Original Article

Quality of Ambulatory Education from the Viewpoint of the Clinical Medical Students at Kermanshah University of Medical Sciences in 2013

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Abstract

Introduction: Ambulatory education is an integral part of medical education. The present study was carried out to evaluate the quality of ambulatory education from the viewpoint of clinical medical students at Kermanshah University of Medical Sciences.

Methods: In this descriptive cross-sectional study, the study sample included medical externs externs and interns of Kermanshah University of Medical Sciences that were selected through census sampling technique in the academic year 2012-2013. The instrument for data collection was a researcher-made questionnaire with acceptable validity and reliability. The obtained data were analyzed by SPSS-16 software using descriptive statistics.

Results: 65 (50%) externs and 75 (65%) interns participated in the study and 1588 questionnaires were completed via self-administered technique. The mean of the teachers' quality of ambulatory education at Kermanshah University of Medical Sciences was 22.6±5.2 and the mean for the clinics' quality of physical environment was 19±5.13, indicating favorable and semi-favorable status, respectively. Qualitative evaluation of ambulatory education from the viewpoint of externs and interns showed a significant difference with more satisfaction from the part of the interns (p<0.001).

Conclusion: The findings revealed that the teachers' quality of ambulatory education at Kermanshah University of Medical Sciences was favorable, but the physical condition of the clinics indicated a semi-favorable status.

Keywords: Ambulatory Education, Medical students, Externs, Interns

Introduction

Ambulatory education is a key element in the new medical practice (1). In the traditional approach to medical education, the dominant educational environment is hospital-based clinical education (in inpatient wards) in which the majority of educational programs is planned and performed, while what is mainly important in the future workplace of the physicians is clinical outpatients. Outpatient clinics are basically different from inpatient wards not only in terms of type of diseases but also in terms of the short time available to create an effective relationship to obtain information, to visit and to review differential diagnoses as well as to perform treatment and to write prescriptions. Thus, ambulatory and clinical education has been currently taken into account with abundant evidence to support its role in optimization of the future performance of the general physicians and investigation of the problems associated with it worldwide (2). According to the medical education programs in Iran, ambulatory education has been highlighted as a major issue and 50% of the activities associated with externs and internships are devoted to this domain (3).

Recognition of the educational status of various educational centers and analysis of the students' views are of utmost importance in promotion of the educational quality. Students are the main recipients of services in an educational system, whose assessment of viewpoints can help optimize the educational process in various domains (4). The results of the study by Irby et al. showed that the quality of clinical education was lower than the acceptable limit (5). Sporadic studies have been conducted on ambulatory education in Iran, each of which has analyzed a specific aspect of ambulatory education or has been limited to a specific hospital (1-3, 6).

Most of the findings indicate the presence of failures in this domain of medical education which need to be investigated according to the specific conditions of each university. Accordingly, special planning is required to be carried out to remove the problems and enhance the quality of ambulatory education. Therefore, the current study endeavored to determine the quality of ambulatory education from the viewpoint of clinical medical students at Kermanshah University of Medical Sciences (KUMS).

Methods

In this descriptive cross-sectional study, perspectives of all medical externs and interns studying at KUMS in the academic year 2012-2013 were investigated. A total of 244 students (129 externs and 115 interns) were recruited to participate in the study. The data were obtained through a self-administered questionnaire in a three-month period (from April 5th to July 6th, 2013). The questionnaire was designed based on the learners' requirements and expectations and existing articles (1, 2, 7) as well as the opinion of the authorities in the realm of ambulatory education. The validity of the questionnaire was confirmed via content validity and face validity as well as ideas of six experts in the field. The reliability of the given questionnaire, however, was confirmed by test-retest method and correlation coefficient (0.81).

The personal and academic information of the externs and interns were obtained from the vice chancellor of education. Sampling was performed through census method and each student was given a special code which was remained confidential with the project managers. Further, the questionnaires were given to the students by the project manager with a specific code, with no name and without the involvement of the supervisor and educational departments. The students were required to fill out the questionnaire for each session attending the clinic. Along with distribution of the questionnaires, several briefing sessions were held for the participants in different hospitals and other health centers with educational clinics in collaboration with deputy of education, and the objectives of the research and the procedures of completing the questionnaire were explained. Participation in the study and completion of the questionnaire were voluntary and the obtained data were coded and kept confidential. This process was carried out for three months in all wards of outpatient clinics in which the externs and interns were trained. In the three-month educational ward (internal and pediatrics) and two-month educational ward (gynecology and surgery), this study was conducted for one educational period. In other one-month wards, the study was continued for three consequent rotations and in 15-day wards; the study was carried out for 6 consequent rotations.

