

Designing an Accreditation Model for North Khorasan University of Medical Sciences with a Futuristic Approach

تصميم نموذج اعتماد آکادمي جامعة شمال خراسان للعلوم الطبية مع نظرة مستقبلية النهج



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Background: Accreditation process has notable effects on quality assurance in medical education and faculty development. This process determine if an institution meets or exceeds minimum standards of quality. At present, there is a lack of a standardized model of accreditation for medical Universities in Iran. Therefore, this study aimed to design an accreditation model for North Khorasan University of Medical Sciences with a futuristic approach.

Methods: This was an exploratory sequential Mixed- methods study. The sample consisted of all vice chancellors, departments' managers, administrators and executive bodies of North Khorasan University of Medical Sciences. In the qualitative phase, based on the purposeful sampling method, 10 in-depth semi-structured interviews were performed. After data saturation and identifying key concepts, the literature review was performed to elucidate the theoretical foundations of University Accreditation. In the second phase, based on purposeful sampling method, 259 participants were selected to complete the 75 questions using a researcher made questionnaire. Ten professors evaluated the face and content validity of the questionnaire. An exploratory analysis of content undertaken to identify the 12 main factors of accreditation model and a confirmatory factor analysis was employed to verify the construct validity. A Cronbach alpha coefficient of 0.825 indicated the excellent reliability of the questionnaire. SPSS software and AMOS version 24 were used to analyze the data. **Results:** Based on the results of exploratory factor analysis, 12 factors were identified as model's main factors, including: 1) organizational management (5.21), 2) strategy formulation (4.90), 3) research (4.39), 4) mission and goals (4.13), 5) students (3.84), 6) Informatics' Technology (3.74), 7) Human Resources (3.57), 8) Planning (3.36), 9) Faculty Services (3.11), 10) educational facilities (2.86), 11) financial factors (2.48), and 12) education (2.26). The sum of factors' variance percentages showed that the predictive power of the model is equal to 58.47%.

Conclusion: The model has been fitted to measure the accreditation of North Khorasan University of Medical Sciences with a futuristic approach. Therefore, it is suggested that this model can be evaluated for accreditation of similar medical Universities.

Keywords: Accreditation, Future Studies, University of Medical Sciences, Model

طراحی مدل اعتباربخشی دانشگاههای علوم پزشکی خراسان شمالی با رویکرد آینده پژوهی

زمینه و هدف: اعتباربخشی یکی از مهم ترین روش های ارتقاء و تضمین کیفیت در آموزش علوم پزشکی محسوب می شود. در حال حاضر استاندارد مدون و مکتوبی برای دانشگاه های علوم پزشکی کشور در دسترس نمی باشد. بنابراین این پژوهش، با هدف طراحی یک مدل اعتباربخشی برای دانشگاههای علوم پزشکی خراسان شمالی با رویکرد آینده پژوهی انجام شد.

روش: روش تحقیق از نوع ترکیبی (کیفی-کمی) و از لحاظ هدف از نوع تحقیقات کاربردی بود. جامعه آماری پژوهش را کلیه مدیران و معاونین گروههای آموزشی و پژوهشی و ارکان اجرایی دانشگاههای علوم پزشکی خراسان شمالی تشکیل دادند. در بخش کیفی بر اساس روش نمونه گیری هدفمند طی ۱۰ مصاحبه به اشباع رسید و در بخش کمی نیز تعداد ۲۵۹ نفر به صورت در دسترس به عنوان نمونه انتخاب شدند. جهت سنجش و دستیابی به داده ها از پرسشنامه محقق ساخته ۷۵ سوالی حاصل از مصاحبه استفاده گردید. روایی صوری و محتوی پرسشنامه توسط ۱۰ نفر از اساتید و روایی سازه نیز بر اساس تحلیل عاملی تأییدی مورد بررسی و تایید قرار گرفت. پایایی پرسشنامه بر اساس ضریب آلفای کرونباخ ۰/۸۲۵ گزارش گردید. جهت تجزیه و تحلیل داده ها علاوه بر استفاده از تحلیل محتوی از آزمون توصیفی (میانگین، انحراف استاندارد) و آزمون استنباطی (فردمن، تحلیل عاملی تأییدی و اکتشافی) با استفاده از نرم افزار SPSS و AMOS نسخه ۲۴ استفاده شد.

