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Classification and Process in Sociomedical Understanding: Towards a Multilevel View of Sociomedical Methodology

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INTRODUCTION

The various social sciences that contribute to the understanding of health, illness, and health systems employ a variety of research methodologies. In this chapter we distinguish between methodology and methods. By methods, we mean the particular data collection tools – such as surveys, interviews, observations, and the like – and the techniques of data analysis – such as statistical manipulations, content analysis, or coding schemes. Methodology, in contrast, is concerned with the epistemological and ontological foundations of inquiry. Our main concern in this chapter is with methodology.

Methodologies include not only the methods used for data collection and ways of manipulating these data for analysis, but also their underlying theoretical and philosophical assumptions. Each discipline, such as sociology, anthropology, psychology, economics, and epidemiology, has its own favorite array of methods, which are the subject of debate, even within the discipline. Across disciplines, there has been a historical misunderstanding, and sometimes disrespect, regarding the methods of other fields, yet at the same time, disciplines borrow methods from each other, sometimes without recognizing their similarity to methods which they claim to disparage.

Increasingly, we see a convergence and combination of methods among the various social sciences. Shared theoretical approaches or philosophical commitments that underlie the methodologies do not always accompany this convergence in data collection and analysis strategies. In this chapter we explore the importance and implications of going beyond a multimethod strategy to take a multilevel and theoretically holistic approach towards sociomedical research, and relate the increasingly sophisticated methods of research that seeks a better understanding of the complex relationships between health, illness, and healing (which we call sociomedical research) to such an imperative. In this regard, sociomedical inquiry focuses not only on the biological, organic correlates of health and illness, but also on the roles played by social and cultural factors for the triggering of the onset of disease or for the role played by these factors in increasing the susceptibility of individuals and populations to disease.

We define holistic as an approach that takes the broader context into account. This includes the wider settings of both space and time. For example, an observed health system should be seen in the context of a wider community and culture, and the requirements of that health system may vary with seasonal variations in disease entities as well. We define multilevel in terms of the unit of analysis. For instance, health out-

comes may be dependent on a combination of individual factors, provider behaviors, family setting, cultural factors, and the community context.

We take for granted that convergent validation from a single level of systemic organization, while serving well efforts to increase the sophistication of methods in sociomedical research, is an inadequate basis for the future development of sociomedical research. We discuss some of the continuities that our multilevel view has with previous work, mainly in anthropology. Then we discuss some cultural characteristics upon which sociomedical research has been based, and we suggest that these are in need of revision. Particular attention is paid to the role of expert knowledge, the valuing of technology, and the discounting of reports of experience.

RECENT HISTORICAL CONTEXT

Problematic situations can only be dealt with effectively once they have been defined as problems (Rubinstein 1984; Rubinstein et al. 1984). Problematic situations are situations that ordinary persons find troublesome and for which they often seek help. For professional researchers, problematic situations are constituted by data that depart from the expected, anomalous results. Such anomalous results may be dismissed or taken as a site for profitable investigation (Kuhn 1970; Rubinstein et al. 1984; Ward and Werner 1984).

In most areas relying on specialized knowledge, the ability to construct problems from the analysis of troublesome experience develops through practice (Argyris 1980; Schon 1983), and is codified, more or less formally, in rules of methodology and classification. The methods used by sociomedical researchers give them ways of construing physical, psychological, and other 'difficulties' as particular kinds of problems to be explored and understood. Sociomedical categories thus reduce people's problematic experiences to relatively familiar patterns to which our methods can be applied. These methods and approaches are increasingly recognized as culturally and socially situated (Freund and McGuire 1999; Romanucci-Ross et al. 1991). This has the effect of introducing a cultural bias, or ethnocentricity, in these approaches and their results. The value and utility of the information that results from their use depends in part on the congruence or conflict between the meaning and significance ascribed to them by people and practitioners (Kottak 1991; Romanucci-Ross 1991).

In the early post-World War II years, a schism developed within the sociomedical research community between those who applied methods based on hypothetico-deductive techniques grounded in positivist philosophies of science, and those who applied more inductively defined techniques based in alternative visions of science, such as pragmatism (Hollis 1994; Schweizer 1998). Because these differences involved competition for resources and also for the definition of authoritative, useful knowledge, for some time these two traditions developed in antagonistic relation to one another (Diesing 1991). This antagonism was often expressed as a contest between qualitative and quantitative approaches to methods. For some time, hypothetico-deductive – quantitative – approaches achieved a certain dominance and set the terms of debates about sociomedical methods (Hempel 1965; Kuipers 1996; Schweizer 1998).

