Barriers to the Integration of Psychosocial Factors in Medicine: Results of a National Survey of Physicians

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Purpose: Examine physicians' attitudes toward the incorporation of psychosocial factors in diagnosis and treatment and identify barriers to the integration of evidence-based mind-body methods.

Method: Random sample of primary care physicians and physicians from selected non-primary specialties was drawn. A total of 1058 physicians completed a 12-page survey.

Results: The response rate was 27%. Although a majority of physicians seem to recognize the importance of addressing psychosocial issues, approximately one third believe that addressing such factors would lead to minimal or no improvements in outcomes. A minority reports their training regarding the role of psychosocial factors was effective, and relatively few indicate interest in receiving further training in these areas.

Males were less likely to believe in the importance of addressing psychosocial factors. Additional factors included perceptions that training was poor in these areas; feelings of low self-efficacy to address psychosocial issues and the perception that such factors are difficult to control; lack of knowledge of the evidence-base supporting the role of psychosocial factors; and lack of time and inadequate reimbursement to address the psychosocial domain.

Conclusions: These results suggest the need for more comprehensive training in the role of psychosocial factors in health. In addition, the finding that physicians identify lack of time and inadequate reimbursement as significant barriers suggests that the current health care delivery system may, in many respects, be antithetical to the biopsychosocial model. (J Am Board Fam Med 2006;19:557–65.)

The call for greater recognition of the role of psychological and sociocultural factors in medicine is certainly not new. Engel1 published a seminal article almost 30 years ago calling for an expansion of the biomedical model to a biopsychosocial one. However, despite such calls for reform, studies suggest that psychosocial factors continue to be overlooked or frequently missed in clinical encounters2–7 and tend to still be underemphasized in medical education.8,9 Studies also suggest that empirically supported mind-body interventions for such common health problems as pain and insomnia10,11 are used by only a minority of patients suffering from these conditions.12

Consistent with these findings, in October 2004, the National Institutes of Health issued a request for applications (RFA) focused on “strengthening behavioral and social science curricula in medical school.” This RFA grew out of an Institute of Medicine report issued earlier that same year in which the authors noted that “no physician’s education would be complete without an understanding of the role played by behavioral and social factors in human health and disease, knowledge of the ways in which these factors can be modified, and an appreciation of how personal life experiences influence physician-patient relationships.”

Although there is a growing body of evidence pointing to the role that psychosocial factors such as stress can play in health and illness, and the well-accepted, contemporary value that medical practice should be grounded in solid scientific evi-
dence, it is also well documented that evidence of a
given therapy’s effectiveness is frequently insuffi-
cient to change clinical practice.\textsuperscript{13} Therefore, if
medical training and practice are to move toward a
model that gives adequate attention to nonbiologi-
cal (ie, psychosocial) concerns, the varied and com-
plex barriers to integration must be identified and
addressed.\textsuperscript{13,14}

The present study reports the results of a na-
tional survey of physicians that was designed to
examine attitudes toward the role of psychosocial
factors (eg, stress, emotional states) in medicine,
and to identify factors that might account for dif-
fferences in the extent to which physicians recognize
the importance of such factors in health and are
open to using mind–body approaches (such as re-
laxation, stress management, meditation, and be-
havioral counseling) in clinical practice.\textsuperscript{11,12} More
specifically, the study aimed to identify personal,
attitudinal, and social-environmental factors that
facilitate or inhibit physicians’ openness to consid-
ering psychosocial factors in diagnosis and treat-
ment, and to seek a better understanding of the role
that medical education plays in shaping physicians’
attitudes and practice patterns relative to these
areas.

