The Biopsychosocial Approach: Past, Present, Future

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7: The Science of the Art of Medicine: Research on the Biopsychosocial Approach to Health Care

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While much of the medical profession has continued to focus narrowly on the biomedical causes and treatments for disease, some physicians have concluded that they can help prevent and ameliorate illness and promote health by listening more fully to their patients, sharing relevant information more openly, negotiating (rather than prescribing) treatment regimens, and being more compassionate in their application of biomedical knowledge. These physician behaviors, which can be understood in terms of humanizing medicine, are at the heart of what many term “patient-centered medicine.”

The Pew-Fetzer Task Force on Advancing Psychosocial Health Education has, however, recommended calling this general approach “relationship-centered health care” in order to emphasize that patients and physicians have a partnership, in which they work together toward agreed-upon goals related to preventing or treating illness, or coping with untreatable illness and ensuing death. Like the patient-centered approach, the relationship-centered approach also involves physicians’ understanding the patients’ perspective, being responsive to the patients’ needs, and sharing treatment-relevant power with the patients. It also highlights that doctors are not “turning over control to patients.” In the typical primary care consultation, neither party would have control, but instead the doctor and patient would discuss and negotiate the relevant issues. The doctor’s responsibilities in such encounters include respectfully educating patients if they lack information or have factually inaccurate information, and at times the doctor will even prescribe and direct action if that is what the patient’s capacities and desires warrant.

Relationship-centered health care also acknowledges that patients’ relationships with their families can significantly affect their health outcomes. Consequently, it implies that physicians may need to work with families as well as with patients to provide optimal health care.
The Biopsychosocial Approach

The biopsychosocial approach to medicine introduced by Engel is defined in terms of general systems theory and suggests that every level of organization—including molecular, cellular, organic, personal, experiential, interpersonal, familial, societal, and biospheric—affects every other level. This implies, of course, that patient-physician relationships (the interpersonal level) and patient-family relationships (the familial level) influence patients' health (the cellular and organic, and personal levels) as well as their functional status and well-being (the personal and experiential levels). It is precisely that assertion upon which relationship-centered health care is based. Thus, the biopsychosocial approach encompasses relationship-centered health care in addition to suggesting a multiplicity of other interlevel causal associations.

Although the humanizing of medicine implicit within the biopsychosocial approach and its relationship-centered component can be justified on grounds of clinical experience, empirical investigations are essential for establishing clear linkages between specific aspects of relationship-centered care and outcomes such as physical and mental health, functional status, and healthy behavior. As Inui and Carter explained it, physicians are unlikely to change their behavior unless research can show direct relations between specific aspects of the patient-physician interaction and significant changes in medically relevant patient states.

Research on the Approach

Within the Program for Biopsychosocial Studies, founded by George Engel at the University of Rochester, researchers have been testing and elaborating various aspects of the biopsychosocial approach. Investigations have ranged from pioneering studies in psychoneuroimmunology showing that both psychosocial factors and classical conditioning processes can affect immunologic functioning, to evaluations of psychosocial treatments such as systematic desensitization for chemotherapy patients, to in-depth, longitudinal case studies that have not only elucidated patients' health-care experiences but have influenced the legality of physician practices.

Although the research in the Rochester program has been quite varied, a substantial number of the studies have been designed to establish a clear association between the quality of patient-physician interactions and important health-care outcomes such as patient satisfaction, health-relevant behavior change, medication adherence, health status, and health-care utilization. These outcome studies of relationship-centered care represent what Glass referred to as the science of the art of medicine and will be the primary focus of this review. In addition,
we will consider studies that link the quality of patient-family relationships to health-care outcomes because they, like the studies of patient-physician relationships, have immediate relevance to the current debate about the most effective delivery of patient care.\textsuperscript{13}

The studies employ both quantitative and qualitative paradigms from psychology and sociology. It is noteworthy that, unlike the biostatistics approach that bases generalization on multiple replications with exhaustively representative samples, the psychological and sociological paradigms typically involve generalizing results on the basis of their having been predicted from the precise application of an empirically verified theory to a particular medical problem. In this chapter, we organize the research in terms of three different theoretical perspectives that have guided it—self-determination theory, social constructionism, and family systems theory. Please note, however, that we did not choose to review several other theories (e.g., social learning theory or type A behavior) and therefore the chapter does not represent a comprehensive review of research on biopsychosocial medicine.