یافته ها: بر اساس نتایج تحلیل عاملی اکتشافی ۱۲ عامل: ۱- مدیریت سازمانی (۵/۲۱)، ۲- تدوین استراتژی ها (۴/۹۰)، ۳- پژوهش (۴/۳۹)، ۴- فلسفه وجودی و اهداف (۴/۱۳)، ۵- دانشجویان (۲/۸۴)، ۶- فناوری اطلاعات (۳/۷۴)، ۷- نیروی انسانی (۲/۵۷)، ۸- برنامه ریزی (۳/۳۶)، ۹- خدمات مربوط به اعضای هیئت علمی (۳/۱۱)، ۱۰- امکانات آموزشی (۲/۸۶)، ۱۱- عوامل مالی (۲/۴۸) و ۱۲- آموزش (۲/۲۶) شناسایی شدند که توان پیشگویی این عوامل بر اساس مجموع درصد واریانس جمعی عامل ها برابر با ۵۸/۴۷ درصد بوده است.

نتیجه گیری: مدل تأییدی اعتباربخشی دانشگاههای علوم پزشکی خراسان شمالی با رویکرد آینده پژوهی از برآزش لازم برخوردار بوده است. از این رو پیشنهاد می شود که از این مدل در جهت اعتباربخشی دانشگاه های علوم پزشکی استفاده شود.

واژه های کلیدی: اعتباربخشی، آینده پژوهی، دانشگاه علوم پزشکی، مدل

الخلفية والهدف : الاعتماد الأكاديمي هو واحد من أكثر الطرق فعالية لتحسين نوعية التعليم الطبي، في الوقت الحالي لا يوجد مرجع قياسي مكتوب لجامعات العلوم الطبية في ما يتعلق بهذا الموضوع . لذلك تم إجراء هذا البحث بهدف إنشاء منهج معتمد مستقبلي للكليات الطبية في جامعة العلوم الطبية في شمال خراسان .

الطريقة: كانت طريقة البحث من النوع المركب (النوعي - الكمي) ومن حيث الهدف من النوع البحث التطبيقي . وكان الداخولون في الإحصاء جميع مدبري ومشرفي الإدارات التعليمية والبحثية والمدبرين التنفيذيين لجامعة شمال خراسان للعلوم الطبية. في القسم النوعي، بناءً على طريقة أخذ العينات الهادفة، تم إجراء 10 مقابلات، وفي القسم الكمي، تم اختيار 259 فردًا كعينات . تم استخدام استبيان يتكون من 75 سؤال لجمع البيانات والمقابلات. تم التحقق من الصلاحية الرسمية للاستبيان من قبل 10 أعضاء هيئة التدريس وتم التحقق من الهيكل وفقًا لتحليل عامل التأكيد. تم الإبلاغ عن موثوقية الاستبيان على أساس معامل ألفا كرونباخ من 0.825. بالإضافة إلى تحليل البيانات باستخدام تحليل المحتوى، تم استخدام الاختبار الوصفي (المعدل والانحراف المعياري) والاختبار الاستدلالي (تحليل فريدمان) والعمل التائيدي والاستثنائي باستخدام برنامج SPSS و AMOS الإصدار 24 .

النتائج: بناءً على نتائج تحليل العوامل الاستكشافية، هناك 12 عاملاً منها: 1. الإدارة التنظيمية (5.21)، 2. كتابة الإستراتيجية (4.39)، 3. البحث (4.39)، 4. الفلسفة والأهداف الوجودية (4.13)، 5. طلاب (3.84)، 6. تكنولوجيا المعلومات (3.74)، 7. الموارد البشرية (3.57)، 8. التخطيط (3.36)، 9. خدمات هيئة التدريس (3.11)، 10. تم تحديد التسهيلات التعليمية (2.86)، 11. العوامل المالية (2.48) و 12. التدريب (2.26) أن القوة التنبؤية لهذه العوامل على أساس مجموع النسبة المئوية لتباين العوامل تساوي مع 58.47%.