Method
In collaboration with researchers from the Center
for Survey Research (CSR) at the University of
Massachusetts, Boston, we obtained a list of physi-
cian mailing addresses from the American Medical
Association (AMA) master files. This list of poten-
tial respondents was drawn from a broad spectrum
of primary care specialties and a select group of
non-primary care specialties. Primary care special-
tytes included family medicine, internal medicine,
pediatrics, and obstetrics/gynecology. Several non-
primary care specialties were selected including
rheumatology, gastroenterology, pain manage-
ment, and cardiology. The principle we applied was
to include specialties that were in the front lines of
primary care and/or whose practitioners might rea-
sonably confront symptoms and diagnose condi-
tions for which evidence-based mind–body meth-
ods could be considered appropriate adjuncts to
care.\textsuperscript{11}

In May 2002, we conducted a series of focus
groups with physicians (N = 22). This information
was used, in part, to inform both domain and item
selection for the survey.\textsuperscript{15} Once the questionnaire
was formatted, CSR conducted cognitive inter-
views (via telephone) with 20 physicians who com-
pleted the measure to assess whether any items
needed to be revised or omitted. This feedback
resulted in several minor revisions that simplified
the questionnaire’s administration and clarified
certain test items. The final questionnaire was 12
pages in length and took approximately 20 minutes
to complete. It contained 36 items that along with
assessing basic demographic information, asked re-
pondents about their attitudes toward the role of
psychosocial factors in health, their perceptions of
training in these areas, their use of mind–body
methods in clinical practice, and their perspective
on factors that might serve as barriers to the inte-
gration of such methods. A Web-based version of
the survey was also developed, giving respondents
the option (in the mailed cover letter) to take the
survey on-line at a designated URL.

There are a number of terms that are used (often
interchangeably and at times with slightly different
connotations) by both researchers and clinicians to
describe the general topic area we were interested
in exploring. Examples of these include: “mind-
body medicine,” “behavioral medicine,” “psycho-
social factors,” and “biopsychosocial medicine.” So
as to minimize any confusion that might have re-
sulted from our use of terms that respondents were
either not familiar with, or for which they held
different interpretations, the questionnaire began
as follows:

This survey asks for your views on the psycho-
social aspects of patient care. The information
you provide will help us clarify the current
status of mind–body medicine among practic-
ating physicians. The terms “psychosocial” and
“mind–body” refer to those approaches that
emphasize the role of nonphysical factors such
as stress, emotions, attitudes, and beliefs in the
diagnosis and treatment of physical illness.

Initially, a random sample of 3350 physicians
(from the above disciplines) was drawn from the
AMA master files. Of these, 3057 were deemed
interviewable (eg, appropriate specialty, valid tele-
phone number or address). Physicians were mailed
the survey, along with a cover letter, fact sheet, and
return envelope. A small monetary incentive was to
be included in the initial mailing but because of a
clerical error at CSR, these were omitted. To test
what the effect of including an incentive would have been, CSR contributed an additional random sample of 1000 physicians and mailed surveys with $20 incentives to these potential respondents. For both groups (incentive and no incentive), reminder telephone calls were begun approximately 14 days after the initial mailing. A second questionnaire packet was sent to all nonresponders, followed by another series of follow-up phone calls.

Results

Response Rate

Of the original 3057 mailed surveys, 683 completed responses were received (22%). A total of 18 physicians (2.7%) opted to use the Web-based version of the survey. For the second, incentivized mailing, completed surveys were received from 375 of 873 eligible physicians constituting a significantly higher response rate of 43%. The combined sample used for all descriptive and multivariate analyses is N = 1058, (overall response, 27%).

Tests for nonresponse bias indicate that among physicians receiving no incentive, females were more likely to respond, as were those who completed medical school after 1995. For this reason, we weighted the nonincentivized sample to adjust for these potential biases. Further analyses of the 2 samples (incentivized and nonincentivized) indicated that respondents who did not receive a monetary incentive tended to hold slightly more favorable attitudes toward the topic area (ie, the importance of incorporating psychosocial factors in training and practice). For this reason, we added “receipt of incentive” as a covariate in all analyses to control for this potential bias.