**Self-Determination Theory**

Self-determination theory\textsuperscript{21,22} is a well-validated motivation theory that has been used to explore how primary care delivered by physicians using a relationship-centered interpersonal style rather than a physician-centered style affects patients' behavior, health, and well-being. These studies have targeted patient behaviors that are unequivocally linked to morbidity and mortality—behaviors such as tobacco use, alcohol abuse, nonadherence to medication prescriptions, and overeating and under-exercising by severely obese patients.

One of the central concepts in self-determination theory is autonomy support, which means that one person (e.g., a doctor) who, in some sense, has responsibility for "motivating" another person (e.g., a patient) relates to the other by taking full account of the other's perspective, affording choice, offering information, encouraging self-initiation, providing a rationale for suggested actions, and accepting the other's decisions. A consideration of the prescribed physician behaviors within the biopsychosocial (i.e., relationship-centered) approach reveals that they are essentially identical to those that are contained within the concept of autonomy support. Thus, an autonomy-supportive physician is at the heart of relationship-centered health-care.

The theory contrasts being autonomy-supportive with being controlling, which means to explicitly or implicitly pressure the patient to behave in some specific way—for example, to stop smoking or keep an appointment. Careful reflection also indicates that being controlling is relatively congruent with being physician-
centered, an approach that, according to Phillips and Jones,\(^\text{22}\) involves physicians’ assuming that their authority alone is enough to motivate patients.

Also central to self-determination theory is the distinction between being *autonomous* versus being *controlled*, a distinction that applies to the patients’ motivation rather than to the physician’s style. Being autonomous means to feel volitional and willing to engage in a health-relevant behavior because one has accepted its personal importance. In contrast, being controlled means to behave because one feels pressured by some interpersonal or intrapsychic force.

The advantage of using these concepts from self-determination theory as a basis for investigating the effects of physicians’ relationship-centered styles is that the theory has been repeatedly confirmed and its paradigms and psychometric instruments have been well validated. For example, various studies had refined the measures of autonomy-supportive versus controlling interpersonal styles and autonomous versus controlled motivation in non-health care settings,\(^{24-26}\) so they were easily adapted to assess physicians’ styles and patients’ motivation.

Further, dozens of studies in laboratory and field settings have confirmed that when parents, teachers, and managers are autonomy-supportive, children, students, and employees are more autonomous,\(^\text{27}\) and in turn are more persistent, more creative, better able to think conceptually, more trusting and satisfied, and more psychologically healthy.\(^{20-21}\) It was a logical extrapolation to hypothesize that physicians’ being more autonomy-supportive would lead patients to be more autonomous, and in turn to display more active participation, better adherence, greater maintained behavior change, and improved health and well-being.

Several studies have tested this hypothesis, using the Treatment Self-Regulation Questionnaire (TSRQ) to assess whether patients’ motivation for participating in health-relevant treatments or engaging in healthy behaviors is more autonomous or more controlled. The first\(^\text{22}\) studied outpatients who entered an alcohol-treatment program and found that patients whose motivation was more autonomous attended the sessions more regularly, stayed in the program longer, and were rated by clinicians as being more actively involved in the program, relative to those whose motivation was more controlled. Patients who were more autonomous seemed to value treatment more.

Williams, Rodin, Ryan, Grolnick, and Deci\(^\text{23}\) studied patients’ adherence to long-term medication regimens, using a two-week prospective pill count and patient self-reports. Analyses revealed that patients’ autonomous motivation, assessed with the TSRQ, was a strong positive predictor of adherence. Patients also reported their perceptions of the extent to which their physicians were autonomy-supportive, using an instrument called the Health-Care Climate Questionnaire (HCCQ). The HCCQ includes items related to the provider’s listening to the patient’s viewpoint, fully answering the patient’s questions, providing choice, encouraging open discussion, and supporting participation in decision-making. Analyses indicated that patients who perceived their primary care
physician as more autonomy-supportive reported more autonomous reasons for adhering to their prescriptions and displayed better adherence, relative to patients who perceived their doctor as more controlling.

