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Medical professionalism among clinical physicians in two tertiary hospitals, China



Jing Chen^{a,*}, Juan Xu^a, Chunmei Zhang^b, Xinqiao Fu^c

^aSchool of Medical and Health Management, Tongji Medical College, Huazhong University of Science & Technology, Wuhan, China

^bThe Second Affiliated Hospital & Yuying Children's Hospital of Wenzhou Medical College, China

^cWuhan Union Hospital, Huazhong University of Science & Technology, China

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ABSTRACT

In order to investigate medical professional attitudes and behaviors in China and explore the influencing factors with a focus on hospital internal management, we developed a 13-item professional attitudes and 11-item behaviors inventory. Self-administered questionnaires were distributed to 390 physicians mainly in four specialties in two tertiary Chinese hospitals in 2011. 306 completed questionnaires were collected. More than 90% of respondents agreed with at least nine of the 13 specific statements about principles. However, responses on behaviors were not necessarily consistent with those on attitudes. 80.3% of respondents reported that they usually or always participated in quality improvement activities and 48.2% reported that they usually or always participated in peer evaluations of colleagues' quality of care. Some 47.8% had encountered incompetent colleagues and 17.7% had encountered significant medical errors caused by colleagues. Among those who had encountered incompetence or significant medical errors, almost two thirds had never reported their concerns to the hospital or other relevant authorities. Half of the physicians did not obtain enough continuing medical education credits. Physicians' professional reported behaviors were influenced by their personal and professional characteristics, professional attitudes, and assessment of hospital internal management constitutions. For example, participation in decision-making had a significant role in professional reported behaviors of protecting patient confidentiality, improving quality of care, and self-regulation, with those sometimes or often participating in decision-making indicating higher levels of reported behaviors than those who seldom participated (odds ratios: 1.84; 4.31, 2.44; 3.31). The results showed Chinese physicians demonstrated positive attitudes to professionalism principles. However, their reported behaviors were at times inconsistent with their attitudes, especially in the areas of competence, quality improvement, and self-regulation. One of effective strategies to facilitate Chinese physicians' professionalism may be to improving hospital management.

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Introduction

In the past 20 years, much attention has been paid to medical professionalism both from academic perspectives (Irvine, 1999; Sullivan, 2000; Swick, 2000; Wynia, Latham, Kao, Berg, & Emanuel, 1999), in medical education (Lee et al., 2007) and residency training environments (Arnold, Blank, Race, & Cipparrone, 1998; Kovach, Resch & Verhulst, 2009). In 2002, 'Medical Professionalism in the New Millennium: A Physician Charter' ('the Charter') was published simultaneously in *The Lancet* and *Annals of Internal Medicine* (ABIM Foundation, ACP-ASIM Foundation, & European Federation of Internal Medicine, 2002; Medical Professionalism Project, 2002),

* Corresponding author. Tel.: +86 27 83651931; fax: +86 2783692996.

E-mail addresses: chenjing@mails.tjmu.edu.cn, chenjing_21st@yahoo.com.cn (J. Chen).

and an increasing number of empirical studies on professionalism in clinical practice settings have been conducted. A national survey of 3504 physicians in the U.S. indicated that physicians agreed with specific statements about principles of professionalism. The authors stated that reported behavior, however, did not always reflect the standards they endorsed. For example, although 96% of respondents agreed that physicians should report impaired or incompetent colleagues to relevant authorities, 45% of respondents who encountered such colleagues had not reported them (Campbell et al., 2007). In 2011, an investigation of 1891 US and 1078 UK doctors revealed that UK doctors were more likely to have developed practice guidelines (82.8% UK vs 49.6% US) and to have taken part in a formal medical error-reduction programme (70.9% UK vs 55.7% US) and US doctors were more likely to agree about the need for periodic recertification (completely agree 23.4% UK vs

53.9% US), which suggested the context of care may influence both how professional values are expressed (Roland et al., 2011).

