ORIGINAL ARTICLE

# Evaluation of Faculty Members' and Trainees' Opinions about Quality of Ambulatory Medical Education, Sari, Iran, 2012

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***Abstract***

**Background:** Ambulatory medicine is one of the most important parts of medical education. According to its special effect on professional future of physicians, ambulatory medical education (AME) is now critically important and so many studies have been performed to survey its quality and effective factors on quality improvement it. There is deficiency in methodological studies and evidences about AME in the country. The aim of this study was to investigate the quality of AME in the viewpoint of faculty members and trainees of medical faculty of Mazandaran University of Medical Sciences, Iran.

**Methods:** This was a descriptive, cross-sectional study. The study's population consisted of students, residents and clinical faculty members of Mazandaran University of Medical Sciences who were included by systematic sampling. The tool for data collection was a self administered questionnaire consisted of 27 questions about demographic and educational variables of participants, and their opinions about quality of AME in clinics of the university. Items of the quality of AME consisted of environmental conditions, independent activities of the trainees, instructors' supervision, and teaching of ambulatory specific skills. Validity of the questionnaire was controlled by expertise consultation (content validity), and its reliability by test – retest (r=0.85). Data was analyzed using Spss 13 software.

**Results:** Totally response rate was 70% (36 faculties, 144 medical students and residents). Mean age of faculties, students and residents were 43.6±8.7 and 25±3.6 years respectively of faculties 32% and of students 60% were female. Majority of the trainees (84%) assessed the quality of AME as unsatisfactory and had negative attitude towards it, while majority of the faculties (68%) had positive attitudes toward the quality of AME. There was no significant difference in quality of AME among teaching departments in opinions of participants. Attitude of junior trainees was even more negative. Opinions of the faculty members and the trainees were similar about inappropriate physical environment of ambulatory clinics, and lack of scientific sources but there was significant difference between the opinions about independent activities of trainees in clinics (p=0.000), instruction of rational drugs prescription (p=0.000); management

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(p=0.004), and supervision of faculty members (p=0.000).
**Conclusion:** The overall attitudes of our participants (especially trainees) towards the current quality of ambulatory medical education were negative, mainly because of impossibility of independent activities for trainees, low supervision of faculties, insufficient teaching of rational drug prescription, differential diagnosis, and management.
**Key words:** Ambulatory Medicine Teaching, Attending, Student, Attitude

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**Introduction**

Obviously medical education should be designed, implemented and "committed" to train human sources for health system, in these way new approaches and modern strategies of the medical education, have immerged and been implemented. According to one of the most important current approaches (outcome based education), modern education should train students on the basis of their expected professional needs in future practice in the real situation (community oriented). In the traditional approach, hospital based medical education (in-patient) is predominant part of the clinical teaching and most of educational plans and programs are designed and implemented in such setting, whereas general practitioners often will work in the out-patient (Ambulatory) setting which is widely different from the in-patient setting not only in types of the diseases but also in limited time for creating effective physician – patient relationship, history taking, physical examination, out-patient diagnostic approach and treatment, therefore, now "Ambulatory Medical Educating " (AME) is considered as critically important part of curriculum and many studies have been focused on this issue worldwide.

The current experiences in the country indicated inadequacy of the "Ambulatory Medical Education" relatively (AME) (Alizade *et al*, Shaigan B. *et al*, Peyvandi A. *et al*). Different reasons and explanations are suggested for this important educational problem but there are few studies and evidences about it in the country, so in this study, we studied the quality of AME in the opinions of the students and faculties of Mazandaran University of Medical sciences (north of IRAN) as first step in process of quality improvement of AME in our university.

**Methods**

This research was a cross-sectional descriptive study. The study's population consisted of clinical faculty members, residents, interns and medical students of Mazandaran University of Medical Sciences (MAZUMS) (in the north of IRAN), who were included by systematic sampling.

