Perception of Inpatients for Medical Skills Education at a Turkish University Hospital

Bir Üniversite Hastanesinde Yatan Hastaların Tıbbi Beceri Eğitimine Bakışları

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ABSTRACT Objective: This investigation was performed in order to determine the perception of in patients at the Erciyes University Hospital for medical students' skills education. **Material and Methods:** This cross sectional study was performed on 850 adult inpatients hospitalized in a teaching hospital for at least three days. A questionnaire was applied to the patients by face-to-face interview. **Results:** Of the patients in the study group, 73.7% stated that it was acceptable that medical students gained medical skills by training on patients. Of the study group, 92.8% stated that medical students taking history of patients was acceptable, 86.6% observing physical examination, 75.8% observing surgical operation, 73.1% performing physical examination, and 61.7% carrying out invasive procedures, such as intravascular interventions. The rate of patients who considered refusing medical students to perform interventions on themselves was 11.7%, whereas only 2.9% had actually done so. Only the education level of the patient had a significant impact on considering refusal of medical procedures by medical students. **Conclusion:** In this study, most of the participants approved medical schools training on patients but it seems that performing medical procedures on patients will be more difficult when the level of education increases.

Key Words: Education, medical; inpatients; perception

ÖZET Amaç: Bu çalışma, Erciyes Üniversitesi Hastanesinde yatan hastaların tıp öğrencilerinin beceri eğitimine bakış açılarını saptamak amacıyla yapılmıştır. **Gereç ve Yöntemler:** Bu kesitsel çalışma, bir eğitim hastanesinde en az üç gündür yatmakta olan 850 erişkin hasta üzerinde yürütülmüştür. Anketler, yüz yüze görüşme yöntemiyle uygulanmıştır. **Bulgular:** Çalışma grubunda yer alan hastaların %73.7'si tıp öğrencilerinin hastalar üzerinde tıbbi becerileri öğrenmesinin kabul edilebilir olduğunu söylemiştir. Hastaların %92.8'i öğrencilerin hastadan anamnez almasını, %86.6'sı fizik muayeneyi izlemesini, %75.8'i cerrahi müdahaleyi izlemesini, %73.1'i fiziksel muayene yapmasını ve %61.7'si de intravenöz girişim gibi invaziv işlemleri yapmasını kabul edilebilir bulmuştur. Çalışma grubunda yer alan hastaların %11.7'si tıp öğrencilerinin kendisi üzerinde uyguladığı tıbbi işlemleri reddetmeyi düşünmüş, ancak sadece %2.9'u reddetmiştir. Tıbbi işlemleri reddetmeyi düşünmede en önemli faktörün hastanın eğitim durumu olduğu saptanmıştır. **Sonuç:** Bu çalışmada, katılımcıların büyük bir kısmı hastalar üzerinde tıbbi beceri eğitimi yapılmasını onaylamaktadır; ancak, hastaların eğitim düzeyi yükseldikçe medikal işlemlerin hastalar üzerinde yapılması daha zor olacak gibi görünmektedir.

Anahtar Kelimeler: Tıp eğitimi; yatan hasta; tutum

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It is important that students practice their clinical skills with patients. Learning skills on plastic models is not adequate.[1] Medical student learning is dependent on an unwritten agreement between patients and the medical profession, in which students "practice" on real patients in order

that, when they are doctors, those same patients will benefit from the doctors' skills.[2] Patients who apply to a teaching hospital may be unaware that physicians who have not completed their specialization training or medical students may be delivering a large part of their care.[3]

The involvement of learners may be unethical because it is associated with greater risks for the patient. Despite the problems, patients generally have favorable attitudes toward medical student participation in clinical care.[4,5] Most studies suggest that 90-98% of patients are willing to participate in student teaching, enjoy their interaction with students and are comfortable in disclosing personal information to students.[6]

The transmission of values within medical education has been the focus of increased interest over the last 10 years. Hafferty and Franks suggested that medical training resulted in the transmission of normative rules regarding behavior.[2] The authors used the term "hidden curriculum" to describe the aspects of medical education that took place outside the formal curriculum. The hidden curriculum may transmit values that are unethical to the stated values of the official curriculum. These other values are taught via the organization of courses, the actions of role models and activities that take place outside formal teaching activities.[2,7] The position of medical education in relation to service provision has been highlighted as an example of potential conflict between the formal and hidden curricula. While the formal curriculum acknowledges the patient's right to informed consent regarding their involvement in education, the hidden curriculum may blur the ethical boundaries.[2]