In ancient China, medicine was considered the benevolent skill. During the Tang Dynasty Sun Simiao elucidated that the doctor should be equipped with both excellent medical technology and medical morality in his work *On the Absolute Sincerity of Great Physicians (Da Yi Jing Cheng)* (Tsai, 1999), which was considered as the Chinese Hippocratic Oath. However, to date there is no consensus on a universal definition, and an operational definition of professionalism has rarely been proposed in China. The Chinese Medical Doctors Association (CMDA) adopted the Charter in 2005. Thereafter several Chinese research organizations on physician professionalism were established, for example the China-U.S. Center on Medical Professionalism of Peking University Health Science Center was established in 2008 and the Center for Research on Medical Professionalism of CMDA was established in 2009. A series of professionalism seminars have been held since 2006, including five China-U.S. Conferences on Medical Professionalism.

Although much work has focused on professionalism in the medical university and residency training environment (Arnold et al., 1998; Kovach et al., 2009; Lee et al., 2007), professionalism in practice settings and the relationship between professional attitudes and behaviors have not been fully explored. Meanwhile, there is a growing awareness that external factors such as the healthcare system might shape physicians' attitudes and behaviors. Yet few data are available on how hospital internal management processes might contribute to medical professionalism. In addition, most of the previous empirical studies were carried out in western nations, and a little empirical research has been conducted in China (Cui & Yuan, 2012). In this pilot study, we investigated the extent to which specific statements of principles are supported by physicians in tertiary hospitals, examined their professional reported behaviors, and explored how the professional attitudes and hospital internal management factors impact behaviors.

Methods

Measures of professionalism

The Charter has three fundamental principles (primacy of patient welfare, patient autonomy and social justice) and articulates ten professional commitments with which physicians and healthcare professionals should comply, including maintaining competence, honesty, respect patients' confidentiality, maintaining appropriate relations with patients, improving quality, improving access, justly serving humanity, primacy of patient welfare, scientific knowledge, managing conflicts of interest, and self-regulation. Adapting the surveys that were carried out in the USA and UK (Campbell et al., 2007; Roland et al., 2011), we developed 13-item professional attitudes and 11-item behaviors inventories. All the behavior items were based on the last year, answering that behavior frequency in the last year, excluding reading academic papers. The respondent was required to give the number of academic papers they had read in the last three months. We did not seek to cover every the professional norm (e.g. the norm of commitment to maintaining appropriate relations with patients was not included), because we focused on describing the general situation of professionalism and examining the factors influencing physicians' professional reported behaviors rather than assessing the professionalism comprehensively.

Survey sample

The 2010 China Health Statistical Yearbook reports that there were 2,329,206 medical practitioners and assistant medical

practitioners in China in 2009 of whom 1,198,542 were working in hospitals, with 74.7% (895,553) of them in general hospitals (The Ministry of Health of the People's Republic of China, 2010). Therefore we selected the physicians in general hospitals. Convenience sampling was used to select the hospitals and physicians. We chose one tertiary hospital (Hospital A) in Wuhan in Central China and one (Hospital B) in Wenzhou in Eastern China. Both hospitals are teaching hospitals, and none of them is the site of a professionalism seminar. We chose mainly four specialties (internal medicine, general surgery, obstetrics and gynecology, and pediatrics). Resident physicians and refresher physicians were excluded. All of respondents have gained medical education in China. The study was approved by the Ethics Committee of Tongji Medical College.

Survey administration

The questionnaires were administered to 390 physicians in two tertiary hospitals between May and July 2011. The hospital administrators distributed and recovered the questionnaires. 306 physicians completed a questionnaire, for an overall raw response rate of 78.5%.