Descriptive Statistics

Demographics

Table 1 summarizes the demographic characteristics of the combined sample. Mean age is 48.9. Sixty-nine percent are male; 31% are female. The largest specialty groups represented are: family medicine (20%), internal medicine (19%), pediatrics (18%), and obstetrics/gynecology (14%). Additional non-primary care specialties include cardiology, dermatology, physical medicine rehabilitation, rheumatology, and pain medicine.

Use of Mind-Body Methods

The majority of physicians seem to recognize the importance of addressing the psychosocial domain in clinical practice. For example, in response to the question, “What would be the overall improvement in treatment outcomes from increasing the application of psychosocial methods,” two thirds (66%) indicate that including such methods would lead to “moderate” or “big” improvements (score of 3 or 4 on a 4-point scale), compared with 34% who state that such an addition would lead only to “small” or “almost no” improvements. Analysis of the 4 primary care specialties included in our survey showed small but nonsignificant differences across groups, with 70% of family medicine physicians indicating that psychosocial methods would significantly improve treatment outcomes, followed by pediatrics (68%), internal medicine (67%), and obstetrics-gynecology (65%).

Respondents were given a list of representative mind-body interventions and asked to comment on the extent to which they used and/or referred out to each of these as part of their clinical practice. As
shown in Figure 1, psychological counseling and relaxation techniques are the most commonly used therapies with the majority of physicians reporting use of and/or referral to counseling (44% often; 45% sometimes) and relaxation therapies (16% often; 52% sometimes).

**Perceptions about Training**

A minority (25%) of respondents indicate that their formal training (medical school, residency) was “helpful” (score of 4 or 5 on a 5-point scale) in learning how to address the psychosocial domain (either diagnostically or in terms of actual treatment), whereas 44% rate the quality of their training in these areas as “not helpful” (score of 1 or 2) (see Figure 2).

Forty-three percent indicate that mentors in medical school did a good job with respect to diagnosing psychosocial factors, whereas 24% say that teachers effectively mentored them about including mind-body methods in treatment. Approximately half of the respondents (49%) indicate that they received effective mentoring during residency in diagnosing psychosocial issues, whereas only 1 in 3 (33%) indicate that residency mentors did a good job training them in the clinical application of mind-body methods.

**Behavioral Intentions**

To assess physicians’ future intentions with respect to incorporating mind-body methods, we asked them to comment on their level of interest in re-
receiving further training in these areas, and the extent to which they felt committed to incorporating mind-body approaches clinically. As shown in Figure 3, a minority, 22%, express high or very high interest (3 or 4 on a 4-point scale) in obtaining additional training, with the remaining report either moderate (44%) or low (34%) levels of interest in receiving further mind-body training. Approximately one third of respondents indicate that they are either “not very committed” (25%) or “not at all committed” (8%) to such adoption, whereas 17% report being “very committed” and 49% “somewhat committed.”

**Multivariate Analyses**

In an effort to better understand potential barriers to the integration of the biopsychosocial model in medicine, we examined the extent to which selected variables predict both attitudes toward, and practice of, mind-body methods. Based on our review of the literature and the results from the focus groups we had previously conducted, we hypothesized that the following predictors would be significant in the multivariate analyses: gender; year graduated medical school; medical specialty; extent of belief in the evidence-base for mind-body methods; lack of clinical expertise (ie, low self-efficacy); perceptions of control (ie, inability to influence psychosocial factors); lack of time to address psychosocial issues; degree of social (peer) support; importance of religious/spiritual beliefs, and personal use of mind-body approaches.

Because of missing data on some questionnaire items, the overall N (listwise present) for the regression analysis was 948, which represented 90% of the completed surveys. Of those excluded from this analytic sample, most (75%) failed to respond to only one of the variables included in the multivariate analyses. Two dependent variables were considered: belief in the “value-added” of mind-body methods (“Attitude”), and current clinical use of/referral to mind-body therapies (“Practice”). These variables are significantly correlated: \( r = 0.43 \) (\( P < .001 \)). In all regression analyses, diagnostics indicate no evidence of multicollinearity and the plot of standardized residuals suggested a normal distribution with fewer than 1% of standardized residuals exceeding an absolute value of 3.0. Three cases, only 0.3% of the sample, were identified as multivariate outliers based on Mahalanobis distance but given the small number, they were not deleted for analyses.

