Part 5: RECOMMENDATIONS and EPILOGUE

RECOMMENDATIONS

Recommendations for prevention research planning with respect to American Indian and Alaska Native communities appear throughout this volume in various articles. In addition, during the last session of the workshop, the participants addressed specific policy issues, outlined organizational tasks, and identified a set of immediate goals and objectives for prevention research that are of concern to this special population. The recommendations that resulted from this final discussion are summarized below.

Specific Policy Issues

In preparing for the prevention research planning workshop, the participants reviewed the publication entitled *ADAMHA Prevention Policy and Programs 1979—1982* in order to familiarize themselves with the most recent statement available on the priorities of the Department of Health and Human Services in this area. Dr. Stephen Goldston, Director, Office of Prevention, NIMH, updated this information in his remarks to workshop participants. With this in mind, the participants developed a number of policy recommendations which fall into one of three categories, namely a) information sharing and cooperation in programming, b) requirements with regard to community participation, and c) substantive foci of research to be supported.

Information sharing and cooperation. Several workshop participants noted that the lack of communication between ADAMHA Institutes, DHHS divisions, and other federal entities (such as the DHHS, Department of Interior, and Department of Education) is a major stumbling block to the development of effective prevention research policy for American Indian and Alaska Native communities. Cooperation—specifically, in the form of joint fiscal, as well as logistical, support of research efforts that address substantive issues of mutual concern—was thought to occur even more rarely. The participants cited this workshop as an example of cooperation (here, between the Office of Prevention and the Center for Minority Group Mental Health Programs) that must be encouraged in order to plan, implement, evaluate, and disseminate the results of prevention research activities among American Indian and Alaska Native communities in an appropriate and timely manner. Thus, they recommended that:

1) **Institutions be encouraged to share on a regular basis information about prevention research activities that involve American Indians and Alaska Natives.**

2) **Incentives be provided for agencies to cooperate, both fiscally and logistically, in supporting prevention research activities that involve American Indians and Alaska Natives.**

With respect to the first recommendation, the participants underlined the need for a central repository of information about past, present, and planned prevention research activities in American Indian and Alaska Native communities that originate within ADAMHA. It was suggested that this might be a natural function of the Office of Prevention or could be performed by another organization (e.g., the Indian Health Service, the National Center for American Indian and Alaska Native Mental Health Research, or a university) through inter-agency agreement or under contract. At present, such information is housed in disparate sectors and is accessible to a limited few.

The second recommendation stems from the unique relationships that American Indian and Alaska Native communities have with multiple federal agencies: the Bureau of Indian Affairs (DOI), the Indian Health Service (DHHS), and the Office of Indian Education (DOE), to name but a few. Mental health figures in the accomplishment of their respective program goals and, hence, represents a potentially important point of interface among these agencies. The participants felt that resources within each agency, though limited when viewed singularly, could be combined to support research on preventive interventions that would impact common problems. Examples included past collaboration between the Most in Need Program in NIMH and the IHS Office of Mental Health Programs. A recently negoitated BIA-IHS cooperative agreement was described as a vehicle that could be used to promote prevention research which would be of value to both agencies. However, the participants cautioned that such cooperation should not replace the prevention efforts which these agencies may (and should) undertake on an individual basis.

Community participation. The participants stressed the involvement of American Indian and Alaska Native communities as a requirement for prevention research planning, the first step of which is represented by this working session. They further recommended that:

3) **Professional associations, such as the National Indian Health Board, the American Indian Physicians Association, the special committee on Indian affairs within the American Psychiatric Association, and the National Center for American Indian and Alaska Native Mental Health Research, must be included in the planning and dissemination of prevention research activities in American**

Indian and Alaska Native communities.

4) Most importantly, American Indians and Alaska Natives, through their own representatives (particularly health programs and health advisory committees) must be included in the planning, implementation, and dissemination of prevention research activities in their communities.

The participants believed that such participation is critical to rendering prevention research compatible with local community definitions of need and to maximizing the impact of subsequent preventive interventions.

Substantive foci of research. The participants felt strongly that certain themes or problem areas deserve greater emphasis in future prevention research planning for American Indian and Alaska Native communities. Thus, they recommended that ADAMHA and other funding agencies support research that leads to:

5) The development of a model (or models) of competence—in terms of individuals as well as communities—which takes into account the immense cultural heterogenity among American Indians and Alaska Natives.

6) The identification of the processes by which such competence is acquired, e.g., the cognitive, behavioral, and situational elements.

7) The examination of the nature of the relationship between individual and/or community competence and mental health status of American Indians and Alaska Natives.

8) The identification of natural support systems and ways of augmenting or strengthening them to promote the mental health of American Indians and Alaska Natives.

