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Physicians' Attitudes Toward Litigation and Defensive Practice: Development of a Scale

Jochanan Benbassat, MD; Dina Pilpel, PhD; Razia Schor, MSc

The authors' threefold purpose in this article was to (a) propose a model of the relationship between the emotional aspects of physicians' attitudes to medical errors (eg, fear of litigation) and their functional consequences (eg, tendency to defensive practice); (b) develop a measure of some of these attitudes; and (c) provide empirical support for some of the relationships in the model. Medical students and physicians responded to a questionnaire concerning their attitudes toward uncertainty and medical error. The dependent variables were two dimensions of attitudes to uncertainty ("reluctance to disclose uncertainty" and "stress from uncertainty") and four dimensions of attitudes to medical error ("fear of litigation," "support for self-regulation," "tendency to defensive practice," and "self-disclosure of errors"). Stress from uncertainty correlated with fear of malpractice litigation and defensive practice. They concluded that interventions that aim to increase physicians' tolerance of uncertainty may also reduce their fear of malpractice litigation and their tendency to defensive practice.

Index Terms: defensive practice, medical error, negligence, quality of care, tolerance of uncertainty

The frequent incidence of detected^{1,2} or self-reported³⁻⁵ medical accidents and the rising rates of patient complaints and malpractice litigation are a source of concern for medical students,⁶ physicians,⁷ and patients.⁸ Although these events are inevitable, they can be reduced through continuous analysis with the aim of making the healthcare system as error-proof as possible.⁹ Such continuous analysis is conditional on the candid disclosure of personal and institutional failures and therefore depends in part on physicians' attitudes toward medical error, negligence, and litigation. However, there is still a dearth of quantitative research on these issues.⁶ In this article, we (a) propose a theoretical model of the interrelations between the various components of the concept of physicians' attitudes toward medical error, (b) develop a measure of some of these attitudes, and (c)

provide empirical support for some of the relationships in the proposed model.

METHOD

Design, Setting, and Study Population

This study was part of a broader cross-sectional survey of the attitudes of medical students and physicians toward clinical uncertainty and medical error.¹⁰ The Institutional Review Board gave its approval and the study was conducted in 1995/1996. We surveyed practicing physicians at two hospitals in Israel and students of the 6-year undergraduate medical program at the Ben-Gurion University in Beer Sheva, Israel. We informed participants that the study would attempt to gain insight into their attitudes toward medical uncertainty and medical error. They were asked to complete the questionnaire at home and return it to the investigators by mail.

At the first hospital, all 82 board certified specialists and 72 residents in the hospital registry were approached by mail, with a response rate of 42 (51%) and 4 (5.5%), respectively. At the second hospital, division heads or the investi-

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gators approached 295 physicians during staff meetings. Seventy-one (54%) board certified specialists and 34 (16%) residents mailed in responses. The very low response rate of residents may have been because of the large proportion among them of recent immigrants from the former Soviet Union, whose command of Hebrew was too poor to cope with a 5-page questionnaire. Of a total of 164 1st-, 4th-, and 6th-year students, 142 were approached at the beginning of the academic year in classrooms and were asked to respond to the questionnaire at home and mail it to us. Of those, 113 responded, giving us a response rate of 69% of all students and 80% of those whom we approached. We received responses from 47 (89%) 1st-year students, 40 (78.4%) 2nd-year students, and 26 (68.4%) 6th-year students.

Instrument and Variables

The self-administered questionnaire consisted of 68 items. Of these, 6 were related to the independent variables of the study: gender, professional status (1st-, 4th-, and 6th-year undergraduate students; resident physicians or board certified physicians—less or more than 10 years after board certification), physicians' specialty training (medicine, surgery, obstetrics/gynecology, pediatrics, and psychiatry), students' ages and countries of birth, and physicians' countries of medical school graduation. Of the remaining 62 items related to the dependent variables, 30 were Likert-type statements on a scale of 1 (*definitely agree*) to 7 (*definitely disagree*) related to tolerance of uncertainty, and 32 were related to attitudes toward medical error.