During the past two or three decades, qualitative methods associated with humanist approaches in the social sciences have gained authority as objectivity in science has been called into question and the implications contingent on scientific knowledge have been explored (Latour 1987). This exploration has created a greater recognition that the knowledge claims that result from hypothetico-deductive and inductive approaches are both contingent and incomplete. Considerable suspicion remains among many researchers about the usefulness of the representations produced by each method. Nonetheless, the epistemological difficulties shared by these approaches have resulted in a greater willingness among researchers to seek ways to reconcile them. The most obvious fruit of this rapprochement has been an increase in efforts to integrate qualitative and quantitative research methods (Brewer and Collins 1981; Janes et al. 1986; Scrimshaw 1990).

Perhaps the most basic principle underlying these efforts is the view that methods ought to increase the validity and reliability of our knowledge by using multiple measures of a phenomenon (Jenkins and Howard 1992; Pelto and Pelto 1996). The high value placed on this convergent validation, or triangulation, has been one area where qualitative and quantitative approaches have sought common ground.

Phenomena of interest to sociomedical researchers might be found on any of a number of levels of systemic organization (Figure 1). At the macrolevel, health policy researchers might find their attention directed to the societywide, behavioral artifacts of symbolically encoded information, while at the microlevel sociomedical researchers might focus on individual biological aspects of illness and disease. Sociomedical research typically involves the use
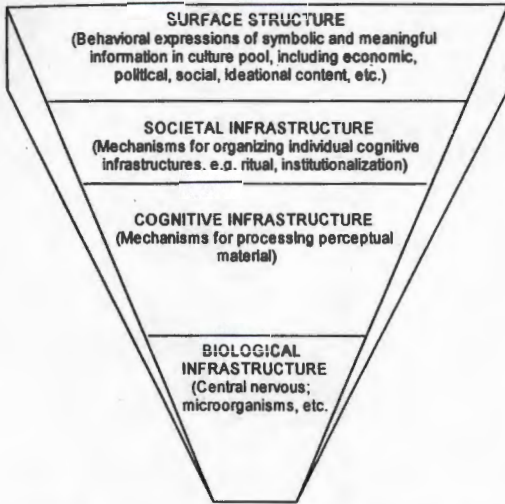
Figure 1   *Levels of systemic organization (after Laughlin and Brady, 1978)*

of multiple methods (measures or interpretive strategies) to achieve some form of convergent validation. In this chapter we propose that, while useful, such strategies are incomplete.

As we look toward the future, methods must, in addition to requiring convergent validation, also accommodate different levels of analysis. This is especially true in an era when the contingent nature of knowledge is increasingly evident. One general methodological position consistent with this view is the 'rule of minimal inclusion,' which states that an adequate account of behavior must include 'any and all levels of systemic organization efficiently present in the interaction between the system operating and the environment of that system. The rule of minimal inclusion will require the theoretical consideration of systemic levels at least one step below and one step above the level or levels appropriate to the phenomenon being explained' (Rubinstein et al. 1984: 93).

MULTILEVEL ANALYSIS AND ANTHROPOLOGICAL HOLISM

It is worth noting that the valuing of multiple levels of organization in sociomedical research has a noble heritage. The founding of contemporary epidemiology is traced to John Snow's investigation of cholera in London. In spirit, if not by intentional design, the character of Snow's investigation of the complex relationships between social behavior and water, and

his supposition that fecal contamination played a role in the spread of the disease were multi-leveled. His famous 1854 removal of the Broad Street pump handle depended upon an understanding of the interactions of person, place, and time to conclude that individuals exposed to a single water pump on Broad Street were at far greater risk of infection than were others (Watts 1997). Despite this beginning, epidemiological work soon became less concerned with integrating multiple levels. Thus, in the face of the post-War dominance of hypothetico-deductive research, holism was found mainly in anthropological work.

Holism refers to the methodological and epistemological view that the proper understanding of human social behavior depends upon integrating information from all sectors of society and from all levels of empirical investigation relevant to the human experience.

