



Revisiting the Behavioral Model and Access to Medical Care: Does it Matter?

Author(s): Ronald M. Andersen

Reviewed work(s):

Source: *Journal of Health and Social Behavior*, Vol. 36, No. 1 (Mar., 1995), pp. 1-10

Published by: [American Sociological Association](#)

Stable URL: <http://www.jstor.org/stable/2137284>

Accessed: 13/03/2013 17:24

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



American Sociological Association is collaborating with JSTOR to digitize, preserve and extend access to *Journal of Health and Social Behavior*.

<http://www.jstor.org>

Revisiting the Behavioral Model and Access to Medical Care: Does It Matter?*

RONALD M. ANDERSEN

University of California at Los Angeles

Journal of Health and Social Behavior 1995, Vol. 36 (March):1-10

The Behavioral Model of Health Services Use was initially developed over 25 years ago. In the interim it has been subject to considerable application, reprobation, and alteration. I review its development and assess its continued relevance.

My intent is to review the development of a model of health services' use that has dominated my career. Others as well have applied, criticized, and revised it (Aday and Awe, forthcoming). Pescosolido and Kronenfeld (forthcoming) argue that the best of it has been coopted and more effectively applied by health economists and psychologists, while medical sociologists have increasingly ignored it and the kinds of health services' use studies for which it was developed.

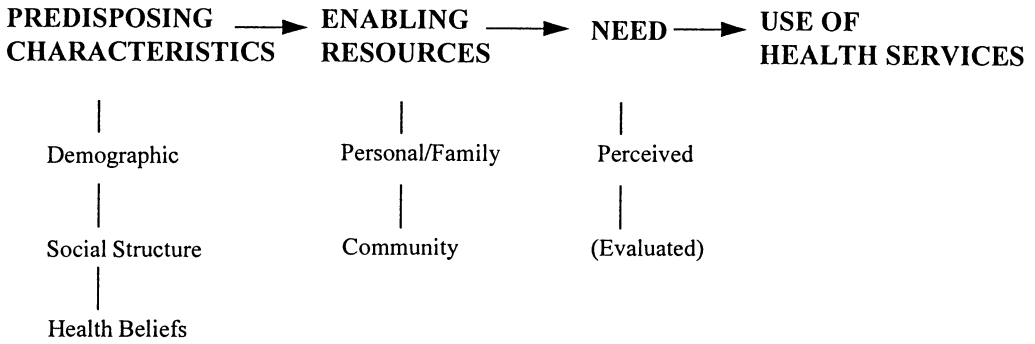
The model was initially developed in the late 1960s to assist the understanding of why families use health services; to define and measure equitable access to health care; to assist in developing policies to promote equitable access; and, not incidentally, to pass my dissertation committee at Purdue (Andersen 1968). It was not the first or only model at the time, but it did attempt to integrate a number of ideas about the "how's" and "why's" of health services' use. It was intended to assist in the analysis of

national survey data collected by the Center for Health Administration Studies and the National Opinion Research Center at the University of Chicago where I worked with Odin Anderson (Andersen and Anderson 1967).

The model of health services' use originally focused on the family as the unit of analysis, because the medical care an individual receives is most certainly a function of the demographic social and economic characteristics of the family as a unit. However, in subsequent work I shifted to the individual as the unit of analysis because of the difficulty of developing measures at the family level that take into account the potential heterogeneity of family members; e.g., a summary measure of "family health status." I think it is generally more efficient to attach important family characteristics to the individual as the unit for analysis. Finally, I want to stress that the model was initially designed to explain the use of formal personal health services rather than to focus on the important interactions that take place as people receive care, or on health outcomes.

The initial behavioral model—the model of the 1960s—is depicted in Figure 1. It suggests that people's use of health services is a function of their predisposition to use services, factors which enable or impede use, and their need for care. There is some question whether the model was meant to predict or explain use (Mechanic 1979; Rundall 1981). I think I had in mind that it could do both. On the one hand, each component might be conceived of as making an independent contribution to predicting use. On the other, the model suggests an explana-

* I am most grateful to Lu Ann Aday for her contribution to this manuscript and her support throughout the years. Fortunately, she has gone beyond these remarks and cannot be held responsible for their content. They are an edited version of my acceptance of the Leo G. Reeder Award for Distinguished Service to Medical Sociology presented at the American Sociological Association meetings in Los Angeles, California, on August 8, 1994. I very much appreciate this recognition by my colleagues of the Medical Sociology Section. Address correspondence to Ronald Andersen at Department of Health Services, School of Public Health, UCLA, Los Angeles, CA 90024-1772, or send e-mail to iaqxpld@mvs.oac.ucla.edu.