Statistical analysis

The primary analyses focused on the determinants of reported professional behaviors. The independent variables were professional attitudes and physicians' assessment of hospital internal management processes (such as participation in making decisions about department management) as well as the individual physician's characteristics (such as sex, age). Univariate and multivariate logistic regression models were applied with the former used to determine the association of each influencing factor with reported behaviors and the latter used to analyze the relationship between several predictor variables and a behavior.

Results

Table 1 summarizes the characteristics of the respondents. According to Law on Licensed Doctors of the People's Republic of China published in 1998, anyone who meets any of the following requirements may take the examinations for the qualifications of a licensed doctor: (1) having, at least, graduated from the faculty of medicine of a university and worked on probation under the guidance of a licensed doctor for at least one year in a medical, disease-prevention or healthcare institution; or (2) after obtaining the license for an assistant doctor, having reached the level of a graduate from the faculty of medicine of a university and worked for at least two years in a medical, disease-prevention or healthcare institution; or having reached the level of a graduate from the specialty of medicine of a polytechnic school and worked for at least five years in a medical, disease-prevention or healthcare institution. Anyone who has passed the examinations for the qualifications of a licensed doctor or a licensed assistant doctor shall be certified as such.

Table 2 shows the attitudes of physicians toward professionalism. More than 90% of physicians agreed (somewhat agree or completely agree) with 9 of the 13 normative statements about 9 principles. The agreement stayed above 80% for all the statements. In terms of 'honesty with patients', 'improving quality of care', 'improving access to care', and 'self-regulation', physicians were more likely to report that they 'somewhat agreed' rather than 'completely agreed'. For instance, 59.3% of the respondents 'somewhat agreed' and 28.1% 'completely agreed' that physicians should report significantly incompetent colleagues; and 50.7% 'somewhat agreed' and 44.0% 'completely agreed' that physicians should report all significant medical errors.

Table 1
Characteristics of the 306 survey respondents.

Characteristic	No./total no.	Physicians, %
Personal		
Sex		
Male	170/296	57.4
Female	126/296	42.6
Age		
<29 yr	88/290	30.3
30 yr ~	74/290	25.5
35 yr ~	69/290	23.8
40 yr ~	59/290	20.3
Marital status		
Married	82/297	27.6
Unmarried	213/297	71.7
Divorced/widowed	2/297	0.7
Educational background		
Bachelor's degree and below	81/299	27.1
Master's degree	125/299	41.8
Doctoral degree	93/299	31.1
Technical title		
To be appraised	39/295	13.2
Junior	67/295	22.7
Middle	123/295	41.7
Senior	66/295	22.4
Professional		
Specialty		
Internal medicine	74/303	24.4
Surgery	105/303	34.7
Obstetrics & gynecology	37/303	12.2
Pediatrics	44/303	14.5
Others	43/303	14.2
No. of working years		
<5 yr	100/282	35.5
5 ~ yr	84/282	29.8
≥11 yr	98/282	34.8
Hospital		
A	138/306	45.1
B	168/306	54.9

Table 3 presents the physicians' reported professional behaviors in the last year or last three months. The physicians' reported behaviors were not necessarily consistent with attitudes. With regard to maintenance of professional competence, 98.7% agreed that physicians should continually update their knowledge and improve professional ability. However, 74.7% reported that they were usually/always able to apply new professional knowledge and skills critically. As for continuing medical education, the Ministry of Health & the Former Ministry of Personnel of the People's Republic of China's (2000) published *the Regulation on Continuing Medical Education*, stating that (1) the target population for continuing medical education is health technicians who complete post-graduate medical education and training or have middle and above technical titles; (2) health technicians should obtain not less than 25 credits each year, and (3) continuing medical education is an important part of the annual assessment, and the fulfillment of continuing medical education is one of the prerequisites for the appointment, positions promotion, and re-registration of health technicians. This investigation indicated more than half (50.6%) of the respondents reported they obtained insufficient credits in 2010. However, they were seldom punished.