The tool of data collection was a self administered questionnaire consisted of 27 questions about research variables including: Age, gender, teaching department, academic position, scientific degree of faculty members, educational variable of the participants and a set of questions about characteristics and quality of the AME in MAZUMS. Items of the quality consisted of: environmental condition, numbers and variety of the patients, availability of scientific sources, trainees' independent activities (for history taking, physical examination, prescription of the drugs), supervision of trainers, the quality of instructors' educational activities especially about ambulatory specific skills. Each variable is scored by likert scale (Gjerde CL. *et al*, Mazor KM. *et al*, Whitcomb ME ). The questionnaire was validated by experts' consultation in medical educations (content validity). To survey content validity and feasibility of the questionnaire, pilot study was performed on 10% of the sample, and according to that, essential modifications were implemented on the questionnaire. To survey reliability, test re-test was performed in pilot study and appropriate correlation coefficient (r=0.85) confirmed reliability of the questionnaire.

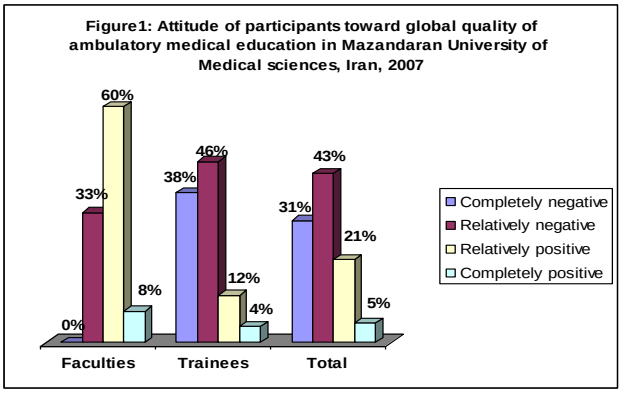
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For definition of categories of attitude toward the quality of the AME, total score of each questionnaire was calculated, then according to cut points of 25, 50 and 75, the attitude was categorized in 4 groups: completely negative, relatively negative, relatively positive, completely positive. Participation in the study was voluntary. Data was analyzed using spss13 soft ware. The methods of descriptive and analytical statistics: T test, ANOVA, correlation coefficient of spearman (r), chi square, (compensatory ratios) (comparison of means) were performed. P value <0.05 was considered significant.

**Results**

Out of 51 instructors and 205 trainees (residents, interns, students of clerkship), 180 questionnaires were returned (response rate 70%). The respondents included 144 trainees [31 residents (22%), 49 interns (34%), 64 students of clerkship (44%)] and 36 instructors (21 specialists and 15 sub specialists). Eighty five trainees (60%) and 12 instructors (33%) were female. Mean age of the faculties was 43.6±8.7 years and mean duration of academic teaching was 10.6±7.3 (2-30) years. Mean age of trainees was 25±3.6 years.

Opinions of the participants about quality and characteristics of AME at Maz ums are shown, globally and by separation of trainers and trainees (figure 1). As seen majority of our participants (74%) assessed the quality of the AME as unsatisfactory and had negative attitude toward it, completely or relatively, and there was significant (p=0.000) difference between the instructors` and the trainees' attitude toward it. Majority of the trainees (84%) assessed the AME as unsatisfactory but in the opinions of most of the faculties (68%), the quality of the AME was good.




There was significant difference (p=0.000) between the opinions of different levels of the trainees; as 48% of clerkship students and 41% of interns completely negative attitude toward quality of the AME and assessed the quality of it unsatisfactory whereas only 11% of residents had such opinion (P=0.000). Of female trainees, 42% and of males, 29% had negative attitude toward quality of the AME. (P=0.035)

Significant relationship between clinical rotation of the trainees and their opinions about quality of the AME wasn't detected (p=0.091), also there were not significant relationship between opinions of the faculties about the AME and their age, gender and scientific degree (p= 0.12). The trainees` opinions about quality of the AME at 1 month (minor) clinical rotations (ENT, Dermatology, …) and more than 1 month (major) rotations (surgery, Internal medicine, …) were not significantly different. Among major rotations, the trainees assessed quality of the AME at clinics of internal medicine more satisfactory than other rotations (p=0.053). The most relevant items of the questionnaire with overall attitude of the participants toward quality of the AME included: feeling of being helpful for the trainees (r=0.77), independent drug prescription and treatment by the trainees (r=0.709), instruction of rational drug prescription(r=0.699), discussion of differential diagnosis(r=0.69), follow up of patients (r=0.63) supervision of the faculties

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on the trainees' diagnostic and therapeutic activities (r=0.63).