The questionnaire consisted of two sections: the first section contained general information about the clinic, including the department's name, teacher's name, clinic's location, start and finish time, number of externs, interns and assistants present in the clinic, number of visited patients in the clinic, and the approximate time to visit each patient; the second section of the questionnaire included qualitative evaluation of the teachers' ambulatory education through 6 questions including teacher's enthusiastic response to questions, teacher's structured and organized discussion about subjects, teacher's timely and regular attendance in the clinic, and taking ethical consideration into account in dealing with patients, students and personnel. The items were rated based on the

Likert scale from the worst to the best (1-5). The minimum and maximum scores for this section were 6 and 30, respectively. The mean of education quality was classified into three rankings; unfavorable (a score <14), semi-favorable (a score of 14-22) and favorable (a score >22).

The physical condition of each clinic was analyzed through the following criteria: vastness of the clinic, amount of light, type, number and arrangement of the chairs, ventilation, required tools for examination, educational facilities and sanitation and health status. The items were rated based on the Likert scale from the worst to the best state (1-5). The minimum and maximum scores for this section were 7 and 35, respectively. The mean of physical condition was calculated and classified into three categories of unfavorable (a score <16), semi-favorable (a score of 16-25) and favorable (a score >25) status. The questionnaires were coded after completion and the obtained data were fed into SPSS-16 software and analyzed by descriptive statistics and Kolmogrov-Smirnov and Mann-Whitney tests. $P<0.05$ was considered significant.

Results

From 129 externs and 115 interns, 65 (50%) externs and 75 (65%) interns participated in the study, from whom 32 (49.2%) externs and 34 (45.3%) interns were male. A total of 1588 questionnaires were completed from which 962 (60.6%) and 626 (39.4%) questionnaires were completed by externs and interns, respectively. The highest mean number of externs was reported for infectious diseases and urology wards and the highest mean number of interns was reported for dermatology and psychiatry wards. The lowest number of externs and interns were related to internal and cardiac wards. It is noteworthy that merely interns are trained in the realm of community-oriented medical education center (Table 1).

Table 1. The mean number of externs, interns, admitted patients and approximate time to visit each patient in each ward

	Externs MD±SD	Intern MD±SD	Visiting patient MD±SD	Patient visit duration MD±SD
Internal medicine	1.33±1	0.6±0.5	26.5±8.4	4.69±1.7
Surgery	9.1±3.2	1.6±0.6	9.7±3.9	5.5±2.1
Obstetrics and gynecology	3.2±0.7	2.3±1.4	17.2±3.8	5.2±0.5
Pediatrics	4.4±2.6	1.3±0.9	12.5±3.2	9.9±4.9
Dermatology	7.1±1.4	3.8±1.3	25.8±9	5±1.5
Urology	10±1.5	1.±0.6	31.7±7.2	4.1±1
Orthopedics	9.9±0.3	0.54±0.5	19.2±6	4.4±0.6
Neurology	4.9±2.3	1.6±0.7	19.4±7.7	5.7±1.5
Psychiatry	1.7±1.5	3.3±1.7	34.4±8	5.1±2.2
Infectious disease	10.7±1.6	1±0.2	17.2±4	6.2±1.4
Ophthalmology	3.8±2.7	1.9±0.8	31.9±5.9	3.6±0.8
ENT	7.4±2.2	2.5±0.8	23±5.2	4.4±0.7
Community-oriented medical education center	0.0	3.2±1	18.1±4.6	7.5±2.5
Cardiology	4.3±2.5	0.3±0.6	13.3±5.5	10.1±13.5
Total	6.2±3.7	2.2±1.5	23.2±9.6	5.5±2.8

The mean number of residents in all wards was 0.82±0.9 and the total number of learners in each clinic was 9.2±6.2. The mean number of daily admitted patients was 23.2±9.6. The highest and lowest means for the admitted patients during this period were reported for psychiatry (34.4±8) and surgery (9.7±3.9) wards, respectively. The mean of the approximate time to visit each patient was 5.5±2.8 minutes and the highest and lowest amounts were reported for cardiac (10.1±13.5 minutes) and ophthalmology (3.6±0.8 minutes) wards (Table 1).

