Original Article

Establishing Validity And Reliability Of Newly Developed Professionalism Assessment Tool

Khola Noreen[1], Rukhsana Zuberi[2], Kashif Ali[3], Lubna Meraj[4]

Abstract

Objective: This study aims to establish construct validity and reliability of a newly developed tool for assessment of professionalism in undergraduate medical students.

Method: The study was carried out after establishing feasibility and obtaining ethical approval from Aga Khan University and Rawalpindi Medical University. Data was collected from 3rd-year and 4th-year undergraduate medical students at the end of 2-week rotations. The tool was initially administered to year 4 MBBS students (pilot test); the data obtained was analysed by principal component factor analysis and reliability analysis to estimate the construct validity and reliability. A total of 391 Year 3 medical students were assessed using the 16-item PAT. The principal component analysis (PCA) and reliability analysis were conducted, thus further establishing the validity and reliability of the tool.

Result: Four factors were obtained on exploratory PCA. Nine items loaded on Factor 1 and merged the items on the proposed P-SS2 and P-SS3 subscales of "Ethics and personal characteristics" into one (SS1). SS2 was validated as all three items loaded on this subscale were related to "Effective communication and doctor-patient relationship." SS3 and SS4 separated the four items included in the P-SS4 of 'Supports Community Needs and Others' into SS3 of "Respects and Supports Others" and into SS4 with items related to "collegiality: Responsive to Community Needs and Other Health Professionals." The 16-item PAT had an overall reliability (Cronbach's alpha) of 0.856. The Reliability of the new Subscales obtained after PCA for SS1 was 0.767, for SS2 was 0.726, for SS3 was 0.568 and for SS4 was 0.380.

Conclusion: The final tool developed for assessment of professionalism had 16 items on a 7-point Likert-like scale, across 4 Subscales. It can be used as a reliable and valid tool for assessment and feedback of professionalism for undergraduate medical students.

Keywords: Validity, reliability, assessment, professionalism, undergraduate, medical students.

Contributions:
KN, KA, LM - Conception, Design
RZ - Acquisition, Analysis, Interpretation
RZ - Drafting
KN, KA, LM - Critical Review

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Introduction

The importance of professionalism has been stressed for many centuries, yet it is considered the most intangible area in medical education.[1] Its significance has been recognised since Ancient Greece; the Hippocratic Oath laid stress on the professional behaviour of doctors.[2,3] The 21st century has seen medicine transform from this elite society of healers-professionals, to a booming industry of science & technology available to all those who can afford to pay for it. The last decade has seen a significant shift in the way the medical profession and professionalism are defined and practised in the West.[4] Because of the growing interest in professionalism and the increased need for professionalism assessment, medical institutions and organisations worldwide have prioritised the development of techniques for implementing and assessing professionalism in the medical profession.[5] General Medical Council (GMC) included professionalism as one of the required competencies in "Tomorrow's Doctors, "as well as in the "Good Medical Practice" Guidelines,[6] and the Accreditation Council for Graduate Medical Education (ACGME 2007)have recognised professionalism as one of the six competencies required of a graduate medical doctor in their Outcomes Project.

The Association of American Medical Colleges (AAMC), The American Board of Internal Medicine (ABIM 1995) initiated the Medical Professionalism Project (2002), which, with the American College of Physicians-American Society of Internal Medicine (ACP-ASIM 2002) Foundation, led to the development of "The Physicians' Charter on Professionalism".[7,8] The European Federation of Internal Medicine has also joined hands and has designated professionalism as a vital competency. Almost all US Medical schools have incorporated professionalism as a mandatory component of medical education.[9]

Undergraduate medical education in Pakistan is mainly therapeutic and focuses on healing the sick. Current trends in the training and practice of health care workers, generally, and medical graduates and in the subspecialties, particularly, have highlighted the overwhelming emphasis of medical

science competencies in the certifying criteria, with the acquisition of humanistic qualities left to assumption and chance. There is a crucial need for a framework for assessing professionalism. This is to ensure that the dehumanised care the medical faculty is accused of and the spectrum of medical errors arising with the advancement of the medical sciences are self-regulated by the university by the accrediting body, the Pakistan Medical Commission, setting appropriate standards in undergraduate and postgraduate medical education.[10]