الخلاصة النهائية: لقد أكد نموذج التحقق من الصحة الأكاديمية لجامعة شمال خراسان للعلوم الطبية مستقبل البحث. لذلك، يُقترح استخدام هذا النموذج للتحقق من صحة جامعات العلوم الطبية.

الكلمات المفتاحية: الاعتماد الأكاديمي، دراسات مستقبلية، جامعة العلوم الطبية، نموذج

شمالی خراسان کی میڈیکل یونیورسٹیوں کے علمی معیار کو معتبر بنانے کے لئے ماڈل کی تیاری، اس ماڈل کو مستقبل کو نظر میں رکھ کر بنایا گیا ہے

بیک گراؤنڈ: میڈیکل سائنس میں تعلیمی ترقی اور معیار کو بہتر بنانا بنیادی ضرورت مانا جاتا ہے۔ یونیورسٹیوں کے علمی معیار کو پرکھنے کے لئے اب تک ملک میں کوئی ماڈل یا فارمولا نہیں تھا، اسی وجہ سے شمالی خراسان کی میڈیکل یونیورسٹیوں کے علمی معیار کو پرکھنے کے لئے ایک ماڈل بنایا گیا۔

روش: یہ ایک عملی روش ہے۔ اس تحقیق میں شمالی خراسان کی میڈیکل یونیورسٹیوں کے سربراہان، ان کے معاونین، تعلیمی عملہ اور انتظامی عملے نے شرکت کی۔ کوالٹی کے لحاظ سے دس انٹرویوز میں ڈیٹا حاصل ہو گیا۔ عددی لحاظ سے دو سو انسٹھ افراد کو تحقیق میں شامل کیا گیا تھا۔ اساتذہ کے انٹرویوز سے پچتر سوالات حاصل کئے گئے۔ ان سوالوں کو کرونباخ اسکیل پر پرکھا گیا۔ ڈیٹا کا تجزیہ ایس پی ایس اور ایموس ٹونٹی فور سے کیا گیا

نتیجہ: ڈیٹا کے تجزیہ سے بارہ فیکٹر حاصل ہوئے، آرگنائزیشنل مینجمنٹ، اسٹرائیجی کی تدوین، تحقیقات، یونیورسٹیوں کے اہداف، طلباء، انفارمیشن ٹکنالوجی، افرادی قوت، منصوبہ بندی، اکیڈمیک کونسلوں کے اراکین کی خدمات، تعلیمی وسائل، مالی فیکٹر، اور تعلیمی امور، ان تمام امور کا ویرینس پرستنیج اٹھاون بنا سینتالیس نکلا ہے

سفرارش: شمالی خراسان کی میڈیکل یونیورسٹیوں کے علمی معیار کو جانچنے والے ماڈل میں تمام گوشوں کا جائزہ لیا گیا ہے اور اس ماڈل سے میڈیکل یونیورسٹیوں کے علمی معیار کو جانچا جاسکتا ہے۔

کلیدی الفاظ: معیار، علمی، میڈیکل کالج، ماڈل

INTRODUCTION

Accreditation started to spread worldwide since the 1990s. It refers to the formal control and quality assurance process by which the agency or its programs can be reviewed and approved to ensure that the minimum acceptable standards are met and linked to the approval, recognition, and certification of the performance(1). Accreditation is a collegial process based on peer and self-assessment. The two main advantages of this process are the improvement of academic quality and public accountability. This continuing quality control is often performed every 5 to 10 years (2). Moreover, accreditation facilitates the observation of the quality of services provided and facilitates the assessment of service providers (3). Establishing the accreditation process is also a good way to continuously promote the activities of health institutions (4). Education is a competitive sector and higher education institutions progressively depends on the quality of services provided. Accreditation is a tool that contributes to competitiveness in the worldwide health market (5). It is clear that the success not only depend on the recognition of their users but more and more, to the attraction of financing, guaranteeing the present and future sustainability of the organization(6). In many countries, the maintenance of educational standards is a governmental task; by contrast in the United States accreditation is peer-driven, and authorizing associations are funded by the payments of member institutions and organizations (7).