There is a view within medicine that patients have an obligation to take part in medical education, a view refuted by Waterbury in a critical analysis of the arguments in support of this obligation.[8] As reported by Waterbury the view is informal, with almost no written sources advocating it.[8] It is such a viewpoint, however, that has power within the hidden curriculum. There is increasing evidence that it is becoming harder for students to learn and practice skills on real and more importantly, genuinely sick patients.[9-11]

Medical education changed and more training on dummies, models and standardized patient practices are included in the curriculum of medical faculties. Standardized patients are alternative to inpatients for early training experience in clinical skills.[8] According to a 2004 pre-graduation report on medical education by the Turkish Medical Association, 62.2% of medical faculties in Turkey had medical skills laboratories.[12] At present, there are standardized patients laboratories in only 3 of these medical faculties in Turkey.[13,14] In our faculty, we have no standardized patients laboratory but have a medical skills laboratory. We have medical skill lessons during the first three years.

This investigation was performed in order to determine the perception of the inpatients at Erciyes University Hospital for medical skills education.

MATERIAL AND METHODS

This cross sectional study was performed in May 2005 on inpatients hospitalized in the Erciyes University Hospital, which is a teaching hospital located in the provincial center of Kayseri, Turkey.

A preliminary study was performed on 300 patients in March 2005 with inpatients at the Erciyes University Hospital in order to estimate some parameters of the population. The patients enrolled in the preliminary study and who were still in the hospital in May 2005 were not included in the original study. In this preliminary study, the percentage of the patients who approved the medical students learning on patients was 60-90% for various clinical skills. Besed on this, during calculation of the study group, the p value was considered 0.60, the confidence level 0.95, the power 0.80 and the tolerance value 0.05. According to these values, the minimum sample size was calculated as 767.

Patients in the pediatrics, pediatric surgery and psychiatry clinics were excluded from the study, as well as pediatric cases in other clinics and patients who were in no condition to be questio-

ned. The total capacity of the Erciyes University Hospital is 1,350 beds. Of these beds, 181 are in the pediatrics clinics, 26 in the pediatric surgery clinics and 27 in the psychiatry clinics.

The researchers visited the clinics, 850 adult patients who had been in the hospital for at least three days were determined. All eligible patients were planned to be included in the study. A questionnaire developed by the researchers and consisting of 28 questions was given to the patients by face-to-face interview. The questions included the following topics; sociodemographic information including age, gender, level of education, marital status, social insurance; approval of the study group regarding student participation in medical procedures like taking anamnesis, observing physical examination and surgical operation, performing physical examination and invasive interventions, and performance of some medical procedures by students. Twelve patients who refused to answer the questionnaire and two patients whose answers were incomplete were excluded. Thus, of the 850 inpatients, 836 (98.4%) were included in the study. The answers to the question "do you approve the medical student to perform the listed procedures" were classified as "approve, not approve and undecided". The ones who said "no" to this question were classified in the "not approve" group. The answers to the question "did you think to refuse the performance of medical procedures by medical students" were classified as "consider refusing, not consider refusing". The ones who said "yes" to this question were classified in the "consider refusing" group.

Descriptive statistics were calculated for patient demographics, opinions regarding student participation and performance of medical procedures. Chi Square test and logistic regression method was used for statistical analyses. p values less than 0.05 were considered statistically significant. All analyses were performed with the statistical package for social science (SPSS) version 13.0 (Chicago, Illinois).

This study was reviewed and approved by the Erciyes University Faculty of Medicine Ethics Committee.

RESULTS

Eight hundred and thirty-six patients were investigated; the overall mean age was 48.9 ± 14.4 (range: 18-82) years. Socio demographic characteristics of the study group were shown in Table 1.

Of the patients, 87.6% stated that they were aware that medical students were training in the hospital, whereas 12.4% had no idea. Overall, 73.7% believed it was acceptable that medical students gained clinical skills on patients and 84.8% stated that medical students training in the hospital had no effect on their hospital preference. Approval of the study group regarding medical skills education being performed on themselves according to various characteristics was shown in Table 2. No significant correlation was found between the approval of the study group regarding student performing medical procedures on themselves and their socio demographic characteristics.