Until about twenty-five years ago, the goal of 'traditional' ethnographic research in anthropology was to describe the social life and history of small well-bounded societies (Leach 1954; Malinowski 1992; Richards 1956). Ethnographers were likely to look for information from a variety of levels of organization in order to understand the people with whom they worked. Thus, anthropologists sought explanations that treated human biological, social, and cultural life as an integrated whole. Anthropologists came to strongly value *holistic* research. In fact, many people saw anthropology's unique contribution to the understanding of the human condition to be precisely in its application of a holistic perspective (Tax et al. 1953). In comparison with such earlier anthropological work, the rule of minimal inclusion is, perhaps, unremarkable. While it is clearly holistic in spirit, because it allows researchers to truncate their inquiry by considering just three levels of organization, the rule of minimal inclusion might be unacceptable to some holists (Phillips 1976).

During the past two decades, however, the context in which anthropological work is carried out has changed dramatically (Behar and Gordon 1995; Fox 1991; Gupta and Ferguson 1997; Kondo 1990). As a result there is increased anthropological concern with issues that derive from deductive hypothesis testing research design. This is an important development in the growth of the discipline (Bernard 1994; Pelto and Pelto 1996). Yet, as anthropologists have sought to adapt to the changing environment, the process of continuing inductive–deductive alternation that characterizes traditional ethnographic fieldwork, and from which the perspective of anthropological holism grew, has begun to erode in the face of specialization

and the development of professionally adaptive niches such as medical anthropology.

As anthropologists have joined other sociomedical researchers in research that seeks to answer practical questions – 'problem oriented research' – there has been a discernible shift in the kinds of methods anthropologists report using (Gorman 1986; Lurie et al. 1993; Rubinstein and Perloff 1986). More frequently than before, for instance, anthropologists report research that relies on only one or a few indices of the phenomenon that they are investigating, whether these be increasingly well-bounded quantitative measures or reflexive analytical frameworks. Also reported are more results based on short-term ethnographic fieldwork (Manderson and Aaby 1992; Scrimshaw 1992; Scrimshaw and Gleason 1992; Zambrana et al. 1997a), or studies that focus so tightly on particular aspects of social life that other sources of data are lost or ignored (Chambers 1985; McGuire 1997; Ward and Werner 1984). As anthropological methods have converged with those more standard in sociomedical research, the commitment to holism has seemed to fade. There is some irony in this, as it was the anthropological penchant for holism that brought the work of early medical anthropologists to the notice of other sociomedical researchers (Paul 1955). It should be noted, however, that more tightly focused studies need not completely exclude holism. One important feature of anthropological holism is to remain alert to factors or influences that were not within the original scope of data to be collected, and to include these in the research if they seem important to the problem at hand. This, even a focused study, can change and expand in response to the researchers' willingness and ability to take the broad view. This change in the data to be collected, and sometimes in the view from which questions are asked and observations are made as the study progresses, is precisely what makes traditional quantitative researchers so nervous about qualitative work. It is also what helps to retain holism, because the researcher is continually open to the broadest possible influences on the phenomenon under investigation.

HOLISM AND 'CONVERGENT VALIDITY'

Despite its having faded in prominence, the holistic perspective remains in our view one of the most valuable developments in efforts to understanding the human condition. It is a perspective that is lamentably lacking from problem-oriented sociomedical research (Hall 1982; Penfold and Walker 1983; Simon 1983), despite the fact that it is precisely in the intersection of biological, psychological, and social aspects of health and illness that it might most naturally be found. To some degree, sociomedical research has drifted away from holism because such a move enabled well-bounded studies that could form the basis upon which claims for funding and other resources could rest, and because of the social organization of the grant-review process which disburses research support.

The resulting reward structure for research works against the kind of thoughtful interdisciplinary research required for holistic investigation. For instance, extensive publication records are taken as indications that a researcher is capable and 'productive,' which in turn encourages researchers to go to press with 'the least publishable bit' rather than with fuller and more integrative treatments of their topic. Also, the pressure for productivity frequently constrains researchers to report positive results – publication of null or negative results, even when such results might provide interesting clues about the dynamics of sociomedical phenomena, are discouraged, if only informally.