Globally, different tools are available for the assessment of professionalism; P-MEX is the most commonly cited tool for assessing professionalism and has been piloted in the West and the East.11 There is strong evidence that supports the contextual variation that influences the assessment of professionalism using P-ME.12 Jha et al., supported the influence of the contextual difference in the assessment of professionalism, which influences the understanding of professionalism in different geographical regions.13 Moreover, the recommendation and consensus statement from the Ottawa Conference also strongly stressed the need for cross-cultural validation of a tool for assessing professionalism.14 The Ottawa report also explored the statements on the assessment of professionalism in various ethnic and cultural backgrounds, including China, Japan, and Korea.[15]

A recent Delphi study conducted by Fong et al. reported an assessment of professionalism in Singapore's context.[16] It was the first-ever study reporting the assessment of medical professionalism in a multi-ethnic Asian context. The study stressed the cultural fit theory,[17] and intercultural development continuum,[18] strongly support the evidence that medical professionalism is strongly influenced by societal values, norms, culture and beliefs.

There is increased stress on the assessment of professionalism as an explicit constituent in medical education in the Gulf region, as professionalism is considered a key aspect of Saudi-MEDS, a competency-based framework for medical education in Saudi Arabia.[19] Since the assessment of medical professionalism is also found to be culture-specific, the six domains described by the American Board of Internal Medicine (ABIM) have been revalidated in the Arabian context in a study conducted by Eraky,[19] and the validated tool was labelled as Arabian LAMPS. Hence, there are many assessment tools available in the literature for the assessment of professionalism. Still, there is a real dearth of literature regarding the availability and practicality of such a tool in our part of the world. The absence of a socio culturally sensitive, context-specific and linguistically appropriate tool within the settings of Pakistani medical schools warrants the need for the development and validation of a tool for the assessment of professionalism. The present study aimed to establish validity and reliability of newly developed professionalism assessment tool (PAT) to be used as effective modality for assessing professionalism in undergraduate medical students.

Materials And Methods

The cross-sectional validation study was carried out in two steps after establishing feasibility and taking ethical approval from the Institutional Ethical Review Board, RMU (244/IREF/RMU/2020) and AKU (2021-5690-16626) over six months from February 01, 2021, to July 01, 2021. The data was collected from 3rd & 4th year medical students during rotation in Community Medicine department, so purposive sampling (consecutive sampling) was employed to collect data. The tool was initially administered to year 4 MBBS students (pilot test); the data obtained was analysed by principal component factor analysis and reliability analysis to estimate the construct validity and reliability. A total of 391 Year 3 medical students were assessed using the 16-item PAT. The principal component analysis (PCA) and reliability analysis were conducted, thus further establishing the validity and reliability of the tool.

Results

Data Analysis of the Pilot Study (48-Item Tool)

This phase includes demographic characteristics of the Year 4 medical students (study participants), reliability analysis, principal component analysis, composition of each factor (item-loadings) and its relationship to proposed subscales (Appendix A).

Descriptive Statistics - Demographic Data of study participants

The study participants were 345 year medical students (year 4 MBBS), whose overall mean age was 23.2 ± 2.3 years. The majority of the students were females, 226 (65.5%) and males were 119 (34.5%).

Principal Component Analysis of the 48-item Pilot Tool

Construct validity was tested with factor analysis that was conducted on 48-item scale. Principal Component Analysis (PCA) was used to check the dimensionality of the scale. PCA was done to check the multi-dimensionality of the scale and for scale reduction. Bartlett's test of sampling adequacy ($\chi 2 = 4647.43$, df = 1128, p = 0.000) shows that dimension reduction applies to this data. The Kaiser Meyer Olkin (KMO test) value was 0.597, indicating adequacy of the test (Table 1).

Factor Loadings:

Total 13 items loaded on factor 1 with values in the 0.4 to 0.5 range, while 6 items loaded on factor 2 and ranged from 0.4 to 0.5, three items loaded on factor 3 in the ranged from 0.3 to 0.5, four items loaded on factor 4 ranged from 0.3 to 0.6, three items on

factor 5, two on factor 6, three on factor 8, four on factor 9, two on factor 11 and one item loaded on both factors 10 and 14. Those factors were omitted where the item loadings were either negative or less positive than on other factors. In the end, 9 factors were retained, which were factors 1-6, 8-9, and 14. Items 7, 12 and 14 did not load on any of the 17 factors and were excluded.

