CHAPTER 16

The Functional Effects of Social Relationships on Chronic Illnesses and Disability

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THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND PHYSICAL HEALTH

A growing body of data suggests that social support may be an important determinant of health outcomes. In this chapter, we consider the relationship between social support and physical health. We will briefly review the epidemiological data linking social support to mortality. Then we will discuss the evidence that social support is relevant to self-care and health outcomes in chronic disease conditions, both evidence that social support enhances health outcomes and evidence that social relationships prolong and reinforce physical dysfunction.

The Epidemiology of Social Networks and Health Outcomes

Epidemiology is the study of the determinants and distribution of disease. The hallmark of epidemiological methodology is the prospective/longitudinal cohort study. Major investigations, such as the Framingham Heart Study, attempted to establish prospective predictors of mortality in a random sample from the general population. For example, the Framingham Study began with 5,127 participants who had no visible signs of heart disease. Each participant was given a physical examination and a detailed interview that included life-style and demographic characteristics. Each participant was then followed every other year (Kannel, 1987). Other major epidemiological investigations have used similar methodologies.

Most epidemiological studies were started some years ago before formal measures of social support had been developed. Nevertheless, simple measures of social network appeared to predict health outcomes in a variety of studies. The

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Alameda County Population Monitoring Study, for instance, demonstrated that a simple measure of social network was a significant predictor of longevity. The measure included marital status, number of close family and friends, church membership, and group affiliation. Men with weak social networks were nearly 2.5 times as likely to die within a defined time period as were men with extensive networks. Women benefited even more from established social networks (Berkman & Breslow, 1983).

Similar results were obtained in Tecumseh, Michigan, where 2,754 men and women were studied. In this investigation, men who were married, who attended church, and who participated in voluntary organizations and community activities were significantly less likely to die within a 10-year period than were men who were disconnected. The Tecumseh Study did not show similar relationships for women (House, Robbins, & Metzner, 1982). In contrast with the findings of Berkman and Breslow (1983) and House and colleagues (1982), in the Durham County, North Carolina, Study (Blazer, 1982), no consistent pattern of increased mortality rates was associated with a progressive decrease in social support. Rather, there appeared to be a threshold effect in which only those individuals, either male or female, who were at the extreme end of the continuum in terms of the least amount of social support, had increased mortality rates. The Evans County, Georgia, Study (Schoenbach et al., 1986), reported findings similar to those of the Durham County Study. The relationship between social support and mortality did not suggest a gradient of risk. Rather, those individuals with the fewest ties were at increased risk for mortality. The findings reported were significant for older white males only, and the data for blacks and white females, though in the expected direction, were weak and nonsignificant. In the Honolulu Heart Study, social support was not related to mortality or incidence of cardiovascular disease (Reed, McGee, Yano, & Feinleib, 1983).

Several studies have suggested that the combination of high stress and low social support are particularly strong predictors of negative outcome. For example, 142 women in the Framingham Heart Study had more cardiovascular disease if they worked in clerk or clerical roles and had unsupportive spouses (Haynes & Feinleib, 1980). A study of Swedish workers revealed that cardiovascular disease was excessive for workers who had low social support, perceived their jobs to be stressful, and felt they had little control over their work environment (Welin et al., 1985). One study of myocardial infarction patients classified the survivors according to social isolation and stress and then followed them prospectively. Those who experienced low stress and were socially connected had one-fourth the rate of mortality of those who were under high stress and were isolated (Ruberman, Weinblatt, Goldberg, & Chaudray, 1984). Despite these strong results, some studies have not shown a relationship between social support and health outcomes (Cohen & Syme, 1985).

It is difficult to compare these studies, as they used different definitions of heart disease. Some used myocardial infarction; some used mortality; and some used softer diagnoses such as self-reported chest pain. The populations also varied greatly from study to study, as did definitions of social support. The measures of social support were usually crude. Some of the studies merely recorded the
presence of a spouse or participation in group activities. In addition, they often did not consider the degree of satisfaction associated with these relationships. Nevertheless, these studies generally show a relationship between social relationships and longevity (Davidson & Shumaker, 1987). These findings have intrigued epidemiologists and supported the notion that friends and family are assets to health. Yet, the epidemiological studies provide few clues to why social relationships enhance health.