**Predictors of Attitude**

When the dependent variable, belief in the value-added of mind-body methods (“Attitude”), was examined, the following variables emerged as statistically significant in the regression (see Table 2): 1) belief that “the absence of demonstrably effective mind-body techniques” limits use (\( \beta = .28 \)), 2) “usefulness of formal medical training” (\( \beta = .18 \)), 3) personal use of mind-body therapies (\( \beta = .15 \)), 4) being female (\( \beta = .15 \)), 5) belief that lack of expertise does not limit use (\( \beta = -.07 \)), and 6) importance of religious/spiritual beliefs (\( \beta = .06 \)). Together, these factors explain 21.4% of the variability in attitude toward mind-body issues (adjusted \( R^2 = 0.205 \)). These results indicate that physicians who perceive increased value-added when mind-body methods are used in concert with other medical therapies are more likely to be female, rate their formal education as more useful in addressing...
Several themes emerged. Among physicians who report using such methods to manage their own health (66%, compared with 50% of men). Among those who report using such methods to address their own health issues, 78% say that integrating mind-body methods would lead to significant improvements in treatment outcomes compared with 51% of those who do not personally use such methods. We note that female physicians are also more likely to use such methods to manage their own health (66%, compared with 50% of men).

Predictors of Practice
When use of and/or referral to mind-body therapies (“Practice”) was tested as the dependent variable in the regression, the following factors emerged as significant predictors: personal use of mind-body techniques ($\beta = .17$), “usefulness of formal medical training” ($\beta = .11$), “lack of expertise” ($\beta = -.17$), “absence of demonstrably effective mind-body techniques” ($\beta = -.09$), “insufficient clinic time” ($\beta = -.08$), and “belief that psychosocial factors are beyond one’s capacity to control or influence” ($\beta = -.07$). The model fit was again significant ($P < .001$) with 20.3% of the variability explained by this set of predictors. These results indicate that physicians who use and/or refer to mind-body therapies more frequently in clinical practice tend to report using such methods for their own health, rate their formal training as more helpful, and are less likely to say that lack of expertise, poor evidence of efficacy, insufficient clinic time, and low feelings of perceived control (to influence psychosocial factors) are significant obstacles. Neither medical specialty nor year graduated medical school predicted either attitude toward or practice of psychosocial/mind-body methods.

As noted above, being female, using mind-body methods for one’s own health, and believing that training in medical school and residency effectively addressed these areas, each emerged as significant predictors of greater openness to and/or actual clinical use of mind-body methods. For example, 77% percent of female physicians, compared with 61% of their male counterparts, believe that the addition of mind-body methods would lead to significant improvements in treatment outcomes. Among those who report using such methods to address their own health issues, 78% say that integrating mind-body methods would lead to significant improvements in treatment outcomes compared with 51% of those who do not personally use such methods. We note that female physicians are also more likely to use such methods to manage their own health (66%, compared with 50% of men).

Table 2. Predicting Physicians’ Belief that Incorporating Mind-Body Approaches Would Improve the Prevention and Treatment of Common Medical Conditions*

<table>
<thead>
<tr>
<th>Significant Predictors</th>
<th>$\beta$ Coefficient</th>
<th>$P$ Value</th>
</tr>
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<tbody>
<tr>
<td>Belief that a lack of evidence represents a significant barrier</td>
<td>$-.275$</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Belief that formal training regarding the role of psychosocial factors was useful</td>
<td>$.179$</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Use mind-body methods to manage own health</td>
<td>$.153$</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>$.151$</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Belief that lack of expertise is a barrier</td>
<td>$-.07$</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Report that spiritual beliefs are important to them in their work</td>
<td>$.064$</td>
<td>&lt;.05</td>
</tr>
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* Physicians’ rating of the usefulness of mind-body methods for insomnia, low back pain, arthritis, cardiovascular disease, hypertension, headache, combined into a single score.