FIGURE 1. The Initial Behavioral Model (1960s)

tory process or causal ordering where the predisposing factors might be exogenous (especially the demographic and social structure), some enabling resources are necessary but not sufficient conditions for use, and some need must be defined for use to actually take place.

Among the predisposing characteristics, demographic factors such as age and gender represent biological imperatives suggesting the likelihood that people will need health services (Hulka and Wheat 1985). Social structure is measured by a broad array of factors that determine the status of a person in the community, his or her ability to cope with presenting problems and commanding resources to deal with these problems, and how healthy or unhealthy the physical environment is likely to be. Traditional measures used to assess social structure include education, occupation, and ethnicity. The model has been criticized for not paying enough attention to social networks, social interactions, and culture (Bass and Noelker 1987; Guendelman 1991; Portes, Kyle, and Eaton 1992). I think measures of these concepts rightly fit into the social structure component.

Health beliefs are attitudes, values, and knowledge that people have about health and health services that might influence their subsequent perceptions of need and use of health services. Health beliefs provide one means of explaining how social structure might influence enabling resources, perceived need, and subsequent use. Social psychologists have been concerned that health beliefs have not been appropriately conceptualized and measured in much work employing the behavioral model (Becker and Maiman 1983; Mechanic 1979). A possible consequence is that health beliefs do not appear to be as important as they really are in predicting and

understanding use. Some efforts have been made to integrate elements of the behavioral model with elements of the well-known health beliefs model to explain use and especially preventive health behavior (Green et al. 1980). Others have argued that what is necessary to show stronger and meaningful relationships between beliefs and use is specificity in measuring beliefs, needs, and types of use (Tanner, Cockerham, and Spaeth 1983). If we examine beliefs about a particular disease, measure need associated with that disease, and observe the services received to deal specifically with the disease, the relationships will probably be much stronger than if we try to relate general health beliefs to global measures of need and a summary measure of all services received in a given period of time. My sense is that efforts to elaborate on and specify health beliefs have improved and will continue to improve our ability to explain some types of health services' use, but in many contexts enabling variables and particularly need will continue to explain more of the variation in health services' use.

Are there any other major components that should be added to predisposing characteristics? One interesting candidate is genetic factors (True et al. 1994). With the explosive development of gene mapping, genetic counseling, and the possibilities of gene therapy, genetic measures represent a potentially viable, important, and definable predisposing component which seems clearly distinguishable from the other predisposing components (Rosneau 1994). Another possible predisposing component which may be conceptually distinct from those listed in the initial model is psychological characteristics. Psychological characteristics considered as predisposing variables have included mental dysfunction

(Rivnyak et al. 1989), cognitive impairment (Bass, Looman, and Ehrlich 1992), and autonomy (Davanzo 1994).

Both community and personal enabling resources must be present for use to take place. First, health personnel and facilities must be available where people live and work. Then, people must have the means and know-how to get to those services and make use of them. Income, health insurance, a regular source of care, and travel and waiting times are some of the measures that can be important here.

One concern about the enabling resources is that organizational factors are not given enough attention (Gilbert, Branch, and Longmate 1993; Kelley et al. 1992; Patrick et al. 1988). I certainly agree that going beyond knowing whether or not a person has a regular source of care to understanding how medical care is organized should improve our ability to explain and predict use. Also, knowing more about the various kinds of medical care providers and types of health services organizations in the community should benefit our understanding beyond what gross physician and hospital bed population ratios might do. However, it seems to me that more detailed organizational measures can be included as additional enabling factors without too much damage to either the measures or the model.

Another expressed concern is that more precise measures of health insurance benefits than have often been used with this model are necessary to do justice to the potential importance of the personal enabling resources (Mechanic 1979). Again, I heartily agree. We are limited more by the feasibility and costs of developing and implementing such measures than by conceptual limitations.

Finally, I would like to allay the doubts and fears of some of my colleagues in sociology that I have forgotten my disciplinary roots and believe there is no place in the model for the extent and quality of social relationships (Pescosolido 1992). Such relationships can serve as an enabling resource to facilitate or impede health services' use (Bass and Noelker 1987; Counte and Glandon 1991; Freedman 1993; Miller and McFall 1991). The truth of the matter is, I see the importance of measures of social relationships. As we overcome the considerable conceptual and methodological challenges of developing and using measures of social

relationships, it seems to me they might fit in quite nicely as enabling resources.

