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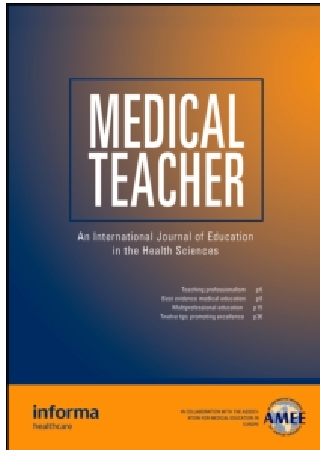

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Students' perception on medical professionalism: the psychometric perspective

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Students' perception on medical professionalism: the psychometric perspective

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Abstract

Background: The main purpose of this study was to identify and understand the structure of latent traits underlying the concept of medical professionalism of Taiwanese students.

Methods: A 32 item questionnaire assessing medical professionalism derived from the definition by the American Board Internal Medicine (ABIM) was distributed to 133 year seven medical students. A five-point rating scale of importance was used to identify the extent of their values or beliefs in each item.

Results: The three items perceived most important were: accountability to patients, respect for patients and their families; and integrity and prudence. The least important component underlying professionalism was 'enduring unavoidable risks to oneself when a patient's welfare is at stake'. Factor analysis resulted in eight factors: 'commitment to care' (factor 1); 'righteous and rule-abiding' (factor 2); 'pursuing quality patient care' (factor 3), 'habit of professional practice' (factor 4); 'interpersonal relationship' (factor 5); 'patient-oriented' issues (factor 6); physician's 'self-development' (factor 7); and finally, 'respect for others' (factor 8). Most of the variance was contributed by factor 1 (34.9%). The mean score of factors ranged from 3.84 (factor 1: commitment to care) to 4.7 (factor 8: respect of others), and the reliability alphas ranged from 0.86 to 0.66.

Conclusions: These results of young physicians' professional values have implications for medical school curriculum for improvement.

Introduction

Teaching and assessing medical professionalism is now essential in medical education. In 1999, the Accreditation Council for Graduate Medical Education (ACGME) endorsed "professionalism" as one of the six general competencies for residents, and it is now a requirement for certification of residency programs (Accreditation Council for Graduate Medical Education 2005). Since 2003, teaching professionalism has been part of the continuing medical education program in Taiwan while physicians' attendance to these activities is required for recertification (Department of Health, Executive Yuan, ROC 2003). Professionalism, however, presents a conceptual issue that requires clarification of its meaning as well as empirical evidence of it as a construct (i.e. construct validity). In order to teach, as well as create an appropriate curriculum and assessment tools for professionalism, it is necessary to have clear definitions of the underlying variables or attributes that constitute professionalism. With a clear definition of the construct, questions about the teaching efficiency on medical professionalism can be addressed, and the competence of learners' professional behaviors and their progress will be effectively assessed. As Arnold said, 'The well-circumscribed concept of professionalism can serve as a foundation for future measurement initiative' (Arnold 2002).

Practice points

- To understand the structure of 'latent traits' underlying the concept of medical professionalism would help develop an instrument for assessing values and ideals of physicians.
- Eight factors were identified behind the construct of 'medical professionalism'.
- The trait of "commitment to patient care" was perceived least important by Taiwanese medical graduates. Some require enrichment education on professionalism and humanism.

Unfortunately, professionalism is a difficult construct to define. There have been more than one hundred definitions of medical professionalism; each is dependent on the type and nature of the professional organization where they originated (Inui 2003), and varies across different socio-cultural environments. There are overlaps and gaps existing among the descriptions for these 'elements'. Furthermore, the perception and understanding of the numerous definitions may differ between teachers and students even when they are well documented. Without common consensus of their hidden meanings (traits), it is difficult to teach and assess medical professionalism effectively. Benyamini et al. (1987) have identified 15 traits related to successful clinical

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performance through a process of normative consensus and yet their meaning perceived by teachers and students was not consensually agreed upon. Shatzkin (2005), Cruess et al. (2006) and Elcin et al. (2006) have attempted to define, assess and evaluate professionalism. Veloski et al. (2005) reviewed professionalism studies with instruments reported between 1982 and 2002 and concluded that more empirical work is required. Few studies have employed rigorous instrument development and their psychometric properties of these attributes to understand the latent meaning underlying medical professionalism.