Tolerance of Uncertainty Scales

To obtain estimates of tolerance of uncertainty, we used a modified Hebrew version of the instrument developed by Gerrity and associates.^{11(p729)} It consisted of the 13 items of the Stress From Uncertainty scale of Gerrity et al, the 9 items of their Reluctance to Disclose Uncertainty scale, and 8 additional items that were either suggested or selected by consultants from the original Gerrity item pool.^{12(pp1045-1048)} A detailed analysis of the responses to these 30 items has been reported elsewhere.¹⁰ Briefly, the responses clustered around two factors: reluctance to disclose uncertainty (eg, "I never tell other physicians about patient care errors I have made," $\alpha = .86$), and stress from uncertainty (eg, "the uncertainty of patient care troubles me," $\alpha = .82$), thereby replicating the reliability and factor structure of the instrument Gerrity et al developed (see Appendix A).

Attitudes Toward Medical Error Scales

To estimate attitudes toward medical error, we first defined the components of the concept *physicians' attitudes*

toward medical error; then we prepared an item pool related to these components. Last, we identified and interpreted the dimensions of the concept through factor analysis of the study populations' responses to the items.

We used two sources to identify issues related to the concept of physicians' attitudes toward medical error: published observational studies and personal impressions following informal discussions with practicing physicians. Issues that emerged from published studies were related to the emotional impact on physicians of medical accidents and to its consequences on the physicians' functioning.¹³ We learned that physicians' medical errors and the ensuing feelings of regret, guilt, and self-reproach were remembered in detail years later.^{3,14,15} These feelings frequently remained unexpressed;^{4,5,14} when they expressed their feelings, colleagues have been blamed for failing to provide support.¹⁵

After reviewing the sociological literature, Gerrity and associates concluded that "one consistent theme seems to emerge from all . . . studies of medical students, physicians in residency training, and physicians in practice: the fear of personal inadequacy and failure."^{12(p1043)} This fear is also probably related to their conclusion that "strong defenses against criticism and denial of [the] uncertainty [of clinical practice] are one of the most consistent observations made by sociologists studying medical training."^{12(p1028)}

The consequences of the emotional impact of medical accidents on physicians' functioning have varied. Some physicians appeared to cope with medical error by assuming responsibility and initiating constructive changes.^{4,5} Others responded with denial or by discounting and distancing.³ Denial is the repression of mistakes by forgetting them; discounting places the blame on others (the system, superiors, subordinates, the patient); and distancing is an impersonal acceptance of responsibility, reflected in remarks such as "it was unavoidable." One of the consequences of error reported by Mizrahi was an ardent support for professional self-regulation: "the house staff sees itself as the sole arbiter of mistakes, . . . and disparage[s] any attempt by others to insert themselves into the process of accountability."^{3(p135)}

Fear of criticism and litigation has also been claimed to affect physicians' attitudes toward the institution that employs them,⁵ toward their relationship with patients,^{13,16} and toward self-disclosure of errors.^{15,17,18} The most common functional consequence of fear of litigation appears to be a tendency toward "defensive practice," characterized by ordering diagnostic tests even when clinical judgment deems them unnecessary,^{7,13} by avoiding "similar" patients or procedures,^{4,5} or even by early retirement.¹⁹ Surveys have indicated that as many as 44%,¹³ 51%,²⁰ and 60%²¹ of the

responding physicians have claimed to adopt risk-avoidance practices.

Most of these issues also emerged during informal discussions with practicing physicians. They felt that medical error is generally perceived as being the consequence of ineptitude or negligence and that fear of litigation affects physician-patient relations and encourages defensive practices. Most physicians agreed that an open disclosure of personal or institutional failure is essential to quality assurance in healthcare. However, they felt inhibited from disclosure because of the threat of litigation. Still other physicians blamed circumstances beyond their control (eg, overwork) and reported that, over time, they had become more tolerant of the errors of their colleagues.

Preparation of the Item Pool

After defining the components of the concept of physicians' attitudes toward medical error, we generated a pool of statements related to the tendency toward defensive practice, past experience with errors, support for self-regulation, self-disclosure of errors, fear of litigation, the support of colleagues in case of error, and the effect of seniority on attitudes to medical error. We excluded statements related to the support of colleagues and past experiences with errors because some of our physician-consultants felt that these questions could be interpreted as embarrassing. We were left with 27 Likert-type items for the remaining issues on a scale of 1 (*definitely agree*) to 7 (*definitely disagree*). The instrument also included 5 items related to knowledge about the frequency of medical error. The responses to these items will be discussed in a future report.