Scale Reduction: The data obtained on the 48-item pilot study were analysed, and the scale was reduced on the basis of the results of PCA loadings and inter-item correlations. If two or more items loading on the same factor had inter-item correlations of more than 0.8 or less than 0.2, only the one most often used in the literature was retained. Out of the total 48 items, 32 items were discarded based on these inter-item correlations (Table 2). The 16 items were retained with five proposed subscales (P-SS), namely P-SS1 Effective Communication and Doctor Patient Relationship, P-SS2 Ethics, P-SS3 Personal Characteristics and Self-Directed Learning, P-SS4 Supports Community Needs and Others, P-SS5 Collegiality: Respects and Supports Others (Appendix-B).

Initial factor analysis extracted sixteen factors that cumulatively explained 62.8% of the total variance. Reliability of the initial 48-item scale was $\alpha = 0.765$. The graphical presentation of extracted factors is shown as a scree plot (Figure. 1).

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.597
Bartlett's Test of Sphericity	Approx. Chi-Square	4647.438
	df	1128
	Sig.	.000

Table 2: Total Variance of 48-item PAT

Component	**Initial Eigenvalues**		
	Total	% of Variance	Cumulative %
1	5.158	10.746	10.746
2	3.101	6.461	17.208
3	2.346	4.888	22.096
4	2.207	4.598	26.694
5	2.032	4.234	30.928
6	1.893	3.945	34.872
7	1.706	3.554	38.427
8	1.602	3.338	41.764
9	1.520	3.167	44.932
10	1.470	3.063	47.994
11	1.455	3.032	51.026
12	1.403	2.924	53.950
13	1.269	2.644	56.594
14	1.239	2.582	59.176
15	1.147	2.390	61.567
16	1.083	2.256	63.823
17	1.012	2.109	65.932
Extraction Method: Principal Component Analysis			

Results of Data Analysis of the Main Study (16-Item Proposed Sub-Scale (P-SS)

This study students includes demograhic charcateristics of the year 3 medical students (study participants), descriptive statistics, reliability analysis of the total scale and subscales, validation of the scale and subscales using principal component analysis, composition of each factor (item-loadings) and its relationship to proposed subscales, and composition of each factor (item-loadings) and its relationship to proposed subscales was calculated using Inter-item correlation. Developmental stages (both phases) of PAT are shown in Figure. 2.

- Demographic Data of Study Participants – Year 3 Medical Students

The study was conducted on 391 year 3 Medical Students. The mean age of students was 22.4 ± 5.6 years. The majority of the students were females, 245 (62.5%), and 146 (37.3%) were males.

- Descriptive Statistics of the Overall 16-item PAT (n= 391).
  - The overall total mean score of the 16-item PAT was 4.489$\pm$1.1 with a range of 1.987 (3.693 - 5.68).
  - The mean and standard deviation (SD) of each item of the 16-item PAT were calculated (Table 5). The item 'Keep knowledge and skills up to date' had the highest mean score, 5.68, with an SD of 0.94. The second highest mean score

(4.95, SD 1.22) was of the item 'Maintains patient confidentiality,' and the third highest score was of 'Responds positively to constructive criticism' (4.65, SD 1.04).

- The item 'Demonstrates advocacy for patient safety' and the third lowest mean score (4.08, SD of 1.47), the item 'Respect patient's autonomy' had the second lowest mean score (3.99, SD 1.40), and the item related to the community 'Is responsive to community needs' had the lowest mean score of 3.69 (SD 1.86). Details are mentioned in Table 3.

Table 3. Descriptive Statistics of Individual items on 16-item PAT (n= 391)

Items	Mean Scores	Standard Deviation
Maintains patient confidentiality	4.95	1.22
Communicates effectively with patients and their families	4.36	1.15
Builds trust with the patient (patient-doctor relationship)	4.21	1.29
Respect patient's autonomy	3.99	1.40
Demonstrates advocacy for patient safety	4.08	1.47
Supports equitable distribution of health care resources	4.59	0.97
Is responsive to community needs	3.69	1.86
Demonstrates honesty	4.48	1.35
Participates in activities aimed at attaining excellence in medical education	4.64	1.05
Keep knowledge and skills up to date	5.68	0.94
Admits error and omission	4.43	1.32
Responds positively to constructive criticism	4.65	1.04
Seeks and endorses diverse perspectives of team members to foster creative problem-solving	4.36	1.17
Supports academic excellence in others	4.64	1.03
Shows respect to peers, physicians and other health professionals	4.62	1.01
Completes task with Accountability	4.43	1.32