In a subsequent study, severely obese patients participated in a six-month, medically supervised, very low-calorie weight-loss program. Patients visited the clinic weekly to meet with the program staff, including the doctor, nurses, nutritionists, exercise physiologists, and psychologists. Patients completed both the TSRQ to assess their autonomous motivation and the HCCQ to assess their perceptions of the autonomy-supportiveness of the program staff. Results revealed that patients who perceived the staff as more autonomy-supportive were more autonomous in their program participation, and in turn, attended more regularly, lost more weight, and, most importantly, maintained more of their weight loss and exercised more regularly at a twenty-three-month follow-up.

Williams, Freedman, and Deci studied diabetic patients who completed both the HCCQ and the TSRQ, and whose HgbA1c scores were obtained from blood samples. Analyses of the data revealed that patients' perceptions of the staff's autonomy-support predicted their autonomous motivation for following the treatment regimen, which in turn predicted better glucose control.

A complementary finding resulted from reanalysis of twenty-five interactions between doctors and diabetic patients originally studied by Kaplan, Greenfield, and Ware. Those researchers had "activated" patients by having a research assistant meet with the patients before their scheduled physician visit to encourage them to be more initiating and interactive during the visit. In the reanalysis, Williams and Deci had the interactions rated for doctor autonomy-support and patient autonomous involvement, and they found that activated diabetic patients were more autonomous during the visit and had lower HgbA1c scores. Further, there was a strong positive relation between physicians' autonomy-support and patients' autonomy, and a strong negative relation between patients' autonomy and HgbA1c. Thus, patient autonomy may be the central process through which activation had its effects in the Kaplan et al. studies.

Finally, in a study of smoking cessation, primary-care physicians used the National Cancer Institute guidelines to counsel patients who completed the HCCQ and TSRQ. Results indicated that six-month cessation, assessed with self-reports and carbon monoxide verification, was significantly predicted by patients' autonomous motivation, and that autonomous motivation was significantly predicted by the perceived autonomy-support of the physicians.

In this smoking-cessation study, the patient-physician interactions were tape recorded, and observers rated the physicians' autonomy-support. These independent ratings of autonomy-support were significantly related to patients' autonomous motivation assessed with the TSRQ, just as the patients' perceptions of physician autonomy-support had been related to the patients' autonomous motivation. This finding is particularly important because it indicates that the frequently replicated
relation between patients’ perceived autonomy-support of the physician and patients’ autonomous motivation is not merely a function of the autonomous patients perceiving their doctors to be more autonomy-supportive.

Of course, it is possible that when patients are more autonomous, physicians actually behave toward them in a more autonomy-supportive way, thus suggesting that the causal direction goes from patient to physician. However, Williams, Gagne, and Deci had each doctor use the NCI guidelines in an autonomy-supportive way with some patient smokers and in a controlling way with others (randomly assigned). Results showed that in the condition where doctors supported autonomy, observers rated them as significantly more autonomy-supportive than in the condition where doctors were controlling. In turn, these ratings are significantly predictive of patients’ autonomous motivation and their six-, twelve-, and thirty-month cessation rates, thus confirming that physicians’ behavior does have an effect on patients’ motivation and behavior.

Although it is possible that the relation between a physician’s interpersonal style and the patient’s motivation is bi-directional, these findings emphasize, consistent with the relationship-centered approach, that physicians should take the lead and be autonomy-supportive with all patients. That way, physicians will facilitate patients’ becoming more autonomous.

To summarize, considerable research now supports the hypothesis that when physicians are more autonomy-supportive (i.e., relationship-centered) their patients are more autonomously motivated, which in turn leads to program attendance, smoking cessation, glucose control, long-term exercise, maintained weight loss, and adherence to medication prescriptions.

Social Constructionism

Social constructionism is a general theoretical approach with its roots in the work of Mead, Schutz, Garfinkel, and Wittgenstein. Although these scholars represent different schools of thought, the coherent theme among them is that an individual’s reality is socially constructed.