9) A better understanding of the social and institutional forces which negatively affect the mental health of American Indians and Alaska Natives and identification of the responses that they have employed to cope effectively with the attendant stress.

10) The description of American Indian and Alaska Native perceptions of psychopathology and associated behavioral, cognitive, and affective features.

11) A better understanding of the relationships between American Indian and Alaska Native perceptions of psychopathology and Western definitions of psychiatric disorder in order to facilitate the development of more sensitive diagnostic tools that permit earlier and appropriate case identification.

12) The evaluation, especially on a long-term basis, of both the processes and outcomes of preventive interventions which have been, are being, and will be employed in American Indian and Alaska Native communities.

13) **Cross-cultural comparisons in the above areas to determine the extent to which findings specific to American Indians and Alaska Natives can be generalized to other populations and, conversely, to determine the extent to which findings from other populations can be generalized to American Indians and Alaska Natives.**

These recommendations reflect the considerable attention that participants paid to competence, strengths, positive mental health, and like concerns in their papers and in the workshop discussions. From the participants' point of view, a major shift in perspective is in order if future prevention research is to succeed in offering guidelines for truly promotive interventions.

Organizational Tasks

The participants noted that a number of organizational tasks need to be completed in preparation for a concerted, systematic prevention research effort among American Indian and Alaska Native communities. They recommended that ADAMHA and other funding agencies:

14) **Provide support to establish a prevention research and development center that has, as one of its central missions, explicit responsibility for encouraging and actively developing and conducting the research outlined above, either through its own resources or in collaboration with other agencies.**

15) **Provide fiscal and logistical support to facilitate linkages among mental health professionals whose substantive interests, as well as cross-cultural experience, would contribute to the design, implementation, and evaluation of such research, and thus advance the field in general and as it applies specifically to American Indian and Alaska Native communities.**

16) **Provide support to convene a series of conferences to pursue the issues raised in this workshop, and encourage inter-agency collaboration in this effort.**

The participants, reacting to Dr. Goldston's update of ADAMHA prevention research policy (which included mention of potential support for a number of preventive intervention research centers) strongly endorsed the concept of a center that addresses the substantive foci detailed under earlier recommendations for future prevention research planning. Cross-disciplinary collaboration and interagency cooperation were recurrent themes, as was the need to retain a broad comparative framework.

Immediate Research Goals

The participants repeatedly observed that a number of innovative preventive interventions have been conducted in recent years with American Indian and Alaska Native communities, but that virtually

no information is available about their long-term impact. Hence, they recommended that ADAMHA and other funding agencies provide fiscal and logistical support to:

17) Catalog, abstract, and disseminate the final reports of prevention projects (the majority of which have been sponsored by ADAMHA or IHS) that involve American Indians or Alaska Natives.

18) Evaluate the long-term effects of specific preventive interventions, especially those such as the Toyei Model Dormitory Project, the Navajo Family Preventive Intervention Study, Project Nak-nu-we-sha, WIDO-AKO-DA-DE-WIN, the Tiospaye Project, public education with regard to the psychoeducational consequences of otitis media, and numerous cultural heritage intervention programs.

The participants noted that extensive data bases are available from such projects and bear reexamination, particularly in light of the current status of the individuals who originally participated in these intervention efforts. Secondary data analyses and follow-up studies, both of which can be conducted relatively inexpensively, were thought to be important research goals that deserve immediate priority.

EPILOGUE

Bernard L. Bloom

Until very recently, it was generally belived that at any given moment 10% of the population was at least partially disabled by an emotional or psychiatric disorder. Indeed, the phrase, "one out of ten" has been the long-time rallying cry of those citizens who have organized themselves as advocates for expanded services for the mentally ill. Yet tragically, in spite of the continually increasing capacity of the American mental health service delivery system to provide mental health care, it is now estimated that 15% of the American population suffers from some form of emotional disorder, and that of these 32 million persons, nearly 7 million receive no care of any kind (Reigier, Goldberg, & Taube, 1978).

It is an important public health axiom that most illnesses are controlled by preventing their occurrence rather than by providing treatment services for them once they have been identified. In the United States, at least, there seems to be no alternative other than to conclude that emotional disorders will not be controlled until more resources are put into programs that prevent such disorders before they start.

BASIC CONCEPTS AND DEFINITIONS

With regard to the control of any disorder—emotional or physical—two types of interventions exist. The first type seeks to reduce the number of persons suffering from the disorder, that is, to reduce the **prevalence** of that disorder. The second type of intervention seeks to reduce the severity, or discomfort, or disability associated with the disorder. Programs designed to reduce the severity, or discomfort, or disability associated with any disorder are formally known as **tertiary prevention,** but are better known as **rehabilitation.** With life-long disorders, rehabilitation programs generally have little effect on prevalence. Indeed, a well-run rehabilitation program may actually increase the prevalence of these disorders because it may increase life expectancy. Unfortunately, within the context of our current knowledge, many emotional disorders appear to be life-long or nearly life-long in duration, and thus cannot be significantly re-

duced in prevalence by means of rehabilitation programs.