Applications of the behavioral model and my own empirical work have been identified and occasionally vilified as overemphasizing the importance of need as the prime determinant of use at the expense of health beliefs and social structure (Coulton and Frost 1982; Gilbert, Branch, and Longmate 1993; Mechanic 1979; Wolinsky and Johnson 1991). Any comprehensive effort to model health services' use must consider how people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help. My intent has never been to consider perceived need as primarily representing some measure of pathology or disease devoid of the social context. Indeed, perceived need is largely a social phenomenon which, when appropriately modeled, should itself be largely explained by social structure and health beliefs. However, within rather broad limits established by predisposing and enabling factors, there is a biological imperative that accounts for some of people's help-seeking and consumption of health services (Hulka and Wheat 1985). The biological imperative is better represented by the evaluated component of need (Andersen, Kravits, and Anderson 1975). Evaluated need represents professional judgment about people's health status and their need for medical care. Of course, evaluated need is not simply, or even primarily, a valid and reliable measure from biological science. It also has a social component, and varies with the changing state of the art and science of medicine as well as according to the training and competency of the professional expert doing the assessment. Logical expectations of the model are that perceived need will better help us to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider.

The outcome of the original behavioral model was health service use measured rather broadly in units of physician ambulatory care, hospital and physician inpatient services, and dental care which families consumed over a year's time. We hypothesized that predispos-

ing enabling and need factors would have differential ability to explain use, depending on what type of service was examined (Andersen 1968). Hospital services received in response to more serious problems and conditions would be primarily explained by need and demographic characteristics, while dental services considered as more discretionary would more likely be explained by social structure, beliefs, and enabling factors. We expected all the components of the model to enter into the explanation of ambulatory physician use, because the conditions stimulating care-seeking would generally be viewed as less serious and demanding than those resulting in inpatient care, but more serious than those leading to dental care.

These outcome measures have been criticized as too gross (Penchansky 1976). More specific measures should relate to a particular condition, type of service or practitioner, or should be linked in an episode of illness. Such measures could be related more logically to the explanatory structure of the model, and might provide a more complete and understandable analysis. While such explicit measures are, in many ways, likely to be more informative, the more global ones still have a role to play. For example, to inform national health policy, global measures provide needed comprehensive indicators of the overall effects of policy changes.

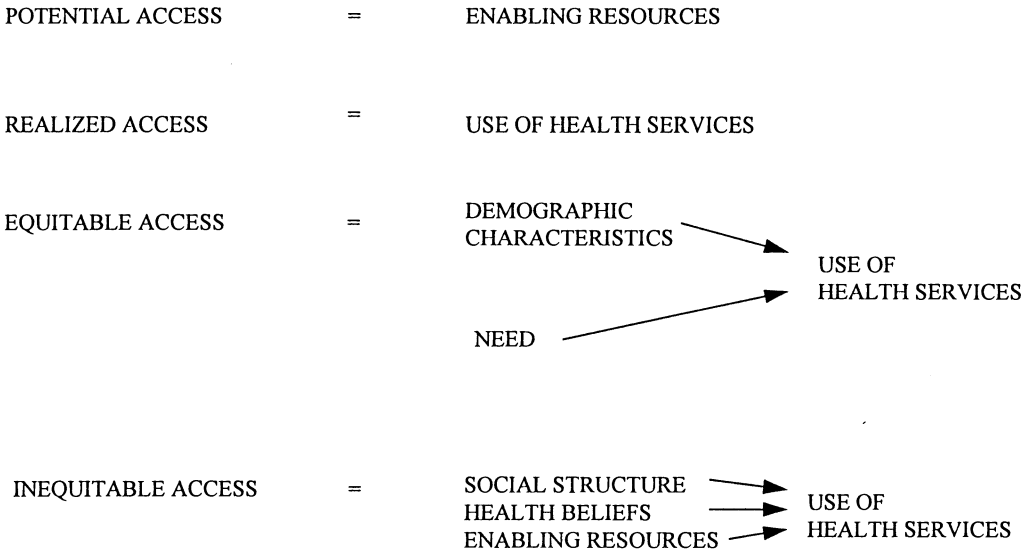
Does the initial concept of the behavioral model have a built-in bias that increased use is always better and to be sought (Chen

1978)? When the model was developed in the 1960s, increased utilization was a major policy goal and cost was not quite the concern it is today. However, I think the model is essentially nonnormative regarding utilization. Its purpose is to discover conditions that either facilitate or impede utilization.

A major goal of the behavioral model was to provide measures of access to medical care (Figure 2). A danger in attempting a comprehensive access measure is that it might be too broad and nonspecific (Penchansky 1976). However, access is a relatively complex health policy measure and, I think, can be reasonably defined in multidimensional terms using concepts from the behavioral model. Potential access is simply defined as the presence of enabling resources. More enabling resources provide the means for use, and increase the likelihood that use will take place.