Within this tradition, Sacks, Schegloff, and Jefferson introduced a method for studying the processes of conversational exchange that has been used to explore a variety of relationships with differentials in power or status, including patient-physician relationships.

Using the social constructionist approach to investigate aspects of the biopsychosocial approach, several studies have audio- or videotaped medical encounters and done detailed analyses of behavior, meaning, interpretation, and experience within the patient-physician interchange. For example, Beckman and Frankel studied the opening moments of seventy-four patient-internist encounters. They
found that only 23 percent of the patients were allowed to complete their opening statement before the physician interrupted and moved the encounter toward a physician-centered period of questions and answers. The average time to interruption was eighteen seconds. Of those who did complete their statement, nearly half said only that everything was fine, which means that of the patients who had genuine concerns to express, considerably less than 23 percent were allowed to express them.

There has been much discussion about patients' tendency to withhold important concerns until the last moments of the clinical encounter, with many writers suggesting that patients are playing out hidden agendas by being passive-aggressive. However, the Beckman and Frankel research suggests that patients' withholding may result from doctors' taking a physician-centered, rather than relationship-centered, approach early in the encounter. In fact, a follow-up study linked the specific event of physicians' interrupting patients early in the encounter to the patients' withholding important information.

Other studies within this tradition have explored the degree to which patients and physicians have a shared understanding of medical encounters. The researchers videotaped clinical encounters, and subsequently asked both patients and physicians to independently review their own tapes and identify where important events had occurred in the interaction. The researchers found that the patients and physicians independently identified the same moments as being significant 60 percent of the time, thus suggesting that there is a moderate amount of shared understanding about the important instances in the clinical interaction. Other studies have used a similar method to explore moments of shared discomfort in clinical encounters when physicians are treating HIV patients.

A recent project employing both quantitative and qualitative analyses of tape-recorded interactions between patients and both primary care physicians and surgeons showed that primary care physicians tended to engage in more psychosocial talk with and elicit more participation from patients than did surgeons. However, results also indicated that patients' perceptions of the willingness of both type of doctors to listen predicted patients' satisfaction with their clinical visits. This suggests that for all doctors, being more relationship-centered and willing to listen to patients' concerns relates not only to patients' behavior in the encounter but also to their satisfaction with it.

Finally, the sample of general practitioners and surgeons was further divided into physicians who had been sued for malpractice at least twice in the past and those who had not been sued at all. Analyses revealed that primary care physicians who had been sued at least twice behaved in less psychosocially oriented ways than primary care physicians who had not been sued at all. However, this effect did not emerge from the surgeons' data. Future research will need to determine which of the effects on patient outcomes caused by primary care physicians' being relationship-centered will also hold for specialists and subspecialists.
Complementary work using phenomenological methods has focused on specific moments in the clinical encounter that help produce positive health outcomes.\textsuperscript{50,61} "Connexional moments" are those mutual experiences of psychological joining between patient and physician that convey to the patient a sense of being fully understood and accepted. The authors of these studies suggested that physicians' behaving in ways we refer to as "relationship-centered" or "autonomy-supportive" will facilitate connexional moments which in turn will have important therapeutic value.

To summarize, qualitative research using a social constructionist perspective has yielded results that complement those from quantitative research guided by self-determination theory. Both indicate that physicians' providing relationship-centered care has positive effects on the patient outcomes of satisfaction, adherence to medical regimens, maintained behavior change, and mental and physical health.

**Family Systems**

Family systems theory is a broad conceptual model that emphasizes the interdependence of family members and the multi-directional influence they have on one another.\textsuperscript{62} The model asserts that the quality of interactions between patients and their families, as well as the quality of interactions between patients and their doctors, will significantly impact health-care outcomes.\textsuperscript{63-65} It thus implies that primary care physicians may at times need to intervene with clinically relevant family dynamics in order to promote patients' health and well-being.\textsuperscript{66}

