new information.[13]

The current study was planned to investigate health personnel's innovativeness features and attitudes towards technology.

Subjects and Methods

The cross-sectional descriptive study was conducted from April to June, 2017, at Family Health Centres (FHCs) located in two cities in eastern part of Turkey. Primary health services in Turkey are conducted through Family Practice. In this practice, nurses, midwives, health officers who provide service together with the family physician are defined as 'family health personnel'.[14] The current study focussed on midwives and nurses as family health personnel. No sampling was performed, and after approval was obtained from the ethics committees of the two FHCs, all family health personnel in the two FHCs were approached who were not on leave during the study period and who volunteered to participate. Verbal consent was obtained from the subjects and those who did not furnish it were excluded.

Data was collected through the Socio-demographic Form (SF), Individual Innovativeness Scale (IIS), and the Attitudes towards Technology Scale (ATS).

The 6-item SF was self-developed and included questions about the participants' socio-demographic features, like age, marital status, gender, education level and working duration.

The IIS was developed in 1977 and was adapted for Turkey in 2010. It has 20 statements assessed on a 5-point Likert scale. Overall, 12 items in the scale are positive (Items 1, 2, 3, 5, 8, 9, 11, 12, 14, 16, 18 and 19), and 8 items are negative (Items 4, 6, 7, 10, 13, 15, 17 and 20).Innovativeness score is calculated by subtracting the negative item scores from the positive item scores and adding 42 points to the result. Scores range between 14 and 94. Individuals are classified in terms of innovativeness according to the IIS scores. Those who receive above 80 points are classified as "Innovators", 69-80 points as "Early Adopters", 57-68 points as "Early Majority",46-56 points as "Late Majority", and below 46 points as "Traditionalists".[15 Cronbach's alpha value was found to 0.71 in the current study.

The 37-item ATS is a 5-point Likert type scale. It has nine subscales, called Technology Adoption (Items 23, 24, 26-30), Technology and Development (Item 18, 20-22, 37), Monitoring Technology (Item 6, 9, 11, 13,16), Technology and Management (Item 5, 8, 10, 12), Fear of Technology (Item 14, 17, 19, 35), Technology and Internet (Item15, 25, 32, 36), Confidence in Technology (Item 31, 33, 34), Technology and Pessimism (Item 1, 3, 7), Technology Use (Item 2,4). Items 1, 3, 5, 7, 10, 12, 14, 17, 19, 21, 24, 26-28, 30, 32, 35, and 36 in the scale were scored reversely. Higher scores indicate more positive attitudes towards technology.[16] Cronbach's alpha coefficient of the scale defined in literature is 0.91,[16] while in the current study, it was 0.88.

Data was analysed using SPSS 23.0 version Descriptive statistics, Shapiro-Wilk and Pearson Correlation analyses were conducted. According to the Shapiro-Wilk test, parametric tests were applied as the data had normal distribution. Statistical significance was set at $p<0.05$.

Results

Of the total 156 subjects at the two FHCs, 137(88%) comprised the study sample, and all of them (100%) were

Table-1: Descriptive Features of the Personnel at Family Health Clinics (FHCs).

Descriptive Features (N=137)	N	%
Gender		
Female	137	100
Marital Status		
Single	51	37.2
Married	86	62.8
Education Status		
High school graduates	46	33.6
Graduated	37	27
Undergraduate	54	39.4
	X ± SD	
Age	28.70±6.42 (min. 18 max. 48)	
Duration of working in profession	7.84±6.11 (min. 2 month max. 26 year)	
Duration of working in FHCs	3.04±2.83 (min. 2 month max. 17 year)	

Table-2: Distribution of family health personnel's attitudes towards technology scale and individual innovativeness scale.

Attitudes Towards Technology Subscales	X±SD	Min	Max
Technology Adoption	25.77 ± 5.15	11	35
Technology and Development	17.69 ± 2.99	5	25
Monitoring Technology	17.39 ± 3.40	8	25
Technology and Management	15.40 ± 2.76	8	20
Fear of Technology	11.83 ± 3.25	4	20
Technology and Internet	15.01 ± 3.02	5	20
Confidence in Technology	9.51 ± 2.00	3	15
Technology and Pessimism	10.99 ± 2.39	4	15
Technology Use	7.26 ± 1.60	3	10
Attitudes Towards Technology Scale Total Score	130.85 ± 17.30	73	172
Individual Innovation Scale Total Score	42.62 ± 9.46	16	78

Table-3: Distribution of family health personnel according to the individual innovativeness scale scores.

Individual Innovativeness Level	n	%
Early Adopters	2	1.4
Early Majority	6	4.4
Late Majority	40	29.2
Traditionalists	89	65.0
Total	137	100

females. The overall mean age was 28.70±6.42 years (range: 18-48 years), while other socio-demographic characteristics were also noted (Table-1).

Total mean ATS score was 130.85±17.30 (range: 73-172), while IIS total mean score was 42.62±9.46 (range: 16-78). Mean values of all the subscales were also noted (Table 2).