Because the prevalence of any disorder is a function of its duration and the rate at which new cases are produced, two approaches to reducing the actual prevalence of a disorder are commonly employed. The first seeks to reduce prevalence by reducing the duration of the disorder, usually through the development of some form of early casefinding combined with the prompt application of effective treatment. Techniques for the control of any disorder that focus on early casefinding and prompt effective treatment, that is techniques that seek to reduce the prevalence of a disorder by reducing its duration, are formally called **secondary prevention.** Secondary prevention efforts are preventive only in the sense that systematic early casefinding brings with it the possibility that the duration of the disorder might be able to be reduced.

Should a technique for the early identification of some disorder be developed and employed, without the concomitant development of more effective treatment procedures, a paradoxical increase in prevalence of that disorder would occur. Gruenberg has commented that "without an effective treatment, early diagnosis only provides more work for clinicians without changing the prevalence of the disorder" (1980, p. 1323). For example, an increase in duration and prevalence has occurred in the case of diabetes because of improved techniques for its early detection. A similar increase in duration and prevalence has occurred in the case of Down's syndrome as a consequence of the medical advances that have taken place in the development of antibiotics. In this case, the death rate from secondary causes among persons with that syndrome has been significantly reduced (Gruenberg, 1977).

The alternative approach to prevalence reduction is to reduce the rate at which new cases of a disorder develop. This approach seeks to reduce prevalence by reducing **incidence,** and is formally designated as **primary prevention.** This is the concept that most closely matches the lay use of the term prevention. Effective primary prevention programs actually prevent disorders from occurring, or reduce the likelihood that a disorder will occur in a particular population (Perlmutter, Vayda, & Woodburn, 1976).

In this research planning workshop, we have seen all three types of preventive programs described. Manson, Tatum, and Dinges have provided an excellent overview of the full spectrum of preventive programs that currently exist in the American Indian and Alaskan Native communities. The Dinges Navajo project has both primary and secondary prevention components as does the Robbins child abuse and neglect program and the Red Horse cultural networking program. McShane's otitis media studies have preventive, early diagnosis and treatment, and rehabilitative aspects to them.

The Mohatt and Blue Tiospaye program, the Lefley self-perception approach, and the Kleinfeld socializing environments study all appear to have strong primary prevention components. In contrast, Bea Medicine's analysis of sobriety seems to be best suited to the development of early detection that is, secondary prevention programming.

Types of Prevention Programs

Catalano and Dooley (1980) have proposed subdividing primary prevention programs into those that are proactive (having the goal of avoiding the risk factor altogether) and reactive (having the goal of preparing individuals to react effectively to unavoidable risk factors). Thus, proactive strategies attempt to prevent specific stressors, while reactive strategies attempt to enhance coping strategies in dealing with stressors once they have occurred. It is Catalano and Dooley's view that far more can be done proactively to prevent mental disorders than is generally believed. Both proactive and reactive emphases can be seen in the preventive programs described in this workshop.

In considering the prevention of emotional disorders, it is useful to examine how one can select the recipients of preventively-oriented programs. One approach has been to aim preventive programs at the **total population** in a defined geographic area. Programs of water purification and sewage disposal are community-wide in their impact. Efforts at mental health education through the use of the mass media are aimed at the total community. A second approach to identifying the recipient population for a preventive program is what might be called the **milestone** approach. In a program using this approach, a preventive service is provided to the members of a community when they reach a particular, predefined point in their life histories—sometimes a point thought to constitute a turning point, or when they undergo some particular stressful life event. In the mental health field, the transition from being a preschooler to starting school, for example, has been viewed as such a turning point.

A third approach has been to identify groups of persons at **high risk** of developing the behaviors that the program is designed to prevent. Because industrial health studies have shown the harmful respiratory effects of engaging in certain forms of mining, or the dangers to the eye involved in using a grindstone, certain preventive measures, such as wearing face masks or goggles, are usually required. Similarly, crisis intervention services could be instituted for all school-age children facing such hazards as the death of a parent or a sibling. Consultation could be provided to attorneys with particular regard to the client petitioning for a divorce, on the basis of evidence linking marital disruption with subsequent psychiatric disability. Anticipatory guidance services could be made available to workers getting ready to retire, or to homemakers whose youngest

child is within a few months of graduating from high school and leaving the parental home. While the identification of such turning points can proceed by informal observation, or from the analysis of changing role-performance requirements in the developing individual, the identification of high-risk groups most usually proceeds from epidemiological investigations that seek to discover the personality characteristics significantly associated with the development of certain psychiatric disorders. All three of these program types can be seen in the presentations.