The major purpose of the present study was to identify and explore the meaning of the structure of latent traits underlying the concept of medical professionalism. Specifically, we wished to understand how the new Taiwanese physicians nowadays value the importance of medical professionalism.

Methods

Participants

All the 7th year medical students at the National Cheng-Kung University School of Medicine (NCKU) and Mackay Memorial Hospital were invited to respond anonymously to the questionnaire. One hundred and thirty-three medical graduates were enrolled, including 97 in NCKU and 36 in Mackay Memorial Hospital. There were nearly four times as many males as females (ratio: 3.73 : 1); their age ranged from 24 to 27 (mean: 25.38) years old.

Instrument development

Items were created that reflected eight characteristics (definitions and sub-definitions) of professionalism defined by the American Board of Internal Medicine (ABIM) (Lynch et al. 2004; American Board of Internal Medicine 2005). Items include altruism, accountability, excellence, duty, service, honor, integrity, and respect for others. These elements were further defined in detail and encompassed three commitments, i.e. to the highest standards of excellence in the practice of medicine and in the generation and dissemination of knowledge, to sustain the interests and welfare of patients, to be responsive to the health needs of society. These items were carefully translated into Chinese, and verified independently by two bilingual persons.

After expert validation and pilot testing, thirty-two items were used to measure professionalism (see Table 1). A five-point rating scale of importance (Not important at all, Not important, Somewhat important, Important, Very important) was used to identify the extent to which each item reflected the respondents' values/beliefs. In addition, questions gathered background information from the respondents (e.g. gender, age, etc.).

Analyses

Descriptive analyses were used to compute means, standard deviations, and item variances. Factor analysis with Promax rotation with Kaiser Normalization was used to explore the structure underlying the 32 items reflective of medical professionalism. The factors were identified to determine how they corresponded to ABIM's definition of the various components. Kaiser criterion was used for dropping the least important factors from the analysis when eigenvalues <1.0. Internal consistency reliability was determined by employing Cronbach's α.

Results

Table 1 contains a summary of the descriptive data of the physicians' perceived importance of the individual components underlying medical professionalism and lists them in ascending order. Eighty eight percent (28/32) of items, with a mean score greater than 4, were considered important by the participants. The three items perceived as most important were accountability to patients, respect for patients and their families, and integrity and prudence. The three least important components underlying professionalism were enduring unavoidable risks to oneself when a patient's welfare is at stake, accepting inconvenience to meet the needs of one's patients, and seeking active roles in professional organizations.

A close inspection of Table 1 reveals that the items are all negatively skewed given the magnitude of the means and the standard deviations. Accordingly, based on the means, all items were considered important. It may be that for some of the least important items, the result is due respondent confusion. For item 1, for example, respondents may have differing views of what constitutes risk and, therefore, may not rate the item as being that important. The same holds true for inconvenience (item 2). The 3rd item (seeking active roles in professional organizations) may be a poor indicator of professionalism.

Nonetheless, fifteen (15/133, 11.3%) participants rated one or more (out of the total of 10) items as 'not important at all'. One participant even rated three items as 'not important at all'. The item of 'enduring unavoidable risks to oneself when a patient's welfare is at stake' had 9 ratings of 'not important at all'.

Factor analysis resulted in eight factors, which accounted for 69.57% of the variance (see Table 2). Most of the variance is accounted for by factor 1 (34.9%). The mean score of factors ranged from 3.84 (factor 1: commitment to care) to 4.7 (factor 8: respect of others). The reliability alphas of the eight factors are good, ranging from 0.86 to 0.66. The item variance within eight factors ranged from 1.17 to 0.26.

The loadings of items indicated the following factor structure (see Table 2).

Factor 1 (commitment to care): To be available and responsive when 'on call', to accept inconvenience to meet the needs of one's patients, to endure unavoidable risks to oneself when a patient's welfare is at stake, to seek active roles in professional organizations, to volunteer one's skills and expertise for the welfare of the community, and to meet commitments and dedication.