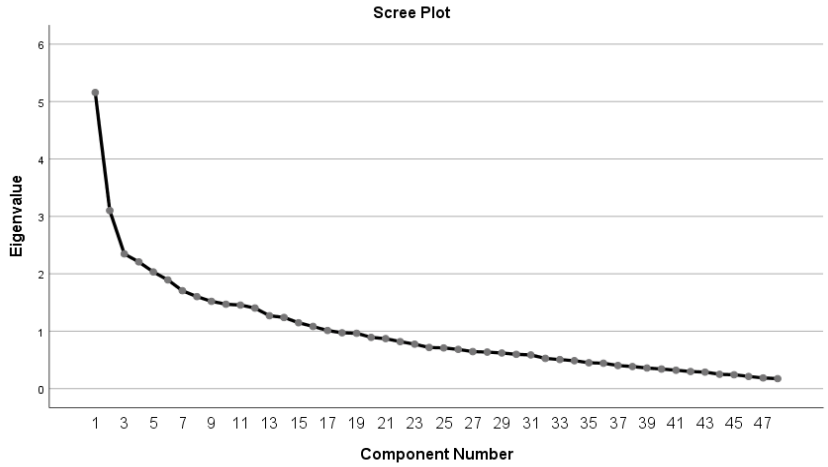


Figure 1: Scree Plot of extracted items

- **Results of the Principal Component Analysis on the 16-Item PAT**

Exploratory Principal Component Analysis on the results of the 16-item PAT yielded 4 components (Factors) with eigenvalues of more than 1 (Table 4). Factor 1 had an eigenvalue of 5.348, Factor 2 had an eigenvalue of 3.l61, Factor 3 had an eigenvalue of 1.417, and Factor 4 had an eigenvalue of 1.072.

- **Composition of four factors and their relationship with proposed subscales**

a. Composition of Factor 1 and its Relationship to the Proposed Subscale P-SS1

Total 9 items loaded on Factor 1 with values in the range of 0.5- 0.6. The items that loaded on factor 1 were "respects patient's autonomy," "maintains patient confidentiality," "supports equitable distribution of health care resources," "demonstrates

honesty," "completes task with accountability," "participates in activities aimed at attaining excellence in medical education," "keep knowledge and skills up to date," "admits error and omissions," "responds positively to constructive criticism" (Table 4). The items of the proposed subscale 2 and 3 (P-SS2, P-SS3) representing Ethics and Personal Characteristics & Self-Directed Learning all loaded on Factor 1, and a new Scale SS1 emerged as 'Ethics and Personal Characteristics' (Appendix -C).
Double Loading: Item of "demonstrate honesty" also loaded heavily on Factor 2 (0.542) as well as on Factor 1 (0.472), but was retained in subscale 1 (SS1) because it is an important part of personal characteristics.

Table 4. Component matrix showing Individual items Loadings for extracted components

Items	Component (Factors)			
	Factor 1	Factor 2	Factor 3	Factor 4
Communicates effectively with patients and their families	.311	.784	.220	
Demonstrates patient safety	.304	.446		.156
Respect patient's autonomy	.438	.711	.220	
Maintains patient confidentiality	.672	.478		
Supports equitable distribution of health care resources	.652	-.305	-.406	.210
Builds trust with patient(patient-doctor relationship)	.627	.587		
Is responsive to community needs	.523	.170	-.427	.401
Demonstrates honesty	.472	.542	-.166	-.305
Completes task with accountability	.662	-.249		-.513
Shows respect to peers, physicians and other health professionals	.547	-.262		.525
Seeks and endorse diverse perspectives of team members to foster creative problem-solving	.628	-.387	.638	
Participates in activities aimed at attaining excellence in medical education & patient care	.573	-.244	-.149	-.404
Keep knowledge and skills up to date	.655		-.178	.132
Admits error and omission	.695	-.371	-.173	-.144
Responds positively to constructive criticism	.661	-.476	-.147	
Supports academic excellence in others	.628	-.387	.638	
Extraction Method: Principal Component Analysis.				
a. 4 components extracted.				