PREVENTABLE PSYCHIATRIC DISORDERS

There is by now a well-established knowledge base regarding the role of specific intervention in preventing specific psychiatric disorders. The American Public Health Association (1962) has identified six categories of mental disorders that are preventable, in part because they are all disorders of known etiology—diseases caused by poisoning, infections, faulty nutrition, faulty genetics, injuries, and systemic disorders. While these disorders do not constitute a large proportion of all mental disorders, nearly all result in chronic brain syndromes, many are life-long in their effects, and they represent an enormous cost to society as well as to the victims and their families (Gruenberg, 1980; Kornberg & Caplan, 1980).

The knowledge base pertinent to the primary prevention of psychiatric disorders is being expanded by the field of risk-factor research. While risk-factor research has not yet made sufficient progress so that the list of preventable emotional disorders can be expanded beyond what has already been presented, it is to risk-factor research that attention is being directed in the hopes that additional emotional disorders will soon be able to be prevented. A report dealing with the current status of risk-factor research was recently published (Regier & Allen, 1981). That report includes reviews by Garmezy (1981) in the case of children at risk for schizophrenia, by Kety and Kinney (1981) for adult schizophrenia, by Hirschfeld and Cross (1981) for depression, by Prange and Loosen (1981) for affective disorders, by Marks (1981) for anxiety, and by Martin and Guze (1981) for personality disorders.

In the case of children at risk for schizophrenia, a number of potential risk factors have been identified, although in each case far more research will be necessary before it will be possible to be sufficiently certain about their causal role. The risk factors that are now suspected include birth complications, post-partum psychiatric disturbance in the mother, adoption and foster placement, and certain aspects of attentional dysfunction, particularly the ability to sustain attention under conditions of distraction.

There is evidence of substantial genetic risk in the case of adult

schizophrenia. In addition, it has been suggested, although not yet established, that obstetrical complications, such as prolonged labor, season of birth, prenatal maternal stress, infectious processes, and dietary factors may also play a role in increasing the risk of schizophrenia. In the case of depression, risk factors appear to be psychosocial rather than biological, and suspected factors include such variables as sex, age, social class, and marital status. In addition, depression appears to be associated with frequent stressful life events and with a weakness in the extent of personal resources. In the case of personality disorders, the evidence is suggestive of some hereditary predisposition. In addition, the possibility of psychosocial factors being identified as risk markers is under study by a number of investigators.

DISEASE PREVENTION AND HEALTH PROMOTION

Some disorders can be prevented by highly specific procedures—procedures that do not appear to be effective in preventing anything other than that specified disease. Malaria can be prevented by destroying the breeding grounds of a particular type of mosquito. There is no evidence that any other disease is thereby prevented. Drinking of fluoridated water results in a dramatic reduction in the incidence of dental caries. No other disorder is reduced by fluoridated water. These are examples of specific forms of disease prevention. Although the mechanisms that give rise to a specific disease or disorder may not be completely understood, many may be prevented by the application of such procedures, and as has been noted, this disease-specific prevention strategy has been very effectively employed in the case of several psychiatric disorders.

The disease prevention paradigm that has governed research and intervention programs during the past two centuries may be outlined as follows:

(1) Identify a disease of sufficient importance to justify development of a preventive intervention program. Develop reliable methods for its diagnosis so that people can be divided with confidence into groups according to whether they do or do not have the disease.

(2) By a series of epidemiological and laboratory studies, identify the most likely theories of that disease's path of development.

(3) Mount and evaluate an experimental preventive intervention program based on the results of those research studies.

This, in somewhat oversimplified form, is the paradigm we assume whenever we think about the prevention of a specific disorder. The paradigm has been remarkably effective for a broad array of communicable diseases—smallpox, typhus, cholera, typhoid fever, the

plague, malaria, diphtheria, tuberculosis, tetanus, and more recently, sexually transmitted diseases, rubella, and polio, and an equally impressive list of what are now known to be nutritional diseases—scurvy, beri-beri, pellagra, rickets, kwashiorkor, endemic goiter, and dental caries.

All of these diseases have one attribute in common. For each, there is an identified necessary, although not always sufficient, biological precondition for its appearance—lack of niacin or vitamin B, protein deficiency, invasion of a particular bacillus, lack of fluoride, and so on. Because of this necessary precondition, we can talk about the "cause" of a particular disease. In keeping with this tradition, active research has been underway for some time in an effort to identify the biological bases of specific psychiatric disorders.

