Patient Safety & Quality Improvement Journal
http://psj.mums.ac.ir
PSQI

Design and Validation of Professionalism Questionnaire in the Management of Iranian Healthcare Organizations

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ARTICLEINFO

Article type:

***Article History*:**
Received:
Accepted:

Key words:
Iranian Health Care Organizations, Management, Professionalism questionnaire, Validation.

ABSTRACT

Introduction:
Professionalism is a new paradigm in postmodernism public management that helps develop a management plan for complex organizational problems. It also is the main variable in healthcare organizations for the improvement of productivity. Therefore, this research was conducted for the measurement and evaluation of professionalism and its components among healthcare organization managers of Tehran University of Medical Sciences hospitals by a valid and reliable local tool in Iran.

Materials and Methods:
This cross-sectional analytical study was conducted on 150 middle and senior managers selected by the census sampling method. The research tool was a researcher-made professionalism questionnaire with three main components, including specialization, work ethics, and organizational commitment which consisted of 30 items. A five-phase process was conducted for the development of this questionnaire in terms of face, content, structural validity with factor analysis, divergent, convergent validity using average variance extracted, Kaiser-Meyer-OLKIN, and Bartlett method, and finally Cronbach's alpha and composite reliability coefficient. Moreover, descriptive statistics explanatory factor analysis and Pearson correlation test were performed in SPSS software.

Results:
The content validity index and content validity ratio of the professionalism questionnaire were 0.72 and 0.80, respectively. The values of average variance extracted for the professionalism questionnaire and its components were greater than 0.5. Therefore, convergent validity and also divergent validity of professionalism questionnaire was confirmed by Cronbach's Alpha coefficient. Moreover, composite reliability was used to investigate the intrinsic homogeneity of the measurement model in the PLS method that was acceptable for all research structures.

Conclusion:
This study advanced research on development of new professionalism questionnaire and its components among the managers of healthcare organizations. The results of this research suggested that the healthcare organization managers should be familiar with the new approach for professionalism and aimed to facilitate an understanding of the changing character of professional work in these organizations.

► ***Please cite this paper as:***
**Dargahi H, Jafari Pouyan E, Ezatifard A. Design and Validation of Professionalism Questionnaire in the Management of Iranian Healthcare Organizations. Journal of Patient Safety and Quality Improvement. 2021; 9(4): 251-262.*
Doi*: 10.22038/PSJ.2021.60006.1338*

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Introduction

In the new century, managers and leaders of healthcare organizations need to use a professionalism approach (1) as it plays an important role in enhancing the efficiency of these organizations (1). In addition, based on the existing definitions of professionalism of managers and leaders, a set of commitment to professions, job positions, and strategies are used to achieve mental, behavioral, and technical skills in this type of organizations. Moreover, a critical, forward-looking, and systematic approach to work and profession is one of the distinguishing features of managers and leaders who have the characteristics of professionalism (2,3).

The use of professionalism criteria in the selection and appointment of managers will cause the employees and managers of healthcare organizations to continuously move towards professional behaviors (3). Professionalism is a new paradigm in postmodernism public management to help develop a management plan for complex organizational problems (4). In other words, managers should be prepared for the characteristics of professionalism, which leads to performing the activities in a professional manager (5). In fact, professionalism is a competency criterion for the selection of managers in high positions in the organizations (6).

the model of professionalism was first introduced by Friedson, and developed by Evetts as occupational professionalism (7,8). These forms of professionalism could influence the organizational assessment factors, such as audit, accountability, performance standards and indicators, and hierarchal system (8,9).

The professionalism of managers is the main variable for healthcare organizations, their patient and staff satisfaction, and the attainment of their main goals (10). Mirmogtadaie et al. showed that ethics is very important in clinical practice as it is the main domain in professionalism among medical students and teachers (11). Furthermore, Lu et al. declared that professionalism is an impressive factors in the job satisfaction of nurses in Korea and China (12). In addition, Bartel and Manapragada (2017) reported that professionalism is a predictive agent that affects organizational commitment and job satisfaction of nurses (13).

Moreover, Wynd showed that the professionalism of nurses had a significant correlation with their work experiences as Registered Nurses and the level of educational degrees. Positive aspects of nursing professionalism must be recognized by nursing executives and implemented to retain experienced nurses in their profession (14). Kornhaber and Wilson (2011) and Bissonette (2019) confirmed that nurses should continuously empower their professional development and use this competency to enhance their ethical abilities and initiatives in the workplace (15,16). Mackenzie reported that medical students and residents took an Oath upon graduation to observe the medical standards and values and work hard to develop system the medical profession (17).