Indeed, before researchers face decisions about publication they must first find support for their research. In this regard they face challenges that also make holism in sociomedical research more difficult to achieve. For instance, grant proposals are directed to specialized review sections that rate highly work within the particular disciplinary paradigms of the members. Proposals that seek to integrate theory or methods from a number of disciplines thus fall between the institutional arrangements of the review process. Funding agencies, often in response to the public or boards of directors, shift their funding emphases periodically in order to stay on the 'cutting edge' of sociomedical knowledge. This allows the funding agencies to claim that they are pushing the development of knowledge. Wittingly or not, researchers respond to these 'fads and fashions' by altering their research, even, perhaps, before they have fully investigated the earlier problems upon which their work focused (Lane and Rubinstein 1996b).

One of the values of the holistic perspective is the recognition that scientific and technical knowledge are understood to be always incomplete, and thus fallible (Argyris 1980; Brewer and Collins 1981; Cantril 1967; Pacey 1983; Rubinstein et al. 1984; Schon 1983; Simon 1983). Because specialized knowledge is always constructed on the basis of incomplete information about phenomena, it must always be seen as provisional.

The contingency of knowledge is, of course, a fundamental insight of other perspectives that also emphasize the provisional nature and fallibility of our knowledge of the world. This principle is found, for instance, in the American Pragmatism of Peirce (Almeder 1980; Rescher 1978) and James (1978), in the skeptical philosophy of David Hume (Popper 1962; Salmon 1967), and in contemporary evolutionary epistemology (Brewer and Collins 1981; Campbell 1973, 1974). Given these diverse sources, the provisional nature and the fallibility of knowledge deserve to be taken most seriously.

Some of the methodological implications of this have been set out by epistemologists working in the tradition of 'evolutionary epistemology,' or 'critical hypothetical realism' (Campbell 1973; Naroll and Cohen 1973; Pinxten 1981; Rubinstein et al. 1984). This work emphasizes that because each way of collecting data carries a particular perspective, it is important to use multiple measures to assess a phenomenon. Problem-oriented work is equally limited in its perspective, and requires multiple disciplinary perspectives to be used if 'tunnel vision' (Pacey 1983) is to be avoided.

For instance, David Hufford (1982a) made a comprehensive review of studies of the 'sleep disorder' characterized by nightmare and paralysis and an incubus experience – which Hufford calls the Old Hag experience. Hufford shows that the accounts offered by researchers from each of the disciplines that studied the Old Hag experience are all characterized by a kind of tunnel vision. Thus, anthropologists, sociologists, and medical folklorists ascribe it to tradition, treating the phenomenon as culture-bound artifact. Sleep researchers attempt to characterize the phenomenon as a kind of sleep disorder associated with unusual patterns of REM sleep, and psychiatrists as a mental illness. None of the researchers are able to account fully for the phenomenology of the Old Hag experience, yet as Hufford (1982a: 116) points out, the effect of their disciplinary efforts 'has been to explain the phenomenon away while discouraging the development of a thorough description of it.'

In sociomedical research the prescription for avoiding tunnel vision has been to pursue a strategy of 'convergent validation' (Campbell and Fiske 1959) and 'multiple iteration' (Werner and Campbell 1973), and its proponents have been explicit in arguing that it is important to consider as legitimate many different 'ways of knowing' (Balshem 1993; Gifford 1986; Lieberson 1992).

Our call for multilevel research designs adds to these two methodological principles the requirement that the convergent validation be made from multiple levels. This is a necessary addition because precisely what aspects of the phenomena under study are salient to an investigation depend upon how the problem being investigated is framed (Albrecht 1989: 73; Diez-Roux 1998; Fienberg and Tanur 1989; Rubinstein et al. 1984; Schon 1983). Not only is our knowledge contingent because each of our measures provides only partial information (as critical hypothetical realism emphasizes), or because particular professional lore provides a limited range of solutions, but because, as Whitehead (1960) pointed out, the world is constructed of processes in an infinite concatenation of systems within systems. At any given time our models will capture only a small portion of reality.

Even if a phenomenon is well described with a variety of measures that come from a single-level, maintaining the authority of that single-level account requires very strong, and ultimately indefensible, 'as if' clauses in our explanations of social behavior (Humphrey 1984; Simon 1983). Convergent validation on a single level does not guarantee that the result is not fundamentally provisional. Accounts of phenomena are useful only when they capture those levels that are required to answer a particular set of questions (Holland 1987). By failing to recognize their essential multilevel nature, we are more likely to assume that the phenomena of concern are themselves stable over time, rather than to ask if the apparent stability is an artifact of the techniques of analysis used.