Realized access is the actual use of services. Equitable and inequitable access are defined according to which predictors of realized access are dominant. Value judgments about which components of the model should explain utilization in an equitable health care system are crucial to the definition. Equity is in the eyes of the beholder. I have traditionally defined equitable access as occurring when demographic and need variables account for most of the variance in utilization (Andersen 1968). Inequitable access occurs when social structure (e.g., ethnicity), health beliefs, and enabling re-

FIGURE 2. Initial Measures of Access



sources (e.g., income) determine who gets medical care. Other and more refined standards could be used. For example, one might argue that people's beliefs should be considered, and consequently that use, which is determined by those beliefs, might be considered equitable. Also one might employ different criteria for defining equitable access, depending on the type of health services' use. For example, while income might be considered an inequitable determinant of use of maternal and child health services, one might consider income appropriate as a predictor of cosmetic surgery.

The concept of mutability is important for using the behavioral model to promote equitable access, as shown in Figure 3 (Andersen and Newman 1973). Policies are implied first by determining what variables explain utilization. To be useful for promoting access, a variable must also be considered mutable, or point to policy changes that might bring about behavioral change.

Demographic variables are judged as having low mutability, since gender or age cannot be altered to change utilization. Social structure is also judged relatively low since ethnicity is not changeable, and altering educational or occupational structures is probably not a viable short-term policy to promote access. Health beliefs are judged as having medium mutability since they can be altered and sometimes effect behavioral change.

Some enabling variables can be quite mutable, and they may be quite strongly associated with utilization. The Rand Health Insurance Study, for example, demonstrated quite dramatically the impact of the changing health insurance benefit structures on health services' use (Manning et al. 1987).

Need was originally considered not to be a mutable policy variable but rather the immediate reason for use to take place. However, people's perceived need for care may be increased or decreased through health education programs, changing their financial incentives to seek services, and so on. Similarly, evaluated needs might also be altered to influence use. It seems that imposition of clinical guidelines on managed care systems is an example of this process (Institute of Medicine 1992). The purpose is to alter the medical care practitioner's judgment about the patient's evaluated need for health care (Institute of Medicine 1993).

Using mutable variables to plan interventions can be criticized as a conservative approach. Variance must be observed in the current system. A totally new and innovative program cannot be studied by this kind of approach. I agree that methods such as simulation or demonstrations and evaluations are required to study such innovative programs.

Contrary to the apparent belief of some users and critics of the initial model, I did not expire immediately after completing my

FIGURE 3. Initial Concepts of Mutability

| MODEL COMPONENT | DEGREE OF MUTABILITY |
|------------------|----------------------|
| DEMOGRAPHIC | LOW |
| SOCIAL STRUCTURE | LOW |
| HEALTH BELIEFS | MEDIUM |
| ENABLING | HIGH |
| NEED | (LOW?) |

DEGREE OF MUTABILITY

| | |
|------------------|--------|
| DEMOGRAPHIC | LOW |
| SOCIAL STRUCTURE | LOW |
| HEALTH BELIEFS | MEDIUM |
| ENABLING | HIGH |
| NEED | (LOW?) |

dissertation, and there have been some subsequent revisions of the model. Phase 2—the model of the 1970s (Figure 4)—was developed by Aday and other collaborators at the Center for Health Administration Studies, University of Chicago (Andersen, Smedby, and Anderson 1970; Andersen and Newman 1973; Aday and Andersen 1974; Andersen, Kravits, and Anderson 1975; Aday, Andersen, and Fleming 1980; Aday et al. 1985; Fleming and Andersen 1986). The health care system was explicitly included in this phase, giving recognition to the importance of national health policy and the resources and their organization in the health care system as important determinants of the population’s use of services, as well as changes in those use patterns over time. Other developments in this period included elaboration of the measures of health services’ use, including those representing type, site, purpose, and coordinated services received in an episode of illness. Also added in Phase 2 was an explicit outcome of health services—consumer satisfaction. We recognized that use of services was, from a policy perspective, a means to other ends and outcomes. Utilization studies need to examine use in the context of health outcomes.

A third phase of the model evolved during the last decade, spurred on by the explicit

recognition that health services are supposed to have something to do with maintaining and improving the health status of the population, both as perceived by the population and as evaluated by professionals (see Figure 5) (Andersen, Marcus, and Mashigian, forthcoming; Andersen, Davidson, and Ganz 1994). While the model remains primarily one of use of health services, it also acknowledges the external environment (including physical, political, and economic components) as an important input for understanding use of health services. It also recognizes personal health practices such as diet, exercise, and self care as interacting with the use of formal health services to influence health outcomes (Evans and Stoddart 1990; Lalonde 1975; Public Health Service 1990).