It is important to point out that epidemiological studies use different independent and dependent variables than do psychological investigations. For the former, support is usually a simple enumeration of network size, and "health" is most often mortality. Yet, epidemiological studies provide the basis for many arguments that social support protects against illness. However, the relationship between network size and mortality is not necessarily related to the association between social support satisfaction and disability. At best, the epidemiological studies have stimulated interest in the relationship between social support and health; yet the epidemiological data provide only a very small piece of the puzzle. To follow up on the suggestive evidence from epidemiological studies, we need to focus on a wider array of health outcomes and learn more about social interactions among the infirmed.

Social Support in Health

Health is a much broader concept than mortality, as observed in epidemiological studies. The World Health Organization defines health as a complete state of physical, social, and mental well-being, which includes absence of a disability, freedom from symptoms, and a general state of wellness. A wide variety of studies identify a relationship among social support, coping, and physical disability (Wallston, Whitcher-Alagna, DeVellis, & DeVellis, 1983). For example, family, friends, and other social contacts can ease the emotional stress resulting from injuries incurred in automobile accidents (Porritt, 1979). Burn victims experience higher self-esteem and general life satisfaction if they have support from friends and family (Davidson, Bowden, & Tholen, 1979). Patients with kidney disease who have support from spouses and cohesive families have a higher morale and fewer changes in social functioning during hemodialysis than do those with less support (Dimond, 1979). Finlayson (1976) reported that males have better outcomes following myocardial infarction if they have support from their spouses. Without reviewing the literature in detail, suffice it to say that many studies suggest a social support–health outcome connection. The complex relationships among adaptations to chronic illness, self-care, and the social environment have not been described as well. In the following sections, we will explore some of these issues in relation to specific chronic illnesses.

Several researchers have discussed the main effects of social support. Cohen and Wills (1985), as did most others, emphasized the effects of social support as a buffer of life stress. However, they described a main effect in which a "beneficial effect of social support could occur because large social networks provide persons with regular positive experiences and a set of stable, socially rewarded
roles in the community” (p. 311).Thoits (1985) described a main effect of social support as by-products of more abstract processes. Social relationships may provide a sense of identity, a source of positive evaluation, or a sense of self-efficacy. Our emphasis in this chapter is on main effects, specifically the impact of social environment on health. We refer to this as a Functional Effects Model, which is more exact than the descriptions of main effects (Cohen and Wills, 1985; Thoits, 1985).

As Thoits (1985) indicated, the main effects of social support have been studied less often than have its buffering effects. Several studies have demonstrated that the social environment has some functional or reinforcing effects on health behavior. Social environments may be satisfactory, but they may also reinforce detrimental behaviors. For example, teenagers with insulin-dependent diabetes mellitus must adhere to a very strict regimen of diet, exercise, and insulin injections. Yet, teenaged diabetics who are highly satisfied with their social support system tend to be in very poor control of their condition (Kaplan, Chadwick, & Shimmel, 1985). In effect, the enjoyable social life of a teenager provides interpersonal satisfaction that may conflict with the strict diabetic regimen.

Interrelationships Between Illness and the Social Environment

The Functional Effects Model suggests that the social environment can affect health outcome. Conversely, illness causes modifications in the support environment. Diseases such as asthma and cancer are common stimuli for change. For example, cancer patients may be “victimized” by family members and friends. That is, these potential support group members may believe falsely that the disease is contagious, or they may feel uncomfortable visiting the patient (Wortman & Dunkel-Schetter, 1979). Disturbances in marital relationships often follow the diagnosis and treatment of serious conditions such as cancer. Some studies even suggest that children rebel against their cancer-stricken parents because the genetic components of cancer place the offspring at increased risk (Lichtman, Taylor, & Wood, 1986). Yet for some patients, life-threatening illness may actually clarify and enhance interpersonal relationships (Taylor, Whitman, & Wood, 1984).