Numerous studies using this framework have yielded the general finding that patients' having more social interactions with their family members predicts less overall morbidity and mortality.\textsuperscript{67,68} However, some investigators have proposed that social interactions should be differentiated; with positive effects being predicted only for certain kinds of interactions. For example, Ryan and Salky\textsuperscript{69} argued that social interactions may have negative effects for patients if the patients experience them as controlling rather than autonomy supportive. Similarly, Coyne, Wortman, and Lehman\textsuperscript{70} suggested that social interactions between patients and family members that are stressful or negative (rather than supportive or positive) may have negative effects on patients' health. In fact, studies showed that negative expressed emotion (EE) in families\textsuperscript{71} related to poorer outcomes for obese patients,\textsuperscript{72} diabetics,\textsuperscript{73} depressives,\textsuperscript{74} and schizophrenics.\textsuperscript{75}

Because the empirically important concept of EE was originally assessed with a very time-consuming observational method, researchers in the Family Medicine Center at the University of Rochester\textsuperscript{76} developed the Family Emotional Involvement and Criticism Scale (FEICS) as a short self-report measure of two aspects of EE: family criticism (which was conceptualized as clearly
negative) and emotional involvement (which was conceptualized as neutral). The measure which is completed by patients has been shown to have good reliability as well as construct and criterion validity.77

Using this measure, Franks and colleagues78,79 found that higher levels of perceived family criticism and family emotional involvement were predictive of more depressive symptoms, and that more depressive symptoms were related to more cardiovascular risk behaviors such as poor diet, lack of exercise, and smoking.

A more recent study80 revealed that, after adjusting for demographics, higher levels of perceived family criticism (assessed with the FEICS) predicted more primary care visits both for biomedical and psychosocial reasons, as diagnosed by providers. Together, the results suggest that negative expressed emotion in the family has negative effects on mental health, risk behaviors, and the number of visits to primary care physicians.

An ethnographic study81 found that negative family interaction experienced by girls—namely, childhood abuse—was related to somatization many years later when they were women. This led them to over use the health care system, often seeking unnecessary invasive procedures. It follows that negative family interactions not only influence patients' short-term health and health-care utilization but that, in extreme cases, the effects can persist for decades. This study also showed that the women who were able to discuss the abuse with their doctors decreased their utilization, thereby providing further evidence that doctors' sensitive attention to psychosocial factors such as negative family interactions can lead to positive outcomes.

With the increasing prevalence of patients with chronic and disabling disorders, many family members are becoming primary caregivers. Evidence suggests that family caregivers may experience considerable distress, depression, and illness, and that this may be exacerbated by critical reactions from other family members. A study of caregivers of Alzheimer's disease patients, for example, showed that negative emotional responses by extended family members toward the family caregiver were highly predictive of caregiver depression.82

Given the findings that family variables such as negative expressed emotion strongly influence the health and well-being of both identified patients and family caregivers, it will be important to determine how family interventions by physicians and their associate providers may affect related health-care outcomes. As Wynne has noted, many physicians have neglected the needs of families.83 Accordingly, physicians' intervening in more relationship-centered ways not only with patients but also with their families may be essential for providing more effective health care. Research to test the efficacy of family interventions on health-care outcomes is greatly needed.
Conclusions

Research from the Rochester Biopsychosocial Program using varied paradigms and theoretical perspectives has shown remarkable convergence in support of the proposition, contained within the biopsychosocial approach, that the quality of patient-physician relationships and patient-family relationships have important consequences for patient outcomes. Specifically, when physicians were more autonomy-supportive or relationship-centered, patients showed improved maintenance of healthy behavior change, greater satisfaction, better adherence to medication, better physical and mental health, fewer health-care visits, and less likelihood of initiating legal action against their physicians. Fortunately, recent research on instructional approaches in medical-school classes and clerkships indicates that doctors can be trained to be more biopsychosocially oriented and relationship-centered in their counseling style for health behavior change.

Further, the reviewed research showed that when family members were less negative in their emotional expression and social interactions, positive health-relevant consequences also resulted for patients, thus suggesting that physicians may need to be more attuned to family dynamics in order to promote patient health. When taken together, the studies suggest that it is essential for the health-care system to give greater attention to interpersonal and familial relationships in providing high quality health care.

References