In contrast, a variety of nonspecific practices, for example, the provision of crisis intervention services or social support during times of stress, may have a positive effect on health in general, and may, in fact, prevent a variety of forms of disordered behavior. Those practices that have a generally salutory but unspecifiable effect on health are referred to as health promotion (McPheeters, 1976). Eisenberg defines health promotion as those activities that "contribute to resistance to disease, even when the disease agents are not known or beyond control" (1981, p. 5).

One of the most influential documents dealing with ways of improving the general level of health in a population was prepared by the Canadian Minister of National Health and Welfare (Lalonde, 1974), and dealt with both disease prevention and health promotion strategies. In this report, Lalonde introduced the concept of the **health field** and its four components: human biology, environment, lifestyle, and health care organization.

Human biology refers to aspects of health that are developed within the human body and are related to the organic nature of the individual, including the individual's genetic makeup. The environment refers to those matters outside the body over which the individual has little if any control, that can have an effect upon health. Included in this category would be food and water purity, air pollution, safe disposal of sewage, noise control, and road and vehicular safety.

Lifestyle refers to decisions people make about their own behavior, over which they have considerable control, that can have an effect upon their health, e.g., overeating, smoking, the abuse of alcohol and other drugs, insufficient exercise, or careless driving. Finally, the health care organization refers to the quality, quantity, and distribution of health-related services in any community.

Using the health field concept, it is possible to examine morbidity

or mortality rates in an effort to determine to what extent these rates could be reduced. In the case of traffic deaths, for example, it has been estimated that 75% of them can be accounted for by pathological lifestyles, 20% by the environment, and 5% by defects in the health care organization. Similarly, it has been estimated that self-destructive lifestyles account for about half of all deaths that occur before age 70 and that 20% of these premature deaths can be attributed to just two lifestyle habits—cigarette smoking and excessive use of alcohol.

Since the publication of this Canadian report, there has been a growing interest in examining lifestyles and their role in illness and in premature death. As part of this interest in health promotion, mental health professionals are beginning to examine various aspects of lifestyles in terms of their roles in predisposing people to emotional disorders or to precipitating such disorders in populations that are vulnerable but not disordered. The explicit objective in their examination is to develop programmatic strategies for the prevention of emotional disorders before they start. One focus of current research particularly pertinent to this conference is on the general concept of stress and on the phenomena known as stressful life events.

Stress has been defined as a "process in which environmental events or forces, called stressors, threaten an organism's existence and well-being" (Baum, Singer, & Baum, 1981, p. 4; Hefferin, 1980). Stress has also been defined as a condition in which there is a marked discrepancy between the demands made on an organism and the organism's capability to respond. The consequences in this case can be detrimental to the organism's future in respect to conditions essential to its well-being (Caplan, 1981; McGrath, 1970). Stressful life events, then, are those external events that make adaptive demands on a person. These demands may be successfully met or might inaugurate a process of internal psychological or physiological straining that could culminate in some form of illness.

By definition, stressful life events are contemporary. B. S. and B. P. Dohrenwend distinguish between stressful life events and personal dispositions. They suggest that stressful life events are "those that are proximate to, rather than remote from, the onset of a disorder. For example, this category includes the recent death of a friend or relative but not the fact that an adult's father died when he or she was a child. The latter event is not irrelevant to life stress but is subsumed under personal dispositions, since we assume that the early death of a parent can affect an adult's behavior only insofar as its impact was internalized" (1981, p. 131).

Stressful life event research and its associated theory building and conceptualization represent a major effort to understand the role of psychological and sociocultural factors in the development of men-

tal disorders. In the most recent report of the Surgeon General (U.S. Dept. of Health and Human Services, 1980), a major goal that has been articulated for promoting health and preventing disease is the more effective control of stress.

Inquiry into the role of stressful life events in human welfare is based upon a very different paradigm from the one that has been employed in the analysis of specific psychiatric disorders. It is a paradigm that does not begin with the assumption that every specific disorder has a single or even a multiple necessary precondition. Rather, this paradigm is based upon the clearly established association of stress with increased risk of illness, and assumes that we are all vulnerable to stressful life experiences, and that "almost any disease or disability may be associated with these events" (Dohrenwend & Dohrenwend, 1974, p. 314).

Caplan has commented that "years ago we used to think that particular sets of such events in association with certain personality patterns would cause specific bodily or mental illnesses. Nowadays many of us believe that individuals exposed to such circumstances may suffer an increase in nonspecific vulnerability to a wide range of bodily and mental illnesses" (1981, p. 413). Cassel made a similar case when he wrote that "it is most unlikely that any given psychosocial process or stressor will be etiologically specific for any disease, at least as currently classified" (1976, p. 109; also see Cassel, 1973, 1974). Cassel's own research as well as his reviews of the studies of others led him to conclude that although psychosocial processes enhance susceptibility to disease, the clinical manifestations of this enhanced susceptibility would not be a function of the particular psychosocial stressor.