Identification and Interpretation of the Various Dimensions of the Scale

We used participants' responses both for identification of the various dimensions of the scale and for analysis of the results. Factor analysis (Varimax rotation) of the responses identified 4 groups of items with a loading of .4 or more (Appendix B) and 10 items that did not load. The first group consisted of 7 items related to fear of litigation (eg, "litigation against physicians harms healthcare," $\alpha = .69$). The second group consisted of 3 items related to support for self-regulation, such as reluctance to be accountable to lay institutions, and professionalization (eg, "only a physician can determine whether an error occurred during patient care," $\alpha = .62$). The third group consisted of 4 items related to tendency toward defensive practice (eg, "the lesson I have learned from errors is that one should perform more tests," $\alpha = .64$). The fourth group included 3 items related to self-disclosure of errors (eg, "a physician who has committed an

error in patient care should report the incident to the chief of service/hospital director," $\alpha = .54$).

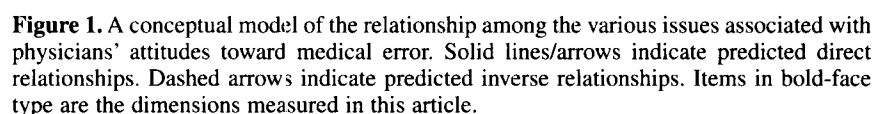
Of the 17 items in these four groups, 13 referred to the respondent's attitudes (eg, "litigation against physicians harms medical care"). As such, they could be presented to both students and practicing physicians. The remaining 4 items referred to the respondent's personal clinical experience (eg, "the lesson I have learned from medical errors is to perform more x-rays and laboratory tests," Appendix A). Therefore, they could not be presented to 1st- and 4th-year students who had never been involved in clinical work or to 6th-year students who had never had to take clinical responsibility. Consequently, we asked 1st-, 4th-, and 6th-year medical students to respond to a modified instrument in which these 4 items were reworded (eg, "the lesson physicians learn from medical errors is to perform more x-rays and laboratory tests"). Although it was necessary, this change produced an instrument that may have tested students' perceptions of physicians' attitudes toward medical error, rather than the students' own attitudes. Consequently, we analyzed the responses of medical students and practicing physicians separately.

Analysis

We presented the results as arithmetic means of the responses to the items in the various dimensions. We used one-way analysis of variance (ANOVA) to test the hypothesis of no differences in attitudes toward medical error between the various subgroups of the study populations. In addition, we used multiple linear regression to determine the predictive value of the independent and intermediate variables for each of the 4 dimensions of attitudes toward medical error. We entered physicians' specialty training as dummy variables. The a priori hypotheses are detailed in the description of the conceptual model.

Conceptual Model

The data in Figure 1 depict a conceptual model of the relationship among the various components of physicians' attitudes toward medical error that emerged from our review of the literature, informal interviews with physicians, and factor analysis of the responses to the questionnaire. These components may be classified as belonging to the cognitive, emotional, and functional domains. The cognitive domain includes physicians' awareness of past errors, of possible future errors, and of inadequate training. This awareness may produce feelings such as guilt, fear of personal failure, fear of litigation, reluctance to disclose uncertainty, and the perception of ambiguous clinical situations as a threat. The tendency to perceive ambiguous situations



We presented a detailed justification for the hypothesized relationship between stress from uncertainty and physicians' attitudes toward medical error in a previous article.²³ Stress from uncertainty has already been shown to be correlated with a reluctance to share uncertainty.¹² If correct, our model would predict the following additional correlations: (a) between the various emotional dimensions of attitudes toward medical error (fear of litigation, reluctance to disclose uncertainty, and stress from uncertainty), (b)

RESULTS

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TABLE 1
Pearson's Correlation Matrix of Measures of Perception of Uncertainty
and Attitudes Toward Medical Error of 151 Practicing Hospital-Based
Physicians Surveyed in 1995/96