Approval of the study group regarding students performing various medical skills on them-

TABLE 1: Socio demographic characteristics of the study group.*

Characteristics	n	n	%
Gender			
	Male	409	48.9
	Female	427	51.1
Age groups			
	18-39	225	26.9
	40-59	372	44.5
	60 and over	239	28.6
Marital status			
	Married	651	77.9
	Unmarried	110	13.1
	Widowed	75	9.0
Social insurance			
	Yes	799	95.6
	No	37	4.4
Educational period (years)			
	0-5	219	26.2
	5-11	379	45.3
	12 and over	238	28.5
Residence			
	Urban	544	65.1
	Rural	292	34.9

*n= 836.

TABLE 2: Approval of the study group regarding student performing medical procedures on themselves according to their socio demographic characteristics.

	Approve		Not approve	Undecided
Characteristics	**n**	**%**	**%**	**%**
Gender				
Male	409	74.4	13.9	11.7
Female	427	73.1	15.0	11.9
Age groups (years)				
18-39	225	69.3	20.0	10.7
40-59	372	76.1	12.1	11.8
60 and over	239	74.1	13.0	13.0
Educational period (years)				
0-5	219	75.6	13.5	10.9
6-11	379	69.8	16.7	13.5
12 and over	238	65.2	17.4	17.4
Residence				
Urban	542	74.2	14.8	11.1
Rural	294	72.8	13.9	13.3
Total	836	73.7	14.5	11.8

p> 0.05,
Chi-square test.

selves like taking history, observing physical examination or surgical operation was shown in Table 3. Approvement of the study group regarding student performing the various medical procedures according to the avareness of medical students training in the hospital is shown in Table 4.

Rates of various medical procedures (taking history, observing physical examination or surgical operation, performing physical-mammary-genital or rectal examination, taking blood samples or giving injections) performed by medical students on patients in the study group were shown in Table 5.

The effects of some independent variables on patients who considered refusing clinical interventions being carried out by medical students on themselves (results of logistic regression analyses) were listed in Table 6.

As may be seen in Table 6, 11.7% of the study group stated they considered refusing clinical interventions performed by medical students, although only 2.9% (18.9% of those who considered refusing) stated that they had actually refused intervention and of the patients' objections, 69.6% had been respected and students had not administered medical intervention.

According to logistic regression analyses, only the education level of the patients had a significant impact on considering refusal of medical procedures by medical students. Patients who had 12 and more years of education had a 3.2-fold and those with 6-11 years of education had a 2.2-fold higher risk of considering refusal of medical procedures than those with 0-5 years of education.

DISCUSSION

A teaching hospital is a hospital that provides medical training to medical students and residents. The hands-on training of medical students is essential in order to bridge the gap between textbooks and medical practice.[15] Contact with patient helps students form professional skills and attitudes and their professional identity, via direct interaction and from observing their peers and teachers.[16] Medical students must be allowed to learn to perform not only patient care, but also invasive procedures.[17]

TABLE 3: Approval of the study group regarding student performing various medical procedures with or without supervision on themselves.

	Approve		Not approve		Undecided	
Medical procedures (n = 836)	**n**	**%**	**n**	**%**	**n**	**%**
Taking history	776	92.8	45	5.4	15	1.8
Observing physical examination	724	86.6	83	9.9	29	3.5
Observing surgical operation	634	75.8	148	17.7	54	6.5
Performing physical examination	611	73.1	197	23.6	28	3.3
Performing invasive interventions	516	61.7	277	33.1	43	5.1

TABLE 4: Approval of the study group regarding student performing various medical procedures according to the awareness of medical students training in the hospital

	Awareness of medical students training in the hospital					
	Aware (n= 732)		Not aware (n= 104)			
Medical procedures	**n**	**%**	**n**	**%**	**x^2**	**P**
Taking history	691	94.4	85	81.7	21.987	< 0.001
Observing physical examination	648	88.5	76	73.1	20.892	< 0.001
Observing surgical operation	571	78.1	62	59.6	17.196	< 0.001
Performing physical examination	551	75.3	60	57.7	14.412	0.001
Performing invasive interventions	458	62.6	58	55.8	1.947	0.378

TABLE 5: Performance of medical procedures by medical students on patients in the study group

	Performed		Not performed		Unknown	
Medical procedures (n= 836)	**n**	**%**	**n**	**%**	**n**	**%**
Taking history	617	73.8	192	23.0	27	3.2
Observing physical examination	573	68.5	223	26.7	40	4.8
Observing surgical operation	135	16.1	495	59.2	206	24.6
Performing physical examination	342	40.9	454	54.3	40	4.8
Performing mammary examination	38	4.5	764	91.4	34	4.1
Performing genital examination	28	3.3	771	92.2	37	4.4
Performing rectal examination	35	4.2	759	90.8	42	5.0
Taking blood samples	412	49.3	388	46.4	36	4.3
Giving injections	245	29.3	555	66.4	36	4.3
Dressing wounds	104	12.4	696	83.3	36	4.3

In our study, the majority of patients was aware that medical students did their apprenticeship at this hospital, and stated that the medical students did not affect their preference for this hospital.