Eastwood (1975) examined the relationship between psychiatric and physical disorder in a sample of 124 London psychiatric patients and 124 psychiatrically normal persons carefully assessed and matched for age, sex, marital status, and social class. Both male and female psychiatric patients had significantly more major physical disorders and psychosomatic conditions than were found among the psychiatrically normal comparison groups. Cardiovascular and respiratory diseases were particularly prevalent in the psychiatric group. Eastwood concluded that "the concept of man having a generalized psychophysical propensity to disease appears to be a useful and alternative model to the one which seeks only specific cause-and-effect relationships. The notion of multiple aetiology in disease, and multiple responses by man to agents threatening his health, is a greater acceptance of the realities of the ecology of ill health" (1975, p. 87).

When one takes a broad ecological view of mental disorders and their prevention, it is easy to become a generalist, and to agree with

the argument of Edward Rogers that "general preventive measures directed at the determination and control of the underlying patterns of environmental relationships will prove more efficient and effective in the long run than so-called specific measures" (1962, pp. 759-760). Sanford makes the same point when he writes:

> Where our concern is with people who are not yet disordered we dispense with the assumption of various diseases each with its specific causes which can be discovered and removed, and. . . accept fully the organismic view of the person. . . If we do this last, it will become clear that any planned action affecting a person's welfare must take into account his complexity and potentialities for further development, and that the goal of full development should take precedence over goals of preventing particular forms of disorder. (1972, p. 462)

Four vulnerable persons can face a stressful life experience, perhaps the collapse of their marriage, or the loss of their job. One person may become severely depressed; the second may be subsequently involved in an automobile accident; the third may become clinically alcoholic; and the fourth may develop a psychotic thought disorder, or coronary artery disease.

On the basis of the stress paradigm, preventive intervention programs can be organized for the purpose of reducing the incidence of particular stressful life events, whenever possible, or facilitating their mastery once they occur. In either case, one need not have undue regard for the prediction of the specific disorders that will be prevented. That is, this new paradigm begins by abandoning at the outset the search for a unique cause or set of causes for each disorder. In contrast to the classic paradigm that we have already described, the new paradigm has the following sequence of steps:

(1) Identify a stressful life event, or set of such events, that appear to have undesirable consequences. Develop procedures for reliably identifying persons who have undergone or who are undergoing those stressful experiences.

(2) By traditional epidemiological and laboratory methods, study the consequences of those events and develop hypotheses related to how one might go about reducing or eliminating their negative consequences.

(3) Mount and evaluate experimental preventive intervention programs based on these hypotheses.

This new stressful life event paradigm has turned our attention from long-standing predisposing factors in psychopathology to far more recent precipitating factors, and is part of an even broader phenomenon. It has long been known that biological, psychological, and sociological factors differentially predispose persons to emotion-

al disorders. With few exceptions, however, efforts to develop effective preventive services based on attempts to modify these distal predisposing factors have been unsuccessful. Eisenberg has recently commented that "measurement of distant outcome places a terrible burden of proof on childhood interventions; they must be powerful indeed to be able to show a clear effect despite the vicissitudes of subsequent life experience" (1981, p. 4).

There is every reason to believe that prevention programs linked to the more successful managment of stressful life events can be effective, particularly when we set about to build on what is already known about crisis theory and crisis intervention (Caplan, 1964, pp. 34-54; Mann, 1978; Parad, 1965; Parad, Resnik, & Parad, 1976). It should be noted that many stressful life events, such as school entrance, new parenting, separation and divorce, retirement, and widowhood are common, many are becoming more common, and few sustained and comprehensive services exist within our communities to assist people in mastering any of them.

Conceptual models linking stressful life events to illness have a number of aspects in common. First, in the process of describing the links between stressful life events and subsequent disorders, life stressors need to be viewed within a social and psychological context. That context may contain factors that moderate the effects of stressful life events, such as a strong social support network or personal robustness, or may contain factors that potentiate the effects of stressful life events, such as a history of poor crisis management, characteristic physiological overreaction, or a sense of external locus of control. Second, the long-term consequences of stressful life events may not necessarily be deleterious—they may have no measurable consequences at all, or may have adaptive and positive components. Finally, in order to evaluate the consequences of stressful life events, help-seeking patterns must be taken into account along with an understanding of the medical and psychological care system accessible to the person.

MEDIATING FACTORS IN REACTIONS TO STRESSFUL LIFE EVENTS

Interest in both personal and social resources that can serve to moderate reactions to stressful life events has been increasingly expressed over the past several years. Procedures for assessing the presence and extent of these mediating factors are not yet fully articullated, although there is considerable agreement as to what are the most important mediating factors to be assessed.