In terms of self-regulation, 47.8% had encountered incompetent colleagues and 17.7% had encountered significant medical errors caused by colleagues. Among those who encountered such colleagues, 65.0% and 64.6%, respectively had never reported their observations to the hospital or other relevant authorities.

Table 4 illustrates the physicians' self-reported assessment of the hospital internal management procedures (such as their satisfaction with performance appraisal in the hospital) and their responses on other issues that we considered may influence their reported behaviors.

The results of multivariate logistic regression analysis are showed in Table 5. It was found that physicians' self-reported professional behaviors varied according to both their personal

Table 2
Physicians' attitudes toward professionalism (%).

Statement	Completely disagree	Somewhat disagree	Somewhat agree	Completely agree
A1 Maintaining professional competence				
A11 Physicians should continually update their knowledge and improve professional ability.	0.3	1.0	21.5	77.2
A2 Honesty with patients				
A21 Physicians should disclose all significant medical errors to affected patients and/or guardians.	1.7	15.3	41.9	41.2
A3 Respecting patients' confidentiality and autonomy				
A31 Physician should keep confidential the patient's medical condition, privacy, and etc.	0.3	2.7	33.2	63.8
A32 Physicians should inform patients of the disease situation and treatment options in detail and respect patients' autonomy.	0.3	3.0	39.9	56.8
A4 Improving quality of care				
A41 Physicians should participate in peer evaluations of the quality of care provided by colleagues.	2.0	7.3	59.4	31.4
A42 Physicians should actively participate in healthcare quality improvement activities.	0.3	3.0	48.2	48.5
A5 Improving access to care				
A51 Physicians should provide necessary medical care regardless of the patient's ability to pay.	4.0	15.3	49.2	31.6
A52 Physicians should advocate legislation to assure that all Chinese people have the right to health insurance.	0.7	4.0	38.6	56.8
A6 Just distribution of finite resources				
A61 Physicians should treat patients equally regardless patients' ethnic, gender, social status, or economic status.	0.7	2.6	23.1	73.6
A7 Commitment to scientific knowledge				
A71 Physicians should often read the relevant academic literature.	0.3	2.6	22.4	74.6
A8 Maintaining trust by managing conflicts of interest				
A81 Physicians should put the patient's health above the physician's financial interest	3.3	7.9	38.1	50.7
A9 Fulfilling professional responsibilities, including self-regulation				
A91 Physicians should report significantly incompetent colleagues to the hospital, or other relevant authorities.	1.7	10.9	59.3	28.1
A92 Physicians should report all significant medical errors they observe to hospital, or other relevant authorities.	1.0	4.3	50.7	44.0

Note: Respondents were asked to assess the extent on which they agree with the statement on a four-point Likert scale: 0.Completely disagree, 1.Somewhat disagree, 2.Somewhat agree, 3.Completely agree.

Table 3
Physicians' reported professional behaviors (%).

Statement	Never	Sometimes	Usually	Always
B1 Maintaining professional competence				
B11 I meet the standard of quality medical care.	0.3	2.7	34.2	62.8
B12 I am able to apply new professional knowledge and skills critically.	2.4	22.9	45.1	29.6
B13 Please rate the extent to which you obtained continuing education credits in 2010? (189 respondents who had middle or senior technical titles were eligible)	Response	n/total	%	
	A few/half	30/178	16.9	
	Most	60/178	33.7	
	All	88/178	49.4	
B2 Honesty with patients				
B21 I withheld information that a patient or a patient's family should have known about a medical error.	62.7	30.8	5.1	1.4
B3 Protecting patient confidentiality				
B31 I revealed information about a patient to irrelevant people.	73.5	16.4	4.4	5.7
B4 Improving quality of care				
B41 I participated in the evaluation of medical quality of colleagues.	17.2	34.7	30.0	18.2
B42 I participated in medical quality improvement activities of the department in the hospital.	3.0	16.7	37.8	42.5
B5 Improving access to care				
B51 For low-income patients, I provide the same medical services.	2.7	20.8	38.6	37.9
B7 Commitment to scientific knowledge	Response	n/Total	%	
B71 In the last 3 months, how many academic papers have you read?	0–4	69/268	25.7	
	5~	90/268	33.6	
	11~	48/268	17.9	
	21 above	61/268	22.8	
B9 Fulfilling professional responsibilities, including self-regulation				
B91a Did you observe the incompetent behavior of a physician in your hospital?	Yes (47.8)		No (52.2)	
B91b If yes, how often did you report that physician to the hospital or other relevant authority?	65.0	29.1	5.1	0.9
B92a Did you observe serious medical error caused by the physicians in your hospital?	Yes (17.7)		No (82.3)	
B92b If yes, how often did you report that error to the hospital or other relevant authority?	64.6	25.0	10.4	0.0