The inclusion of health status outcomes in Phase 3 allows us to extend the measures of access to include dimensions which are particularly important for health policy and health reform (Figure 6). They provide some answers to the question of whether or not it matters to revisit utilization studies and access concepts. “Effective access” is established when utilization studies show that use improves health status or consumer satisfaction with services. “Efficient access” is shown when the level of health status or satisfaction

FIGURE 4. The Model—Phase 2 (1970s)

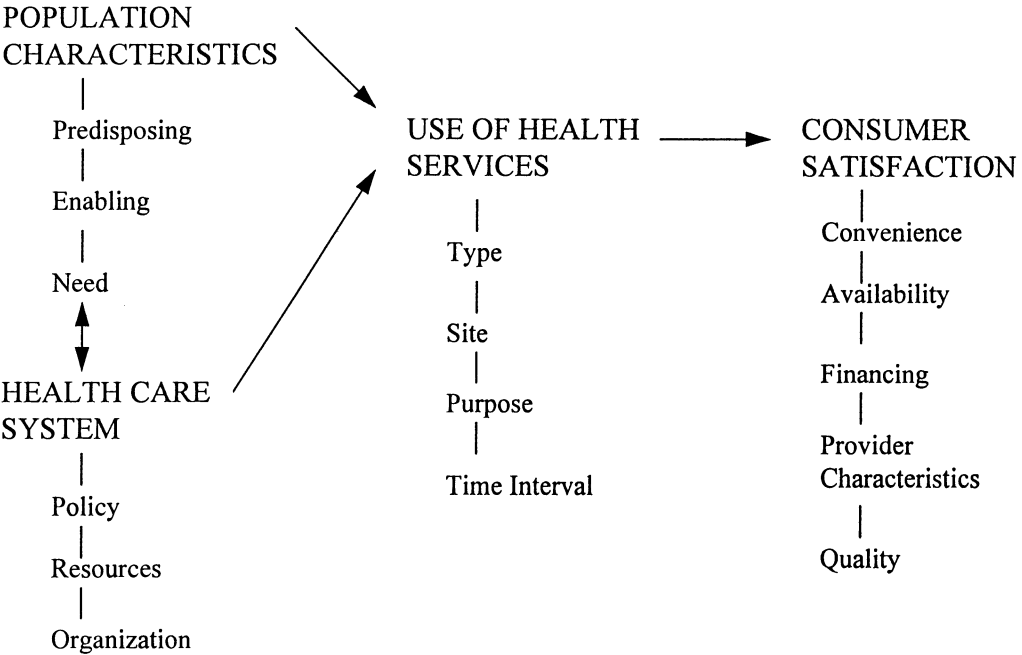
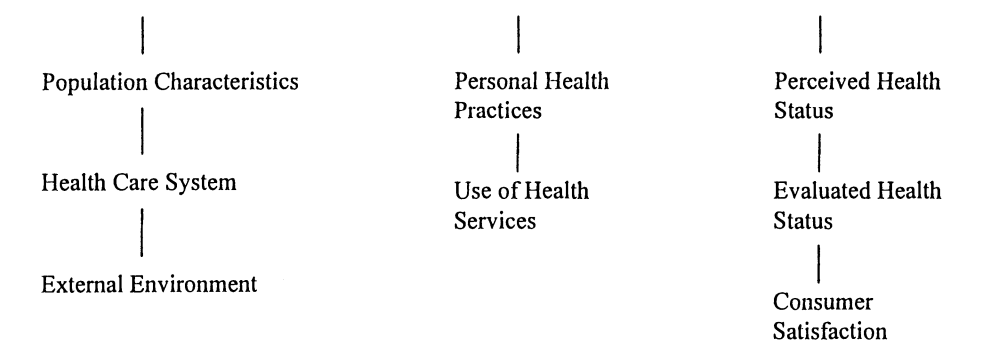


FIGURE 5. The Model—Phase 3 (1980s–1990s)

PRIMARY DETERMINANTS → HEALTH BEHAVIOR → HEALTH OUTCOMES OF HEALTH BEHAVIOR



increases relative to the amount of health care services consumed (Aday 1993; Aday et al. 1993).

I do feel compelled to show yet one final Phase 4 emerging model (Figure 7). What this phase emphasizes is the dynamic and recursive nature of a health services’ use model which includes health status outcomes (Evans and Stoddart 1990; Patrick et al. 1988). This model portrays the multiple influences on health services’ use and, subsequently, on health status. It also includes feedback loops showing that outcome, in turn, affects subsequent predisposing factors and perceived need for services as well as health behavior.

Implementation of this model requires more creative and challenging conceptualiza-

tion, longitudinal and experimental study designs, and innovative types of statistical analyses. I certainly think, however, that the payoff is there in terms of better understanding of health behavior and informing important health policy.