There was a reverse significant correlation between the mean of approximate time to visit each patient and the mean number of visited patients in each clinic (r=-0.36, p<0.001). In the assessment of the teachers' quality of ambulatory education, the highest level of satisfaction was reported for the timely attendance and observance of ethical considerations; however, the lowest satisfaction was reported for organized discussion about educational subjects (Table 2). The mean of the teachers' quality of ambulatory education at KUMS Sciences was 22.6±5.2, which indicated a favorable status. In this assessment, infectious diseases (29.2±2.2), community-oriented medical education center (26.1±5.1) and pediatrics (24.7±5.1) wards acquired the highest scores, respectively, indicating a significant difference between various wards (p<0.001) (Table 3). Moreover, the quality of ambulatory education was separately evaluated for the educational-health

centers and the obtained results showed the maximum scores for specialized center of pediatrics (26.5±3.5), community-oriented medical education center (26.1±5.1)

and specialized center for neurology and psychiatry (23.9±4.9), which revealed a significant difference (p<0.001).

Table 2. The mean of quality of ambulatory education and physical condition of outpatient centers from the students 'perspectives

	Questions	Mean±SD
Teachers' quality of ambulatory education	Teacher's enthusiastic response to questions	**3.7 ±1**
	Teacher's structured and organized discussion about subjects	**3.3±1**
	Teacher's timely attendance in clinic	**3.9±1**
	Taking ethical considerations into account while dealing with patients	**3.9±0.9**
	Taking ethical considerations into account while dealing with students	**3.9±1**
	Taking ethical considerations into account while dealing with personnel	**3.9±0.9**
Clinics' physical condition	Spaciousness of the location	**2.6±1.2**
	Amount of light	**3.4±2.4**
	Type, number and arrangement of the chairs	**2.4±1.1**
	ventilation	**2.6±1.1**
	Required tools for examination	**3±0.9**
	Educational facilities (separate classroom, audio-visual equipment…)	**2±1**
	Sanitation (floor, examination bed, desk, curtain, …)	**3±0.9**

Table 3. students' perspectives on teachers 'quality in ambulatory education for each clinic

Ward	MD±SD
Internal medicine	22.4±5.9
Surgery	24.3±5
Obstetrics and gynecology	24.1±3.6
Pediatrics	24.7±5.1
Dermatology	22.3±5.3
Urology	19.5±4.4
Orthopedics	19.8±5.2
Neurology	23.4±4.6
Psychiatry	23.9±4.9
Infectious disease	29.2±2.2
Ophthalmology	20.7±5.5
ENT	21.8±3.9
Community-oriented medical education center	26.1±5.1
Cardiology	20.3±5.7
Total	22.6±5.2

Furthermore, evaluation of the quality of ambulatory education in the opinion of the externs and interns demonstrated a significant difference, indicating more satisfaction from the part of the interns (p<0.001). Also,

the quality of ambulatory education was significantly different in terms of gender, showing more satisfaction among male students (p<0.001) (Table 4).

The results for the evaluation of the clinics' physical conditions from the viewpoint of the participants indicated a mean of 19±5.13 (semi-favorable). The highest satisfaction was reported for light and lowest satisfaction was reported for educational facilities (Table 2). From among nine educational-health centers with outpatient clinics, the specialized center for pediatrics obtained a favorable status (28.5±0.7) and the rest of the centers acquired a semi-favorable status. In the view of the externs and interns, there was a significant difference in terms of the physical conditions of clinics, with more satisfaction on the part of the interns (p<0.001). In addition, the quality of ambulatory education showed a significant difference in terms of gender with more satisfaction among female students (p<0.001) (Table 4).

Table 4. The mean of teachers' quality of ambulatory education and physical conditions for academic level and gender

	N	Quality of ambulatory education MD±SD	Physical conditions MD±SD	P Value
Externs	962	22.3±5.11	18.32±5.32	<0.001
Interns	626	23.05±5.37	20.08±4.61	
Female	866	22.47±5.06	19.3±4.96	<0.001
Male	722	22.73±5.41	18.63±5.3	

Discussion

The present study analyzed two important aspects of ambulatory education, the teachers' quality of education and physical conditions along with some quantitative criteria. The teachers' quality of education at KUMS was favorable with the mean of 22.6±5.2 and the physical condition of the clinics was semi-favorable with the mean of 19±5.13. From the view of externs and interns, the quality of ambulatory education was significant indicating more satisfaction among the interns (p<0.001).

In the domain of the teachers' quality of education in the opinion of the learners, the clinics of KUMS were evaluated as favorable on the whole, which is in line with the findings of Shaygah that indicated more than half of the learners were satisfied with clinical education (8) as well as the results of the study carried out by Bazzazi et al. (3) Further, Avizhgan et al. reported an unfavorable quality of education presented by the faculty members from the viewpoint of the externs (1). In the study conducted by Khorasani et al., 88.3% of the students had negative view towards the quality of ambulatory education (2), which is in contrast with the findings of the current study. In the present study, interns showed more satisfaction than externs towards the teachers' quality of education, which is in agreement with other domestic studies (1, 2). Also, the study of Delva et al. showed that the learners had more negative attitude towards the quality of education in lower levels and more positive attitude in higher levels (9).

