

A Determination of the Factors Causing Student Discontent with Examinations During the First Year of Their Medical Course

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= Abstract =An instrument which reflects the discontent with examinations during the first year of medical school was developed to serve a specific purpose at the College of Medicine, Seoul National University. The instrument comprised fifteen question items each consisting of a pair of statements with a five-point scale.

The instrument was pilot-tested with a sample group of first year medical students and through this a revised questionnaire was generated. The final version of the instrument was administered to the students of the entire class in 1978 and 1979 respectively immediately after they had completed the first year course.

The results showed that emotional anxiety due to the examination itself was the most significant source of stress (discontent). Other practices associated with examinations which caused increased stress and discontent were the use of simple recall type of test items, opening of test score to public and frequent tests given at the same time. The instrument demonstrated that it is sufficient to reflect students' perceptions in regard with the examination they have experienced.

Key words: *Stress, Discontent, Examination, Medical school, First-year student*

INTRODUCTION

It is often stated that the process of medical education can be a highly discomforting experience. This is especially true in the first year of medical training when students are suddenly faced with an overwhelming amount of new information which they have to learn. The pressure of examinations, the discrepancy between curricular expectations and reality, and sometimes the social isolation stemming from a lack of extracurricular activities all add to an environment which is far from conducive to learning.

The feeling of discomfort that arises from the students' learning environment may negatively affect their academic performance. Several investigators (Hunter 1961; Woods 1966; Adsett 1968) have reported that many first year medical students may require psychological counselling or even psychiatric treatment due to serious psychological problems. Some students may be so badly affected that they eventually "flunk" or "dropout". Emotional

stress, tension and discontent that develop gradually are not uncommon in student society. Woods (1966) described it as "medical student disease" or "medstudentitis".

There are two important aspects to be considered in the learning process; one is the actual teaching and learning process itself including its objectives, content, and evaluation, and the other is the educational environment including the atmosphere of the classroom in which teaching and learning take place. Many traditional educators tend to emphasize the teaching and learning process itself rather than the educational environment. Most teachers have little or no knowledge of what happens to students or to their class during the learning process.

Over the last two decades several reports on the learning environment of medical school have been published—Medical School Environment Inventory (Hutchins 1961), Medical School Learning Environment Questionnaire (Rothman 1970), Medical School Learning Environment Survey (Marshall

1978). Funkenstein (1968), Adsett (1968), Gottheil (1968), Boyle and Coombs (1971), Rosenberg (1971), Coburn and Jovaisas (1975), Edwards and Zimet (1976) reported their studies on the psychological stresses and strains of medical students.

Various measuring instruments have been constructed to meet a specific purpose of particular study and it is obvious that there is no single type of instrument that could serve all functions. Therefore, the results of students' concern and problems collected through these instruments showed wide variety in depth.

In general, however, medical students seemed to have more psychological stresses than any other undergraduate students. These phenomena were more unique to the first-year medical students because of their abrupt change of learning environment particularly when they did not have enough time to become secure in their medical school life. Many investigators concluded that excessive academic pressures including examinations were common sources of stress but no reports indicated the detailed sources of their stresses or discontent regarding the examination particularly in the first year of medical school.

This study is an attempt to determine the nature and extent of each of the factors responsible for student discontent with examinations during their first year of medical training in the College of Medicine, Seoul National University.

METHODS

1. Construction of the measuring instrument

The author developed a questionnaire as a measuring instrument through discussions and interview with students and faculty. Twenty medical students randomly selected from the first year class were gathered and had a series of discussions. To identify discontent, anxiety or any other emotional conflict regarding the examination, the students were encouraged to speak out frankly about what they have perceived or experienced during their first year in medical school. In a similar way opinions from the faculty members of the student advisory committee were gathered. From this information a list of 19 items of discontent or concerns was generated. Each item was carefully restated as a short phrase with a five-point scale placed next to the each item, so that the student could respond to it according to either the degree of intensity or frequency of concern depending on the item. To determine the reliability of the stu-

dents' responses each question was rephrased to have the same or exactly opposite meaning and included in a random manner, in the questionnaire, mixed with the original question. These pairs of questions were constructed to ask the same thing but in a different way so that author could discriminate the reliable responses from the responses of those who did not pay much attention to the items in responding.

All the items which were classified into four clusters, (viz, general, questioning, frequency and evaluation) were consolidated.

2. Pilot study

The first version of the questionnaire which consisted of 38 questions was administered to a group of twenty students who were randomly selected from the first-year class. A cover letter explaining the purpose of the study was attached and no identifying data was requested.