In revisiting the behavioral model, I am convinced that “it does matter for sociologists to be involved”—not necessarily with this particular model, but certainly with studies of health services’ use and access to care. Health services are part of the largest sector of our economy—one that is still growing. They do make a difference for better, or sometimes for worse, for our society and its people. The current debate, recent defeat, and continuing directions of so-called “health care reform” reinforce my belief that studies of equity and

FIGURE 6. Additional Measures of Access

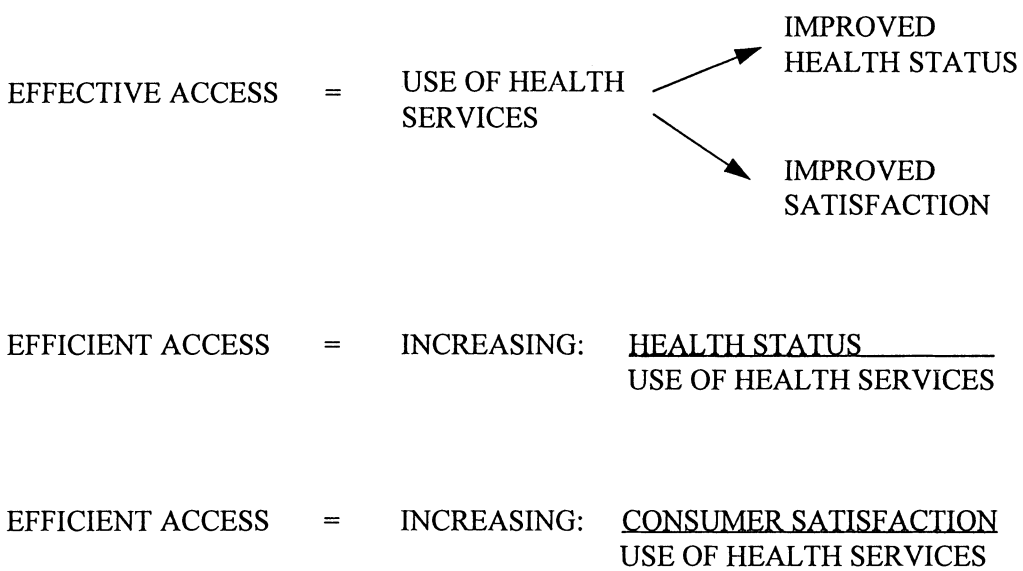
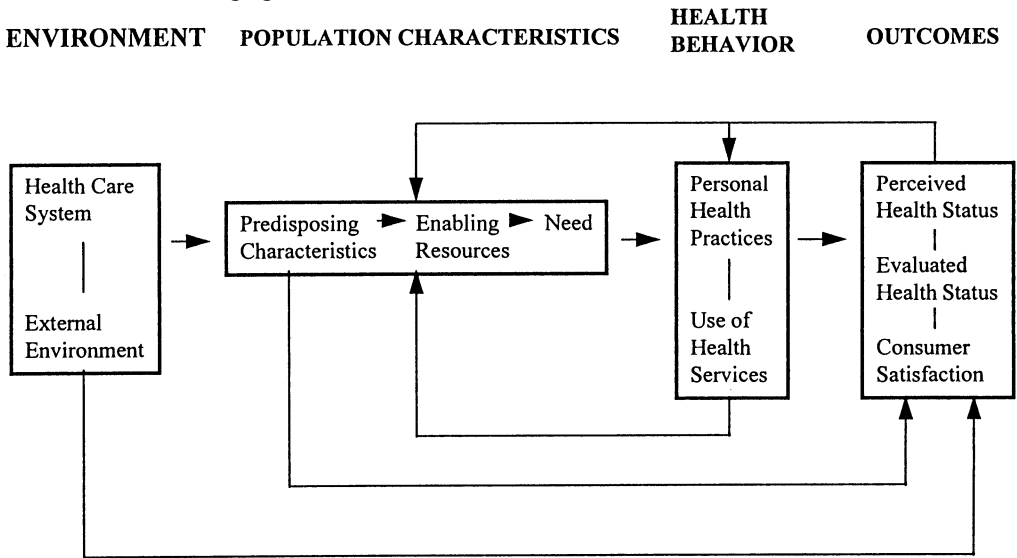


FIGURE 7. An Emerging Model—Phase 4



efficient and effective access examined from a comprehensive and systemic perspective will be relevant and important for the indefinite future (Mechanic 1993). Sociologists, particularly our younger colleagues with new perspectives and strong disciplinary and methodological training, have special contributions to make to these studies (Pescosolido and Kronenfeld, forthcoming). In conclusion, I would like to paraphrase the “old soldier’s quote” of General Douglas MacArthur: “Old medical sociologists never die, they just stop being cited in the *Journal of Health and Social Behavior*.”

REFERENCES

Aday, Lu Ann. 1993. “Access to What and Why? Toward a New Generation of Access Indicators.” *Proceedings of the Public Health Conference on Records and Statistics*. Washington, D.C.: U.S. Government Printing Office.