Dunn indicated that there was a complex correlation between professionalism and ethics in the healthcare system. Moreover, recent studies have proven that there is a growing trend in the combination of these two variables with each other (18). However, Wu and Shah declared that healthcare organizations should be prepared for exposure with regard to professionalism related to ethical and clinical challenges (19). In recent years, the American Association of Medical College, American Board of Internal Medicine, and American Medical Association efforts have been made to strengthen professionalism in the medical profession (20). In other words, professionalism is an important element of the healthcare system for the improvement of the management skills of each member of the healthcare system.

Lack of professionalism among healthcare special professions has adverse outcomes leading to increased medical errors and complications (21). Moorhead reported that specialization is an essential component in the development of professionalism (22). Moreover, changing the professionalism system to make it compatible with the required changes in the healthcare system requires the existence of professional managers (23).

However, in recent years, a national determination has been formed in the world to improve the quality of healthcare. It is expected that academic professionals should develop a new form of professional work during their involvement in partnership with healthcare professionals for quality improvement (24). Moreover, the increase of specialization has led to even further immersion of the learners into the knowledge and culture of their own professional group (25).

Finally, professionalism is the basic relationship between the medical profession with society and includes specialization, work ethics, and professional commitment applied for providing the best medical care and healthcare services to lead to organizational excellence and professional development (26). Therefore, paying attention to the professionalism of managers in healthcare organizations not only helps to develop their work ethic, commitment, and professionalism but also has a positive effect on improving the quality of healthcare and services provided (2,3). As a result, there is a need to design a tool for measuring professionalism among the managers of the Iranian healthcare system.

A questionnaire should be validated by completion using a representative sample, demonstrating adequate reliability and validity (27) for the successful development of a survey (28).

Appropriate and correct ordering of questions as well as correct scaling and format can make the survey worthwhile as it may accurately reflect the views and opinions of the participants (30).

In the past few years, several standings have been studied about designing professionalism in management. Woo et al. developed a professional identity questionnaire, including commitment behavior, professional knowledge, attitudes, and professional roles and values. The Cronbach's alpha coefficient of this questionnaire was 0.92 and its face validity was confirmed (31). Breckelmans et al. developed the nurses' professional growth questionnaire, including components of motivation, importance, position, and well-controlled activities. To validate this questionnaire, they used 1329 nurses in hospitals in Germany. This questionnaire had 82 items, and its Cronbach's alpha scores ranged from 0.70 to 0.89 for all items (32).

Jahani and Ghodsi re-validated the Acfilter and Keff professional growth questionnaire in Iran conducted on 600 employees of Education and Training Departments. The validity of this questionnaire was confirmed by 30 extent panel members (33)**.** Taheri et al. conducted a study using a professional ethics researcher-made questionnaire for 198 employees of Red Crescent Organization of Tehran, Iran who were selected randomly as a statistical population.

The Cronbach's alpha coefficient was used to examine the reliability of their questionnaire which was higher than 0.70. Content validity and exploratory factor analysis were used to confirm its validity (34). Therefore, according to the forward contents of preface, and the need to develop professionalism in healthcare organizations management as well as the measurement and evaluation by a valid and reliable local tool in Iran, this research was conducted to design, validate, and evaluate the mentioned professionalism.

Materials and Methods

This cross-sectional and analytical study was conducted on 150 middle and senior manages of hospitals of Tehran University of Medical Sciences and other health care centers. The sample size was determined by the census method. Regarding the ethical considerations, the verbal consent of participants was obtained and they were also given a full explanation regarding the research process before the study. The researcher-made professionalism questionnaire, including three main elements, named specialization, work ethics, and organizational commitment was used in this study.The initial questionnaire consisted of 35 items which decreased to 30 items after the establishment of several focus group meetings in the form of an expert panel, including 15 current and former senior medical and non-medical executives and faculty members in the field of healthcare management. Therefore, items 1-10, 11-20, and 21-30 were devoted to specializations, work ethics, and organizational commitment, respectively.

A five-phase process should be conducted for the development of a new research tool, including preliminary conceptual decisions, the definition of key concepts, item generation, assessment of validity and reliability, and finally, formulation of the final tool (35).

The first three phases of professionalism questionnaire development were explained before. Next, for the assessment of its validity, various procedures were used consisting of face validity, content validity, structural validity with factor analysis, and divergent and convergent validity (36).