The chronically ill may have a greater-than-average need for various forms of social support. For example, a person who is no longer able to meet certain responsibilities in the home may need instrumental support from caregivers and housekeepers. Although the chronically ill may need many kinds of social support, they may have difficulty obtaining adequate support. Chronic illnesses may produce feelings of alienation and estrangement from family members and friends. Frequently, misconceptions about the infectious nature of a condition can reduce the amount of available support. For example, diseases such as AIDS may discourage contact with others.

The Functional Effects Models

Social relationships may have different functions for the chronically ill than they do for other members of the population. We will review several cases in which
caring social relationships may hinder health outcomes, when a support giver, out of empathy or concern, reinforces a behavior that is incompatible with optimal health outcomes. For example, patients in some chronic illness groups may need to follow regimens that are difficult, painful, or burdensome, and a caring and empathetic support giver may reinforce comfortable but noncompliant behaviors. That is, he or she may place immediate comfort over the long-term consequences of noncompliance. This is most likely to occur when the support giver believes that any suffering should be avoided. For example, if the spouse of a male cardiac patient believes that exercise is harmful, she may discourage activity, because of inadequate information about the condition or because of enduring beliefs. We conceptualize these as functional effects of social support. Functional effects may have a positive influence on health outcomes, however, only if the support giver reinforces appropriate health behaviors. When support givers reinforce maladaptive health behaviors, functional effects may have a negative influence, and so we feel it is important to distinguish between a "Positive Functional Effects" and a "Negative Functional Effects" model.

**CHILDHOOD ILLNESSES**

The effect of social support on the health of children has remained a relatively unexplored area. However, a growing body of epidemiological research suggests that the social determinants of disease and disability are as important in childhood as they are in the adult years. It has become increasingly clear that families play a crucial role in the development of health behavior and that family support is particularly relevant (Haggerty, Roghmann, & Pless, 1975). Several studies have discussed the family determinants of health. For example, family characteristics influence the utilization of child health services (Roghmann & Haggerty, 1973), specific illness outcomes (Plionis, 1977), and resiliency in stressful periods (Hansen & Johnson, 1979). Although the information is somewhat limited, several lines of evidence suggest that children benefit from supportive social environments. Poverty and insufficient resources remain the best predictor of serious childhood illness (McCormick, 1983). Other evidence indicates that parental separation and divorce have more severe consequences for a child when his or her relationship with the estranged parent is weakened. Children who are satisfied with their social support may adjust better to parental divorce than may those who are less satisfied (Sandler, Wolchik, & Braver, 1985). Illnesses are specific stresses for children and their families. In the next section, we will consider the effects of specific childhood illnesses.

**Asthma**

Asthma is the leading cause of children's limited activities and disabilities (Newacheck, Halfon, & Budetti, 1986). According to 1982 data, asthma accounted for 190,000 hospitalizations for children under the age of 15. B
average length of stay being 3.9 days (Cropp, 1985). It has been estimated that asthma is the major cause of time lost from school due to a chronic illness. Asthmatic children account for 20% to 25% of all school days lost because of a chronic condition (Evans, in press).

The role of the family in asthma has been a topic of considerable speculation. For many years, psychiatrists and pediatricians were misled by early psychoanalytic interpretations of the asthma syndrome. For example, French and Alexander (1941) believed that asthma represented the incompatible conflict between maternal attachment and sexual—genital wishes. Further, they suggested that asthmatic wheezing was the suppressed cry and solicitation of the mother. Although there is no systematic evidence supporting the psychoanalytic models, for many years these ideas had a substantial impact on pediatricians (Creer, 1982; Renne & Creer, 1985).