The accreditation process involving all areas of organizational behavior and operations usually involves a voluntary program, and is consistent to the standards that are optimized and accessible to support the constant and sustainable quality improvement. Also, it is frequently sponsored by a non-governmental agency and external evaluators who are regularly used to check compliance and compatibility of the facility with prescriptive standards, so the feedback from this group will indicate a level of quality improvement (8, 9). Quality improvement plays a pivotal role in meeting the needs of customers and helps organizations stay competitive (10).

Due to the close relationship between medical education, clinical medicine, and health care system, it is crucial to develop and extend the main indicators and dimensions of accreditation in order to respond to the social problems of medical education. It is suggested that accreditation-related activities drives medical universities to implement and strengthen processes that support quality in medical education. 9 themes have been introduced by Blouin et al. (2018) as the results of accreditation establishment at the medical school, which include: governance, faculty members' engagement, data gathering and analysis, continuous quality development, monitoring, documentation, making and revision of policies and procedures, continuous quality development, curriculum reforms, and academic responsibility (11).

Knowledge-based decision making in the current world requires educational institutions to recognize the future and future studies. Future studies in higher education have focused on areas such as forecasting students' numbers,

financial needs, and academic disciplines' trends (12).

Comparing the accreditation standards of Iran's University of Medical Sciences with some international accreditation models shows that, despite the fact, there are abundant measures which are not sufficiently comprehensive and do not provide appropriate feedback. The European University Association is currently focusing on the design of an accreditation process at European level. The WFME (World Federation for Medical Education) standards includes 9 domains, 35 sub-domains, and two levels: basic standards that are mandatory and qualitative standards that are selective. According to the WFME, basic standards are a generic benchmark and are globally applicable (13). Few studies have examined the compliance of these standards in Iran's University of Medical Sciences (14, 15). At the present time, the principles of future studies in the field of medical education have not been developed (16). In a study, five factors were identified as accreditation indicators for clinical nursing education: faculty members and clinical education assistants, students, curriculum, clinical facilities, and teaching-learning activities (17).

In spite of many efforts in accrediting higher education in Iran, these institutions have insufficient quality (18). Considering that the capabilities of health systems and University of Medical Sciences in Iran are clearly not defined and do not have a desirable design, the questions arise as what aspects of the accreditation are essential in future studies approach? And what accredited model can be developed to evaluate North Khorasan University of Medical Sciences? Therefore, this study aimed to design an accreditation model for North Khorasan University of Medical Sciences with a futuristic approach.

METHODS

This study followed a mixed methods sequential explanatory strategy. First, a qualitative method and then a quantitative method were performed. The sample included mostly by experts and authorities responsible for accreditation standards. These specialists worked in various departments and sections of the university and included the following category:

1. Managers and vice-chancellors of educational and research departments.
2. Executive and educational staff of the colleges (Faculty Members, training staff and Faculty deans).

In the qualitative phase, in-depth semi-structured interviews were performed to identify the main factors and key indicators in accreditation standards with a futuristic approach. In this way, they were selected by purposeful sampling method. After performing 10 Interviews which conducted in depth and semi-structured (30-45 min), data saturation was created. Data saturation ensures researchers that adequate and quality data are collected to support the study. Then, using the obtained key concepts, a review of related literature was conducted to elucidate various dimensions of these concepts. In the next step, using a set of concepts gained, a questionnaire consisting of 75 questions was created which its face and content validity were confirmed by 10 professors, supervisor professor, and

consultant. At this stage, the researcher seeks to explore the main factors until it eventually leads to a model. According to the Cochran formula, the sample size of the study was 300 participants who were selected through purposeful sampling. In this quantitative phase, 259 completed questionnaires from included participants (students, faculty members, educational and research vice chancellors, educational experts, medical education specialists and departments' managers) were gathered. The distribution of questions' options included a Likert Value Spectrum of 5, of which 1 assigned for very low and 5 determined for very high.