Factor 2 (righteous and rule-abiding): To be fair and truthful, to keep one's word, to be straightforward, to refuse to violate

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Table 1. Descriptive data of the 32 items of the medical professionalism questionnaire: sorting the degree of perceived importance.

	Components	Mean	Std. Dev.	Missing
1	Enduring unavoidable risks to oneself when a patient's welfare is at stake	3.43	1.45	9
2	Accepting inconvenience to meet the needs of one's patients	3.78	1.09	2
3	Seeking active roles in professional organizations	3.80	1.08	1
4	Being straightforward	3.99	0.95	1
5	Volunteering one's skills and expertise for the welfare of the community	4.02	0.96	1
6	Dress properly	4.04	1.05	3
7	Being available and responsive when ''on call''	4.05	0.87	0
8	Address, decorum, and etiquette	4.13	0.94	0
9	Being culture sensitive	4.18	0.95	1
10	Meeting commitments, dedication	4.23	0.81	0
11	A conscientious to exceed ordinary expectations	4.27	0.76	0
12	being accountable to society for addressing the health needs of the public	4.32	0.82	1
13	Commitment to improving access to care	4.32	0.78	0
14	Self-assessment	4.33	0.75	0
15	A conscientious to make a commitment to life-long learning	4.41	0.80	1
16	Work discipline	4.42	0.66	0
17	Integrity fair	4.44	0.72	0
18	Pursing the best interest of patients, not self-interest	4.44	0.71	0
19	Time-honored	4.47	0.67	0
20	Recognition of the possibility of conflict of interest and avoidance of relationships that allow personal gain to supersede the best interest of the patient	4.56	0.63	0
21	Awareness of their limitations	4.57	0.72	0
22	Commitment to maintaining appropriate relations with patients	4.57	1.57	0
23	Advocating the best possible care regardless of ability to pay	4.57	0.58	0
24	Caring, compassion, empathy	4.59	0.63	0
25	Being truthful, keeping one's word	4.59	0.56	0
26	Being capable to provide best health care	4.59	0.69	1
27	Respect other physicians and professional colleagues such as nurses, medical students, residents, and subspecialty fellows	4.61	0.59	0
28	Masterly communications and expression, being able to listen	4.63	0.56	0
29	The refusal to violate one's personal and professional codes	4.65	0.51	0
30	Respect patients and their families, commitment to patient confidentiality	4.73	0.51	0
31	Prudence	4.80	0.42	0
32	Being accountable to their patients for fulfilling the implied contract governing the patient/physician relationship	4.82	0.41	0

Scale: 1: Not important at all; 2: Not important; 3: Somewhat important; 4: Important; 5: Very Important.

one's personal and professional codes, to have work discipline.

Factor 3 (pursuing quality patient care): To have a conscientious effort to exceed ordinary expectations, to be capable to provide best health care, to master communications and expression, to be able to listen, to be aware of their limitations, to self-assess, to improve access to care, to be culture sensitive.

Factor 4 (habit of professional practice): To seek active roles in professional organizations, to dress properly, to have decorum, etiquette, and work discipline.

Factor 5 (interpersonal relationship): To be accountable to society for addressing the health needs of the public, to be accountable to their profession for adhering to medicine's time-honored ethical precepts, to refuse to violate one's personal and professional codes, and to maintain appropriate relations with patients.

Factor 6 (patient-oriented issues): To pursue the best interest of patients, not self-interest, to be accountable to their patients for fulfilling the implied contract governing the patient/physician relationship, to advocate the best possible care

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regardless of ability to pay, to be caring, compassionate, and empathic.

Factor 7 (physician's self-development): To pursue the best interest of patients, not self-interest, to have a conscientious effort to exceed ordinary expectations and to make a commitment to life-long learning, to recognize the possibility of conflict of interest and avoid relationships that allow personal gain to supersede the best interest of the patient.

Factor 8 (respect for others): To respect patients, other physicians and professional colleagues, and to commit to patient confidentiality.