To determine reliability, each student's response to equivalent pairs of items was compared within individuals.

Thus, if a student responded to a pair of equivalent items in the opposite way the response was treated as unreliable. On the other hand, if two items in a pair received similar responses either agreeable or disagreeable, the response was treated as reliable. In addition to "equivalent pairs" of items several "opposite pairs" of items were used.

The analyses from the pilot study indicated quite acceptable levels of validity and reliability after several unreliable items were deleted. Finally, there were indications that this instrument was comprehensive and feasibly applicable. This was obtained through student feedback. Students agreed that items in the instrument covered all the possible areas of discontent which might arise among the students.

3. Main test

The second and final version of the instrument was constructed on the basis of the original questionnaire. Four items (8 questions) which had shown unreliable responses were deleted and several statements among the 30 questions were rephrased so that students could understand clearly and precisely.

A total of 329 questionnaires were distributed to all members of the first year classes of medical students in 1978 (169 students) and 1979 (160 students) at the College of Medicine, Seoul National University. Of these, 311 (159 in the year 1978 and 152 in the year 1979) were returned and the

Table 1. Result of responses on split-half questioning of the main test

Item No.	Class of 1978		Class of 1979	
	Reli-able(%)	Unreli-able(%)	Reli-able(%)	Unreli-able(%)
1	82	18	92	8
2	85	15	75	25
3	68	32	80	20
4	71	29	62	38
5	70	30	70	30
6	75	25	78	22
7	73	27	77	23
8	92	8	90	10
9	83	17	78	22
10	75	25	70	30
11	90	10	72	28
12	58	42*	80	20
13	70	30	60	40*
14	82	18	76	24
15	100	0	78	22
Averages	78.3	21.7	75.9	24.1

* Items which indicated more than 40% of unreliable responses.

ratio of response was approximately the same for each class.

RESULTS

The same reliability analyses were carried out and the results on the reliable and unreliable responses are summarized in Table 1. The averages of reliable responses from the students in 1978 and 1979 were 78.3% and 75.9% respectively, higher than that of the pilot study.

There were 2 items which indicated more than 40% of students unreliable and these two items (Item 12 and 13) were deleted from further analysis.

Another indication of the reliability of this instrument was the percentages between two different classes that were given in the interval of one year. The class of 1978 showed 78.3% of reliable responses while that of 1979 showed 75.9% which indicated quite stable results. Analysis of students' feelings or perceptions on the examination was attempted with the information which had been obtained through the questionnaire. As a first step the number of responses was counted on each item for each level of students' concern that had been expressed as 5-point scale, according to the

degree of discontent or stress. The degree could either be intensity or frequency of a certain emotional status. Each response on each level for 30 item-pairs in the questionnaire was counted as one and to get a total count response of students like responses to equivalent pairs were added vertically while in opposite pairs responses were added in a diagonal direction.

The results of responses in the class of 1978 and 1979 are summarized in Table 2. Eighty six percent of students in class of 1978 and 90.5% of students in class of 1979 agreed or strongly agreed that emotional anxiety caused by examinations was too serious to overcome. In contrast, the item stating that tests were given too frequently during the year was disagreed on by more than or nearly half of students. Degree of agreement on the other discontent items ranged between 69.9 and 40.8 percent. Among the fifteen items seven were agreed on by more than half of the students who responded. The ranking of discontent items by the students in the class of 1978 and 1979 is found in Table 3.

After completing the questionnaire a random sample of five students from the class of 1978 were encouraged to discuss with each other the result of the present study. Students' additional explanation about the nature of anxiety focused on the fact that emotional stress was too severe for them to take examinations in an ordinary state of mind. They said that stresses arose from the marked sense of competition, and from the fear of getting bad marks. Stress may not be expressed as discontent but on this occasion students' discontent underlay the stress: "Why should there be a painful competition between classmates?" "Why not grade our knowledge as acceptable or not?" The other major item of discontent was a lack of interpretation or problem solving type of test items in examinations. They were only tested with simple recall type of question items for which students had to commit many things to rote memory. Announcing the test score in public was revealed as another area of discontent among the student society, particularly to those who got bad marks. They thought examinations are necessary and essential process in education, but overlapping of testing given by different departments within a certain period makes students more embarrassed. It may be quite ordinary and easy for a department to give a test, but from the students' point of view, they have to prepare for several different courses if tested simultaneously. In general, they wish to have

Table 2. Degree of agreement and disagreement on areas of discontent among students