Face validity of professionalism questionnaire was confirmed by a focus group consisting of 15 medical specialists of healthcare management faculty members and senior managers from three main universities of medical science in Tehran, including Tehran, Iran, and Shahid Beheshti universities. They confirmed the importance and validity of this questionnaire after some changes for use in the measurement of professionalism among healthcare organization managers.

As a result, they reported the acceptability of the questionnaire and whether questions could cover the entire content of the test, and to determine the agreement between the members of the focus group on the face validity of the professionalism questionnaire and its dimensions.

To determine the content validity ratio (CVR) of the professionalism questionnaire for transparency relevance and comprehensiveness of questions, separate questionnaires were provided for members of the panel of experts, and they were asked to freely express their opinions and ideas about the items that needed to be modified, removed, and added to the questionnaire and rated it based on a five-point Likert scale. Consequently, if the question was equal to or greater than 75%, the question was accepted for CVR. Moreover, the content validity index (CVI) measured for the professionalism questionnaire to confirm its applicability, simplicity, fluency, relevance, clarity, or transparency was used for each question of this questionnaire. Since the desired level of CVI should be greater than 0.79, and the CVI of this questionnaire was 0.75, the avenge variance extracted (AVE), as well as convergent and divergent validity, were used to investigate the construct validity to determine the professionalism questionnaire infrastructure.

To measure the reliability or consistency of how much the same research tool yielded the same result of the professionalism questionnaire, we used an index called Cronbach's alpha coefficient within the range of 0-1. Furthermore, the interclass correlation consistency (ICC) of the questionnaire was analyzed by the test-retest method. Moreover, SPSS Software version 21 was used for descriptive statistics explanatory factor analysis, Pearson correlation, and Cronbach's alpha coefficient.

Results

The results of this research showed that the CVI and CVR of professionalism questionnaire were 0.72 and 0.80, respectively. Moreover, we used construct validity, including convergent and divergent validity by smart PLS3 software.

To perform convergent validity, it is necessary to use AVE. Convergent validity exists when the composite reliability is 0.7 and AVE is greater than 0.5 and also composite validity is greater than AVE. In this case, the convergent validity of the questionnaire was confirmed (37-39). In addition, Fornell and Larcker suggested composite reliability values above 0.7 are approved (37).

Table 1. Results of convergent validity assessment with average variance extracted criterion.

Research variables	AVE
Professionalism	0.664
Specialization	0.620
Work ethics	0.569
Organizational commitment	0.533
AVE: average variance extracted	

According to Table 1, the values of AVE for the professionalism questionnaire and its components were greater than 0.5;

therefore, the convergent validity of the professionalism questionnaire was confirmed. Moreover, Fornell and Larcker stated that if the square root of AVE for a variable was greater than the correlation of that variable with other variables, the divergent validity for that variable was confirmed (37).

Table 2. Divergent validity results by Fornell and Larcker method

Index	Specialization	Work ethics	Organizational commitment
Specialization	0.8**0**		
Work ethics	**0.50**	0.8**0**	
Organizational commitment	0.60	**0.5**	0.83

According to Table 2, the root mean of extracted variance for each variable was greater than its correlation with other variables.

Therefore, the divergent validity of the professionalism questionnaire was confirmed. In order to prove whether the data used for factor analysis are appropriate or not, and also to determine the adequacy of the samples, Kaiser-Meyer-OLKIN (KMO) and Bartlett tests were used.

Based on these two tests, the collected data is appropriate for factor analysis if the KMO index is more than 0.6 and close to 1 and also the sigma of Bartlett test is less than 0.5. Bartlett test is used to investigate the uniqueness of the correlation matrix; accordingly, if the matrix is equal to 1 (37), there is no significant relationship between the variables and this research has the ability to be a factor analysis.

Table 3. Kaiser-Meyer-OLKIN and Bartlett test results

Variable	KMO test	KMO value	p-value
Professionalism	0.911	5714.4	0.0001
KMO: Kaiser-Meyer-OLKIN			

As seen in Table 3, the value of the KMO index was greater than 0.7 and indicated the adequacy of data sampling.

In addition, the Bartlett test indicated the correlation matrix for factor analysis of data (P=0.0001).

Reliability refers to the accuracy, consistency, or repeatability of test results (40). Considering that the Cronbach's alpha coefficient of the professionalism questionnaire was equal to 0.94 and close to 1, in other words, more than 0.70, the reliability of this questionnaire was confirmed (Table 4).