Comparison of the trainees' and the faculties' opinions about items of the quality of the AME is shown in table 1. As it demonstrated in the table, except some items including: environmental condition, number of patients, answering to trainees' questions and presence of sub-specialists faculties in the clinics, there were significant difference between opinions of the faculties and the trainees about the quality of other items. Although almost all instructors believed that they perform effective supervision and discuss about differential diagnosis systematically, and answer the trainees' questions about diagnostic and therapeutic approach to the patients, the majority of the trainees disagreed with it and had opposite opinion (p=0.000). Also majority of the faculties reported enough possibility for independent activities of the trainees in the clinics (history taking, physical examination, drug prescription), whereas most of the trainees had different opinion and assessed such possibility in the AME as inappropriate (p=0.000). About instruction of ambulatory specific skills (outpatient treatment, management at ambulatory setting), although most of the faculties reported these instructions as appropriate, majority of the trainees reported it as inappropriate and insufficient .Comparison of the faculties' opinions about items of quality of the AME, between 1-month clinical rotations and more than 1-month rotations did not show significant difference. Between major rotations there were some significant differences in the trainees' opinions about the quality of AME (table-2)

Table 1: Opinion of the faculties and trainees about items of quality of ambulatory medical education, Mazandaran University of medical sciences, Iran, 2012 (n %)

| Item | | | | | |
|---|---|---|---|---|---|
| | | Yes (%) | No (%) | | P value |
| Define educational objectives | Faculty | 60 | 40 | | 0.009 |
| | Trainee | 35 | 65 | | |
| Systematic, structured discussion of faculties | Faculty | 94 | 6 | | 0.000 |
| | Trainee | 58 | 42 | | |
| Supervision on and correction of trainees activities by faculties | Faculty | 100 | 0 | | 0.000 |
| | Trainee | 71 | 29 | | |
| | | **Inappropriate** | **Fair** | **Appropriate** | |
| Physical environment | Faculty | 65 | 22 | 13 | 0.12 |
| | Trainee | 46 | 38 | 16 | |
| | | **High** | **Fair** | **Low** | |
| Number of the patients | Faculty | 54 | 43 | 3 | 0.79 |
| | Trainee | 56 | 33 | 12 | |
| Variety of the patients | Faculty | 46 | 47 | 6 | 0.003 |
| | Trainee | 18 | 56 | 26 | |
| Possibility of independent treatment for the trainees | Faculty | 22 | 39 | 39 | 0.000 |
| | Trainee | 9 | 19 | 72 | |
| Possibility of follow up of the patients | Faculty | 29 | 37 | 34 | 0.000 |
| | Trainee | 8 | 23 | 68 | |
| Instruction of management in ambulatory setting | Faculty | 46 | 46 | 9 | 0.004 |
| | Trainee | 20 | 44 | 36 | |
| Instruction of rational drug prescription | Faculty | 52 | 37 | 11 | 0.000 |
| | Trainee | 14 | 27 | 58 | |
| Interest in ambulatory education | Faculty | 90 | 8 | 2 | 0.000 |
| | Trainee | 29 | 49 | 22 | |
| Discussion about differential diagnosis | Faculty | 89 | 8 | 3 | 0.000 |
| | Trainee | 21 | 49 | 29 | |