It seems that, given the high attendance of externs and interns and regular attendance of interns in all clinics in all weekdays, the role of externs has diminished. In most of the clinics, the externs are merely responsible for taking the patient's initial history, and interns are prior to externs to visit the patient following the teacher and assistant. Moreover, while talking about patient (either diagnosis or treatment), the level of subjects is usually such that mostly interns and assistants benefit and externs, despite their great number, have no efficient role in the clinics. The findings of the study conducted by Schultz et al. showed many differences in training the learners according to the educational level and specialized wards during ambulatory education (10). There was more satisfaction among male students regarding the teachers' quality of education, which is in line with the results of Khorasani et al. (2) and may be indicative of more educational expectations among female students, which, in turn, may be due to more adaptability of this group of students.

Calculation of the mean number of residents (0.82±0.9) showed that the total number of learners in each clinic was 9.2; whereas, in the study of Borji et al., which was carried out in Zahedan, 51.5% of the faculty members recommended three students for each teacher as an appropriate number for each ambulatory course (11). In other similar studies, no result has been reported in the case of the number of learners in the clinic (1-3, 6).

Among the clinical wards, infectious diseases, urology and dermatology had the highest number of students, which requires a more precise consideration and planning by the educational authorities to improve the current situation. This was also indicative of very little attendance of interns in clinics. It seems that excessive involvement of interns in the wards has made each intern attend the clinics in a specific day devoted to his/her teacher (usually 1-2 days a week). Further, this little attendance is often not possible due to the large volume of treatment tasks in the ward such as presence of very ill patients, writing advice or briefs and doing the procedures associated with the patient.

With regard to the number of patients and the time devoted to each patient, the mean number of daily admitted patients was 23.2±9.6. The largest number of admitted patients was related to psychiatry, ophthalmology and urology, each of which was located in one hospital. In other similar domestic studies, no result was found about the number of daily admitted patients in the given center (1-3, 6). In the study by Avizhgan et al., a maximum of 10 patients were reported as appropriate number of patients visiting each clinic with the highest output (1), which is remarkably different than the current situation.

The mean time for visiting each patient was 5.5±2.8. In the present domestic studies carried out in this regard, no similar study was found (1-3, 6). However, in the study of Usatine at al., it was found out that the teacher spent 12.4 minutes more time than usual in the educational clinics (12), which is much different from the time obtained in the present study. The reverse significant correlation between the mean of approximate time to visit each patient and the mean number of visited patients in each clinic seems to be due to imposing extreme treatment load on educational clinics. This is specifically more evident in the wards concentrated in one hospital. The solution of this problem is to separate educational and therapeutical clinics, to admit a logical number of patients with diseases associated with the given ward and to make use of the capacity of other centers.

In the study carried out by Mohtasham Amiry et al., 86.3% of general physicians working in the health centers in Guilan province considered merely university hospitals insufficient for education and recommended specialized clinics of health centers for education as well (13). Making use of the high potential of community-oriented

medical education center and university specialized clinics can be effective to promote clinical education.

The physical condition in the opinion of the learners was semi-favorable, which is in contrast with the findings of Khorasani et al. (2) and Avizhgan et al. (1), which indicated the physical condition as inappropriate; however, it confirmed the results of the study by Bazzazi et al. (3), in which the physical condition was reported to be average. The findings of the research conducted by Lesky et al. about the important educational challenges in outpatient wards in United States revealed that low quality of educational environment was one of the most important obstacles of ambulatory medical education (14).

In the domain of physical conditions of the clinics, the maximum satisfaction was reported for light and minimum satisfaction was reported for lack of proper educational facilities, including access to reference books, internet, academic journals and audio-visual facilities, which is in agreement with other studies (1, 3, 7). It seems that lack of implementation of modern methods of teaching such as problem-based learning and evidence-based medicine by the teachers at clinics is one of the major causes of the neglect to supply educational facilities, which requires the cooperation of the concerned authorities to plan and supply standard clinics.

Conclusion

In the present study, the teachers' quality of ambulatory education and the clinics' physical condition were reported to be semi-favorable. To promote the clinical education, it is necessary to perform a precise educational planning and to make a serious attempt to use other clinical potentials to logically distribute the learners, to pay more attention to the role of externs, to admit a standard number of patients and to reduce the treatment load of the clinics and optimize their physical conditions specifically in terms of educational facilities.

Acknowledgments

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