and professional characteristics and their assessment of hospital internal management constitutions.

Personal characteristics and professional background, especially educational background and technical title, seem to have some impact on physicians' reported behaviors. Physicians in different specialties differed regarding 'honesty with patients, with physicians in surgery and obstetrics & gynecology being more likely to withhold information that a patient or a patient's family should have known about a medical error (odds ratios: 2.04; 5.98).

Although the physicians' reported behaviors did not always conform with professional attitudes, the attitudes were predictive of behaviors to some extent. Physicians, who were more likely to agree

with 'disclosing all significant medical errors', 'protecting patient's confidentiality', 'participating in peer evaluation of quality', 'participate in quality improvement activities', 'treating the patients equally', and 'providing necessary medical care regardless of the patient's ability to pay' were less likely to 'withhold information about a medical error' and 'reveal information to irrelevant people' and more likely to 'participate in the evaluation of quality', 'participate in quality improvement activities', and 'provide the same medical services to low-income patients'(odds ratios: 0.24; 0.50; 2.86; 2.32; 2.11).

With regard to the effect of hospital management, the physicians' 'participation in decision-making in department management (such as propose, develop or modify the department management constitutions)' significantly correlated with their reported behaviors of 'protecting patient confidentiality', 'improving quality of care', and 'self-regulation', with those 'sometimes or often' participating in decision-making indicating higher level of reported professional behaviors than those who 'seldom' participated (odds ratios: 1.84; 4.31, 2.44; 3.31). The other predictors included rewards/penalty system, salary system, and workload in the hospital. However, there were no significant associations between satisfaction with performance appraisal, procedures on promotion, and income and professional behavior. In addition, there was no significant difference between two hospitals.

Discussion

We believe that our investigation is an important effort to assess Chinese physicians' medical professionalism quantitatively. Several notable findings have emerged. Firstly, overall, Chinese physicians show relatively positive attitudes toward professionalism, though the extent to which they endorse is the same as or less than their USA and UK counterpart (Roland et al., 2011). For example, 63.1% of USA doctors and 59.36% of UK doctors, respectively, 'strongly agree' that physicians should report all instances of significantly impaired or incompetent colleagues to relevant authorities, while only 28.1% of Chinese physicians 'completely agree' with it. Cui and Yuan (2012) also found that in cases of medical error, 15.2% respondents believed that it should be handled in accordance with laws,

Table 4
Assessment of hospital management and some other relevant issues.