**Negative Functional Effects**

Several psychoanalysts believe that mother—child relationships are atypical when the child is asthmatic. Sandler (1965) went as far as to suggest that the mothers of asthmatic children take away their love in order to maintain discipline. However, systematic studies evaluating the relationship between asthmatic children and their parents have consistently failed to show any atypical relationship between asthmatic children and their mothers (Gauthier et al., 1978). Some residential treatment programs for asthmatic children are based on the belief that parental overconcern is bad for asthmatic children. In other words, they ascribed poor outcomes to negative functional effects. Many years ago, Peshkin (1930) stimulated residential treatment programs by presenting some evidence from a self-selected group of 41 children with severe asthma. He argued that 23 of 25 children who were separated from their parents improved, whereas the 16 children who remained with their parents did not improve. Peshkin even went so far as to advocate "parentectomy," the planned separation of child from parent, as a treatment for asthma.

Unfortunately, the data did not clearly support parental separation as the best treatment for asthma. There was some evidence that separated children were well behaved in residential treatment centers. However, over the years, behavioral problems in the centers became more common (Creer, Ipacs, & Creer, 1983). Renne and Creer (1985) argued that some of the patients in early residential treatment centers were from first-generation Jewish families and may have used asthmatic symptoms to manipulate their parents. However, the benefits of parental separation were not clear. In one systematic study, Purcell and colleagues (1969) separated parents and children for two weeks. The results suggested that separation helped children with emotional precipitants for asthmatic problems but had little effect on children with no emotional precipitants. Even for those who benefited, the strength of the effect was relatively weak.

**Positive Functional Effects**

Improvements in behavioral observation techniques have facilitated our understanding of families with asthmatic children. Recent studies found that some fam-
Ilies overattend to the asthmatic child and give less attention to other family members (Creer & Leung, 1982). Such observations often lead to systematic interventions that help not only the asthmatic child but other siblings.

The benefits of family therapy have received some support in recent years (Liebman, Minuchin, & Baker, 1974; Lask & Matthew, 1979). In the families of children with severe asthma, studies uncovered dysfunctional family relations (Liebman, Minuchin, & Rosman, 1976). The goal of family therapy is to improve family function, so that the parents, the asthmatic child, and his or her siblings are better able to manage the child’s symptoms at home, reduce exposure to precipitous factors, and ameliorate the disease’s physiological manifestations. In a controlled study of 20 severe, chronic asthmatics, ages 6 to 15, Gustafsson, Kjellman, and Cederblad (1986) demonstrated that family therapy consisting of psychological and educational methods and components produced functional improvements in the children, in comparison with those in the control group. Over a 3.5-year period, these improvements were evaluated by the percentage of predicted peak expiratory flow (a measure of pulmonary function), compliance with medication requirements, and a general pediatric assessment, as well as significant reductions in Beta-2 agonist and steroid usage and functionally impaired days (e.g., staying home from school and restricting activities). There were also fewer hospitalizations and emergency room visits, although these changes were not statistically significant. Although the sample size was small, family therapy seems to improve severe bronchial asthma in children. The findings support the notion that overinvolved parents are actually “harmful” to the asthmatic child. Through instruction techniques and breathing exercises, as well as an understanding of the role that asthmatic symptoms play in the family system, the family changed its support network, and the result was a positive influence on the disease.

In summary, the family’s effect on asthma in children has been the source of study and speculation for many years. The findings suggest that the family unit, a child’s primary source of social support, significantly influences the asthmatic child. The most common belief is that parents harm asthmatic children and may even provoke asthmatic symptomatology through overprotection and overconcern. These findings support a Negative Functional Effects Model. It is interesting that there are very few studies on the positive role of social support for asthmatic children. Supportive families may be important to obtaining healthful behaviors and medication compliance. The Gustafsson study suggests that the negative family influence can be made a more positive one through therapy. Future work should investigate both the benefits and the consequences of parental involvement with asthmatic children.

Insulin-dependent Diabetes Mellitus

Diabetes mellitus is a major cause of dysfunction, disability, and death throughout the Western world. Diabetes is a heterogeneous disorder that is only partially understood. Two principal forms of the condition are recognized: insulin-dependent diabetes mellitus (IDDM) and non-insulin-dependent diabetes mellitus
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(NIDDM). In this section, we will consider IDDM, which typically develops during childhood. Formerly, this condition was known as juvenile diabetes. In IDDM, the body’s insulin-producing cells become dysfunctional, and so in order to survive, patients with this condition must receive injections of insulin. Before 1922, when insulin was first discovered, the disease was universally fatal. But with supplemental insulin, individuals survive, and it is estimated that there are now between 200,000 and 250,000 children being treated for this condition (Johnson, 1980).