Attitude	Fear of malpractice litigation		Support for self-regulation		Tendency toward defensive practice		Self-disclosure of errors		Stress from uncertainty	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Reluctance to disclose uncertainty	-.04	.600	-.07	.382	.16	.051	-.14	.096	.24	.003
Stress from uncertainty	.12	.153	.09	.302	.38	.000	.13	.118		
Self-disclosure of errors	.28	.001	.04	.654	.01	.922				
Tendency toward defensive practice	.07	.412	.17	.043						
Support for self-regulation	.25	.003								

TABLE 2
Predictors of Attitudes Toward Malpractice Litigation, Self-Regulation, Defensive Practice, and Self-Disclosure
of Errors Among 113 Medical Students Surveyed at Ben-Gurion University, 1995/96

Independent variables	Entered as	Fear of malpractice litigation	Support for self-regulation	Tendency toward defensive practice	Self-disclosure of errors
Stress from uncertainty	1-7 score	.325**	.120	.429***	.136
Reluctance to disclose uncertainty	1-7 score	-.028	.184*	.031	-.079
Country of birth	Israel vs other	.267	.518	.317	.666*
Professional status	1st, 4th, 6th year of study	-.098*	.033	-.067	-.122*
<i>R</i> ²		.12**	.013	.12**	.10**

Note. Figures represent beta coefficients from multiple linear regression analyses.

of litigation and self-disclosure of errors ($r = .28, p = .001$) was contrary to the correlation predicted by our model. The correlations among the study variables in the student population (not shown) confirmed the association between stress from uncertainty and the tendency toward defensive practice ($r = .36, p = .000$) and between fear of litigation and support for self-regulation ($r = .21, p = .000$).

Independent Associations Between the Emotional and Functional Dimensions of Attitudes Toward Medical Error

Linear regression analysis of the responses of medical students, controlling for country of birth and year of study, indicated that stress from uncertainty was associated with fear of litigation. This supports part of the first set of pre-

dictions of our model. Stress from uncertainty was independently associated with the tendency toward defensive practice, and reluctance to share uncertainty was associated with support for self-regulation, thereby supporting the third set of predictions of our model (Table 2). A similar analysis of the responses of practicing physicians indicated that stress from uncertainty was independently associated with fear of litigation and the tendency toward defensive practice, thereby supporting part of the first and third sets of predictions of our model (Table 3). The direct independent association between stress from uncertainty and self-disclosure of errors was contrary to that predicted by our model.

Attitudes Toward Medical Error, by Professional Status

Both univariate (Table 4) and multivariate (Table 2) analyses indicated that, compared with junior medical students, senior medical students supported significantly less self-disclosure of errors and were less concerned with malpractice litigation. We found no significant differences between junior and senior medical students in attitudes toward self-regulation and defensive practice (Tables 4 and 2). Similarly, both univariate (Table 4) and multivariate (Table 3) analyses indicated that there were no significant differences between practicing physicians of varying seniority regarding fear of litigation, support for self-regulation, and tendency toward defensive practice. However, after controlling for specialty training, country of graduation,

stress from uncertainty, and reluctance to disclose uncertainty, senior physicians tended more toward supporting self-disclosure of errors (Table 3).

Attitudes of Practicing Physicians, by Demographic Variables and Specialty Training

Univariate analysis indicated that Israeli graduates supported self-regulation less than did foreign graduates (Table 5). Fear of litigation was highest among ob/gyns and surgeons and lowest among pediatricians. The tendency toward defensive practice was highest among psychiatrists and lowest among pediatricians. Controlling for country of graduation and professional status did not affect these patterns significantly (Table 3).

COMMENT

To the best of our knowledge, this is the first attempt to quantify fear of litigation and attitudes toward self-regulation, defensive practice, and self-disclosure of error among medical students and practicing physicians. Considering the heterogeneity of our study population, we feel that the reliability of the various scales ($\alpha = .57-.70$) to be acceptable. Still, it should be kept in mind that the response rates of 6th-year students (68%) and board certified specialists (51%) were low (although not unusually so for a mail survey without telephone contact). Therefore, selection or self-selection may have confounded the comparisons among the various subgroups of the population we studied. A selection bias

TABLE 3
Predictors of Attitudes Toward Malpractice Litigation, Self-Regulation, Defensive Practice, and Self-Disclosure of Errors Among 151 Practicing Physicians Surveyed in 1995/96