The construct validity of the questionnaire was confirmed through confirmatory factor analysis. The reliability of this tool was also measured by three criteria: 1- Cronbach's alpha; 2- Compound reliability (CR); 3- The load factor coefficients and then convergent validity based on the Average Variance Extracted (AVE) and divergent validity using the Fornell and Larcker matrix method obtained.

To analyze the data in the qualitative phase of research, inductive content analysis based on Shannon's method (2005) was used. The starting point for this analysis was to focus on the question and purpose of the research. First, the text has been read repeatedly by the researcher to be immersed in the text so as to obtain general understanding. Then the text has been read word by word continually till all codes to be extracted and named. Then, given the differences and similarities, codes were categorized into classes, and at the end, for each concept, the evidence was quoted from the text. In the quantitative phase, descriptive statistics such as mean, standard deviation (SD), frequency, frequency percentage, and inferential statistics (confirmatory factor analysis, exploratory factor analysis, and Friedman test) were used with SPSS and Amos software. This study was approved by ethical committee of the University.

RESULTS

In order to identify the accreditation dimensions with future studies approach, the researcher analyzed the content of the interviews' data, literature review, and the completed questionnaires. The distributed questionnaire was contained questions related to the interviews' extracted concepts. For example: What do you think the dimensions of the university's accreditation standards with a futuristic approach are? What are the factors affecting the accreditation standards of the North Khorasan University of Medical Sciences?). After collecting questionnaires, the basic concepts that were derived from the analysis of interviews and literature reviews were classified as secondary concepts. The result of this process was the extraction of 75 university accreditation indicators; then exploratory factor analysis was carried out.

Investigating the factor structure of the research questionnaire, the exploratory factor analysis and principal component analysis using varimax rotation were used. The Kaiser-Meyer-Oaklin (KMO) criteria were used to test that the sample size is sufficient and Bartlett's test was used to determine the correlation between the variables. The KMO value of 0.802 indicates that the sample size is adequate to perform the factor analysis and the feasibility of reducing the data to a series of hidden factors. According to the results of the Bartlett test ($X^2 = 47607.262$, Sig = 0.001) which indicates a high correlation between the terms, continued Factor analysis was allowed.

The 75 items obtained from the qualitative and open coding phase were reduced to 12 factors during exploratory factor analysis. This means that 75 items can be named in 12 factors (accreditation dimensions of the North Khorasan University of Medical Sciences) by combining terms that refer to a common theme. The emerged variances are shown in Table 1.

Table 1. Reliability coefficients of the accreditation model for North Khorasan University of Medical Sciences by factor analysis

Accreditation dimensions	Cronbach's alpha coefficient (α)	Composite reliability (CR)	Average Variance Extracted (AVE)
Existential philosophy and goals	0.88	0.82	0.54
Develop strategies	0.91	0.88	0.65
Organizational Management	0.88	0.91	0.65
Information Technology	0.83	0.87	0.60
Manpower	0.90	0.83	0.61
planning	0.91	0.82	0.65
educational facilities	0.87	0.78	0.55
Faculty- related Services	0.84	0.71	0.51
Financial factors	0.81	0.71	0.53
Research	0.76	0.81	0.51
Education	0.72	0.79	0.54
Students	0.83	0.70	0.53
Total	0.82	0.71	0.54

The predictive power of these factors was obtained on the basis of the total percentage of factor cumulative variance equal to 58.47%. Therefore, for the development of the accreditation model of North Khorasan University of Medical Sciences, 12 factors were identified: 1) Organizational management (5.21), 2) Strategy formulation (4.90), 3) Research (4.39), 4) Existential philosophy and goals (4.13), 5) Students (3.84), 6) Information technology (3.74), 7) Human resources (3.57), 8) Planning (3.36), 9) Services related to the members of the board scientific (3.11), 10) Educational facilities (2.86), 11) Financial factors (2.48) and 12) Education (2.26).