Adolescents with IDDM must adopt a complex life-style that includes a special diet, exercise, and a strict medical regimen. Studies suggest that most diagnosed adolescents understand that they must comply with this difficult regimen but fail to do so for a variety of reasons. Surviving a normal adolescence is, in itself, a monumental task. And for the adolescent with diabetes, the ordinary frustrations of youth are compounded by the frustration and anxiety associated with an unrelenting chronic disease. Peer acceptance is particularly important to adolescents. Bamber (1974) found that “looking foolish” and “feeling rejected” were two of adolescents’ major fears. Two-thirds of a diabetic sample in Sullivan’s study (1979) said that they enjoyed eating with their friends, and one-half said that they felt embarrassed when they had to refuse food. One-third of the sample admitted that they would rather eat “something they shouldn’t” than to tell someone that they had diabetes. One-third also felt that their nondiabetic friends would like them better if they did not have diabetes and that they would enjoy school more if they did not have diabetes. One-seventh of the sample reported having friends who deliberately tempted them to eat food that they should not. Several researchers concluded that peers may be the best models for adolescents with diabetes (Marble, 1978). Simonds (1979) argued that diabetic adolescents’ compliance would improve if they could “identify with other diabetic youths who are successfully following a treatment program” (p. 551). He recommended slightly older diabetics as particularly helpful models.

Negative Functional Effects

The Negative Functional Effects Model might predict that peer influence could have negative consequences for the health outcomes of IDDM youths; that is, peers may reinforce behaviors that are incompatible with control of the condition. In one study of diabetic adolescents, Kaplan, Chadwick, and Schimmel (1985) randomly assigned 21 IDDM patients to one of two groups. One group participated in daily social learning exercises designed to improve social skills and the ability to resist peer influence. The second group spent an equal amount of time learning medical facts about diabetes care. Four months after the intervention, biochemical measures of diabetes control favored the social skills intervention. Several variables were significantly correlated with the diabetes control, including self-reported compliance with diabetes regimens and attitudes toward self-care.

One of the unexpected findings in the Kaplan et al. (1985) study was a significant correlation showing that social support satisfaction, as measured by the Sa-
reason Social Support Questionnaire (SSQ), was associated with poor diabetes control as measured by a biochemical test. In addition, a measure of a problem-solving skill known as the Means–Ends Problem-solving (MEPS) Test (Spivak, Platt, & Shure, 1976) was administered to the participants. This test is designed to measure problem-solving ability, ability to orient, and ability to take action to solve problems. Some investigators have used the MEPS as a measure of social skill. Interestingly, the MEPS scores were significantly correlated with poor control of diabetes. The measure of diabetes control, HBA$_1$, is scored so that higher values indicate poor control. Thus the findings revealed that those youths who have the poorest control of their diabetes also had the highest scores on the MEPS measure (Chadwick, 1986; Kaplan & Chadwick, 1988).

These results may underscore the effect of the diabetic adolescent's social milieu. The diabetic youths with the poorest control are perceived as being so content with their environment that they have no need to change. Another explanation may be that they are so involved in a nondiabetic social network of peers that practice unhealthful behaviors that they are too distracted to change. Research has indicated that people become more aware of their bodily sensations when they are bored and less aware when they are fully occupied with a task (Pennebaker & Brittingham, 1982). Those diabetic youths who are less adept socially and less satisfied with their social network and have a small or minimal network of peers thus may transmit their social isolation into greater awareness of their metabolic condition. Withdrawal appears to be associated with a heightened awareness of symptoms (Baum, Aiello, & Davis, 1979).