Thus, it is unclear that simply by coming to a "university hospital" patients are implying consent to the performance of invasive procedures by medical students. Teaching institutions often operate in a "Don't ask, don't tell" environment.[18] If patients do not ask about their physician's level of training, they will not be offered that information. There is the fear that if the patient is informed, they will not consent to the procedure.[19] Of the patients included in the present study, 73.1% approved the medical students to perform physical examinations and 61.7% to perform invasive interventions on themselves.

One survey study showed that 52% of patients would allow a medical student to perform a lumbar

TABLE 6: Effects of some independent variables on patients who considered refusing clinical interventions carried out by medical students on themselves (results of logistic regression analyses).

	Considered refusing		
Independent variables	**n**	**%**	**OR (95% CI)**
Total n= 836	98	11.7	
Gender			
Male n= 409	46	11.2	1.00
Female n= 427	52	12.2	1.37 (0.88-2.15)
Age groups (years)			
18-39 n= 225	28	12.4	1.00
40-59 n= 372	49	13.2	1.53 (0.89-2.64)
60 and over n= 239	21	8.8	1.22 (0.62-2.39)
Educational period (years)			
0-5 n= 219	20	9.1	1.00
6-11 n= 379	33	8.7	2.2 (1.39-3.53)
12 and over n= 238	45	18.9	3.2 (1.55-6.73)
Residence			
Urban n= 542	67	12.4	1.00
Rural n= 294	31	10.5	1.01 (0.63-1.61)

puncture.[20] Another survey study stated that 36% of male patients would definitely or probably refuse to let a medical student perform a rectal examination, and 39% of female patients would refuse to allow a medical student to perform a pelvic examination in an outpatient setting.[21] While these refusal rates suggest that some patients may be willing to participate in the medical education process, there is by no means an overwhelming rejection of medical student involvement in procedures.

In this study, only 2.9% (18.9% of those who considered refusing) refused to allow the students to perform any examination on them.

Santen et al found that even when students identified themselves, and also disclosed the fact that they were inexperienced at performing simple procedures, the majority of patients (90%) still allowed the students to proceed with the procedure.[15] One survey questioning patients about surgical procedures found that 59% of the patients would probably or definitely not allow a medical student to suture a surgical incision.[21] In the present study, the consent rate of patients for medical students to perform procedures was 73.7%. If patients refuse to allow medical students to perform procedures, this could clearly be detrimental to the students' education.

While the situation of considering refusal to procedures being performed by medical students does not depend on the patients' sex, age group or residence, it increases when educational status is higher. This may show us that, as the general educational level of society increases, more patients will refuse procedures being performed by medical students.

The formal medical education curriculum teaches that the ethical principles of patient autonomy, truth telling and informed consent are critical elements upon which medical care is based. However, the 'hidden curriculum' often undermines these principles and professional development.[2] As a result, in one study nearly half of the students reported that they had been placed in a situation where they felt under pressure to act unethically, especially with regard to a conflict between medical education and patient care.[22] This included informing the patient of the training experience of the person performing the procedure, and giving the patient the autonomy to refuse or consent.

Therefore, regardless of whether we think patients will consent to procedures by medical students, all patients should be informed of student involvement so they are then able to choose whether to allow participation or not. As education advocates, students should not be abandoned to explain their role to patients alone, but to participate in the discussion of the student's role in medical care. In most cases, patients welcome involvement of students in their care if they can be assured that their medical care is not compromised. In the present study, 12.4% of the patients stated that they did not know medical students were training in this hospital and could perform some medical procedures on them. Considering the medical procedures performed on the patients (Table 5), it is obvious that particularly for invasive procedures, the patient was not aware that a resident was performing the procedure.

In conclusion, our study showed that patients were willing to take part in medical education and most of the participants approved medical schools training on patients but it seems like performing medical procedures on patients will be more difficult when the level of education increases. This situation is likely to have detrimental effects on medical skills education.

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