Overall, 89(65%) subjects were Traditionalists, 40(29.2%) were Late Majority, 6(4.4%) Early Majority, and 2(1.5%) were Early Adopters. No personnel was in the Innovator group (Table-3).

A significant, negative, medium-level relationship was found between IIS and ATS mean scores ($p<0.001$).

Discussion

Family health personnel's IIS total mean score was 42.62±9.46. Classification showed that while majority (65%) was in the traditionalist group, none of the participants was in the innovator group. A study found that 6.1% of the participants were innovators, 20.3% were Early Adopters, 54.7% Early Majority, 14.2% Late Majority, and 4.7% were traditionalists.[17] Another study reported that 48.8% nurses were in the Early Majority group.[18] Another study which investigated the innovativeness features of the nurses reported that 2.9% of the nurses were innovators, 10.3% were Early Adopters, 39.9% were Early Majority, 34.8% were Late Majority, and 12.1% were traditionalists.[19]

In another mean IIS score of nurses was 66 and individual innovativeness levels were found to differ according to the generation they were in. Y generation nurses were more innovative than X generation nurses, and the difference was found to be normal due to the features of the Ygeneration.[20]

A study which investigated innovativeness and risk-taking behaviours of head nurses reported good innovativeness and risk-taking levels.[13] In one study, half of the nurses perceived themselves as people "who conduct innovation" and the other half as people "who initiate and conduct innovation".[21]

IIS mean score of nursing students was 61 in a study.[22] Another study conducted with nursing students found that 42,6% were Late Majority, 34,3% were Traditionalists, 19,8% were Early Majority, 2,5% were Early Adopters, and 0.8% were innovators.[23]

While our findings indicating lower number of innovative nurses are in line with the literature, lower individual innovativeness mean scores are not parallel with earlier studies. Besides, the finding indicating that majority of family health personnel were traditionalists is not parallel with literature either. The participants of the current study were different in terms of the health institutions they were working at. Nurses working in secondary/tertiary care services need to update their knowledge constantly in order to manage the changing and developing medical practices, which might explain the reason for this finding. It could also be related to the fact that health personnel working in units that provide primary health services usually have responsibilities related to being "the doctor's assistant", which might prevent them from developing themselves due to the systematic elimination of the vision of improving and updating their knowledge.

The current study found ATS mean score as 130.85±17.30. Higher scores indicated more positive attitudes towards technology. Given that the highest score to be obtained from the scale is 185, it could be concluded that the subjects had positive attitudes towards technology. A study reported that nurses had positive attitudes towards technology, and found the technological equipment in their institution inadequate, while they could not use technology sufficiently in patient care.[24] Another study reported that nurses generally had positive attitudes towards technology, and their attitudes towards technology were not affected by their age, gender, education level, and years of working.[11]

One study reported that nurses followed technological developments closely, wanted to benefit more from information technologies in patient care, thought they could become more professional by using computer technology, and had positive ideas about working with the support of computer in their practices.[25] According to a study which evaluated knowledge and attitudes in electronic health record and information practices, nurses thought that information systems helped them gain new roles, and they wanted the development of software programmes in relation to nursing practices. The same study also reported that nurses thought use of electronic records would increase not only the quality of the care, but also the patients' quality of life.[26]

Unlike our study, another study found the ATS mean score to be 59 and reported a statistically significant relationship between ATS factors, such as using technology for accessing professional information, experience of receiving education about the use of technological devices, and positive effects of technological devices on workload.[27] Another study also found that nurses' attitudes towards information and communication technologies were low and recommended providing nurses with trainings about information and communication technologies.[28]

Nursing profession has been going through important changes with the development of computer and information technologies. Nursing is a practical discipline, and IT affects and identifies nursing practices. By using the computer, nurses could provide more individualised nursing care and provide healthy/sick patients with trainings and consultancy. Besides, all the records could be used by the health team personnel as an effective tool which helps decision-making, quality of care, communication, education, identification, research, legal document, supervision and control.[29]

The current study found a negative, medium level relationship between the IIS and ATS mean scores. While family health personnel's attitudes towards technology were positive, their individual innovativeness features were at the Traditionalist level. This case might have resulted from the fact that family health personnel's individual innovativeness visions were narrowed down due to the work environment conditions and the roles they had to perform. The positive attitudes towards technology might have resulted from the inevitable and facilitator role of technology in our social life.

Being healthy is one of the fundamental human needs. It is actually beyond need; it is an essential right. Nursing profession, which plays a practical role in meeting this need at all levels (maintenance and improvement of health, treatment and care and rehabilitation), has to refresh itself in line with the scientific, technological, economic and social changes and developments.[21]

Health professionals who can make evidence-based decisions using IT are needed today in primary health services in all areas. Awareness studies that improve the individual innovativeness of family health personnel and comparative studies with their colleagues working in different fields are recommended.

Conclusion

Majority of family health personnel were Traditionalists according to their individual innovativeness features, and no family health personnel was in the Innovator group. On the other hand, considering the highest score to be obtained from the ATS, family health personnel's attitude towards technology was positive. This finding is considered to result from the duties, authorities and responsibilities of the primary health institution the subjects were working at.

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