ORIGINAL ARTICLE

A Professionalism Survey of Medical Students in Taiwan

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Background: Following the curriculum reforms of 2002 that emphasized humanistic values and ethics in medical education and instituted liberal arts requirements, medical students are expected to acquire a new conception of professionalism that incorporates the social contract inherent to the profession.
Purpose: This paper presents the results of a 2007 survey of medical students concerning their ideals.
Methods: The survey instrument was designed based on codes of conduct for good doctoring; it encompassed five dimensions deemed essential to professionalism. The quality of the instrument was assured via consultation with experts as well as with reliability and validity tests. The data were collected from 440 out of 860 first- to fourth-year undergraduate medical students at four medical schools between April and June 2007 in Taiwan. Statistical analysis utilized LISREL 8.72 to check construct validity. Further ANOVA tested the significance of differences among groups.
Results: The 440 responding medical students expressed a high valuation for all dimensions of medical professionalism; however, they placed relatively greater importance on medical knowledge and skills, interpersonal skills, and teamwork. First- and second-year students had a slightly higher valuation for all dimensions compared to fourth-year students. This may be due to curriculum reforms not being fully in effect when the older students began study.
Conclusion: Taiwan's humanistic medical educational reforms are only in the nascent stages, and subsequent longitudinal studies are recommended. The slight gap between general universities and medical universities may reflect a greater range of liberal arts courses in general universities that enhance a student's basic understanding of humanities. Nonetheless, liberal arts courses are now listed as requirements for undergraduate medical students.

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1. Introduction

In recent years, concerns over the challenges to professionalism among physicians in developed countries have triggered curricular reforms in medical education.[1–3] The main concern is that with the rise in cost-management by insurers, physicians are losing both autonomy and personal responsibility to their patients. Medical schools worldwide have held substantive discussions regarding pedagogy and curriculum design in order to create academic environments that instill professionalism. Professional behavior and related personal attributes are now listed as core learning objectives in medical education. Different measuring tools have been devised to better assess the progress of a student's professional attitude.[4]

In Taiwanese society, physicians have been held in high esteem as leaders. This practice dates back to Japanese colonialism (1895–1945) when locals were encouraged and educated in modern Western medicine for the sake of public health. Public trust in physicians and close personal relationships between doctors and patients constituted the foundations of the social contract in folk society.[5–7] Since personal relationships with physicians in small local clinics have largely been subsumed by large hospitals after the implementation of the National Health Insurance policy in 1995, public perception of the medical profession has been eroding. This event is conjunctly related to the increasing complexity of biomedical technology, marketization of medical care, and domination of health care management with cost concerns. Moreover, similar to what many scholars have observed in developed countries, it is generally remarked that young Taiwanese physicians, affluent and privileged compared to the previous generations, do not display the personal commitment assumed by past medical professionals.[8–10] Criticisms expressed by the United States National Committee on Foreign Medical Education and Accreditation in 1998[11] were the trigger that spurred Taiwan's medical schools to initiate curricular reform in 2002, specifically prescribing humanistic and liberal arts education for entering medical students comparable to that required in the United States.

The goals of the medical education reform were to enhance humanistic concerns in medical education. The strategies most schools adopted included replacing entrance examinations with various kinds of applicant interviews, and establishing liberal education requirements for the pre-med curriculum. Several years have passed since reform, making possible an evaluation of the ideals that have been imbued in the medical students post-reform.

One matter to be addressed is the different selection of liberal education courses in general universities and medical universities. While Rosovsky indicated that students in college should achieve a breadth of general education during the first year and be allowed to pursue their own academic interests in the second, liberal education should be separate from occupational training.[12] While teaching programs and resources of medical schools are somewhat different, the goal is to clarify differences in educational effect on students. We selected samples from four medical schools, two from general universities, and the others from dedicated medical universities.[13]

2. Methods

This paper analyzes the outcome of Taiwan's medical education reforms with respect to student ideals of professionalism. We used a cross-sectional attitude survey to evaluate the development of professional attitudes and behaviors of medical school students from the first to the fourth year. An all-inclusive code of conduct was utilized to assess student judgments as to how physicians should interact with patients, their coworkers, and the overall community.