Cronbach's alpha and composite reliability (CR) of all variables were higher than 0.7, which points to the internal consistency and good internal stability of the factor analysis model.

By examining the kurtosis and skewness values, the distribution of the factors was normal. In order to study the multivariate normality, the value of the normalized kurtosis coefficient (Mardia's coefficient) obtained (484.94), which was less than $P(P+1) = 75(76) = 5700$, so there was no deviation from the multivariate normality. Considering t value and factor loading, all factors related to the accreditation dimensions were acceptable; therefore they were good indicators for assessing the 12 accreditation factors of University of Medical Sciences.

To validate the accreditation model of University of Medical Sciences and to investigate the relationship between 12 approved factors and the accreditation variable of University of Medical Sciences, the results were analyzed. In table 2, the Fornell and Larker matrices have been shown to evaluate the divergent validity of the model. These matrices test whether concepts or measurements that are not supposed to be related are actually unrelated. The main diameter of this extracted matrix is the square root of the Average Variance Extracted (\sqrt{AVE}) of accreditation factors. Based on the

square root of extracted mean values, the correlation of each factor with itself was greater than its correlation with other factors, which indicates good divergent validity and validates the model of accreditation. The accreditation model of University of Medical Sciences along with standardized regression coefficients is shown in Figure 1.

Absolute fit indices determine how a model is fitted with the relevant factors. Absolute fit indices are the most basic and fundamental criteria for checking the integrity of the data according to the proposed model or hypothesis, which are measured based on the differences between the variances and covariance of the two observed and developed models. Accordingly, the fitness of the model was accessed. The Goodness of fit index (GFI) and Comparative Fit Index (CFI), as the main indexes of fitness were over 0.9, which indicates the optimal fitness of the model. Also, the other fitting indexes (AGFI, NFI, and IFI) had acceptable values. Finally, based on the Root Mean Square Residual (RMR = 0.041) and the Root Mean Square Error of Approximation (RMSEA = 0.92), the model had appropriate fitness (Table 3).

DISCUSSION

Today, the issue of accreditation in Health Care Systems, Educational Institutions, and University has become a specific place with the aim of creating and promoting a safety culture and quality of patient care, as well as improving organizational performances. Accreditation standards are applicable to all healthcare organizations and, according to the World Health Organization, this program has had the greatest impact on the promotion of global accreditation standards. Accordingly, in exploratory factor analysis, 12 accreditation factors of North Khorasan University of Medical Sciences have been identified with a futuristic approach: 1. Organizational management, 2. Strategy development, 3. Research, 4. Existential philosophy and goals, 5. Students, 6. Information technology, 7. Human resources, 8. Planning, 9.

Table 2. Comparative Matrix of the square root of Extracted Average Variance (AVE) and Correlation Coefficients of Variables (0.54)