In a recent review paper, Rahe (1979) describes the study of stressful life events as analagous to the identification of what might be called risk factors, such as high serum cholesterol levels for the de-

velopment of coronary heart disease. Rahe notes that the knowledge of such risk factors is useful in identifying a subpopulation more vulnerable to a particular disease than those people without the risk factor, but cautions that risk factors are often very nonspecific and yield a large number of false positives.

Even in the case where the strongest relationships have been found, correlations between the number of stressful life events and onset of illness are quite modest. According to Rahe, improved understanding of the relationships of stressful life events to illness onset will require closer examination of such mediating factors as the individual's perception of the event, social supports, psychological defenses, coping capabilities, and typical behavior during times of illness.

At the level of personal resources, the most commonly studied mediating factors are coping ability, vulnerability, social competence, and locus of control (Crandall & Lehman, 1977). At the level of social or environmental resources, enormous activity is taking place around the concept of social support systems and social networks (Caplan, 1981).

PRIMARY PREVENTION IN THE AMERICAN INDIAN AND ALASKA NATIVE COMMUNITIES: FUTURE PLANNING FOR RESEARCH STUDIES

The theoretical and conceptual bases for preventive programming in the American Indian and Alaska Native communities have been skillfully presented in the Manson, Tatum, and Dinges overview. The preliminary thinking of workshop participants regarding needed research studies can be seen within this theoretical and conceptual framework.

Joseph Trimble believes that it is becoming increasingly important to examine the concept of social competence, particularly in the case of the American Indian adolescent. He believes that understanding of the developmental tasks that the Indian adolescent must accomplish is very incomplete, and that too little is known regarding the similarities and differences of those tasks and those that must be accomplished in the non-Indian community.

Gerald Mohatt is hoping to continue the Tiospaye project and to study its long-term impact both in the local and in neighboring communities. Yvonne and John Red Horse hope to continue studying the American Indian community, particularly those aspects associated with work and the family. In particular, they are interested in the role that a healthy kinship system might have for prevention of disease and for promotion of health. Maxine Robbins believes that various current approaches to stress management, particularly

biofeedback, need to be evaluated. Robert Ryan is interested in learning more about how family traditions are passed down from one generation to the next, and how these family traditions play a role in enhancing psychological well-being.

Damian McShane believes that interest in specific illness prevention should continue. While his interest in otitis media continues, he would also study the effectiveness of multiphasic diagnostic procedures in terms of their role in disease prevention. Ellie Tatum believes that more attention needs to be directed toward the study of positive coping skills.

Spero Manson and James Shore hope to continue their epidemiological investigations of psychopathology in the American Indian community, in order to determine the extent to which culture-specific disorders can be identified. In addition, they are impressed with the importance of social support networks in prevention. Beatrice Medicine proposes to continue her study of sobriety among women and her cross-tribal analysis of drinking patterns. Harriet Lefley hopes to examine the role that adolescents might play in serving as teachers of younger children. She believes that the self-esteem of the adolescents as well as of their students might very well improve if this consultative-pedagogical role could be provided for adolescents.

Judith Kleinfeld hopes to continue the study of the effects of a variety of environments in enhancing socialization. Morton Beiser believes that it will be important to examine the effects of the school as a social institution on psychological and physical well-being. Richard Lopez is interested in enhancing the effectiveness of mental health education. In addition, he is interested in crime prevention and in the effectiveness of comprehensive treatment programs in shortening the duration of various forms of psychopathology in the American Indian population. Norman Dinges continues to be interested in "strens"—that is, those events that occur in people's lives that appear to leave them stronger, less vulnerable to subsequent stress, and more resilient.

THE CURRENT STATUS OF PRIMARY PREVENTION

The great respositories of mortality and morbidity are no longer the infectious and nutritional diseases as they once were. Today, the major unpreventable disorders are those that are often chronic—heart disease, cancer, accidents, cerebrovascular disease, respiratory diseases, and mental disorders.

In the case of the mental disorders, use of the traditional specific disease prevention paradigm suffers because of our continuing inability to find diseases, that is, psychiatric disorders with known

biological markers. Weissman and Klerman (1978) have reviewed the substantital recent progress that has been made in psychopharmacology, genetics, and neurobiology, and suggest that new psychiatric diseases may soon be found, particularly among what are now labeled schizophrenia, primary affective disorders, and mental retardation. If such new diseases were found, our diagnostic system would be quickly modified, of course, and a new series of studies could be inaugurated by invoking the traditional specific disease prevention paradigm, in the hope that ways of preventing these diseases might be found.