Areas of Discontent	Percentage	
	Class of 1978	Class of 1979
Emotional anxiety	86.1*(4.1)**	90.5 (1.7)
Type of test items	67.1 (15.8)	66.1 (24.7)
Opening of test score	66.6 (17.9)	66.7 (14.5)
Period of testing	66.3 (22.2)	69.9 (16.4)
Type of laboratory tests	56.9 (26.8)	44.7 (37.4)
Competitive atmosphere	55.5 (19.5)	55.0 (33.2)
Opening of test items	54.7 (31.9)	66.1 (24.7)
Scope of tests	46.1 (30.0)	49.8 (31.6)
Test items and Jogbo ⁺	45.4 (44.1)	53.3 (36.4)
Jogbo and frustration	42.6 (40.0)	40.8 (37.5)
Frequency of tests	35.1 (53.1)	47.1 (43.0)

* Percentages of agreement
** Percentages of disagreement
⁺ Jogbo: Original meaning of this word implies geneology but has been used as students' slang in the medical campus to mean a collection of question items from the previous examinations.

Table 3. Rank orders of the most significant discontent items for the students in class of 1978 and 1979.

Discontent items	Rank order	
	Class of 1978	Class of 1979
1. Emotional anxiety worried students seriously.	1	1
2. Test items were mostly simple recall type.	2	2
3. Announcing test score in public shamed the students.	3	4
4. Many tests were given within the same period of time.	4	3
5. Type of laboratory tests induced more stress.	5	10
6. Fierce competition created tense, hostile atmosphere within the class.	6	6
7. Test items were not opened to students after test.	7	5

tests at reasonable intervals so that they can prepare for them. Feeling of dehumanization between classmates seemed basically related to the fierce

competition in a class, but it may be more deeply related to multidimensional factors.

DISCUSSION

Reliability is one of the most essential factors that a measuring instrument should possess in order to function properly. Since the questionnaire used in this study was the first application after construction, major concern was laid on reliability. The original form of the questionnaire had nineteen pairs of items (38 statements all together). Of them, four items were deleted from the pilot test and two items from the main test. Dropped items were those which gave responses of low reliability, because the split pairs in each item were used as an index of reliability. In general the final version of the instrument which was used in the main test over a period of two years appeared to be stable because it showed very little change between the pilot test and main test in its reliability. The average of the reliable responses of original questionnaire which included four deleted items was 71% and that of final version was 78.3% and 75.9% in 1978 and 1979 respectively. Although there was no attempt to explore the stability of responses over time by doing test-retest in the same class, the degree of group responses of two different classes over two years showed the responses reached on acceptable level of reliability. Marshall (1978) stated that repeated administration over the course of a school year yielded further information about the stability of students' perception.

Cronbach (1949) stated that the approach used to assess test validity should be determined by the type of inference for which the test will be used. This questionnaire was designed to delineate significant dimensions of the students' perceptions and their learning environment through their one year experiences. Content validity would, therefore, appear to be an applicable criterion; that is, "Do the items really sample the most salient features of students' discontent or stresses?" To get more significant responses the items were collected from the students who had already experienced their first year of medical school. Items which were related to stress or discontent by themselves were listed whether or not there was agreement among students. The responses to the questionnaire indicated that not all items were agreed to equally by the students in the same class. Several items (first four items in Table 2) were responded almost equally by the students in two different classes. Since the questionnaire was constructed to address specific aspects related to their examinations the

instrument would not be equally applicable to clinical students, or to first year students of other medical school that have a different system of examinations and a different environment. However, further development of the instrument to be applicable to the students in clinical training will involve attention to the specific problems and concerns of the clinical years to be added.

Much of the research on the complex relationship between anxiety (stress) and academic achievement showed two different general findings. Although a growing body of literature indicates that high anxiety is associated with relatively low performance at both the school and university level, a few show that anxiety facilitate performance. Miller and Erwin (1959) stated students who were successfully meeting academic requirements were significantly more anxious than those who were on probation.