b. Composition of Factor 2 and Its Relationship to the Proposed Subscale 2 (PSS2)

A total of 3 items loaded on Factor 2 with values in the 0.5-0.7 range (see Table 6). The items loaded on Factor 2 included "communicates effectively with patients and their families," "demonstrates advocacy for patient safety," "builds trust with patients" (patient-doctor relationship (Table 4). The new Scale SS2 emerged as 'Effective communication and Doctor-patient relationship,' and is the same as the proposed scale P-SS1, with the addition of the item of patient advocacy (Appendix C).

c. Composition of Factor 3 and its Relationship to the Proposed Subscale 4 (PSS4)

Two items, "seeks and endorses diverse perspectives of team members to foster creative problem-solving" and "supports academic excellence in others", loaded on Factor 3, each with the same value of 0.638 (Table 4). The item loadings on Factor 3 were the same as in the Proposed Subscale P-SS5, and it was labelled as 'Collegiality: Respects and Supports Others' (Appendix -C).

d. Composition of Factor 4 and Its Relationship to the Proposed Subscale PSS5

Two items loaded on Factor 4 with values in the range of 0.4-0.5. The items loaded on Factor 4 were also the same as those loaded on the previously proposed subscale P-SS5 (Table 4). The items were "responsive to community needs," and "shows respect to peers, physicians and other health professionals." The label of 'Responsive to Community Needs and Other Health Professionals' was retained for Subscale 4.

