Ethics in Medicine: Students' Opinions on Disclosure of True Diagnosis

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Aim. To determine students' opinions about diagnosis disclosure to the patient and other interested parties.

Methods. During 2000/2001 academic year, an anonymous survey was conducted among the first-year (200 questionnaires) and sixth-year medical students (200 questionnaires) at the Zagreb University School of Medicine. Students were asked what they would say about the diagnosis to the patient, patient's family, friend, employer, colleague from work, health insurance agent, another physician, or medical student, if the diagnosis was inoperable lung carcinoma in a 20- and 66-year-old patient vs bacterial pneumonia in patients of the same age. The possibilities were to tell the truth, lie, or refuse to disclose the diagnosis.

Results. The response rate was 55%. Students would disclose the true diagnosis to the patient, patient's family, friend, and employer in case of benign disease more often than in case of malignant disease (p<0.001). Patient's age did not affect students' opinions. Most students would rather refuse to say anything than lie if they would not want to say the truth. Students would more often tell the truth to the patient and patient's family then to a health insurance agent, another physician, or medical student, less often to patient's friend and employer, and rarely to the patient's colleague from work. First-year students would generally tell the truth more often than sixth-year students (p<0.001). There were almost no differences in the opinions between male and female students.

Conclusion. The strongest influence on students' choice on whether or not to disclose the diagnosis had the severity of disease, person they would disclose the information to, and the academic year they attended, implicating that such important ethical issues should be discussed during the studies.

Key words: Croatia; education; medical students; medical ethics; opinions; patient-physician relationship

Truth plays a very important role in our lives. People do not like to be deceived, and it is immoral to deceive others. However, telling the truth is not a simple matter, especially in patient-physician relationship. Since 1960s, ethics of the patient-physician relationship has been a much-debated issue (1). Today, many medical schools curricula contain an obligatory course in medical ethics (2-5). Medical Ethics is an obligatory course for the sixth-year students at the Zagreb University School of Medicine (4). The aim of the course is to teach students to recognize ethical issues, stimulate their moral reasoning, and develop a sense of moral obligation and personal responsibility (6,7). However, it is questionable whether medical education, even in medical ethics, can make a difference in areas such as physician's values, social responsibilities, and the patient-physician relationship (8,9). Some researchers found that students generally evaluate such courses positively (10,11), whereas others concluded that ethical courses have a limited influence on medical students (12). Moreover, it is still unclear what medical students think about revealing the true diagnosis to a patient and other interested parties, especially if the diagnosis is cancer (13).

The aim of our study was to investigate what the students would tell the patient about his or her diagnosis, and what they would say to other people interested in the diagnosis. We hypothesized that several different parameters – a person asking about the patient's diagnosis, type of patient's disease (malign or benign), patient's age, and students' education and sex – would influence students' opinion.

Subjects and Methods

Setting

Anonymous survey of the first- and sixth-year students was carried out at the Zagreb University School of Medicine, Zagreb, Croatia, during the 2000/2001 academic year. Two hundred questionnaires were distributed among the students of the first year and 200 among the students of the sixth year, the final year of the studies. Such number of questionnaires was chosen to establish comparable and representative sample of the surveyed students.

Students

The first-year students of the Zagreb University School of Medicine have mostly preclinical subjects (Anatomy, Chemistry,
Physics, and Biology). However, after being admitted to the medical school, they have to spend a week working with patients in a hospital before the academic year begins. By the time they reach the sixth year, students acquire enough clinical experience. The sixth-year students were surveyed after the Medical Ethics course (4).