In addition to peers, family support is unquestionably important to the management of diabetes. In one study, the investigators developed the Diabetes Family Behavior Checklist (DFBC), a 16-item scale designed to help understand the role of the family in managing IDDM. The scale evaluates the supportive and nonsupportive behaviors of family members that may influence adherence to the diabetic regimen. Positive and negative behaviors are scored separately. A field test with 54 adults and 18 adolescent patients showed that for adults, but not for adolescents, items reflecting negative components of support were correlated with changes in adherence to the diabetic regimen. The more negative social influences there were in the family, the lower was the prospective (six months) adherence to glucose testing, diet, and regular insulin injections (Schafer, McCaul, & Glasgow, 1986). These results might be regarded as partially supporting the Functional Effects Model. The model would predict that reinforcing positive behaviors should improve adherence, but this prediction was not confirmed. However, the results implied that negative support was associated with poor adherence.

**Positive Functional Effects**

Not all research shows the effects of social environment to be damaging to diabetic youths. Hanson, Henggeler, and Burghen (1987) found that social competence was not significantly correlated with biochemical measures of diabetes control; however, they did discover an interaction between stress and social com-
petence for diabetes control. Subjects were divided into high, medium, and low social competence groups, and they were also classified by high, medium, and low stress. For those in the low-stress group, high social competence was associated with the poorest level of diabetes control. Conversely, for the high-stress group, social competence was associated with good control of diabetes. Jacobson and colleagues (1986) reported that adjustment to diabetes was strongly correlated with self-esteem, locus of control, behavioral symptoms, and social functioning. In order to assess diabetes adaptation, they administered the Diabetes Adjustment Scale (DAS) (Sullivan, 1979), which includes four scales derived through factor analysis: attitudes toward diabetes, independence, peer relationships, and family relationships. These self-report scores were substantially correlated with self-esteem ($r = .70$), locus of control ($r = .60$), and self-reported symptom intensity ($r = .60$). It appears that the positive influences in the Jacobson et al. study (1986) contradict the negative influences reported by Kaplan et al. (1985).

Two issues are worthy of more detailed consideration. First, the Jacobson et al. study (1986) compared self-report measures with one another. Indeed, other studies have shown high correlations between self-reported adjustment to diabetes and social competence. However, the Kaplan study’s results were in the opposite direction when biochemical measures of diabetes control were considered. Another interesting difference between the two studies is the participants’ age. The Kaplan study focused on adolescents who were 14 or more years old, whereas the mean age in the Jacobson study was 12.8 years. Although the ages were similar, the transition from preadolescence to adolescence was associated with significant changes in independence and susceptibility to peer influence. Hanson and colleagues (1987) discovered that compliance with the diabetic regimen was correlated with parental support and that parental support declined as preadolescents became teenagers. It would be interesting to evaluate the differences in correlates of social influence for preadolescent versus adolescent youths.

In summary, studies of childhood illnesses have produced inconsistent findings. Studies of childhood asthma often concluded that overconcerned parents can have detrimental effects on health behaviors. The data on insulin-dependent diabetes indicate that youths who are satisfied with their peer relationships may actually have poorer control of their condition. These findings are in accordance with the Negative Functional Effects Model. Some studies also showed that negative family support may be associated with poor adherence to the diabetic regimen. Future studies will need to separate the effects of emotional support and concern and the social reinforcement of aspects of the regimen.

**SOCIAL SUPPORT AND HEALTH OUTCOMES IN ADULTS**

Most chronic illnesses occur during adulthood. In the United States, medical care costs have risen to account for nearly 11% of the gross national product. But the causes of death have changed remarkably since the turn of the century. In 1900, heart disease accounted for about 45% of all deaths, and infectious diseases, such
as influenza and tuberculosis, also accounted for significant percentages of deaths. In the 1980s, cardiovascular (heart and circulatory system) diseases caused more than 70% of all deaths. The days when infectious diseases were the major killers in the industrialized world appear to be over. AIDS, although rapidly increasing in incidence, still accounts for a very small percentage of all deaths. Today, the major challenge is from the increasing incidence of chronic illnesses. The leading causes of death are heart disease, cancer, stroke, chronic obstructive lung disease, and diabetes, each of which may be associated with a long period of disability. In addition, personal habits and health behaviors may be linked to both the development and the maintenance of these conditions (Kaplan, 1985). In the following sections, we will explore some of the relationships between social support and adaptation to various chronic illnesses.