However, the overwhelming weight of evidence consistently points to a negative relation between anxiety and various measures of learning and academic achievement. Gaudry and Bradshaw (1970), Gaudry and Spielberger (1971) stated that, at the college level, high anxiety is associated with lower grades and higher dropout rates due to academic failure. This is a particularly serious phenomenon in medical school and many reports (Hunter *et al.* 1961, Pitts *et al.* 1961, Woods *et al.* 1966, Adsett 1968, Funkenstein 1968, Boyle and Coombs 1971, Coburn and Jovaisas 1975, Edwards and Zimet 1976, Marshall 1978) indicate that a significant number of students experienced severe psychological difficulties during medical education. The reason for greater stress in the freshman than the other years might be in fact that most first year students have still not adapted themselves properly to a new environment, which is usually manifested as a "tight and rigid curriculum". Two years of rather free college life in their previous premedical course make the contrast greater and their adaptation more difficult. The other condition we cannot eliminate is that the expectations of medical students upon entering regarding their new school life may be grossly inaccurate and unrealistic. Gottheil *et al.* (1969) described that the greater the discrepancy between the expectations of the students and the academic pressures of the college, the greater was the degree of maladaptation as manifested by the criteria of dissatisfaction and poor academic performance. The discrepancy between expectations and reality

could be a sufficient reason why students resist adaptation and it might increase the difficulty with which adjustments are made.

However, it seems obvious that the training of the medical doctor requires students to undergo certain degree of stress because of its unique curricular content. Therefore some of stresses may be a necessary and desirable experience. Evidence from many studies also suggests that the stresses in medical school may have undesirable consequences and some educators reported that dropouts do not differ in ability from those who graduate: that it is not necessarily the intellectual capacity of the student that decides whether he will continue or dropout (Adsett 1968, Gottheil *et al.* 1969). According to Gaudry and Spielberger (1971) the words "stress" and "threat" are often used interchangeably by those who research anxiety phenomena. Likewise "stress" and "discontent" could be used as a similar meaning because stress refers to the objective stimulus properties of a situation, whereas discontent refers to an individual's idiosyncratic perception of a situation as psychologically discomforting to him. In any case, emotional anxiety related to examinations was the highest ranking factor of discontent for the students in classes of both years. In general, a major source of stress in the first year students is the examination: for example, fear of getting bad grades (Boyle and Coombs 1971), severe stress when entering a final examination in an important course (Coburn and Jovaisas 1975), marked sense of competition (Funkenstein 1968), preparing for and taking examinations, and feeling dehumanized (Edwards and Zimet 1976). Many faculty members of our medical school agree that students of today are more conscious on the examination than past. What is the important reason? Although it is beyond the scope of this study to give answers to this question, several possibilities for this concern for examination marks could be figured out. In general, most medical students, including those preclinical and clinical years, are still graded on a curve, and are painfully and sensitively aware of the fact that good internship depends upon good grades in undergraduate courses. This becomes even more intense in medical school where all students are of higher ability, are studying the same courses, and will be seeking similar positions in a good hospital on graduation.

Funkenstein's study (1968) indicated that there are eleven specific problems which could be inju-

rious to medical students' learning and personal development. The first two are difficulties in orienting to the medical environment and a marked sense of competition. These difficulties are now so wide-spread that the need for corrective measures has become urgent. He was concerned that this exaggerated feeling of competition was certainly not good preparation for the future physician, who would have to work cooperatively with other physicians and health personnel.

Adsett (1968) stated in his report that if a student is unable to maintain his accustomed grade level because of the stiffer competition he meets in medical school, his self-esteem is lowered and he becomes anxious and depressed. Therefore, freshman students frequently express their anxiety associated with forthcoming tests, usually in the form of discontent or difficulty in concentrating and remembering.

In addition to the general sort of stresses related to examinations the students of the present study revealed several specific aspects of stresses and/or discontent. The result showed that many students agreed that the test items were mostly of the simple recall type, and that means there were a very few of interpretation or problem solving type of questions. In these instances students have to memorize rather than think logically in preparing for examinations. After the test the scores in several courses are frequently opened to the public. This practice was particularly disquieting for the student who received low marks. During the first year, it is not uncommon that many tests from different courses are given at the same time. This seems obviously the result of lack of inter-departmental coordination.

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= 국문초록 =

의대 1학년 과정에서의 시험에 관련된 학생들의 불만 요인

서울대학교 의과대학 해부학교실

백 상 호

서울의대 의학과 1학년 과정 학생들의 시험에 관련된 불만 요인이 무엇인지를 규명하기 위하여 예비조사를 거쳐 15항목 30개 질문으로 구성된 설문서를 작성하여 1978년과 1979년에 1학년 과정을 수료한 학생들을 대상으로 조사를 시행 분석한 결과이다.

조사결과 가장 큰 불만 요인은 시험 그 자체가 주는 치열한 경쟁심 유도와 감정불안이며 그 외에 시험문항의 형태, 시험 성적의 공개, 여러 과목 시험의 동시 부과 등으로 나타났다.