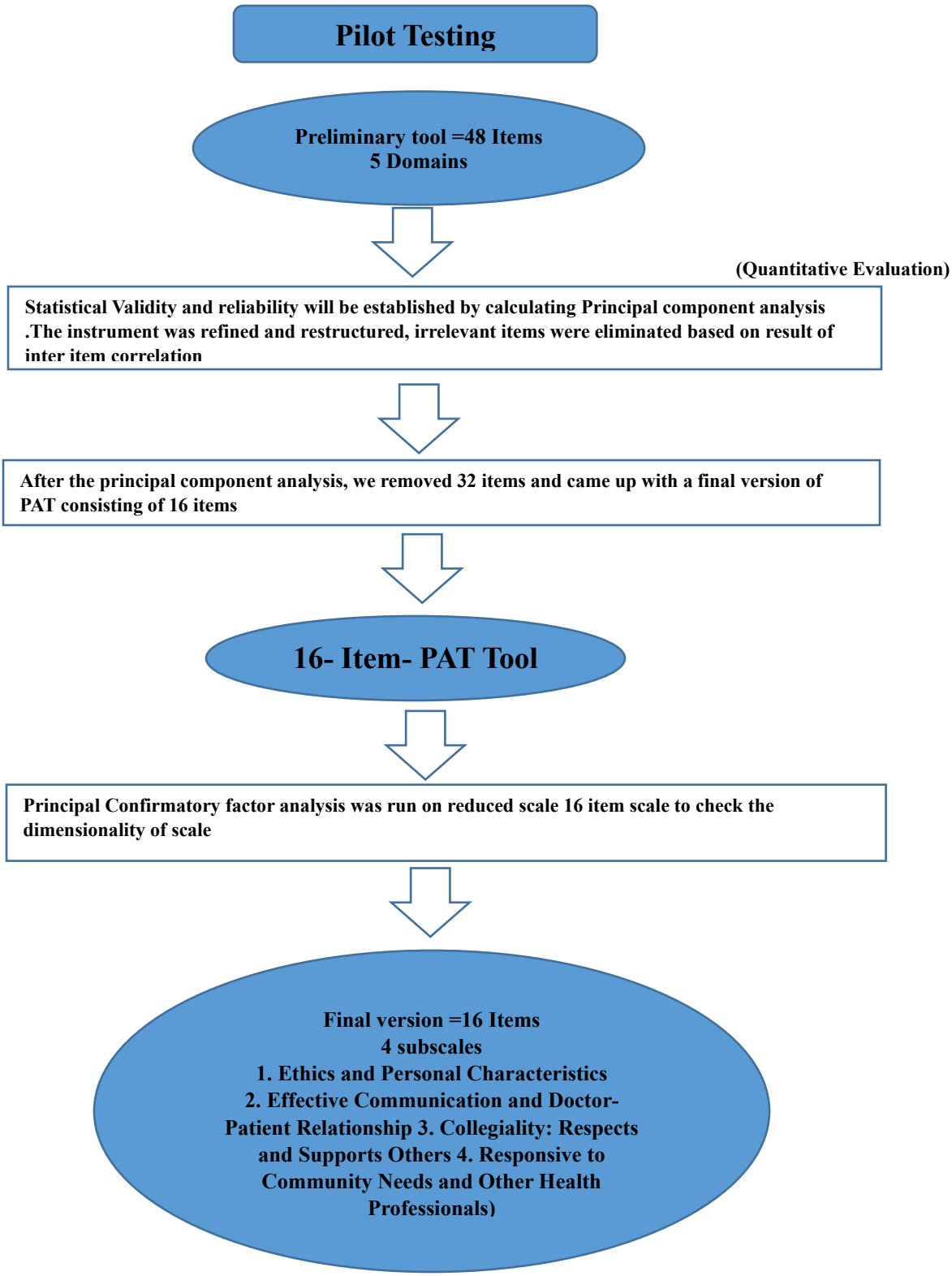
Reliability Analysis of the 16-Item PAT

i. Internal Consistency of the Total 16-Item Scale - Cronbach's alpha

The Total 16-Item Scale elicited a Cronbach's alpha of 0.856. Deleting any of the items would lead to a slight decrease in the reliability of the score

- **Inter-item Correlations and Item to Total Correlations of the 16-Item PAT**

The inter-item Correlations of the 16-item PAT ranged from - 0.177 to 1.00.



The item-to-total-scale Correlations ranged from 0.307 to 0.599. The item 'Seeks and endorses diverse perspectives of team members to foster creative problem solving' had the highest, and the item 'Communicates effectively with patients and their families' had the lowest correlations.

- **Cronbach's alpha if the item is deleted**

Cronbach's alpha increases marginally on deleting an item, so all items were retained.

Internal Consistency of the Subscales

The Total 16-Item Scale elicited a Cronbach's alpha of 0.856. Cronbach's alpha for the subscales ranged from 0.767 to 0.380. For SS1 Ethics and Personal Characteristics, it was 0.767, for SS2 Effective Communication and Doctor-Patient Relationship, it was 0.726, for SS3 Collegiality: Respects and Supports Others, it was 0.568, for SS4 Responsive to Community Needs and Other Health Professionals, it was 0.380.

Discussion

Since professionalism is socially constructed, it must be studied in the contexts of cross-cultural attitudes, values and beliefs. This phenomenon warrants the need for the development of a culturally sensitive tool for assessment of professionalism in our contexts.[20]

The current study served as a reference for a robust assessment tool, which has provided reliable results on which we can base valid decisions for assessment professionalism in future doctors in our context. Four factors: 1. ethics and personal characteristics, 2. effective communication and doctor-patient relationship, 3. collegiality: respects and supports others, 4. responsive to community needs and other health professionals emerged as the important key factors of the final tool.

The PAT has shown encouraging results in assessing professionalism for assessment of professionalism in the local context. Among the various tools cited in literature for assessment of professionalism, the most commonly used tool is the one by Arnold.[3] The tool developed by Arnold et al. was a 14-item scale based on attributes of professionalism defined operationally by ABIM. Based on their item analysis results, two items were omitted because of low inter-item correlation scores. The final scale consisted of 12 items with a Cronbach's alpha of 0.71 (meets the minimum accepted score, Nunnally, 1978), while the PAT in the present study consisted of 16 items, with a Cronbach's alpha of 0.856. The item-to-item correlations of scores in Arnold's tool were reported as low to moderate (0.10 to 0.40), while in the present study, the item-to-item correlations were stronger (0.3 to 0.6). Factor analysis yielded three factors with eigenvalues of 3.18, 1.70, and 1.20, respectively, and representing 51% of the common variance. They were named 'excellence,' 'honour,' and 'altruism. ' At the same time, factor analysis in the present study (PAT) yielded four factors with eigenvalues of 5.34, 3.l6, 1.41, 1.07, and these factors also represented 68% of the common variance.