2.1. Instrument

Most existing instruments that measure professionalism tend to focus on specific attributes of a professional, or one aspect of competence, but neither on a comprehensive construct[14] nor interactions with important stakeholders.[15] In contrast, we define professionalism in the context of a social contract between medicine and society[3,4,15] in a rather more comprehensive manner. Our instrument was devised from the codes of conduct across specialties and countries, incorporating an important declaration that covers a wide array of good doctoring practices. We began by collecting the codes of conduct from associations in the United Kingdom, the USA, Japan and Taiwan, and from the World Medical Association and the Declaration of Lisbon on the Rights of the Patient 1981.[16–36] We adapted three foundations for medical professionalism (clinical competence, communication skills, and ethical and legal understanding) from Arnold and Stern,[1] the professionalism standard of the Accreditation Council for Graduate Medical Education,[37] and the competency measure of the Objective Structured Clinical Examination.[38]

The authors formed theoretical categories and then determined five aggregate theoretical dimensions, including "medical knowledge and clinical skills", "interpersonal skill with patients", "teamwork", "public health duty", and "the protection of patients' rights" (Figure 1). The dimension of "public health duty" was added to the survey due to public concern regarding medicine's social responsibility in the aftermath of the major SARS outbreak in Taiwan in 2003, when some medical personnel were accused of abandoning their stations.[39]
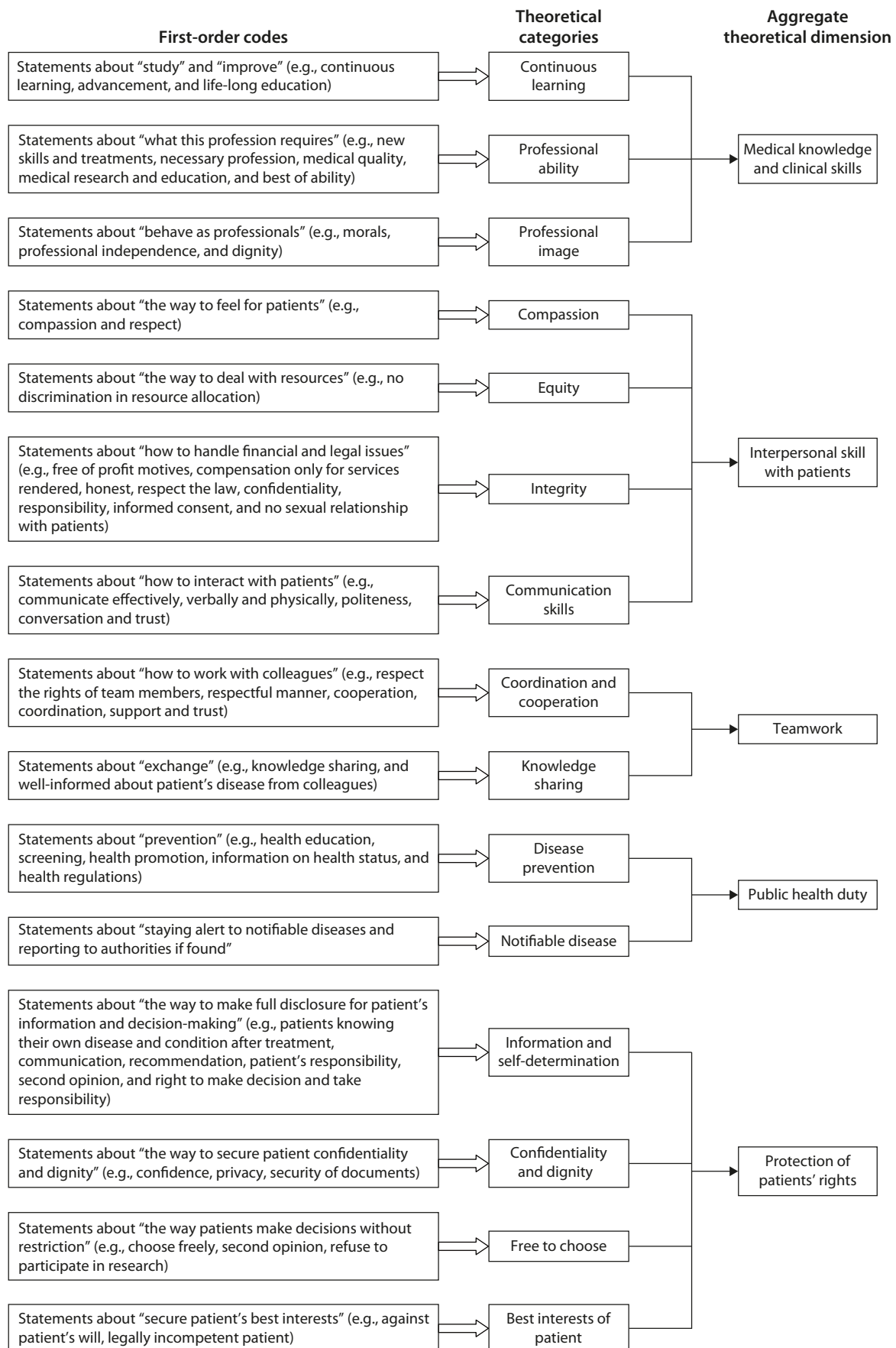
First-order codes