The meaning of Factors 1, 2, 3 and 4 generally agree with the definitions of the four elements by ABIM, i.e. duty, honor and integrity, excellence in patient care, and habit of professional practice. Being culture sensitive is perceived as pursuing quality patient care (factor 3), rather than respect in the ABIM definition. The element of prudence was perceived to have a wide range of meaning that can not be contributed to any single factor. The element of seeking roles to professional organization/community is perceived closer to 'practice habits' (factor 4) than 'duty'. Altruism embraced both the meaning of patient-orientation (factor 6) and self-improvement (factor 7).

Discussion

The major findings of the present study are: (1) medical professionalism based on ABIM definitions can be measured by a 32 item multi-point scale questionnaire; (2) factor analysis resulted in 8 factors underlying the scale; (3) the factors are all cohesive and theoretically meaningful; and (4) all factors have adequate to good internal consistency reliability.

Based on their review of the published literature, Veloski et al. (2005) found that one-third of the instruments that measure professionalism focused on ethics and ethical/moral decision making, but physicians' attitudes toward professionalism have not been well explored. In the present study, we used definitions by major medical organizations (e.g. ACGME, ABIM, etc) to provide a rigorous definition of professionalism that went beyond only ethics and moral decision making.

The eight factors identified in the present study would help develop an instrument for assessing physicians' values and ideals specific to each component of professionalism. Eighty eight percent of items were recognized as important by medical graduates. The trait of 'commitment to patient care' that may lower physicians' life quality was perceived least important, however, with great variation among young physicians. Most of them considered physicians' practice habit (e.g. dress, address, decorum, and etiquette) as not an important issue once they can provide excellent health care. While these students' opinions are important, they should not serve as a "norm" for professional behaviors; instead, faculty's values should be further explored to provide a model for what our students should learn.

The result of the factor analyses indicates that there are eight, theoretically meaningful and cohesive factors that comprise professionalism. The reliability coefficients (Cronbach's α) all are in the adequate to good range, further supporting the cohesiveness of the derived factors or scales. Additionally, the distributional properties of the items (e.g. means, variance, etc) indicate that they are functioning well in measuring several factors.

The current study was carried out exclusively with Taiwanese new medical graduates. These young physicians' professional values are embedded in their socio-cultural environment. Currently, the population in Taiwan is about 22.7 million when entering the 21st century (Department of Household Registration Affairs, Ministry of the Interior, Taiwan ROC 2005). There are 15 physicians for every 10,000 people (Department of Health, Executive Yuan, Taiwan, ROC 2005). Taiwan ranks number two in the state of health and quality of medical practice among 27 major countries (Economist Intelligence Unit 2002).

Historically, Taiwanese physicians' performance was judged mainly by service volume and disease outcome. Only recently, in the last two to three years, driven by societal expectation and professional reflection, has the education on medical professionalism drawn public attention. Almost all the medical schools nowadays have bioethics/professionalism courses, and yet teaching and assessment of medical professionalism is still a fresh experience in Taiwan. This new emphasis on professionalism has implications for medical education.

Taiwanese medical schools have a seven year curriculum, moving from a traditional multi-disciplinary model to an integrated one. Medical students are about the top 2% of their peer population based on high school academic performance. Only about 20% of them are selected through interviews and portfolio reviewing. As is the case in many other cultures (e.g. British, American, Canadian), young people in Taiwan are heavily exposed to materialism and acquisitiveness. Compounded by limited clinical exposure and the focus on biomedical science, young medical students entering clinical rotations may not appreciate what is expected by traditionally defined professionalism of selflessness and patient care. The instrument we developed in the present study will allow us to assess professionalism at various educational points in the students' educational development.

The items listed on the questionnaire are all important for medical professionalism. The result of the present survey revealed that some (at least 11.3%) medical graduates require enrichment education on professionalism and humanism since they rated some items as 'not important at all'. Debates and small group discussion are suggested to explore the issues on unavoidable risks to oneself, the inconvenience due to patient care, physicians' image, as well as physicians' responsibility in community. Meanwhile, in terms of health system and working environment, physicians' well-being should be taken into consideration. As Shrank et al. (2004) noted 'doctors must look after themselves first, or they wouldn't be able to help anyone'.