Table 4. Cronbach's alpha of professionalism questionnaire

Index	Questions	Alpha Coefficient
Professionalism	30	0.94

As can be seen in Table 5, the t-statistic between the professionalism components and their related questions in all cases were found to be greater than 1.96 while the p-values were below the 0.05 error level, respectively. Therefore, the significance of the relationships between the components and their corresponding questions was confirmed. Since Cronbach's alpha coefficient is very strict, a more modern criterion called composite reliability (CR) is used to investigate the intrinsic homogeneity of the measurement model in the PLS method. This index was introduced by warts et al. (40). As a result, both of these criteria are used to better assess the reliability of the PLS method.

If the composite reliability value for each construct exceeds 0.7, it indicates good internal consistency for the measurement model (37).

Table 5. Standardized factor loadings and coefficients of relevant questions of professionalism questionnaire

Index	**No. of questions**	**Factor loading**	**Reliability of the reagent**	**T-value**	**P-value**	**Result**
Specialization	q 1	0.834	0.696	45.72	0.00	Optimal
	q 2	0.783	0.613	27.09	0.00	Optimal
	q 3	0.819	0.671	33.94	0.00	Optimal
	q 4	0.850	0.723	46.10	0.00	Optimal
	q 5	0.846	0.716	42.48	0.00	Optimal
	q 6	0.759	0.576	29.94	0.00	Optimal
	q 7	0.716	0.513	21.38	0.00	Optimal
	q 8	0.646	0.417	13.20	0.00	Optimal
	q 9	0.815	0.664	33.37	0.00	Optimal
	q 10	0.782	0.612	22.92	0.00	Optimal
Work ethics	q 11	0.805	0.648	35.41	0.00	Optimal
	q 12	0.836	0.699	34.69	0.00	Optimal
	q 13	0.851	0.724	28.93	0.00	Optimal
	q 14	0.820	0.672	29.83	0.00	Optimal
	q 15	0.724	0.524	12.32	0.00	Optimal
	q 16	0.643	0.413	9.66	0.00	Optimal
	q 17	0.665	0.442	9.87	0.00	Optimal
	q 18	0.656	0.430	10.13	0.00	Optimal
	q 19	0.718	0.516	14.58	0.00	Optimal
	q 20	0.786	0.618	24.21	0.00	Optimal
Organizational	q 21	0.731	0.534	19.59	0.00	Optimal
Commitment	q 22	0.760	0.578	21.28	0.00	Optimal
	q 23	0.757	0.573	20.43	0.00	Optimal
	q 24	0.703	0.494	18.81	0.00	Optimal
	q 25	0.711	0.506	18.57	0.00	Optimal
	q 26	0.606	0.367	13.09	0.00	Optimal
	q 27	0.766	0.587	24.70	0.00	Optimal
	q 28	0.816	0.666	33.43	0.00	Optimal
	q 29	0.736	0.542	15.16	0.00	Optimal
	q 30	0.696	0.484	15.36	0.00	Optimal

Table 6. Results of Cronbach's alpha coefficient and composite reliability coefficient of professionalism questionnaire

Index	**alpha**	**Combined reliability**
	(Alpha>0.7)	**(CR>0.7)**
Professionalism	0.94	0.94
Specialization	0.93	0.94
Work ethics	0.91	0.92
Organizational commitment	0.90	0.91

The results of Table 6 showed that the value of the Cronbach's alpha coefficient and combined reliability was acceptable for all research structures. In the present research, Cronbach's alpha coefficients indicated the significance of factor loading between the questions and variables at present, combined reliability coefficient, AVE, and divergent validity were appropriate for the measurement model. That is, the questionnaire used in this study measured what the researcher was considering.

Discussion

Recruitment of professional and competent managers, especially in complex and service-oriented organizations, such as healthcare organizations, plays a vital role in the employees and organizational productivity as well as the quality of services and care delivery (41). Therefore, the mentioned organizations need to measure and assess the professionalism in the management of such organizations by producing reliable and valid tools, in order to continuously improve the quality of their services and develop their individual and organizational productivity.

The results of this research reported that the face validity of the professionalism questionnaire was determined and also confirmed the acceptability, specificity, and reasonability of this questionnaire for the measurement of the professionalism of healthcare managers. Moreover, the content validity of this questionnaire was reported at 0.70 as CVI and AVE were 0.664 for confirmation of its convergent validity and divergent validity.