In PAT, there was double loading of the item of "demonstrate honesty", which loaded heavily on Factor 2 (0.542) as well as on Factor 1 (0.472), but was retained in subscale 1 (SS1) because it is an important part of personal characteristics. The Four Subscales obtained were named "SS1: Ethics and Personal Characteristics," "SS2: Effective Communication and Doctor-Patient Relationship," "SS3: Collegiality: Respects and Supports Others, and "SS4: Responsive to Community Needs and Other Health Professionals."

The reliability scores and item-to-item correlation scores of Arnold's scale were found to be consistent with the results of the present study. The internal reliability (Cronbach's alpha) of the Subscale 'Excellence' was reported to be 0.72. However alpha coefficients of 'honour/integrity' and 'altruism /respect' were 0.60 and 0.59, respectively, the reliability (Cronbach's alpha) of the first subscale (ss1) "ethics and personal characteristics" was 0.767, of the second subscale (ss2) "effective communication and doctor- patient relationship" was 0.726, of the third subscale (ss3) "collegiality: respects and supports others" was 0.568. The fourth subscale (ss4) "responsive to community needs and other health professionals" had a Cronbach's alpha of 0.380, even though the last two subscales had only two items each.

The American Board of Internal Medicine (ABIM)'s questionnaire has been validated in various cultures and religions, including Iran.[21] The study was conducted on 224 residents of the medical universities of Tehran. The author assessed the residents' attitudes towards professionalism by using the validated and reliable ABIM's questionnaire, which was evaluated for content and construct validity in the Iranian context. After expert validation, one item was removed from the ABIM tool and six new items were added. The Cronbach's alpha of the overall scale was 0.88, which is consistent with the result of the present study, in which Cronbach's alpha was 0.86. The Cronbach's alpha of subscale 'excellence' was 0.77, for subscale' honour & integrity it was 0.85, and for the third subscale 'altruism/respect' it was 0.83. Thus Iranian study established the reliability and validity of the Farsi version of the ABIM questionnaire by adding 6 new items.

Professionalism Mini-Evaluation Exercise (P-MEX) is also widely used worldwide and is a snapshot assessment of a resident-patient encounter specifically for assessment of professionalism.[1] P-MEX was initially developed in Canada on the format of mini-CEX reported by Norcini and colleagues,[22] during a workshop conducted as part of a faculty development program and attended by 93 McGill residents and faculty members. Initially 142 behaviours were identified by mutual consensus during the workshop, which were later refined and condensed to include 24 items and 4 domains (subscales) namely 'reflective skills,' 'doctor–patient relationship,' 'inter professional relationship skills' and 'time management' with eigenvalues more than 1.0 that accounted for 85% of the variance in the 24 items. PAT used in the present study elicited four Subscales with eigenvalues of more than 1.0, accounting for 68% variance in 16 items. In P-MEX, item mean scores ranged from 3.10 to 3, corresponding to "below expectations" on the rating scale. Items with lower mean values were awareness of own limitation, demonstration of feedback, time management and awareness of gap in knowledge and skills. This indicates that these items are sensitive to breaches in professionalism. In contrast, the overall total mean score of the 16-item PAT was 4.489, which falls into the category of "very frequently" on the Likert-type scale and "satisfactory" on the global rating scale. The item 'Keep knowledge and skills up to date' had the highest mean score (5.68, SD 0.94). The second highest mean score (4.95, SD 1.22) was of the item 'Maintains

patient confidentiality,' and the third highest score was of 'Responds positively to constructive criticism' (4.65, SD 1.04). All these items cover important aspects of professionalism (Brown 2020). While the item 'Demonstrates advocacy for patient safety' scored the third lowest score (4.08, SD of 1.47), the item 'Respect patient's autonomy' scored second lowest (3.99, SD 1.40), and the item related to the community 'Is responsive to community needs' scored lowest with mean 3.69 (SD 1.86). The latter items highlight the areas of concern that can potentially lead to breaches of professionalism and need to be rectified to inculcate professionalism in the future seven-star doctors of Pakistan. The curriculum to be developed for professionalism must focus on clarifying and learning these concepts and will also be kept in mind while developing and offering a curriculum on professionalism in Pakistan.

There were a number of other items whose factor loading coefficients were very high on one factor but also somewhat high on at least one other factor (double-loadings). In P-MEX Inter-professional Relationship Skills factors, had double loading, while in PAT, the item "demonstrates honesty" loaded heavily on Factor 2 (0.542) as well as on Factor 1 (0.472), but was retained in subscale 1 (SS1) because it is an important part of personal characteristics.