In addition to the critical hypothetical realist analysis which emphasizes that our knowledge is fallible because the ways of knowing with which we gather our data access only particular perspectives on reality, our knowledge is also tentative because every phenomenon has multilevel aspects, differing combinations of which are important for resolving different questions. The fluidity introduced by multiple levels of organization is as important for problem-defining sociomedical research as it is for research in general (Hufford 1982a, 1982b). Adequate problem-defining work must meet at least three essential methodological principles: (1) multiple measures, (2) multiple iterations, and (3) multiple levels in analysis.

Anyone recognizing the complex nature of sociomedical phenomena ought to concur with the intuitive requirements for complexity and multilevel accounts just outlined. However, it remains to specify how to decide which levels of organization need to be considered. It is inappropriate to propose decision rules for making that judgement at this time because these must be developed in the light of much more experience with research that explicitly attempts to meet this intuitive model of explanatory ade-

quacy. There are, however, some 'basic research' analyses that can be drawn on for guidance, especially the analysis of ritual by d'Aquili et al. (1979), that of societal responses to resource deprivation by Laughlin and Brady (1978), and the analysis by Laughlin et al. (1990) of the biological basis of cognition, all of which provide empirical applications of the rule of minimal inclusion. However, there are few other studies that explicitly follow this rule. Moreover, the number of levels of organization that must be considered will vary depending upon the research question and the problem being considered.

In one project, induced abortion in Ecuador was studied by following individual women as they sought abortions, by conducting ethnographic work with women in sixty-five families on topics that included abortion, by survey research in the same community where more than 3000 women were interviewed on topics that included their views and experience regarding abortion, by observations of local family planning clinics, and by interviews with policy makers at the local and national level. The opposition of policy makers to abortion carried over into barriers to contraception, which translated into increased proportions of pregnancies terminating in induced abortions as the infant mortality rates declined (Scrimshaw 1985). In this case, many levels ranging from the individual to the national contributed to the understanding of the forces driving up the rates of induced abortion.

The rule of minimal inclusion instructs the researcher to examine factors on several levels of organization, and to learn how these factors interact within and between levels. At the very least, when we choose to work with factors and processes on only one level it is incumbent on us to ensure that the accounts we offer of that level are compatible with what is known of factors and processes operating on other levels.

Two Views of Sociomedical Categories

The process of converting observed evidence into named, understood categories of experience is at the heart of sociomedical research. For example, the *evidence* might consist of data obtained from examining a patient; the *analytic categories* in this case are conceptual entities that identify or explain constellations of experience that have been 'problematized' by sociomedical researchers. Sociomedical categories define the kinds of inferential processes or intervention strategies to which the evidence is referred, but the ontological and epistemological statuses of

sociomedical categories are open questions. As a result, particular sociomedical categories are subject to controversy because they can be interpreted from at least two contrasting perspectives.

One view holds that sociomedical categories provide the basis for the objective classification of human health behavioral activity and experience, thus allowing us to tell what functioning falls outside of the range of normal activity. In addition, this view holds that these categories are natural categories whose boundaries exist, only needing to be discovered. On this first view, sociomedical categories provide us with names for objectively identified real entities the functioning of which deviates from the norm.

A second view holds that sociomedical categories consist of culturally and socially grounded characterizations of human health behavioral activity and experience as healthy or unhealthy, normal or not. In addition, this view holds that the boundaries of sociomedical categories are always the result of consensual agreement and thus are to some degree socially constructed.

The first view takes a nonnormative–realist position: sociomedical categories define ontologically real, epistemologically neutral entities. In contrast, the second view describes a pragmatist–nominalist position: sociomedical categories are socially constructed and epistemologically relative classifications.

Following the first view, researchers spend considerable time and material resources devising sophisticated methods for sociomedical research that systematize their specialized knowledge. Based on the assumption that sociomedical categories index natural processes, each of these methods seeks to define what are important human health behavioral activities, and seeks to do so based on the convergent validation of social phenomena.

In contrast, the literatures of medical sociology and anthropology contain many case studies that support the latter, pragmatist–nominalist, position. This literature makes it clear that in practice sociomedical categories are used as explanatory systems for dealing with people's difficulties, and that this introduces biases that limit the types of data researchers will collect and consider when attempting to make sense of people's complaints.