Statement	Response	n/Total	%
C1 Workload (Are you busy at work?)	Not busy neutral	49/292	16.8
	Very busy	243/292	83.2
C2 Participation in decision-making in the department management (such as propose, develop or modify the department management constitutions)	Rarely	127/299	42.5
	Sometimes/often	172/299	57.5
C3 Satisfaction with performance appraisal constitution in the hospital	Not satisfied	81/297	27.3
	Moderately satisfied	163/297	54.9
C4 Satisfaction with rewards and penalties constitution in the hospital	Very satisfied	53/297	17.8
	Not satisfied	82/298	27.5
C5 Satisfaction with salary constitution in the hospital	Moderately/Very satisfied	168/298	56.4
	Very satisfied	48/298	16.1
C6 Satisfaction with employee promotion constitution in the hospital	Not satisfied	116/298	38.9
	Moderately/Very satisfied	182/298	61.1
C7 Satisfaction with your income	Not satisfied	121/299	40.5
	Moderately/Very satisfied	178/299	59.5
C8 Assessment on current doctor–patient relationship	Not satisfied	153/299	51.2
	Moderately/Very satisfied	146/299	48.8
C8 Assessment on current doctor–patient relationship	Not/Somewhat tense	150/299	50.2
	Very tense	149/299	49.8

Not/somewhat tense
Very tense
Hospital

1
3.37 (1.83–6.18)***

Personal and professional variables were in the first block and other variables were in the second block. In each block, the method 'forward: conditional' was used.

Code rule:

B11, B12, B42, B51: 'Always' were coded as 1, and all other responses were coded as 0.

B21, B31, B91b: 'Never' was coded as 0 and all other responses were coded as 1.

B41: 'Never' and 'Sometimes' were coded as 0 and 'Usually' and 'Always' were coded as 1.

As for the attitude items, 'Completely agree' were coded 1, and all other responses were coded as 0.

'—' Meant that univariate logistic regression analysis revealed an association of this variable with corresponding behavior, and therefore, this variable excluded in multivariate logistic regression analysis.

'# ' Meant that this variable did not enter the multivariate logistic regression.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

regulations and other relevant rules. It might be due to the medical related law and regulation play a more important role in developed countries such as USA and UK than in the developing countries such as China. For example, many states in USA have mandatory reporting statutes, requiring physicians to report impaired or incompetent physicians to appropriate authorities (Roland et al., 2011). However, China has not published or established such kind of regulations and institutions. Consequently, Chinese physicians show weaker support for the normative statements.

Secondly, our data suggest that although the physicians do not consistently act in accordance with their professed attitudes, their reported behaviors do have some relationship with their attitudes. However, attitudes are only one of many determinants of behavior. Therefore, to advocate professionalism through various ways such as medical education, media propagandism, and academic conference may have positive effect on the physicians' attitudes, and consequently on their behaviors. However, other systems will need to regulate behaviors more directly.

Thirdly, the most significant finding of this study is that apart from physicians' personal and professional characteristics, their level of participation in decision-making is an important predictor of behaviors. A large number of researches have indicated that a positive correlation existed between participation in decision-making and organizational behavior such as job satisfaction, work engagement, organizational commitment (Bakker, van Veldhoven, & Xanthopoulou, 2010; Hwang et al., 2009). This is the first effort to explore the relationship between participation in decision-making and reported medical professional behaviors.

An unexpected finding is that satisfaction with income shows little connection with reported professional behaviors. Though some researchers think the financial incentives triumphed over professionalism (Hsiao, 2008), and they highlighted the economic factor in promoting professionalism (Porzolt, 2010), the level of empirical evidence supporting their viewpoint is limited. This study found that the economic factor itself did not influence professional behaviors. Gagné and Deci's self-determination theory (2005) points to the importance of intrinsic motivation within autonomy-supported rather than controlling work environments. Autonomy-supportive work environments may, for example, involve participation in decision-making which in turn enhances professional behaviors. Thus improving involvement in hospital management may be a more effective strategy than emphasizing solely the financial factor.

This study has several limitations. The first limitation was the small convenience sample. Physicians in other types of health institutions may respond differently. Second, our measures of attitudes and behaviors did not capture all the principles that *The Charter* mentioned. Third, the study measured the physicians' subjective evaluation of hospital internal management systems rather than objective assessment, and therefore, the focus of analysis was on the individual level rather on the organization level. Further studies are needed to explore how to improve management in order to facilitate professionalism.

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