P-MEX has been cross-validated across various cultures and contexts, but with modifications. Tsugawa et al. verified the reliability and validity in the Japanese context. Different evaluators (378), including physicians, peers, residents, and nurses, assessed 165 residents using P-MEX. Six new items were added based on factor loadings when P-MEX was validated in the Japanese context. The new items were designated J6 (Respect for difference in opinions), J8 (Seek consultation of specialist), J13 (Appropriate management of patients) and J14 (Obtain informed consent appropriately). This new tool was labelled 'J-MEX' (Japanese Professionalism Mini Evaluation Exercise).

In P-MEX, item P12 (Maintain boundary in dealing with colleagues and patients) was categorised into two different dimensions in the original version in Canada,[1]; however, it showed significantly low factor loading to 'doctor–patient relationship skills' in the Japanese study. The Japanese version of P-MEX proposed that it would be more appropriate to include this in a single dimension entitled 'Inter-professional relationship skills,' in a new modified tool entitled 'modified PMEX', as a lack of inter-professional respect and rapid rise in the number of sexual harassment cases warrants special attention to this particular area of concern. In the present study, PAT addresses this area of concern in SS4: "Responsive to Community Needs and Other Health Professionals" as the item 'shows respect to peers, physicians and other health professionals is included.[23]

A study conducted by Tsugawa et al. reported relatively low scores in items named maintaining patient care, time management, endorsing feedback, addressing their limitation and gaps, and recommending that Japanese doctors need to improve professional behaviour in these domains. While in PAT, the item 'Demonstrates advocacy for patient safety' had the third lowest mean score (4.08, SD of 1.47), the item 'Respect patient's autonomy' had the second lowest mean score (3.99, SD 1.40), and the item related to the community 'Is responsive to community needs' had the lowest mean score of (3.69, SD 1.86) and will need more focus when developing the curriculum for Professionalism.[23]

Warren Fong evaluated the relevance and feasibility of P-MEX in the Singaporean context and suggested that P-MEX is relevant and feasible for assessment of medical professionalism, but empathetic communication and assessment of collegiality must be added to P-MEX additionally.[15]

A preliminary investigation introducing the Finnish version of the P-MEX instrument reported that the self-assessments and reflection appear to be useful as an additional tool to endorse professionalism.[24] The Arabian Learners' Attitude of Medical Professionalism Scale (LAMPS) was developed and validated in the Arabian context. It has 28 items, five subscales and a reliability of 0.79, while the Cronbach's alpha obtained in the present study (PAT) was 0.86. The mean score of different item responses of LAMPS ranged from 2.38 to 4.72. The highest mainly deals with 'Respect to others,' while the lowest belongs to 'Honour/Integrity.' The Cronbach's alpha obtained on the Subscale results of the present study was all higher, as they ranged from 0.66 to 0.77.

Inter-item correlations on the LAMPs Scale were reported from 0.30 to 0.60, which is consistent with the results obtained in the present study. Evidence has also endorsed that inter-item correlations should be moderate because high inter-item correlations suggest that each item does not contribute anything different to the construct.

Unprofessional behaviour in our country has been highlighted in various seminars, conferences, and commentaries. The medical fraternity is aware of the long-term implications of unprofessional behaviour and its everlasting impact on society as a whole. Unfortunately, owing to the unavailability of valid and appropriate tools for assessment of professionalism in the local context, not much has been achieved yet concerning teaching, learning and assessment professionalism. This tool (PAT) will serve as a breakthrough to lay down the foundations for a curriculum, teaching learning, feedback, and assessment of professionalism in our context.

Conclusions

The final tool developed for assessment of professionalism had 16 items on a 7-point Likert-like scale, across 4 Subscales. It can be used as a reliable and valid tool for assessment and feedback of professionalism for undergraduate medical students.

Author Information

1,4. Associate Professor, Community Medicine, Rawalpindi Medical University, Rawalpindi 2. Professor Emeritus, Aga Khan University, Karachi 3. Associate Professor Eye Department, CMH, Malir, Karachi.

Corresponding author: Dr. Khola Noreen khauladr66@gmail.com

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