Sociomedical categories get formed and reformed through processes of social construction that are themselves responsive to the social and cultural processes in the context of which that construction takes place (Conrad and Schneider 1980; Feinstein 1973a, 1973b, 1974; Hufford 1985; Lieberson 1985; Penfold and Walker 1983). Moreover, it is clear that the

processes of social construction and relativization apply equally to 'strictly physical' difficulties – such as 'cerebral arteriosclerosis' (Feinstein 1974), 'neurasthenia' (Sicherman 1977), 'blindness' (Scott 1969), or 'dwarfism' (Ablon 1984) – as they do to psychological difficulties – such as 'depression' (Penfold and Walker 1983), 'personality disorders' (Kaplan 1983), or 'schizophrenia.'

Both approaches to sociomedical categories acknowledge that to deal effectively with people's difficulties they must be able to classify them according to some system, and thereby to understand problematic processes as problems. The point of debate between advocates of each view focuses on the status granted to those problems, which is important because it has implications for sociomedical research practice. On the one hand, the normative–realist interpretation of sociomedical categories leads to a world view the hallmarks of which are reliance on technology for 'objective' problem assessment, an emphasis on the role of expert knowledge, and a limited acceptance of the authenticity of people's reports of their experience. On the other hand, the pragmatist–nominalist approach supports a world view that sees technology as socially situated, expert knowledge as partial and tentative, and people's reports of their experience as authentic and important for problem construction. It is these, and other similar, features that form the cultural contexts of sociomedical research categories.

THE CULTURES OF SOCIOMEDICAL RESEARCH

The epistemological and ontological statuses accorded to sociomedical categories are important because they help to define the cultural context in which that sociomedical research practice is situated, and circumscribe what phenomena are researchable and why. While there is a considerable range among all practitioners, the realist view of sociomedical categories results from and supports a view of health care and behavior that is radically different from that underlying the pragmatist perspective. It is our view that the privileging realist views in the development of sociomedical research has had some untoward consequences. It is important to make explicit the consequences for sociomedical research of the dominance of realist views of research. We think this discussion suggests why it is especially important that sociomedical research be approached from multiple levels of analysis.

Here it may be useful to consider in a bit more depth one interesting example of these untoward effects of privileging a realist view of health and illness. An illustrative example is found in the search for the biological validation of 'hyperactivity,' and 'attention deficit' disorders. This untoward result occurs in the context of research that can be characterized by the application of multiple measures and multiple iteration – that is by convergent validation. About half-a-dozen different types of biological measures have been used to validate the 'disease.' As discussed below, the results have been equivocal – providing only tenuous support for the validation of a general difference between normal and troubled children, but not including specific support for subtypes like ADD and ADDH. Nonetheless, these research results are robust in indicating these nonspecific differences, and thus the clinical community continues to treat hyperactivity as though its status as a disease entity was well established. There have been five major approaches to the biological validation of hyperactivity as an entity. These are outlined below.

1 *Stimulant drugs manage hyperactivity.* Researchers have reasoned that if children who have been diagnosed as hyperactive respond to pharmacological therapy, this response is *prima facie* evidence that there is a physiological pathology underlying hyperactivity (Brown and Sleator 1979). In fact, treatment of hyperactive children with a stimulant is the therapy of choice for many clinicians, who in turn take it that hyperactivity is an objective, nonnormative disease. This is the case despite the fact that there is little clinical specificity in this response to drug therapy. Several studies report success using stimulant drug therapy to treat the entire spectrum of pediatric problems (Rutter 1983), and 'normal' children respond in ways that are similar to the responses of hyperactive children when they are administered stimulant drugs.

2 *Prenatal and perinatal difficulties are risk factors for hyperactivity.* Several investigators have tried to validate hyperactivity biologically by linking it to difficulties encountered during the pre- and perinatal periods. Some of these studies have demonstrated that such difficulties are related to early behavioral difficulties. However, it appears from the literature that these rapidly diminish in importance in relation to other factors in the environment, and that the influence of pre- and perinatal events on hyperactive behavior disappear by the diagnostically prescribed 'age of onset' of 3 years. In themselves, pre- and perinatal events do not