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Table 2: Opinion of the trainees about quality of ambulatory education in more than 1 month rotations, Mazandaran University of medical sciences, Iran, 2012 (n %)

| Percent of trainees who assessed the item as high | | | | | |
|---|---|---|---|---|---|
| Item of quality | Gynecology (%) | Internal medicine (%) | Surgery (%) | Pediatrics (%) | P value |
| Defined educational objectives | 58 | 44 | 21 | 20 | 0.012 |
| Possibility of independent visit for the trainees | 44 | 49 | 26 | 24 | 0.025 |
| Possibility of independent drug prescription for the trainees | 17 | 14 | 8 | 5 | 0.036 |
| Possibility of observation of faculties activities | 43 | 8 | 14 | 62 | 0.029 |
| Instruction of management at ambulatory setting | 25 | 8 | 30 | 24 | 0.000 |
| Supervision and correction of trainees' activities | 79 | 5 | 50 | 85 | 0.008 |

**Discussion:**

In this study the overall attitude toward quality of the AME was negative and most of the participant (especially trainees) assessed it as unsatisfactory, these findings are similar to some studies in Iran like: study of Alizadeh et al in which most of trainees believed that existing ambulatory medical teaching isn't useful for their future needs, also Peyvandi et al found similar results, but the finding of Shaigan *et al* were different. Globally in comparison with some studies of developed countries(Prislin *et al*, Wolpaw TM *et al*, Dolmans DH *et al*) , it seems there insufficiency and inadequacy in instruction and learning at ambulatory setting in the country. According to significant difference between opinions of the trainees and faculties about the quality of AME, our results are similar to the study of Qualters *et al* at Illinois and Lubetkin *et al* at Ohio in which faculties had more positive attitude about quality of AME than trainees, but the study of Prislin *et al* at John Hopkins indicated similarity of trainees' and faculties' opinions about AME.

As Clark *et al* at Texas and Ruiz Moral in Spain indicated, student centered approach is critically important in medical education generally and at ambulatory setting specially so according to negative attitude of the trainees toward AME in our study, it's necessary to survey reasons of negative attitude and unsatisfactory assessment of the trainees. Comparison of opinions of different levels of the trainees indicated more negative attitude belonged to junior trainees, as the student of clerkship had the most negative and residents, the most positive attitudes toward the AME; these differences in opinions of different levels of the trainees are similar to findings of Schultz *et al* and probably is explained by lack of involvement and participation of the junior trainees in diagnostic and therapeutic process in the clinic, so designing a plan for participation of all levels of trainees at ambulatory setting is surely essential.

Absence of significant difference in overall opinions of the participants about quality of the AME between 1 month rotations (ENT, dermatology,…) and more than 1 month rotations (surgery, pediatrics, internal medicine, OB Gyn) and between the rotations of each group, indicated general impairment and insufficiency in the outpatient/ ambulatory medical education in our university, and proves the need for a extensive and multidimensional plan for quality improvements of AME.

The study showed convergence of the faculties' and the trainees' opinion about environmental factors in clinics such as: physical environment, equipment facilities, number, and variety of the patients, whereas



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there was significant difference between the opinions about some items including: trainees' independent activities, delivery of faculties' educational tasks and instruction of ambulatory specific skills.About physical environment of the clinics, convergence of opinions is similar to the study of Bowen *et al*, although optimization of this item is laborious, expensive, and time consuming, but according to importance of this factor in the opinions of both the faculties and the trainees, there should be a plan for future.

Duration of visit for each patients at ambulatory setting, as Solomon *et al* indicated these factors are very important for teaching – learning process so some efforts (Usatine *et al*) had focused on fine measurement of such duration with and without presence of the trainees at ambulatory setting, which was documented it consider that duration as one important index of quality at ambulatory clinics in the study of Denton *et al* and Chang *et al*. The study showed that both faculties and trainees assessed the time of visit for each patient as insufficient, so there was not enough time for teaching – learning activities. It seems that problem is related manly to absence of a "case selection" strategy (like the study of Simon *et al*) at our ambulatory setting and laborious therapeutic load on our educational clinics, so it is critically essential to separate educational from therapeutic clinics, designing, and implementation a "case selection" strategy.An important concern in the clinics of teaching (university-affiliated) hospitals is different sample of the patients in these clinics cases that are more complicated compared to public clinics and ambulatory setting out of university. So there is a risk of exposure to a biased sample of the patients which is not similar to the patients in future real work of the trainees. Thus as Albritton *et al*, and Muscovite *et al* indicated, there should be a plan for achievement of the most similar sample of the patients to real situation. Some evidences such as the study of Norris *et al* and Brill *et al* have documented success of such plan for quality improvement of AME. One of such plans may be implementation of ambulatory education at the centers of public health system (out of university).