The reliability of this questionnaire was 0.94 by Cronbach's alpha coefficient. Aryani et al. reported the reliability of the professionalism questionnaire to be 0.93 among the education department employers in Tehran (42). Blackall et al. indicated a factor analysis of inter correlations of responses to 36 items reflecting the American Board of Internal Medicine (AMIM) elements of inter correlations for a sample of 765 medical students and residents and faculty members which led measurement of consistency estimatimed by Cronbach's alpha for each elements of professionalism and a principle components analysis of the 36 items in this questionnaire (43).

Chiung et al. designed the survey instrument for the measurement of professionalism among 440 medical students in Taiwan. The quality of the instrument was assured via consultation with experts as well as with reliability and validity tests (44). Takuda et al. conducted a survey of physicians at several teaching hospitals in Kyushu and Okinawa, Japan using the Barry questionnaire. This questionnaire was developed and validated in a study conducted in Colorado, the USA by Barry et al. using a panel of experts with experiences in medical ethics and clinical practice. In addition, they developed the Japanese version by translating texts and responses of instruments to the Japanese language. The content validity of the Japanese version was confirmed by an independent expert panel comprised of physicians responsible for educational programs in 14 participating hospitals based on the contents of professionalism guideline of the Japanese Medical Association (45).

Mohammadi et al. performed a cross-sectional survey at the Qazvin University of Medical Sciences on 100 medical residents and confirmed the content validity of the professionalism questionnaire by comprehensively reviewing published reports and selection of a panel of experts. In addition, they calculated the reliability of the questionnaire at more than 85% using Cronbach's alpha coefficient and its internal consistency was 0.82. Moreover, exploratory factor analysis was conducted by using KMO (greater than 0.6) and Bartlett tests (less than 0.5).

Factor analysis is a multivariate statistical approach used by health-related managers and professions to develop and evaluate tests and scales for the measurement of professionalism (46). Mosalanejad and abodellahifard developed a validated questionnaire for professionalism in cyber users in medical sciences in Iran and reported the Interclass Consistency (ICC) of this tool by Cronbach's alpha coefficient to be 0.78, and factor analysis which led to extraction of five factors including professionalism in laws and governing cyber space, respect for professionalism in groups

and interpersonal rules, and complying with ethics in the use of cyberspace confirmed stability of all factor correlations (47).

The other results of this research showed that the value of AVE for specialization as a dimension of professionalism questionnaire was greater than 0.5 which confirmed the convergent validity of this component. Moreover, the divergent validity of specialization was 0.87 which was confirmed by Fornell and Larcker mothed. In addition, Cronbach's alpha coefficient and combined reliability of specialization were 0.94 and 0.94, respectively. Mardani Hamoleh et al. assessed and confirmed the content validity of spiritual care competency, including specialization, in addition to other components. They used construct validity for confirmation of this questionnaire and its Cronbach's alpha coefficient was 0.77 (48).

The results indicated the value of AVE for work ethics, as the second component of the professionalism questionnaire, was 0.56 which was greater than 0.5 and confirmed the convergent validity of this component. Moreover, it was found that its divergent validity was 0.85 based on Fornell and Larcker method. In other words, the Cronbach's alpha coefficient of the work ethics component of the professionalism questionnaire was 0.91 and its combined reliability was 0.92. Andam et al. reported the confirmation of face validity and content validity values of the work ethic questionnaire and its reliability by Cronbach's alpha coefficient were 0.88 (49).

Azizian Kohan et al. confirmed the content validity of the work ethics questionnaire and its reliability at 0.87 by Cronbach's alpha coefficient (50). Sharma and Rai also developed a questionnaire for the management of work ethics among 507 different levels of managers working in the Indian wing of a multinational organization and confirmed its validity and reliability (51). Park and Hill developed the teachers' occupational work ethics scale (TOWES) for assessing the work ethics of teachers, and its face validity was examined by a penal of experts. Construct validity of the TOWES was established by scores of each of the factors being moderately correlated. Moreover, the convergent validity of the TOWES was tested using the teacher's vocation ethics of the Korean Occupational Work Ethics Inventory short form. Finally, internal consistency was determined at 0.5 using Cronbach's alpha coefficient (52).