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Total	0.82	0.71	0.54

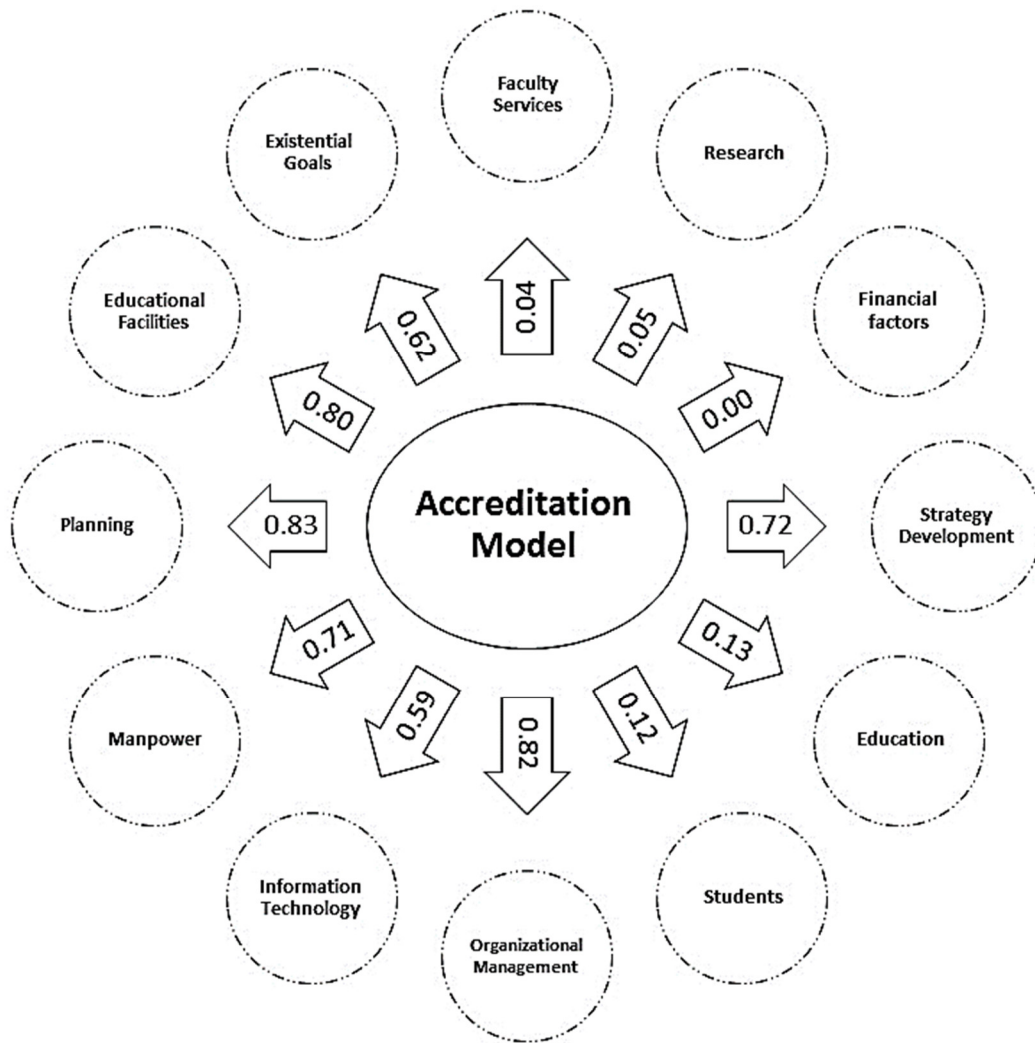


Figure 1. Accreditation Model of North Khorasan University of Medical Sciences (Standardized Regression Coefficients)

Table 3. Accreditation Model (Relationship between Dimensions Identified with Accreditation Model)

Fit indices	Desirable amount	Indicator values	Interpretation
Chi-square (chi-square)	-	8507.69	-
Degrees of freedom	-	2681	-
Chi-square ratio to the degree of freedom (χ^2 / df)	Less than 5	3.17	Optimal
The Goodness of Fit Index (GFI)	More than 0.9	0.91	Optimal
Modified Goodness of fit Index (AGFI)	More than 0.8	0.84	Optimal
Root Mean Square Error of Approximation (RMSEA)	Less than 0.1	0.09	Optimal
Root Mean Square Residual (RMR)	Less than 0.05	0.04	Optimal

Faculty services, 10. Educational facilities, 11. Financial factors and 12. Education.

Naseri et al.'s (2010) study aimed at developing standards of clinical education in nursing, led to the proposed 55 standards in five dimensions: faculties and clinical educators,

students, curriculum, clinical facilities, and teaching activities. The dimensions of students, faculty and human resources were similar to our finding (17). Also, the Department of Professional Training and Quality Assurance of Atlanta's Technical Training Courses, in its 2017 guide,

introduced 10 main dimensions of accreditation, Quality Assurance of Atlanta's Technical Training Courses, in its 2017 guide, introduced 10 main dimensions of accreditation, which included the mission, training programs, institutional plans and objectives, strategic planning, learning resources, physical resources and technical infrastructure, financial resources, human resources, organizational structure, and student services and activities (19).