Aday, Lu Ann and Ronald M. Andersen. 1974. “A Framework for the Study of Access to Medical Care.” *Health Services Research* 9:208–20.

Aday, Lu Ann and William C. Awe. Forthcoming. “Health Sources Utilization Models.” In *Handbook of Health Behavior Research Vol. I. Determinants of Health Behavior: Personal and Social*, edited by D.S. Gochman. New York: Plenum.

Aday, Lu Ann, Ronald M. Andersen, and Gretchen V. Fleming. 1980. *Health Care in the U.S.: Equitable for Whom?* Beverly Hills, CA: Sage.

Aday, Lu Ann, Ronald M. Andersen, Sarah

Loevy, and Barbara Kremer. 1985. *Hospital-Physician Sponsored Primary Care: Marketing and Impact*. Ann Arbor, MI: Health Administration Press.

Aday, Lu Ann, Charles E. Begley, David R. Lairson, and Carl H. Slater. 1993. *Evaluating the Medical Care System: Effectiveness, Efficiency, and Equity*. Ann Arbor, MI: Health Administration Press.

Andersen, Ronald M. 1968. *Behavioral Model of Families’ Use of Health Services*. Research Series No. 25. Chicago, IL: Center for Health Administration Studies, University of Chicago.

Andersen, Ronald M. and Odin W. Anderson. 1967. *A Decade of Health Services*. Chicago, IL: University of Chicago Press.

Andersen, Ronald M. and John F. Newman. 1973. “Societal and Individual Determinants of Medical Care Utilization in the United States.” *Milbank Memorial Fund Quarterly Journal* 51:95–124.

Andersen, Ronald M., Pamela Davidson, and Patricia Ganz. 1994. “Symbiotic Relationships of Quality of Life, Health Services Research, and Other Health Research.” *Quality of Life Research* 3:365–71.

Andersen, Ronald M., Marvin Marcus, and Michael Mashigian. Forthcoming. “A Comparative Systems Perspective on Oral Health Promotion and Disease Prevention.” In *Oral Health Promotion: Socio-Dental Sciences in Action*, edited by L.K. Cohen and H.C. Gift. Copenhagen, Denmark: Munksgaard.

Andersen, Ronald M., Bjorn Smedby, and Odin W. Anderson. 1970. *Medical Care Use in Sweden and the United States—A Comparative Analysis of Systems and Behavior*. Research