Set-Theoretic Metaphor

At the center of the dynamic system of meanings in which sociomedical research has been grounded is the belief that the difficulties dealt with by medical practitioners are a set of health behavioral activities, experiences, or physiological events. This 'set-theoretic metaphor' (Straight 1979) – which treats behavior as a set of discrete, stable 'things' to be discovered – allows researchers to assume that their job is to discover the elements of this set. Because this is a discovery process, not a process of evaluation and construction, this cultural assumption serves as a heuristic that allows researchers to carry out their work without reference to aspects of the problematic situation not included within their expert's technical knowledge. Moreover, this set-theoretic metaphor allows practitioners to assume a reductionist locus for causality and, by placing a premium on the internal elegance and parsimony of their theoretical systems, it pushes researchers to systematically oversimplify various asymmetries in the processes with which they deal, as for example when quantitative data are smoothed to exclude 'outliers,' or qualitative researchers take a narrow solipsistic reflective stance.

It is useful to recall that 'lay' and 'professional' understandings often differ. For example, in considering how various publics understood the risks associated with needle exchange programs, Lurie and his colleagues found that what people considered as relevant to calculating 'risk' varied depending on their position within the political, legal, or health professions, or the general population (Lurie et al. 1993). Such a finding is not unusual, as Mary Douglas and others have shown (Douglas and Wildavsky 1982; Ingham 1994).

All heuristics have biases (Piattelli-Palmarini 1994; Simon 1983; Wimsatt 1980). Among those introduced by the realist dominance of sociomedical research is the belief that the social structure of some settings (in this case, medical settings) allows us to take for granted the meanings of problematic (or other) activity. Contrary to this view, however, a number of researchers have shown that the meaning of human conduct is always 'established as a result of the conjoint adjustive responses of interacting and communicating individuals' (Maines 1977: 239).

Dominance of Expert Knowledge

In much of sociomedical research our expert knowledge is given a special status. In part, this follows from a view that expert knowledge is stable and cumulative. In this view, 'professional practice is a process of problem *solving*. Problems of choice or decision are solved through the selection, from available means, of the one best suited to established ends' (Schon 1983: 39–40).

This view fosters a kind of 'scientism' that leads to an emphasis on dealing with problematic situations by means of technique alone. In the realist view, sociomedical categories are said to be objective and 'scientific.' This general perspective also underlies the realist view of the social arrangements of practice. Because the professional technology is taken to be neutral (or seeking ways to achieve neutrality), its use allows the introduction of the belief that problem definitions are objective, and that the technology for dealing with those objective problems is itself culturally neutral and value free (Martin 1987; Sibley 1995).

Following this conception of practice allows the practitioner to ignore the fact that the problem definition is negotiated, and that this negotiation process affects the ends to be achieved and the ways that these ends will be reached. The search for the single-level validation of research categories results in the use of just such an 'objective' technical fix.

The privileged position given to sociomedical categories, of the research methods developed to describe and account for these phenomena, and their derivative technology results in reinforcing the guild interests of sociomedical researchers (Balshem 1993; Gifford 1986; Lane 1994). By giving special, privileged status to information derived by sociomedical research methods, problematic situations are removed from public discussion and made into topics for expert treatment. The claim that these discussions are neutral and value-free elevates their status, and insulates the sociomedical research professionals from the consequences of their work.

Yet there is considerable debate about the status and adequacy of expert knowledge. In particular, there is considerable debate about how such knowledge develops. Does expert knowledge come from a smooth process, a process that consists of fits and starts, but in a structured fashion or does expert knowledge result from disjunctive and more haphazard processes (Diesing 1991)?

Discounted Experience

Treating the goal of sociomedical research as seeking to describe and account for health behavioral activities, and experiences and categories that are objectively discoverable entities, not only supports a privileged view of expert knowl-

edge and of the uncritical use of research technology (as when researchers 'dredge' their data sets), it also supports discounting people's reports of their experience (Davis-Floyd 1996). We are not arguing that professional knowledge is wrong or that it is bad to use the research technologies developed in the past few decades, but that it is wrong to treat them as though they are not situated in cultural and social realities (Davis 1996; Fisher and Todd 1986; Sargent and Brettell 1996). To do so allows for the development of an artificially restricted sense of reality based upon narrow medical (academic) belief systems (Hufford 1982a, 1982b, 1983, 1985, 1987).

The tendency to discount people's reports of experience and to subordinate these to professional judgment is a general problem in social research. It is not that these reports are always accurate, but rather that it is wrong to dismiss them *a priori*. The critical issue is how to evaluate reports of experience in ways that equally respect expert and lay reports. Focusing on one kind of report to the exclusion of others always leads to the confounding of understanding rather than to its improvement (Newell 1973; Quine 1964).