Survey
There were four cases described in the questionnaire: Case 1–20-year-old patient with newly diagnosed inoperable lung carcinoma; Case 2–20-year-old patient with newly diagnosed bacterial pneumonia; Case 3–66-year-old patient with newly diagnosed inoperable lung carcinoma; and Case 4–66-year-old patient with newly diagnosed bacterial pneumonia. We inquired what the student would say about the diagnosis to: a) the patient, b) a close family member, c) patient’s good friend, d) patient’s employer, if beneficial for the patient, e) patient’s colleague from work, f) patient’s health insurance agent, if beneficial for the patient, g) another physician, not having a relationship of any kind with the patient, and h) a medical student, not having a relationship of any kind with the patient. The answers offered were the following: tell the truth, lie, or refuse to disclose the diagnosis.

Statistics
The opinions were presented as the percentage of the total number of answered questionnaires, and analyzed with the nonparametric multinomial test. The two student groups were compared with respect to the type of diagnosis (inoperable lung carcinoma vs bacterial pneumonia) and patients’ age (20-year-old vs 66-year-old patient). Answers to eight subjects who might ask about the patient diagnosis were analyzed by hierarchical cluster analysis, with squared Euclidean distance as a mathematical similarity measure (14). Eight types of subjects inquiring about the patient diagnosis were set as a variables, whereas absolute frequencies of students answers (choosing one out of three answers of- thership of any kind with the patient. The answers offered were the following: tell the truth, lie, or refuse to disclose the diagnosis.

Results
A total of 221 students (response rate 55%) filled out the questionnaire: 122 first-year students (response rate 61%) and 99 sixth-year students (response rate 49%); 149 (67%) were women and 72 (33%) were men.

Distribution of opinions (percentage of answers) on disclosure of patient diagnosis showed that the severity of patient’s diagnosis was an important factor determining the students’ decision about whether to tell the truth or not. Students would more often say the truth to the patient or patient’s close family member, close friend, or employer if the disease was less serious (bacterial pneumonia) than if it was very serious (inoperable lung carcinoma) (p < 0.001), irrespective of the patient’s age (no difference in answers between the cases with 20-year-old and 66-year-old patient) (Table 1). The only exception was the case of telling the diagnosis to a close family member of a 20-year-old patient, where no statistically significant difference was found with respect to the diagnosis, i.e., inoperable lung carcinoma vs bacterial pneumonia (p = 0.156; Table 1). Students’ opinion on telling the truth to a patient’s health insurance agent, another physician, and medical student did not differ with respect to the diagnosis or patient’s age (Table 1). In all four cases, most students would rather refuse to answer than lie to any of the eight subjects in case if they did not want to disclose the true diagnosis (Table 1). Also, students would not lie to another medical student (Table 1).

The distribution of students’ opinions on disclosing the diagnosis with respect to the patient age was also analyzed. There was no statistically significant difference in any of the distributions (data not shown).

Four homogenous groups of answers (clusters) to the eight subjects were identified by use of hierarchical cluster technique (Fig. 1, denoted with letters A-D). Cluster A, where students would mostly tell the truth, included the diagnosis disclosure to the patient and patient’s close family member. Cluster B, where students would still tell the truth, although less likely than in cluster A, included diagnosis disclosure to a patient’s health insurance agent, another physician, and medical student. In cluster C, students would less likely tell the truth to a patient’s close friend and patient’s employer. Finally, in cluster D, students would mostly not reveal the diagnosis to the patient’s colleague from work (Fig. 1).

Table 1. Opinions of medical students (% of answers) about disclosing the patient’s diagnosis