The present study focused on a sample of new Taiwanese physicians. Our sample consisted all of one cohort from NCKU ($n=97$) but volunteers from Mackay hospital ($n=36$). Moreover, the sample was disproportionately male. These limitations indicate circumspection in the generalizability of the present results. Further research is required to replicate the factor structure and psychometrics of the instrument we have developed with more experienced physicians, a more gender balanced sample, as well as physicians in other cultures.

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Table 2. Factor loadings, reliability, and percent of variance of 8 factors loaded by 32 items of 'professionalism' defined by ABIM (American Board Internal Medicine).

Components by ABIM	Factor	1 Commitment to care	2 Righteous and rule-abiding	3 Pursuing quality patient care	4 Habit of practice	5 Interpersonal relationship	6 Patient-oriented issues	7 Self-development	8 Respect for others
Pursing the best interest of patients, not self-interest	Altruism						0.58	0.59	
Being accountable to their patients for fulfilling the implied contract governing the patient/physician relationship	Accountability						0.81		
Being accountable to society for addressing the health needs of the public						0.60			
Being accountable to their profession for adhering to medicine's time-honored ethical precepts						0.62			
A conscientious effort to exceed ordinary expectations	Excellence			0.45				0.44	
A conscientious effort to make a commitment to life-long learning								0.81	
Being capable to provide best health care				0.74					
Masterly communications and expression, being able to listen				0.50					
Awareness of own limitations				0.48					
Self-assessment				0.58					
Commitment to improving access to care				0.62					
Being available and responsive when ''on call''	Duty	0.68							
Accepting inconvenience to meet the needs of one's patients		0.95							
Enduring unavoidable risks to oneself when a patient's welfare is at stake		0.96							
Advocating the best possible care regardless of ability to pay									
Seeking active roles in professional organizations		0.54			0.46				

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Volunteering one's skills and expertise for the welfare of the community		0.45							
Being fair	Honor and integrity		0.93						
Being truthful, keeping one's word			0.88						
Meeting commitments, dedication		0.64							
Being straightforward			0.61						
Recognition of the possibility of conflict of interest and avoidance of relationships that allow personal gain to supersede the best interest of the patient								0.68	
Caring, compassion, empathy							0.66		
The refusal to violate one's personal and professional codes			0.60			0.47			
Commitment to maintaining appropriate relations with patients prudence						0.63			
Dress properly	Practice habit				0.88				
Address, decorum, and etiquette.					0.85				
Their work discipline			0.43		0.57				
Respect patients and their families, commitment to patient confidentiality	Respect for others								0.65
Respect other physicians and professional colleagues									0.75
Cultural sensitivity				0.43					
Mean		3.88	4.42	4.10	4.10	4.50	4.62	4.37	4.67
Std dev.		1.09	0.73	0.77	0.97	0.66	0.62	0.76	0.55
Item variance		1.13	0.49	0.57	0.90	0.36	0.36	0.54	0.30
Reliability Alpha		0.87	0.80	0.78	0.79	0.67	0.61	0.72	0.61
Eigenvalue	Total	11.17	2.49	1.97	1.70	1.48	1.27	1.11	1.07
	% of Var	34.90	7.79	6.15	5.31	4.63	3.98	3.48	3.33
	Cumulative%	34.90	42.69	48.84	54.15	58.78	62.76	66.24	69.57

Extraction method: principal component analysis, rotation method: promax with Kaiser normalization (only loadings >0.4 are shown). Rotation converged in 12 iterations.

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Finally, it may be profitable to repeat the study with Taiwanese medical faculty, to assess differences between students and faculty that may provide an interesting reflection on the definition(s) of professionalism, and the areas of professionalism in need of attention at the local level.

Conclusion

Notwithstanding the limitations of the present study, the instrument that we developed has good psychometric properties (evidence of reliability and validity). While further research is required to assess its generalizability across medical educational levels and cross-culturally, the present results are promising. Finally, our current findings indicate a need to examine medical education curricula (at least in Taiwan) for professionalism content an teaching.

Notes on contributors

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