Identification and clarifying of educational objectives at each ambulatory setting, as Irby *et al* and Nierenberg *et al* have indicated, are important. The study showed although based on opinion of the faculties such educational objectives were identified while in the opinions of the trainees, the objectives were not sharp and clarified, so it seems necessary to identify and clarify of sharp educational objectives and study topics as written items in "log book".

This study as the study of Kernan *et al* and O'Connor *et al* and others, indicated critical importance of independent diagnostic and therapeutic activities at ambulatory setting for the trainees, so this problem should be urgently considered in our settings globally and in some of our clinics (pediatrics, surgery) specially, to assure enough authority for the trainees. It is obvious that independent activity of the trainees will be appropriate and beneficial only if it is supervised by the faculties as mentioned in the study of Masood *et al*, Salerno *et al*, our study indicated insufficiency of such supervision by the faculties, so there is need to organize teaching courses or workshops for the faculties in this issues which its benefits were documented by Roth *et al* and Forjuoh *et al* and by some others (Holmboe ES *et al*).

Rational drug prescription, of course, is one of the most important aspects in ambulatory management of patients, as some evidences such as the study of Burge *et al*, Irby *et al*, Nierenberg *et al* and Kernan *et al*, have



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highlighted this importance. There are some experiences and evidences about benefits of attendance of a teaching pharmacist in ambulatory setting for improvement of trainees' skills in the study of Stebbins *et al*. Many evidences have documented impairment of rational drug prescription in the country (Dehghanzad G. *et al*, Asadi poya), as, in this way, the trainees in our study, reported insufficient teaching of such important skill at ambulatory setting, so there is need to incorporate a regular plan for instruction of rational drug prescription at our teaching clinics. Appropriate effective physician-patient relationship, as many evidences (Kalet *et al*, O'Neill *et al*) have indicated, is essential for achievement of appropriate compliance of patient and success of treatment. There were not evidences of effective instruction of physician-patient relationship at the ambulatory setting in our study, so it seems that instruction of such important skill should be highlighted in our clinics as experience of Sieveres *et al*, Haq *et al*, and Zali *et al*.

About relationship between gender of the trainees and their opinions, the study showed more negative attitude in female trainees toward the quality of AME, which is similar to the study of Wang cheng *et al* and Carrey *et al*. This finding may be explained by lower tolerance or higher educational ideals in female trainees.

However as indicated above based on our study; the most important and correctable challenges for quality improvement of AME is role and function of the faculties in providing possibility of independent activity for trainees, supervision and instruction of ambulatory specific skills in outpatient management. Obviously, the best way for achievement of a good educational function of the faculties is increasing their knowledge and optimizing their attitude toward importance of AME and effective teaching method on it. For knowledge improvement of the faculties, workshops, continues educational program or as the experience of Wilkerson et al, fellowship courses, maybe considered and implemented.

Motivation of instructors is absolutely important in their educational function, as some evidences indicated lack of appropriate educational motivation in our instructors; so there are some evidences about interventions for solving this problem such as: attention to economic aspects of the faculties (Berbano *et al*), implementation of a regular program for assessment function of the faculties with, judgment and feed back (Scott *et al*, Robert *et al*) and use of interested non faculty member teaching physician at ambulatory setting (Fulterson *et al*); although some studies in the country (Mahoori *et al* and Maghisi *et al*) indicated possible resistance of some faculties, which should be managed.

Some evidences created new landscapes for AME evaluation (Wofford JL), evidence based ambulatory medicine(Huang W) and other new views (Pettus MC, Davis D).

**Limitation**

While this study, may be the most extensive ones about AME in the country but, we are aware of some limitations such as: investigation of quality via opinions, retrospective method of the study, implementation of the study on one university.

**Acknowledgment**

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