<table>
<thead>
<tr>
<th>Inquirer</th>
<th>a 20-year-old patient with newly diagnosed inoperable lung carcinoma</th>
<th>a 20-year-old patient with newly diagnosed bacterial pneumonia</th>
<th>a 66-year-old patient with newly diagnosed inoperable lung carcinoma</th>
<th>a 66-year-old patient with newly diagnosed bacterial pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>88.6 4.1 7.3</td>
<td>99.5 0.0 0.5 &lt;0.001</td>
<td>85.8 6.4 7.8</td>
<td>99.5 0.5 0.0 &lt;0.001</td>
</tr>
<tr>
<td>Patient’s close family member</td>
<td>93.1 0.5 6.4</td>
<td>95.0 0.0 5.0 0.156</td>
<td>93.7 0.5 5.8</td>
<td>96.4 0.0 3.6 &lt;0.001</td>
</tr>
<tr>
<td>Patient’s close friend</td>
<td>28.4 0.9 70.7</td>
<td>47.3 0.0 52.7 &lt;0.001</td>
<td>29.6 0.9 69.5</td>
<td>46.2 0.0 51.8 &lt;0.001</td>
</tr>
<tr>
<td>Patient’s employer, if beneficial for the patient</td>
<td>36.2 3.6 60.2</td>
<td>54.2 1.9 43.9 &lt;0.001</td>
<td>39.7 2.4 77.9</td>
<td>54.4 0.9 44.7 &lt;0.001</td>
</tr>
<tr>
<td>Patient’s colleague from work</td>
<td>6.9 0.0 93.1</td>
<td>20.6 0.0 79.4 &lt;0.001</td>
<td>7.8 0.5 91.7</td>
<td>18.8 0.0 81.2 &lt;0.001</td>
</tr>
<tr>
<td>Patient’s health insurance agent, if beneficial for the patient</td>
<td>67.7 0.9 31.4</td>
<td>74.4 0.5 25.1 0.066</td>
<td>67.5 0.5 32.0</td>
<td>74.1 0.0 25.9 0.028</td>
</tr>
<tr>
<td>Another physician, who has no personal connection with the patient</td>
<td>70.0 0.5 29.5</td>
<td>76.0 0.9 23.1 0.070</td>
<td>69.1 0.5 30.4</td>
<td>75.5 0.5 24.0 0.086</td>
</tr>
<tr>
<td>Medical student, who has no personal connection with the patient</td>
<td>74.6 0.0 25.4</td>
<td>80.2 0.0 19.8 0.109</td>
<td>76.0 0.0 24.0</td>
<td>80.2 0.0 19.8 0.275</td>
</tr>
</tbody>
</table>

Student would refuse to disclose the diagnosis.

Probability of obtaining the difference of answers about disclosure of the diagnosis of inoperable lung carcinoma and bacterial pneumonia in a 20-year-old patient (non-parametric multinomial statistical test).

Probability of obtaining the difference between the distribution of answers about disclosure of the diagnosis of inoperable lung carcinoma and bacterial pneumonia in a 66-year-old patient (non-parametric multinomial statistical test).
The analysis of clusters showed that the first-year students would generally tell the truth more often than sixth-year students (p<0.001; Table 2). The exception was the cluster A (diagnosis disclosure to the patient and a close family member), where no statistically significant difference was found between the first- and the sixth-year students in any of the four situations (Table 2). Also, no statistically significant difference between the first- and sixth-year students was found in the cluster B for a 66-year-old patient with bacterial pneumonia (p=0.080; Table 2), and in the cluster D for a 20-year-old patient with inoperable lung carcinoma (p=0.015; Table 2).

Students’ sex had no influence on distribution of their opinions in most situations (Table 3). The only statistically significant difference between male and female students was found in the cluster D for a 20-year-old patient with bacterial pneumonia (p=0.002; Table 3) and 66-year-old patient with inoperable lung carcinoma (p<0.001; Table 3), where male students would tell the truth more often than female students.