Discussion
The present study sought to examine physician’ attitudes toward the role of psychosocial factors and mind-body methods in medicine. An additional goal was to identify factors that might account for physicians’ relative openness and willingness to integrate a more biopsychosocial perspective into the way they view and ultimately practice medicine. Several themes emerged.

In this sample, a majority of physicians seem to recognize the importance of psychosocial factors and the potential value of incorporating mind-body methods in the treatment of a number of common medical conditions. Conditions where there seems to be greater perceived “value-added” from ap-
proaches such as psychological counseling and other “mind-body” therapies (eg, relaxation, meditation, imagery) include insomnia, headache, and low back pain.

Despite this widespread recognition that psychosocial factors can often play a critical role in understanding the causes of as well as treating, certain health problems, it is important to point out that there are a significant number of physicians who seem to be skeptical of the benefit to be gained from integrating psychosocial factors into medical diagnoses and treatment. Approximately 1 in 3 physicians, for example, indicates that the use of mind-body methods would result in either small or no improvement in clinical outcomes.

It is difficult to determine the extent to which the attitude and practice patterns we identified are generalizable to the larger population of practicing physicians in the United States. Although only speculative, it is possible that our lower than anticipated response rate (27%) may have reflected some general lack of interest or enthusiasm for the topic among the sample of physicians we initially contacted. Such an interpretation seems more likely given our finding that respondents receiving no monetary incentive held somewhat more favorable attitudes toward the role of psychosocial factors than those who received an incentive. In other words, physicians receiving no incentive may have been biased in favor of the topic and hence willing to take part in the survey despite not being compensated. Although we cannot be certain, given this response rate and pattern of responding, it is reasonable to think that physicians in the general population may be less likely to recognize the importance of psychosocial factors than the group of physicians who responded to our survey. One must also consider the possibility that members of the AMA (where we drew our physician sample from) may not be a representative group with respect to attitudes toward mind-body medicine.

Despite the possibility that (for the reasons noted above), our study findings may be painting a somewhat more favorable picture regarding physician attitudes toward the role of mind-body factors than is actually the case, there was still considerable skepticism among respondents in our sample, and this skepticism seems, at least in a number of instances, to be in conflict with the actual evidence base. For example, a recent meta-analysis concluded that the adjunctive use of psychological inter-

ventions improves clinical outcomes such as pain, function, and quality of life in patients with rheumatoid arthritis.16 Similar data exist for osteoarthritis indicating that psychosocial interventions improve treatment outcomes.17,18 However, in our sample, only 20% of physicians (and 12% of rheumatologists) indicated that the inclusion of psychosocial methods would lead to significant improvements in patients with arthritis.

Similarly, although evidence from randomized controlled trials19–22 points to the potential value of mind-body interventions in the management of hypertension and cardiovascular disease, only a minority (36%) of physicians feel that there would be large value-added if such methods were used as adjunctive treatment for these conditions, although almost one third believe there would be little if any value-added by using such approaches. Among the cardiologists in our sample (N = 52), only 1 in 5 indicate that there would be large value-added if mind-body methods were included as part of the treatment for cardiovascular disease or hypertension.

With respect to future intentions regarding the integration of mind-body approaches, there also seems to be considerable variability. Less than a quarter of physicians express high interest in obtaining further training in such methods, whereas approximately one third indicate that they have little if any interest in receiving additional mind-body training. Again, this variability is reflected in the fact that approximately one third of respondents are either not very or not at all committed to using mind-body approaches in their clinical practice, whereas approximately 1 in 5 are “very committed.”