Theoretical categories

Aggregate theoretical dimension

Statements about "study" and "improve" (e.g., continuous learning, advancement, and life-long education) → Continuous learning

Statements about "what this profession requires" (e.g., new skills and treatments, necessary profession, medical quality, medical research and education, and best of ability) → Professional ability

Statements about "behave as professionals" (e.g., morals, professional independence, and dignity) → Professional image

Medical knowledge and clinical skills

Statements about "the way to feel for patients" (e.g., compassion and respect) → Compassion

Statements about "the way to deal with resources" (e.g., no discrimination in resource allocation) → Equity

Statements about "how to handle financial and legal issues" (e.g., free of profit motives, compensation only for services rendered, honest, respect the law, confidentiality, responsibility, informed consent, and no sexual relationship with patients) → Integrity

Statements about "how to interact with patients" (e.g., communicate effectively, verbally and physically, politeness, conversation and trust) → Communication skills

Interpersonal skill with patients

Statements about "how to work with colleagues" (e.g., respect the rights of team members, respectful manner, cooperation, coordination, support and trust) → Coordination and cooperation

Statements about "exchange" (e.g., knowledge sharing, and well-informed about patient's disease from colleagues) → Knowledge sharing

Teamwork

Statements about "prevention" (e.g., health education, screening, health promotion, information on health status, and health regulations) → Disease prevention

Statements about "staying alert to notifiable diseases and reporting to authorities if found" → Notifiable disease

Public health duty

Statements about "the way to make full disclosure for patient's information and decision-making" (e.g., patients knowing their own disease and condition after treatment, communication, recommendation, patient's responsibility, second opinion, and right to make decision and take responsibility) → Information and self-determination

Statements about "the way to secure patient confidentiality and dignity" (e.g., confidence, privacy, security of documents) → Confidentiality and dignity

Statements about "the way patients make decisions without restriction" (e.g., choose freely, second opinion, refuse to participate in research) → Free to choose

Statements about "secure patient's best interests" (e.g., against patient's will, legally incompetent patient) → Best interests of patient

Protection of patients' rights

Figure 1 Framework of dimensions of ideals of professionalism.