Non-Insulin-dependent Diabetes Mellitus (NIDDM)

Diabetes mellitus is a major public health problem that affects between 8 million and 12 million Americans. Approximately 90% of the individuals have Type II diabetes (NIDDM category). Although insulin or oral hypoglycemic medications may be used to manage this condition, in most cases they are not necessary for survival. Instead, the American Diabetes Association (1984) now recommends diet and exercise as the primary treatment for diabetes. Between 60% and 90% of patients with Type II diabetes are overweight, and losing weight results in the condition’s improvement in a significant number of cases (Kaplan & Atkins, 1985). The consequences of poor management of diabetes, however, can be severe. Complications include blindness, amputations, and diseases of the kidneys, heart, and central nervous system. In current medical practice, virtually all patients with Type II diabetes are advised to make life-style changes, such as ingesting fewer calories, exercising more, and, in some cases, adhering to a regimen of insulin or oral hypoglycemic drugs. Because Type II diabetes typically has its onset in the fifth decade of life or later, changing one’s life-style is often difficult. The role of social relationships in the predisposition to obesity (and diabetes) and in the achievement of life-style changes is therefore of considerable theoretical and practical importance.

Negative Functional Effects

The literature on social support and sex differences states that husbands receive more emotional support from their spouses than do wives. Men generally view their wives as confidants, whereas women frequently approach their children and other family members for emotional support (Kohen, 1983; Lowenthal & Haven, 1968). In the case of the diabetic patient, Heitzmann and Kaplan (1984) investigated the role of social support in NIDDM patients and found an interaction between sex and social support as measured by the Sarason Social Support Questionnaire. Male patients who expressed more satisfaction with their social supports had poorer metabolic control than did males with lower social support satisfaction scores. Female patients, on the other hand, exhibited the opposite
pattern. Those females with high social support satisfaction scores had better metabolic control than did female patients who expressed less satisfaction with their social supports. These results may mean that social support is indeed quite different for males and females, and the Negative Functional Effects Model may explain the sex differences. With NIDDM—a disease that is largely managed by diet—the individual in the household responsible for purchasing and preparing food plays a crucial role as “gatekeeper” of the food, and in most instances, the female is considered the gatekeeper. Thus the supportive, involved wife of the male NIDDM patient may be reinforcing behaviors that do not achieve better diabetic control, by preparing foods that, though tasty, may ultimately lead to poorer metabolic control. The female NIDDM patient, on the other hand, may be reinforced by a supportive husband, children, or friends to follow through with the prescribed regimen. Subsequently, the female patient may be more apt to prepare the proper foods, not only for herself, but also for the entire family.

In a study of a different group of NIDDM patients, Kaplan and Hartwell (1987) studied 32 men and 44 women with a confirmed diagnosis of diabetes. Again, control of diabetes, as measured by the glycosylated hemoglobin assay, was significantly correlated with social support satisfaction for women but was negatively correlated with social support satisfaction for men. In addition, for women, the network size was significantly correlated with failure to attend sessions and with failure to complete a diet or exercise diary. For these women, the network size was not significantly correlated with weight loss, which was the program's goal. For men, the network size was correlated with increases in weight, cholesterol, and triglycerides over an 18-month period. These findings highlight some of the differences between social support satisfaction and network size. A social support network can buffer stress and provide a reinforcing social environment. However, as demonstrated in this study, a large social support network can also interfere with the successful alteration of health habits, particularly when the health behaviors differ from those of the patient's reference network.

The Functional Effects Model may explain the differential effects of social network size on men and women. Most of the studies of chronically ill adults have focused on older individuals in traditional sex role relationships. Women with large networks, therefore, may miss more sessions because of their obligations to family members (e.g., sick children), whereas men may not be burdened by such obligations. Moreover, because women may be more prone to engage in self-care activities and to be more responsive to illness (Wingard, 1984), they may be more inclined to seek assistance from the network to change their behavior. Conversely, men, with their greater tendency toward unhealthful life-styles (Wingard, 1984), might seek support for not conforming to the prescribed regimen. Although highly speculative, we suggest that environmental effects may have important influences on diabetic patients.