Independent variables	Entered as	Fear of malpractice litigation	Support for self-regulation	Tendency toward defensive practice	Self-disclosure of errors
Stress from uncertainty	1-7 score	.168*	.070	.476***	.233*
Reluctance to disclose uncertainty	1-7 score	-.016	.82	.062	-.175
Specialty training	Dummy variables				
Medicine		-.640**	-.206	-.273	-.422
Pediatrics		-.789*	-.873	-.747	.348
Psychiatry		-.646**	-.688	.690*	.079
Country of graduation	Israel vs other	.056	-.670*	.040	.188
Professional status (y)	Seniority: \geq vs $<$ 10	.276	.193	.419	.490*
R^2		.128	.038	.165***	.075*

Note. Figures represent beta coefficients from multiple linear regression analyses.

*.06 $> p > .01$; **.01 $> p > .001$; ***.001 $> p$.

TABLE 4
Attitudes Toward Medical Error Among 113 Undergraduate Medical Students and 151 Hospital-Based Physicians
Surveyed in 1995/96, by Professional Status

Professional status	Responders (n)	Fear of malpractice litigation	Support for self-regulation	Tendency toward defensive practice	Self-disclosure of errors
Medical students					
Year 1	47	5.23	3.22	5.10	6.11
Year 4	40	5.29	3.39	5.01	5.52
Year 6	26	4.47	3.17	4.55	5.54
<i>p</i>		.0008	.6965	.0789	.0238
Physicians (y since board certification)					
< 10 years	43	5.45	4.68	4.10	5.84
≥ 10 years	63	5.55	4.74	4.35	6.05
<i>p</i>		.5500	.8290	.3502	.2879

Note. Average scores shown are on a scale ranging from 1 to 7, with 7 representing the highest possible fear of malpractice litigation, support for self-regulation, tendency toward defensive practice, or tendency to self-disclose errors.

*The validity of the comparison between practicing physicians' and medical students' attitudes toward defensive practice is questionable because of the differences in the instrument employed.

TABLE 5
Attitudes Toward Medical Error Among 151 Hospital-Based Physicians Surveyed in 1995/96,
by Demographic Variables and Specialty Training

Variable	Responders (n)	Fear of malpractice litigation	Support for self-regulation	Tendency toward defensive practice	Self-disclosure of errors
Gender					
Men	117	5.50	4.54	4.33	5.91
Women	31	5.27	4.90	4.24	5.69
<i>p</i>		.2618	.2036	.7447	.3379
Country of graduation					
Israel	85	5.50	4.32	4.24	5.94
Other	65	5.36	4.99	4.38	5.73
<i>p</i>		.3744	.0045	.5300	.2619
Medical specialty					
Medicine	34	5.12	4.60	4.16	5.57
Surgery/anesthesia	44	5.77	4.75	4.29	5.92
Ob/Gyn	12	6.04	4.33	4.13	6.14
Pediatrics	10	4.95	4.03	3.60	6.30
Psychiatry	20	5.04	4.30	5.18	5.77
*Other	13	5.40	4.74	4.52	5.64
<i>p</i>		.0007	.6490	.0411	.4181

Note. Average scores shown are on a scale ranging from 1 to 7, with 7 representing the highest possible fear of malpractice litigation, support for self-regulation, tendency toward defensive practice, or tendency to self-disclose errors.

*Radiology, family practice.

may also explain the discrepancy between our findings and those of previous studies, which indicated that senior medical students were more concerned than junior medical students were with malpractice litigation.⁶

Our findings are consistent with some of the predictions of the conceptual model (Figure 1). Among both medical students and practicing physicians, the emotional components of fear of litigation and stress of uncertainty were related. In addition, we found a correlation between fear of litigation and support for self-regulation, as well as between stress from uncertainty and a tendency toward defensive practice. Our main conclusion from these findings is that interventions seeking to reduce physicians' fear of litigation (or fear of any other type of censure) and to increase their tolerance of uncertainty may also reduce their tendency toward defensive practice and support of self-regulation.

Contrary to the prediction of the model, we found a direct association between fear of litigation and stress from uncertainty on one hand and self-disclosure of error on the other. This finding was unexpected; as such, it should be considered a preliminary finding in need of further confirmation. If confirmed, it may indicate that, given the current norm of punitive justice, self-disclosure of error either generates or results from fear of litigation and stress from uncertainty or that all three of these issues are associated with another, as yet unknown, variable.