Weissman and Klerman note, however, that "the classical medical approach to causal explanation was to search for a single factor that would provide necessary and sufficient explanation. . . This mode of causal explanation has proved highly useful for infectious disease, disorders due to nutritional deficiency, and for many, but not all, hereditary disorders. However, it has not been successful with the chronic diseases or psychiatric disorders and there has been a shift to a multifactorial mode of explanation" (1978, p. 710). In their identification of these potential factors, Weissman and Klerman suggest that they are "multiple and include biological (genetic, biochemical, nutritional) and psychosocial factors (social stress, social class, migration, urbanization, economic change)" (1978, p. 709).

With increasingly rare exceptions, it has been impossible to control illnesses without construing them in their biological, psychological, and sociocultural contexts. For example, Sameroff and Chandler (1975) have shown that developmental defects that are associated with perinatal damage, including anoxia, occur primarily in the context of a high-risk social environment. Bates (1980) has shown that temperamental variables in childhood are predictive of later psychopathology only when social factors are taken into account. Cassel has shown that increased susceptibility to disease is likely to come about when people are new to an unfamiliar environment, or when there is considerable social disorganization, and that the susceptibility to disease is greater in those persons who are subordinate rather than dominant in a society and in persons who are deprived of meaningful social contacts and social supports. He concluded that a high level of disease in general might be anticipated under conditions of social change and social disorganization and that "preventive action in the future should focus more directly on attempts at modifying these psychosocial factors, on improving and strengthening social supports, and reducing the circumstances which produce ambiguities between actions and their consequences" (1973, p. 547).

Eisenberg has recently noted that there is strong evidence that drug therapy, in the case of psychoses, is insufficient without concurrent psychotherapy and social support, and that as a further indi-

cation of the important influence of social and cultural factors on the course and outcome of psychosis, the World Health Organization nine-nation study has demonstrated that "patients from 'less developed' countries have considerably better prognosis than those in the 'developed' world. This observation stresses the importance of continuing to attend to the psychosocial environment rather than being dazzled by the illusory promise of combating illness by technical means alone" (1981, p. 15).

In that same paper, Eisenberg reviewed the recent work of Berkman and Symes who conducted a 9-year study with nearly 5,000 adults in Alameda County, California (1979) and who found a significant relationship between social supports and lower mortality. "At initial enrollment, data were collected on the subjects' self-reported health status, socioeconomic condition, health practices, and use of health services. In addition, study subjects were asked in detail about four sources of social contact: marriage, contacts with close friends and relatives, church membership, and informal and formal group associations. Age- and sex-specific mortality rates over the 9 years revealed a significantly lower mortality for subjects reporting each of these social ties. . . The association between social disconnectedness and mortality persisted after taking into account initial health status, social class, health practices, and utilization of health services, although each factor in turn influenced mortality" (1981, pp. 6-7).

The prevention of mental disorders will succeed to the extent that basic and applied research maintains this multidimensional approach in its orientation. Health scientists are increasingly aware of the importance of psychological and social factors in the predisposition, precipitation, and perpetuation of most forms of illness (Engel, 1977, 1980). Thus it is ironic that while there is increasing emphasis on biologizing the mental health field, by expanding the search for organic factors in mental illness, primary care physicians are accelerating their attempts to psychologize and sociologize general medicine. The hope that the control of the major, currently unpreventable, disorders lies exclusively in our biology seems not only illusory, but in defiance of an overwhelming amount of evidence. Culture invades physiology, and psychiatric symptoms are an exquisite final common pathway of a complex interaction of biological, psychological, and sociocultural forces.

We may find it necessary to develop an agency solely concerned with primary prevention—an agency that would serve the healthy for the purpose of maintaining and enhancing health and robustness. At one time, the public health agency played that role. Perhaps we should encourage local health departments to resume that responsibility in a late 20th-century version of an older, esteemed community service. Such an agency must deal with the entire spec-

trum of preventive services. It must recognize that health is a psychosocial as well as a biological phenomenon, and that there are healthy ways of being sick just as there are unhealthy ways of being well. It must legitimize and encourage holistic as well as narrow views of health and of the healthy life, and must attend to the entire range of contemporary stress, including biological, psychological, and sociocultural stresses.

The need for mental health services now far outstrips the availability of mental health professionals and likely will continue to do so for the forseeable future. The growing awareness of this mismatch is partially responsible for the renewed hopes of effective primary prevention. If we insist on waiting until all direct treatment needs are met before allocating resources to prevention, we will doom our professions to continuation of the hopeless spiral we are now in. Of course, we may have to divert some money from direct treatment to undertake a significant effort in the field of primary prevention. Yet when we consider the total cost of mental illness to our society, that resource diversion is not only trivial, but in fact represents one of the few hopes we have for ultimately controlling a major source of human suffering.

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