- Series No. 27. Chicago, IL: Center for Health Administration Studies, University of Chicago.
- Andersen, Ronald M., Joanna Kravits, and Odin W. Anderson, eds. 1975. *Equity in Health Services: Empirical Analyses in Social Policy*. Boston, MA: Ballinger Publishing Company.
- Bass, David M., Wendy J. Looman, and Paul Ehrlich. 1992. "Predicting the Volume of Health and Social Services: Integrating Cognitive Impairment into the Modified Andersen Framework." *The Gerontologist* 32:33–43.
- Bass, David M. and Linda S. Noelker. 1987. "The Influence of Family Caregivers on Elders' Use of In-Home Services: An Expanded Conceptual Framework." *Journal of Health and Social Behavior* 28:184–96.
- Becker, Marshall H. and Lois A. Maiman. 1983. "Models of Health-Related Behavior." Pp. 539–68 in *Handbook of Health, Health Care, and the Professions*, edited by D. Mechanic. New York: The Free Press.
- Chen, Martin K. 1978. "Comment on Health Status Indices and Access to Medical Care." *American Journal of Public Health* 68:1027–28.
- Coulton, Claudia and Abbie K. Frost. 1982. "Use of Social and Health Services by the Elderly." *Journal of Health and Social Behavior* 23:330–39.
- Counte, Michael A. and Gerald L. Glandon. 1991. "A Panel Study of Life Stress, Social Support, and the Health Services Utilization of Older Persons." *Medical Care* 29:348–61.
- Davanzo, Joan E. 1994. "The Relationship Between Autonomy and Medicare Utilization in an Elderly Sample." Ph.D. Dissertation, Department of Health Services, University of California at Los Angeles, Los Angeles, CA.
- Evans, Robert G. and Gregory L. Stoddart. 1990. "Producing Health, Consuming Health Care." *Social Science and Medicine* 31:1347–63.
- Fleming, Gretchen and Ronald M. Andersen. 1986. *Can Access Be Improved While Controlling Costs?* Chicago: Pluribus Press.
- Freedman, Vicki A. 1993. "Kin and Nursing Home Lengths of Stay: A Backward Recurrence Time Approach." *Journal of Health and Social Behavior* 34:138–52.
- Gilbert, Gregg H., Lawrence G. Branch, and Jefferey Longmate. 1993. "Dental Care Use by U.S. Veterans Eligible for VA Care." *Social Science and Medicine* 36:361–70.
- Green, Lawrence S., Marshall K. Kreuter, Sigrid G. Deeds, and Kay B. Partridge. 1980. *Health Education Planning: A Diagnostic Approach*. Palo Alto, CA: Mayfield.
- Guendelman, Sylvia. 1991. "Health Care Users Residing on the Mexican Border: What Factors Determine Choice of the U.S. or Mexican Health System?" *Medical Care* 29:419–29.
- Hulka, Barbara S. and John R. Wheat. 1985. "Patterns of Utilization: The Patient Perspective." *Medical Care* 23:438–60.
- Institute of Medicine. 1992. *Guidelines for Clinical Practice*. Washington, D.C.: National Academy Press.
- Institute of Medicine. 1993. *Access to Health Care in America*. Washington, D.C.: National Academy Press.
- Kelley, Michelle A., Janet D. Perloff, Naomi M. Morris, and Wangyue Liu. 1992. "Primary Care Arrangements and Access to Care Among African American Women in Three Chicago Communities." *Women and Health* 18:91–106.
- Lalonde, Marc. 1975. *A New Perspective on the Health of Canadians*. Ottawa, Canada: Information Canada.
- Manning, Willard G., Joseph P. Newhouse, Naihua Duan, Arleen Lebowitz, and M. Susan Marquis. 1987. "Health Insurance and the Demand for Medical Care." *American Economic Review* 77:251–77.
- Mechanic, David. 1979. "Correlates of Physician Utilization: Why Do Multivariate Studies of Physician Utilization Find Trivial Psychosocial and Organizational Effects?" *Journal of Health and Social Behavior* 20:387–96.
- Mechanic, David. 1993. "Social Research in Health and the American Socio-political Context: The Changing Fortunes of Medical Sociology." *Social Science and Medicine* 36:95–102.
- Miller, Baila, and Stephanie McFall. 1991. "The Effect of Caregiver's Burden on Change in Frail Older Person's Use of Formal Helpers." *Journal of Health and Social Behavior* 32:165–79.
- Patrick, Donald L., Jane Stein, Miquel Porta, Carol Q. Porter, and Thomas C. Ricketts. 1988. "Poverty, Health Services, and Health Status in Rural America." *The Milbank Quarterly* 66: 105–36.
- Penchansky, Roy. 1976. "Book Review: Access to Medical Care." *Medical Care* 14:642.
- Pescosolido, Bernice and Jennie J. Kronenfeld. Forthcoming. "Health, Illness, and Healing in an Uncertain Era: Challenges From and For Medical Sociology" *Journal of Health and Social Behavior: Forty Years of Medical Sociology—The State of the Art and Directions for the Future*.
- Pescosolido, Bernice. 1992. "Beyond Rational Choice: The Social Dynamics of How People Seek Help." *American Journal of Sociology* 97:1096–138.
- Portes, Alejandro, David Kyle, and William W. Eaton. 1992. "Mental Illness and Help-seeking Behavior Among Mariel Cuban and Haitian Refugees in South Florida." *Journal of Health and Social Behavior* 33:283–98.
- Public Health Service. 1990. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives: Full Report, with Commentary*.

- DHHS Publication No. PHS 91-50212. Washington, D.C.: U.S. Government Printing Office.
- Rundall, Thomas G. 1981. "A Suggestion for Improving the Behavioral Model of Physician Utilization." *Journal of Health and Social Behavior* 22:103-104.
- Rivnyak, Margaret, Thomas T. Wan, Meribeth H. Stegall, Mary Jacobs, and S. Li. 1989. "Ambulatory Care Use Among Noninstitutionalized Elderly: A Causal Model." *Research in Aging* 11:292-311.
- Rosnau, Pauline V. 1994. "Reflections on the Cost Consequences of the New Gene Technology for Health Policy." *International Journal of Technology Assessment in Health Care* 10:546-61.
- Tanner, James L., William C. Cockerham, and Joe L. Spaeth. 1983. "Predicting Physician Utilization." *Medical Care* 21:360-69.
- True, William R., James C. Romeis, Andrew C. Heath, Louise H. Flick, Leslee Shaw, Seth A. Eisen, Jack Goldberg, and Michael J. Lyons. 1994. "Genetic and Environmental Contributions to Health Care Need and Utilization: A Twin Analysis." Unpublished Paper. St. Louis, MO: School of Public Health, St. Louis University Medical Center.
- Wolinsky, Fredric D. and Robert J. Johnson. 1991. "The Use of Health Services by Older Adults." *Journal of Gerontology* 46:S345-57.

Ronald Andersen is the Fred and Pamela Wasserman Professor and chair of the Department of Health Services, School of Public Health and professor of sociology, University of California at Los Angeles. His research interests include access to health services, comparisons of health care systems and the health of vulnerable populations.