The 66 items devised for the survey instrument were distributed to 10 experienced medical education researchers who were asked to judge the content validity of the dimensions proposed in order to delineate the ideals of professionalism.

2.2. Sample

The collection of data was undertaken from April to June 2007. After the authors first obtained permission from the directors of four medical schools in Taiwan, representatives of each medical school class issued and collected questionnaires during their core course lectures. Two medical schools in general universities were private, one located in Taipei County and one in Hualien city. Two medical schools in dedicated medical universities were private, located in Taipei City and Taichung City. The plan was to survey first- to fourth-year undergraduate medical students; however, we faced limitations in terms of the appropriate number of students representing all years.

Since some students missed classes or were unwilling to complete the questionnaires, we carried out a second application in order to include those who missed the first run. Of the total 860 questionnaires issued, 440 completed questionnaires were subsequently collected, yielding a response rate of 51.2%.

2.3. Study design

This study incorporated into the survey instrument the codes of conduct listed for physician associations in the United States, Britain, Japan and Taiwan.[16–36] Both deductive and inductive methods of generating items for scale development were used, as suggested by Hinkin.[40] In Figure 1, we recapitulate the themes and validate the five dimensions of physicians' codes of conduct.

"Medical knowledge and clinical skills" are defined as applying to an occupation that involves specialized knowledge of a subject, field or science, and which invariably involves prolonged academic training, formal qualification, and prestige. "Interpersonal skill with patients" refers to the major principle to which a physician adheres when interacting with patients, such as treatment, communication, and financial or legal issues. "Teamwork" is defined as physicians smoothly working together with others, such as nurses, general staff and other physicians. "Public health duty" refers to disease prevention and the reporting and eradication of notifiable diseases. Finally, "the protection of patients' rights" is defined as the commitment by physicians to ensuring the fundamental rights of patients, as defined in the Declaration of Lisbon.

The items were rephrased from the original medical associations' codes of conduct, allocated to appropriate constructs by the first and fourth authors, and pretested on a total of 29 fifth-year medical students. Interrater reliability was reasonable (> 0.7). A six-point Likert scale was used to measure the perceived degree of importance of being a "good" doctor, with the response ranging from 1 for "least important" to 6 for "most important".

Afterwards, construct validity was further tested. We achieved a fairly good index for overall fit (RMSEA = 0.07; GFI = 0.07), a very good incremental fix index (NFI = 0.96; CFI = 0.97), and a very good parsimony fit index (PNFI = 0.93; PGFI = 0.067). The results of confirmatory factor analysis supported the good construct validity of this instrument.

We applied three steps to handling missing data. First, we excluded the questionnaires if they were incomplete. Second, we excluded cases if they failed a consistency check. Therefore, our dataset includes a few missing entries. And finally, we used listwise deletion (a conventional method) to exclude cases from samples.[41]

3. Results

Of the total study sample, males accounted for 254 (57.1%) of the sample, with an average age of 21.3 years (standard deviation = 2.6). There were 122 (27.9%) first-year students, 84 (19.1%) second-year students, 136 (30.8%) third-year students, and 98 (22.2%) fourth-year students. Table 1 provides details of the responses on the five dimensions of the code of conduct by these groups of students.

3.1. Medical knowledge and clinical skills

The respondents gave high valuation to items relating to learning and professional competency, such as continuous learning (mean = 5.4), knowledge and skills (mean = 5.6), and appropriate diagnoses (mean = 5.6), but relatively low valuations to items related to the development of new skills and treatment methods (mean = 4.8), research (mean = 4.6), and teaching (mean = 4.7). The Cronbach's alpha for this dimension was 0.88.

3.2. Interpersonal skill with patients

The respondents indicated relatively high concern for items such as compassion, integrity, equity, and communication skills; however, one exception was the item "charge for those services rendered by me" (mean = 4.7). The Cronbach's alpha was 0.92.