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NOTE

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APPENDIX A

Orthogonal Dimensions of Tolerance of Uncertainty Identified by Factor Analysis (Varimax Rotation) of Responses From 264 Undergraduate Medical Students and Practicing Physicians

Reluctance to Disclose Uncertainty scale

1. I prefer that patients not know when I am uncertain regarding their treatment.
- *2. Sharing uncertainty with a patient improves my relationship with him or her.*
3. I always share my uncertainty with my patients.*
4. If I shared all of my uncertainties with my patients, they would lose confidence in me.
5. If I shared my uncertainties with patients, I would increase my likelihood of being sued.

6. When I am uncertain about the treatment of a patient, I usually keep this to myself.
- *7. When physicians are uncertain of a diagnosis, they should share this information with their patients.
8. If I do not make a diagnosis, I worry that the referring physician will stop sending patients to me.
9. I am afraid other physicians would doubt my ability if they knew about my patient care mistakes.
10. I almost never tell other physicians about diagnoses I have missed.
11. The hardest thing to say to patients or their families is "I don't know."

Cronbach's α = .86

Stress From Uncertainty scale

1. Uncertainty of patient care troubles me.
2. When I am uncertain of a diagnosis, I imagine all sorts of bad scenarios such as the patient's dying, developing complications, etc.
3. Uncertainty in diagnosis frustrates me.
4. I worry about malpractice when I do not know a patient's diagnosis.
5. The vastness of the information physicians are expected to know scares me.
6. I find the uncertainty involved in patient care disconcerting.
- *7. I am tolerant of the uncertainty in medical practice.
8. I fear I shall be blamed for the limits of my knowledge.
9. I am often troubled by the uncertainty in treatment outcomes.
10. I frequently regret I did not choose a specialty that would minimize the uncertainties of patient care.
11. When I am not sure of a diagnosis, I usually feel anxious that the patient will sue.
12. One of the most oppressive aspects of clinical practice is the uncertainty regarding the best treatment for a patient.
13. I feel comfortable with the uncertainty of clinical practice.

Cronbach's α = .82

*Reverse scoring.

APPENDIX B

Orthogonal Dimensions of Attitudes Toward Medical Error Identified by Factor Analysis (Varimax Rotation) in 113 Undergraduate Medical Students and 151 Practicing Physicians

Fear of Malpractice Litigation

- | | |
|---|-----|
| 1. Litigation against physicians harms medical care. | .73 |
| 2. Litigation against physicians harms patients. | .73 |
| 3. The current legislation encourages malpractice litigation. | .56 |
| *4. The current legislation is fair to physicians. | .55 |
| *5. I am frequently worried about the legal consequences of an error in diagnosis or treatment. | .44 |
| 6. A malpractice claim against a physician, whether justified or not, harms his or her reputation. | .41 |
| 7. A malpractice claim against a physician, whether justified or not, harms his or her self-esteem. | .4 |

Cronbach's α = .7

ATTITUDES TOWARD LITIGATION

Support for Self-Regulation (reluctance to be accountable to a lay institution)

1. Only physicians can determine whether an error occurred during patient care. .67
2. The quality of healthcare should not be controlled by lay institutions. .62
3. Physicians must refrain from testifying against colleagues on medical negligence because every physician could find himself in a similar situation. .46

Cronbach's $\alpha = .65$

Tendency toward Defensive Practice

- **1. The lesson I have learned from medical errors is to perform more x-rays and laboratory tests. .51
2. The more tests a physician performs before diagnosis and treatment, the less likely he or she is to be sued. .47
- **3. The more medical problems a patient has, the more I fear making a mistake. .46
- **4. The lesson I have learned from medical errors is to share responsibility with other physicians. .4

Cronbach's $\alpha = .62$

Self-Disclosure of Errors

1. A physician who has committed an error in patient care should report the incident to his or her superiors. .65
2. The hospital administration should be notified even of medical errors that caused no harm. 61
3. A physician who harms a patient by committing a medical error should report the incident to the patient or the patient's family. .54

Cronbach's $\alpha = .57$

*Reverse scoring. **Items that were modified in version presented to students.

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