Discussion
Our study showed that the severity of diagnosis and the person asking about the diagnosis were the most important factors influencing students’ decision whether or not to tell the truth about a patient’s diagnosis. Students were more reluctant to tell the truth in the case of cancer than in the case of bacterial pneumonia, and it applied to the majority of subjects inquiring about the patient. Although the truth discl-

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**Table 2. Opinions (% of clustered answers) of first- and sixth-year medical students about disclosing the patient's diagnosis**

<table>
<thead>
<tr>
<th>Study year</th>
<th>Cluster of answers</th>
<th>Inoperable lung carcinoma</th>
<th>Bacterial pneumonia</th>
<th>Inoperable lung carcinoma</th>
<th>Bacterial pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>truth</td>
<td>lie</td>
<td>refuse</td>
<td>truth</td>
</tr>
<tr>
<td>1st</td>
<td>A</td>
<td>92.9</td>
<td>1.2</td>
<td>5.9</td>
<td>97.1</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>72.8</td>
<td>0.8</td>
<td>26.4</td>
<td>78.8</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>36.6</td>
<td>3.8</td>
<td>59.6</td>
<td>57.4</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>9.2</td>
<td>0.0</td>
<td>90.8</td>
<td>26.9</td>
</tr>
<tr>
<td>6th</td>
<td>A</td>
<td>88.2</td>
<td>3.6</td>
<td>8.2</td>
<td>97.5</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>68.4</td>
<td>0.0</td>
<td>31.6</td>
<td>74.2</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>26.9</td>
<td>0.5</td>
<td>72.6</td>
<td>42.6</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>4.0</td>
<td>0.0</td>
<td>96.0</td>
<td>13.1</td>
</tr>
</tbody>
</table>

**p**
A | 0.048 | 0.027 | 0.065 | 0.239 |
B | <0.001 | <0.001 | 0.003 | 0.080 |
C | <0.001 | <0.001 | <0.001 | <0.001 |
D | 0.015 | <0.001 | <0.001 | <0.003 |

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**Figure 1. Dendrogram from the hierarchical cluster analysis.** It is performed using squared Euclidean distance as a similarity measure. Cluster distances are presented with arbitrary relative units (%), where the closest distance between two objects is measured as 0% (two objects are similar and overlap), and the farthest as 100%. By this technique at the left side of the hierarchical tree, four aggregates of subjects that were asked about diagnosis can be clearly recognized: A – patient or a close family member; B – patient’s health insurance agent, another physician, or medical student; C – patient’s close friend or employer; D – patient’s colleague from work. In three of them, total inside difference measured was not more than 2%, whereas the fourth consisted of one subject. These four clusters were considered as groups with most similar points, and no further aggregations from the dendrogram were analyzed.
sure had no harmful effect on cancer patients (15), it was documented that cancer patients in the terminal stage might not want to be informed of their condition (16). The disclosure of the diagnosis to a cancer patient produces an initial shock, which is followed by a series of stress reactions: denial, anger, bargaining, and depression (15,17,18). Some researchers advocated for compliance with the patient’s wish not to be informed of the true diagnosis and prognosis (19). In addition to that, there is evidence that doctors fail to inform the patients of their disease if the diagnosis is cancer (20-22), especially if the patients are older people (23). However, our results showed that students’ opinions on diagnosis disclosure to another physician or medical student, or even to the patient’s health insurance agent (if beneficial for the patient), did not differ with respect to the severity of diagnosis. Moreover, no student chose to lie to another medical student. Such finding might be associated with the professional solidarity as written in the Codex of Medical Ethics and Deontology (24) and in the Hippocratic Oath (25).

Surveyed students would tell the truth to the patient and a patient’s close family member rather than to other interested parties. Croatian legal regulations state that a patient has the right to be informed about the nature of her or his disease (26). Ethical principles formulating physician’s obligations in one country may not necessarily be regarded as appropriate in another (27). For example, some societies require the physician to tell a terminal diagnosis to a representative of the patient’s family rather than to the patient directly (13,28).

Our results showed that the patient’s age did not influence students’ opinion about diagnosis disclosure to any of the subjects who asked about the diagnosis. We cannot really say what is the major reason for such a finding; perhaps students’ perception of a patient mainly through her or his disease could be one of the answers.