3.3. Teamwork

In contrast to their relatively low valuation of "compliance with the administrative policies of the hospital" (mean = 4.6), respondents showed that they highly

Table 1 Medical students' valuations of the dimensions of professionalism*

Construct	Total	Year 1 ($n=122$)	Year 2 ($n=84$)	Year 3 ($n=136$)	Year 4 ($n=98$)
Medical knowledge and clinical skills	5.14 (0.58)	5.15 (0.55)	5.15 (0.63)	5.16 (0.57)	5.07 (0.61)
Interpersonal skill with patients	5.16 (0.64)	5.22 (0.58)	5.20 (0.65)	5.11 (0.69)	5.11 (0.62)
Teamwork	5.16 (0.66)	5.26 (0.60)	5.16 (0.67)	5.13 (0.75)	5.06 (0.68)
Public health duty	5.01 (0.75)	5.06 (0.72)	4.94 (0.82)	5.05 (0.78)	5.04 (0.64)
Protection of patients' rights	5.05 (0.64)	5.16 (0.60)	5.10 (0.67)	4.99 (0.71)	5.04 (0.64)

*Data presented as mean (standard deviation). Scale of valuation (approximate translation): 1=I think it is very unimportant; 2=I think it is unimportant; 3=I think it is somewhat unimportant; 4=I think it is somewhat important; 5=I think it is important; 6=I think it is very important.

valued coordination, cooperation, and knowledge sharing. The Cronbach's alpha was 0.87.

3.4. Public health duty

Respondents put high emphasis on reporting notifiable diseases, but gave a relatively lower valuation for "help to enact health-related legislation" (mean=4.9) and "encourage health promotion within the community" (mean=4.9). The Cronbach's alpha was 0.88.

3.5. The protection of patients' rights

The design of the items in this dimension was based mainly upon the Declaration of Lisbon on the Rights of the Patient.[36] Since the declaration focuses not only on ordinary patients, but also on terminally-ill and legally-incompetent patients, the items covered a wide range of ethical issues. The student answers demonstrated that they paid attention to items such as "patients deserve a full explanation of their disease, treatment, and prognosis" (mean=5.2), "being assured of full confidentiality and dignity" (mean=5.3), and "humane terminal care" (mean=5.2), but gave relatively low valuations to items such as "the right to know the information transcribed in their medical records" (mean=4.8), and "health education" (mean=4.8). The Cronbach's alpha was 0.94.

3.6. Subgroup analysis

This study undertook subgroup analysis of students in different grades. Notably, there were no statistically significant differences between the first-year and fourth-year students (Table 1). However, compared to students in earlier years of study, the fourth-year students had slightly lower valuations for the items indicated above, indicating perhaps that the educational reforms were not fully in effect during their first years of study. Students in the medical schools of general universities rated relatively high compared to respondents in medical universities, with the exception of pre-med students who gave relatively low

valuations to the dimension of "public health duty" (Table 2).

4. Discussion

4.1. Principal findings

Students scored highest on teamwork and interpersonal skills, followed by medical knowledge and skills. Students placed less importance on public health duty and protection of patients' rights. This result is different from previous research which contended that medical students placed primary significance on the construct of medical knowledge and skills, paying less attention to the other constructs.[42,43] Our research appears to show preliminary success of the current medical education reform designed to provide a medical humanities curriculum for pre-med students (that is, first- and second-year students). Nonetheless, student awareness of public health duties and patients' rights protection still demand improvements. We recommend redesigning future curriculum to raise the sense of public health duties and protection of patients' rights among students.[44]

The slight gap between general universities and medical universities may reflect the greater emphasis on liberal art courses in the former. However, humanities are now a large part of the required program for medical undergraduates.[12,45–47] At the same time, medical students face a heavy burden of basic science courses in the first and second years, squeezing out attention to the humanities. A follow-up longitudinal survey is needed to determine whether or not the goal of imbuing humanistic concerns in medical students is being achieved.