The Western Association of Schools and Colleges (WASC) has expressed four its main commitments and standards: 1) Defining the goals of the institution and the results of training; 2) Achieving educational outcomes through core activities; 3) Developing and using resources and Organizational structures for quality assurance and sustainability, 4) Establishment of an organizational commitment for quality assurance, institutional learning and development (7); which is similar to the results of this study. Another very important standard in the field of medical education was the WFME Global Standards for Basic Medical Education that its nine dimensions are almost similar to our results, including nine dimensions of mission and goals, a curriculum, student assessment, students, faculty / staff, educational resources, program evaluation, clinical governance and executive management, as well as continuous renewal (20).

The overall structure of organizational performance improvement models such as Malcolm Baldrige and EFQM (European Foundation for Quality Management), which are also suggested to improve the performance of educational institutions and Universities, are comparable to those of the present study. For example, in the Baldrige model, the leadership, strategy, customers, workforce, results, and operations have been recommended for performance excellence. Baldrige model is one of the most influential, rigorous and systemic approaches to the assessment, planning, and improvement of organizations (21). In the EFQM model, leadership, strategy, individuals, partnerships and resources, processes, products and services, customer goals, staffing goals, and the goals of society have been addressed (22, 23). Higher customer focus, effective communication, identification of strengths, costs savings, increased knowledge, commitment and service quality are some of the potential benefits of applying the EFQM model (24).

Accreditation and the availability of standards will improve the risk management and help University of Medical Sciences to strengthen patient safety and create a culture of patient safety. The structured and constructive evaluation of University of Medical Sciences is possible, even in multifaceted and critical conditions (25). It is expected that by applying the Accreditation Model of University of Medical Sciences with a future study approach, not only the commitment of managers and staff will enhance and improve the level of education and empowerment of employees, but it will also assess all aspects of management and will improve operations and job performances. On the other hand, identifying main factors and dimensions of accreditation in different fields and different working areas which helps to senior management and policy makers is an important factor

in monitoring and controlling the systems. Also, attention to the accreditation dimensions with the future study approach in University of Medical Sciences improves the integrity of health services management, creates a database of medical services, increases safety and reduces the risks for patients and employees, offers education and consultation to other organizations; furthermore provides health services and reduces costs by focusing on increasing the efficiency and effectiveness of the services.

Considering the role of futuristic and forward-thinking education in making a better future for the medical education systems, the nature of the time-consuming, costly and collaborative of these studies, point out that the creation of the intellectual, scientific and cultural contexts is needed in the medical education. Of course, future study and forecasting at the national level needs its infrastructure, including the training of future study methods as a scientific mechanism for providing the necessary components of decision making and policy in Macro level, creation of integrated infrastructures and information systems, material and spiritual support for future studies to formulate national strategies and policies for the development of medical education. Also, considering that the medical education system and the health system emphasis is to make a better future, and medical education is a process that is inherently forward-looking and contemplative, it seems that capacity building for the future is essential and participation of experts, researchers, and faculty members to promote accreditation standards is needed.

One of the limitations of the present study was the lack of appropriate resources related to the subject and purpose of the study, which could influence the discussion and interpretation of the results.

Validity and reliability of the model designed for the accreditation of North Khorasan University of Medical Sciences was appropriate in this study. The use of this model is recommended for the accreditation of similar medical science universities. Academic accreditation has a special place in the process of ensuring the minimum standards in management, educational, research, student, advisory and clinical services, and will further enhance the quality of these activities at universities and higher education institutions. Therefore, achieving academic accreditation models in accordance with native culture is one of the priorities of the monitoring and evaluation system. Using the accreditation model of University of Medical Sciences with a futuristic approach can be helpful to ensure continuous improvement in the quality of academic services and can be used as a standard tool by foreign evaluators and policymakers of the health system.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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