Education and clinical experience seemed to be another very important factor determining students’ decision about whether or not to tell the truth. In general, the final-year students would tell the true diagnosis less frequently than the first-year students (ie, they would more often refuse to say anything), except to the patient and patient’s close family member. This finding suggests that medical education, including teaching medical ethics, might play an important role in ethical problem solving. Adequate education improves ethical reasoning skills, knowledge of relevant philosophical and legal principles, and students’ ability to apply these skills and knowledge to hypothetical cases (29-31). Another explanation could be that first-year medical students were a bit naïve in this respect, whereas the final-year students seemed to be more mature and responsible.

Although some other surveys of students’ opinions about ethical issues showed that student sex was an important parameter (3,32), in our study it had just a slight influence on students’ opinions about the truth disclosure. The difference existed just in two opposite situations – a young patient with pneumonia and an old patient with cancer – where male students would tell the truth more often than female students. The fact that there were almost no sex differences implications that it is a rather universal ethical question.

The survey was conducted during well-attended classes because we wanted to obtain a response rate as high as possible. However, the response rate was moderate (55%) and presents a serious limitation to our study.

The patient-physician relationship is very complex, involving the patient’s family, other members of the health care team, insurance companies, and society as a whole (33). This is the reason why attention should be paid to the educational context in which medical students acquire their professional values, ethics, skills, and knowledge, which should help them become physicians who can act within an increasingly complex health care system according to the highest ethical principles.

Acknowledgment

We thank Prof Matko Marušić for the idea and advise, Prof Ana Marušić for critical review of the manuscript, and Drs Matija Prka and Vicko Glunčić for useful discussions.

| Table 3. Opinions (% of clustered answers) of male and female medical students about disclosing the patient’s diagnosis |
|------------------|------------------|------------------|
| Students’ answers (% in case of) | a 20-year-old patient with newly diagnosed | a 66-year-old patient with newly diagnosed |
| Male | Female | Male | Female |
| Inoperable lung carcinoma | Inoperable lung carcinoma | Bacterial pneumonia | Bacterial pneumonia |
| Truth | Lie | Refuse | Truth | Lie | Refuse | Truth | Lie | Refuse | Truth | Lie | Refuse |
| A | 88.9 | 0.2 | 8.3 | 97.9 | 0.0 | 2.1 | 90.5 | 3.7 | 8.3 | 98.6 | 0.0 | 0.4 |
| B | 70.3 | 0.9 | 28.8 | 75.6 | 0.4 | 24.0 | 70.8 | 1.0 | 28.2 | 77.9 | 0.5 | 21.6 |
| C | 33.3 | 4.5 | 62.2 | 59.1 | 0.7 | 40.2 | 33.6 | 3.1 | 63.3 | 53.2 | 0.0 | 46.8 |
| D | 9.7 | 0.0 | 90.3 | 29.4 | 0.0 | 70.6 | 50.0 | 0.0 | 50.0 | 25.7 | 0.0 | 74.3 |
| Female | Male | Female | Male |
| A | 91.9 | 2.0 | 6.1 | 96.9 | 0.0 | 3.1 | 90.5 | 2.4 | 7.1 | 97.7 | 0.3 | 2.0 |
| B | 71.1 | 0.2 | 28.6 | 77.1 | 0.5 | 22.4 | 70.9 | 0.0 | 29.1 | 75.9 | 0.0 | 24.1 |
| C | 33.2 | 1.4 | 65.4 | 48.7 | 0.6 | 50.7 | 34.8 | 0.6 | 64.6 | 48.7 | 0.3 | 51.0 |
| D | 6.1 | 0.0 | 93.9 | 16.2 | 0.0 | 83.8 | 6.9 | 0.0 | 93.1 | 15.2 | 0.0 | 84.8 |

*a*Probability of obtaining the difference between the distribution of clustered answers between male and female students (non-parametric multinomial statistical test).
References

17. Pulanić et al: Students’ Opinions on Diagnosis Disclosure Croat Med J 2002;43:75-79

Received: November 12, 2001
Accepted: January 3, 2002

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