4.2. Instrument assessment

A major concern of this research was the quality of the instrument.[14] This study measured the ideals of professionalism extracted from the codes of conduct of major medical associations. We assessed the reliability and

Table 2 Valuation of dimensions of professionalism: comparison of the means*

Construct	Medical schools in medical universities				Medical schools in general universities			
	Year 1 (n=80)	Year 2 (n=56)	Year 3 (n=112)	Year 4 (n=60)	Year 1 (n=42)	Year 2 (n=28)	Year 3 (n=24)	Year 4 (n=38)
Medical knowledge and clinical skills	5.14 (0.61)	5.11 (0.60)	5.11 (0.57)	5.02 (0.57)	5.19 (0.43)	5.22 (0.69)	5.36 (0.53)	5.14 (0.67)
Interpersonal skill with patients	5.28 (0.59)	5.14 (0.67)	5.07 (0.71)	5.03 (0.61)	5.11 (0.68)	5.33 (0.61)	5.33 (0.60)	5.22 (0.60)
Teamwork	5.31[†] (0.61)	5.14 (0.64)	5.06 (0.77)	4.96 (0.66)	5.17 (0.56)	5.21 (0.75)	5.47[†] (0.57)	5.21 (0.69)
Public health duty	5.09 (0.79)	4.96 (0.83)	5.01 (0.79)	4.94 (0.72)	4.97 (0.59)	4.89 (0.81)	5.27 (0.71)	5.17 (0.73)
Protection of patients' rights	5.18 (0.66)	5.07 (0.68)	4.95 (0.71)	4.99 (0.55)	5.13 (0.47)	5.17 (0.65)	5.16 (0.72)	5.11 (0.77)

*Data presented as mean (standard deviation); [†]$p < 0.05$.

validity of this instrument, and received desirable results. Therefore, we believe that this instrument is a reasonable device for evaluating pre-med and medical students' stated professional values.

Any single aspect of professionalism, such as medical knowledge and skills, might not comprehensively cover the principles of good doctoring. Compared to other instruments, which have problems of redundancy and narrow focus, this instrument covers multiple dimensions of professionalism.[37,48,49]

One reservation of this study was that it collected cross-sectional attitudes without considering reciprocal learning in students' clinical experiences, community participation, peer pressure, and possible role models.[50] We provide the survey results as baseline data, and longitudinal study over time may clarify how the socialization process unfolds. Moreover, medical professionalism has long been developed in advanced countries such as the United States and England. We devised our instruments based on codes of conduct from advanced countries. Taiwan's medical system has developed over the last 50 years via intense interactions with the United States. Today, its standard of living and legal process are comparable to that in developed countries, and it has sought to meet international standards, so these codes are appropriate for defining Taiwan's medical professionalism. The instrument additionally included some items that reflected the specific role of Taiwan's physicians with regard to public health responsibilities. There is some cultural specificity to greater family cohesion in Taiwan and customary family care for hospital patients. Future additions to the instrument may reflect this.

4.3. Limitations

It should be noted that there are several research limitations. First, in asking how many students agree with the ideals of professionalism, we could not determine how fully they would apply these ideals in future action, especially after clinical practice.[50] Second, the goodness of fit for generalization from respondents to the population was judged using only one demographic variable from one medical school (Table 3). The results of this study may not apply to senior students, residents, and physicians. Further, for more objective measures, we need to seek public opinion on the behavior of the medical profession; however, this is beyond the range of this instrument.

Acknowledgments

Table 3 Goodness of fit on sex for the respondents and population of one medical school

	Female		Male	
	Respondents	Population	Respondents	Population
First year	28	51	25	111
Second year	16	52	40	105
Third year	29	49	41	106
Fourth year	27	41	31	113
Total	100	193	137	435
χ^2	1.27		4.14	

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