CONCLUSION: TOWARD MULTILEVEL SOCIOMEDICAL RESEARCH

Whatever their perspective, all sociomedical studies incorporate particular views about the nature of the field of study. These assumptions include understandings about the characteristics of the phenomena under study and about how these phenomena ought to be investigated empirically. On one level, these assumptions privilege particular ways of making and supporting knowledge claims about social life and its relation to health and illness (Diesing 1991; Tesh 1988).

Sociomedical research yields judgments that are always based on incomplete information, and therefore will always be fallible. When we rely on multiple measures from a single level of organization, we can develop the mistaken impression that we have a better understanding of how to think about the problematic situations than we really do, and we develop a false sense of the adequacy of the resulting problem definitions. It is the development of models of analysis that is critical for future sociomedical research. Promising developments have been made in the difficult process of developing statistical and other analytic techniques of multilevel analysis. DiPrete and Forristal (1994) show that researchers have begun exploring ways to statistically analyze the links between levels of analysis. In their review of these efforts, they show that micro- and macrolevel variables may usefully be incorporated into regression analysis. They also show how other forms of managing and interpreting multilevel data are being developed, including, for example, the elaboration of contingency table analysis. Such analytic developments promise to allow researchers to specify better the role of context and time in sociomedical research. It will also allow us to 'scaffold' (Rubinstein 1998) our understandings between micro- and macrolevel phenomena so that they are incorporated into a single interpretive framework.

Ignoring the importance of multilevel analysis as captured in the rule of minimal inclusion means that this information is going to be incomplete. Because we can only begin to deal with problematic situations once we have defined them as problems, the consequence of failing to strive to make our research multilevel in nature will mean that the definition of problems is always underspecified. It is important to understand that sociomedical research is a continuing process alternating between inductive and deductive work. Any research finding is a product of this process and is, in a fundamental sense, an artifact abstracted from ongoing activity. These research products can help to provide categories through which useful judgments about the world can be made, but the value of such categories depends upon their providing information that is useful for particular purposes. Therefore, it is also important to be conscious that, fundamentally, categories are reifications of processes and do not exist independently of the purposes for which they are developed. Sociomedical categories must always be treated as tentative and provisional.

Under these circumstances, Cantril's (1967: 93) advice that it is 'much more important to analyze crucial questions with whatever methods are available ... than ... to study trivial problems with precise methods' delivers a message that is of enduring importance.

What are the implications for sociomedical research of the view set forth in this chapter? Overall, as a research community we must refocus our efforts. If we are to make real progress in understanding health and illness during the next decades we need to focus not on tinkering with our methods so as to make them more sophisticated and reliable, but on directing our efforts towards improving our understanding of how better to comprehend and engage the dynamic, contingent nature of sociomedical phenomena.

The most important change we need to make in order to achieve this will be to find new metaphors for organizing and legitimating our work.

The recent history of methodological work in sociomedical research reaffirms the contingent and dynamic nature of our understanding of behavior, health, and illness. During the middle of the twentieth century, these contingencies temporarily receded in sociomedical research. As a result, the structuring metaphors of 'proof' and 'control' (as in disease control and eradication) came to dominate our efforts (Lane and Rubinstein 1995). Now it is clear that despite great technical advances and technical sophistication, our knowledge claims must be made with care; they must be made relative to the question at hand and made with a more modest tone. This is especially so because we now recognize that people's behavior and understanding associated with health and illness are always culturally situated (Lane and Rubinstein 1996a). To avoid committing the 'fallacy of detachable cultural descriptions' (Rubinstein 1992) and seeing homogeneity and stability instead of dynamic processes, it is essential that sociomedical researchers continue to learn from one another and draw upon the best their fields have to offer.

In order to achieve this, we must focus on realizing the integration of disciplines at the theoretical and methodological levels, not merely at the level of method and technique. This will require a re-evaluation of the kinds of data that ought to count as useful knowledge. That re-evaluation will necessarily place the treatment of meaning as equal to quantification (Scrimshaw 1990). This realignment is essential because it will lead to greater specificity in research and in our interpretation of sociomedical phenomena. It is, after all, on such interpretive acts that the quality and utility of our work ultimately depends.

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