Our multivariate analyses identified several factors that are associated with physicians’ attitudes toward mind-body medicine. First, women were considerably more likely than men to be open to the role of psychosocial factors. Second, physicians who report using mind-body methods (eg, relaxation, meditation, imagery) to manage their own health are also more likely to feel that such methods can be valuable as medical treatments.

Physicians’ perceptions of the quality of their formal medical training in mind-body methods and the role of psychosocial factors also emerged as a significant predictor of both attitude and practice. Those who report that the training and mentoring they received was not very useful in these areas are
significantly less open to the value of incorporating mind-body approaches in practice.

In an effort to identify additional barriers, we asked physicians to indicate the extent to which they felt that various factors limited their interest in using mind-body approaches. Multivariate analyses revealed several significant predictors: “insufficient clinic time,” “absence of demonstrably effective mind-body therapies,” “lack of expertise regarding mind-body methods,” and the perception that “psychosocial factors were beyond their capacity to control or influence.” These results, which lend empirical support to our previous focus group findings, suggest that low self-efficacy (to control or influence) is a significant predictor of both attitude toward the role of psychosocial factors in health, and the likelihood that physicians would actually adopt mind-body methods in clinical practice, was the use of such methods to care for their own health. Therefore, as part of educating physicians about the potential clinical value of mind-body methods, it may be important to make the training in these areas experiential as well as didactic, providing physicians with opportunities to actually experiment with (experience the value of) such methods in the “laboratory” of their own lives as a precursor to their introducing patients to them. This idea is supported by studies suggesting that interventions designed to change physician behavior seem most effective when they are not merely didactic in nature but include both active participation and direct experience.

To increase medicine’s integration of the biopsychosocial perspective and to promote appropriate use of referral to mind-body therapies (eg, relaxation, stress reduction) in clinical practice, our findings suggest 2 other potentially useful strategies. First, it will be important to expose more physicians and physicians-in-training to the complex interplay of biological, psychological and social factors and their influence on human physiology and health. This need for greater exposure to the evidence base is reflected in the fact that the view held by many physicians that mind-body methods are not efficacious is actually contradicted by the evidence-base. It is reasonable to conclude that this misperception occurs, at least in part, because physicians are simply unaware of the existing basic science, epidemiologic, and clinical evidence linking mental-emotional factors (eg, stress) to physiologic function and health. This would seem to be an area of continuing medical education that is ripe for further development.

Second, a significant predictor of both attitude toward the role of psychosocial factors in health, and the likelihood that physicians would actually adopt mind-body methods in clinical practice, was the use of such methods to care for their own health. Therefore, as part of educating physicians about the potential clinical value of mind-body methods, it may be important to make the training in these areas experiential as well as didactic, providing physicians with opportunities to actually experiment with (experience the value of) such methods in the “laboratory” of their own lives as a precursor to their introducing patients to them. This idea is supported by studies suggesting that interventions designed to change physician behavior seem most effective when they are not merely didactic in nature but include both active participation and direct experience.

Finally, 2 other findings of potential policy significance are physicians’ time and issues of reimbursement. The majority of physicians in our survey (more than 70%) reported that lack of time (to address psychosocial issues) greatly limited their ability to integrate such factors into their care of patients. This is consistent with other data suggesting that physicians frequently experience managed care practices as negatively impacting the doctor-patient relationship. In our study, the vast majority (more than 85%) also indicated that inadequate reimbursement from health insurers represented another significant obstacle to the utilization of mind-body methods.

From a policy standpoint, these findings suggest that our current health care delivery system may, in many respects, be antithetical to the biopsychosocial model. Specifically, the increasingly restricted time physicians are able to spend with patients may be resulting in a medicine that is, at best, suboptimal, precisely because it limits the extent to which physicians are actually able to adequately address the psychosocial domain of patients’ lives, either
diagnostically, or in terms of the actual treatment strategies they employ.

References