The final results of this research reported that the value of AVE for organizational commitment, as the third component of the professionalism questionnaire, was 0.53 which was greater than 0.5, and confirmed the convergent validity and equal 0.83 by Fornell and Larcker method confirmed the divergent validity. Moreover, the Cronbach's alpha coefficient of this component of the professionalism questionnaire was 0.90 and its combined reliability was 0.91. Dargahi et al. confirmed the content validity of the organizational commitment component of the professionalism questionnaire using 15 healthcare management, organizational behavior management, and clinical psychology experts. Moreover, they measured CVI at 0.83 and its reliability by test-retest method and measured ICC were 0.80 by Cronbach's alpha coefficient (53).

In other studies performed at Tehran University of Medical Sciences, Dargahi and Sadat Tehrani (54), Dargahi et al. (55), and Dargahi and Veysi (56) confirmed the validity and reliability of the organizational commitment questionnaire. Moreover, Dargahi indicated confirmation of the organizational commitment questionnaire by seven expert faculty members, and its reliability was tested by a pilot study using the test-retest method. Based on their results, Cronbach's alpha coefficient was 0.71 (57), the face and content validity was confirmed, and its reliability was 0.78 (58).

Khan et al. established the validity and reliability of organizational construct in the firms in Pakistan. Exploratory factor analysis and confirmatory factor analysis were used to measure the construct. The exploratory factor analysis results suggested that the organizational commitment questionnaire was valid and applicable in contexts of Structural Equation Modelling (SEM). Therefore, this questionnaire used a validity and reliability scale to measure organizational commitment (59).

Kanning and Hill reported that the validity and reliability of the organizational commitment questionnaire (OCQ) were well

documented. In addition, they declared and proved the construct validity of the OCQ with the help of confirmatory factor analysis by showing that the OCQ represented a construct that could be empirically distinguished from other work attitudes (60).

In this study, a researcher-made professionalism questionnaire which was the latest tool for the measurement of managerialism of managers was examined among senior and middle managers of Tehran University of Medical sciences. At the first stage, the face and content validity of the questionnaire were approved by an expert panel of management sciences and the consistency of each questionnaire with the aim of the topic was confirmed. Furthermore, the internal consistency coefficient (ICC) was determined for all items of the professionalism questionnaire and each of its dimensions, including specialization, work ethics, and job organizational commitment using Cronbach's alpha method which confirmed the high level of internal consistency of the questionnaire.

Moreover, the authors used construct validity through AVE convergent and divergent validity, and finally, the composite reliability of this questionnaire was confirmed by Fornall and Larcker method. Validity and reliability results of the professionalism questionnaire and its dimensions, as well as the structural validity of this questionnaire on groups of educational and managerial employees, physicians of teaching hospitals, medical residents, and medical students in Taiwan, Japan, USA, South Korea, and even Iran, were all in line with the results of the present study.

However, there are differences between the communities and groups, sample sizes, personality types, and cultures of Iran and those of the other countries. These differences have led to slight differences between the results of the validity and reliability of the professionalism questionnaire in the present study and those of other studies. However, in general, it can be said that they confirm the results of this research. Therefore, the professionalism questionnaire in this study can measure professionalism and its dimensions among the managers of healthcare organizations in Iran.

Conclusion

The present study aimed to advance research on the development of new professionalism and its components, including specialization, work ethics, and job organizational commitment among the managers of healthcare organizations by designing a researcher-made questionnaire. This research demonstrated the development of a new form of professional management based on this questionnaire. Specifically, it showed how healthcare organization managers can change their management style, and engage healthcare professionals in knowledge generation and transfer, and how they can create a new approach towards professionalism in the administration of these organizations.

This study suggested that professional managers in collaborative knowledge generation, including specialization and other dimensions, just work ethics and job organizational commitment develop a national healthcare management system for delivery of the best guideline and implementation research. In the illumination of the development of a new form of professionalism that is responsive to the collaboration of distinct professional groups, this study aimed to facilitate an understanding of the changing character of professional work and enable innovative resolutions for the emerging problems of healthcare organizations.

Acknowledgment

The authors of this article would like to sincerely appreciate the help and collaboration of all middle and senior managers of Tehran University of Medical Sciences hospitals and expert groups members in this research.

Ethical Considerations

This article was derived from a thesis submitted in partial fulfillment of the degree of Master of Science in Healthcare Management to Tehran university of Medical Sciences (ethics code: IR. TUMS. SPH. REC. 1398. 02). It was sponsored by the School of

Public Health, Tehran university of Medical Sciences.

Conflicts of Interest

The authors of this article state that they have no conflicts of interest regarding the preparation and publication of this article.

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