Positive Functional Effects

Regimen adherence and metabolic control may be related to family interactions, because (1) family members are often asked to share in the responsibility for
implementing regimen requirements and (2) family routines can be disrupted by the diabetic patient's treatment regimen. Thus, the behaviors of family members may interfere with or facilitate adherence, whereas emotional stress or support in the family may influence metabolic control. Edelstein and Linn (1985) examined the perceptions of adult diabetic males concerning their family environment and how this influenced diabetic control. A combination of three variables, namely, achievement orientation, organization, and control, were identified as helpful in controlling the disease. Diabetic men in good control had families that valued achievement, had little conflict, and were not rigidly organized. Interestingly, there was no difference in perceptions of family environments between diabetic men and age-matched controls with other chronic illnesses.

The Diabetes Family Behavior Checklist (DFBC) was developed and validated on a group of IDDM patients to assess the impact of supportive and nonsupportive behaviors in the family on adherence to the diabetic regimen (Schafer, McCaul, & Glasgow, 1986). More recently, Glasgow and Toobert (1988) adapted the DFBC to measure family influences on the NIDDM patients' adherence. In particular, they concentrated on adherence to medication taking, glucose testing, exercise and diet. In this case, the endorsement of items reflecting negative components of support did not predict regimen adherence for the 127 adult NIDDM patients. The study revealed that family supportive behaviors in one aspect of the diabetic regimen did not correlate with supportive behaviors relevant to other self-care activities. This study identified one of the difficulties in evaluating the Functional Effects Model. That is, support members may reinforce one aspect of the regimen while not reinforcing other aspects. Furthermore, support for different aspects of self-care are not correlated.

Coronary Heart Disease (CHD)

Heart disease remains the major cause of death and disability in the Western world. There are many types of heart disease, and so adaptations to differing manifestations of disease may require different coping skills. Two common types of heart disease, myocardial infarction (MI) and cardiac arrest, have an abrupt onset and typically require hospitalization. Patients who have ongoing heart disease may require one of two types of traumatic intervention: (1) coronary artery bypass surgery, which revascularizes the coronary arteries, and (2) coronary angioplasty, which dilates the coronary arteries. Other patients have serious heart disease that is manifested through symptomatic angina pectoris. This typically includes severe chest pain and may require hospitalization if it becomes frequent, severe, or unstable. In general, heart procedures are stressful and often require a period of adaptation and rehabilitation followed by other life-style changes.

Although patients are commonly hospitalized for heart disease, the critical period comes after they are discharged. A coronary event often creates considerable fear and anxiety, and when the patient is released from the hospital to the home, his or her family may not be fully equipped to cope with the uncertainties and stresses of these conditions. It was suggested, however, that supportive envi-
environments enhance health outcomes following a cardiac event (Davidson & Shumaker, 1987).

**Negative Functional Effects**

Several studies have provided support for the Negative Functional Effects Model, which found that the involvement of supportive but overconcerned family members may lead to poorer health outcomes. In one study, congestive heart failure patients who were not working 3, 6, or 9 months after their hospitalization were reported to have more overprotective families than did those patients who resumed working during the same time period (Lewis, 1966). Garrity (1973) studied first-time MI patients and found that the more concerned the patient's family was, the fewer hours the patient worked at a job, independent of the heart attack's severity. These findings imply that the patient's family, though concerned, is interfering with his or her recovery. Furthermore, the actions of family members may actually be harming the patient by not allowing him or her to exercise and thus strengthen the heart muscle/tissue. Presumably the family members are supportive and want to see the patient recover, but their personal beliefs about the patient's frailty may lead to the reinforcement of sedentary behaviors.

**Positive Functional Effects**

Positive social influences were also documented. Significant others in the support environment may encourage adhering to the medical regimen and the adoption of appropriate health behaviors. A related positive functional effect is gained through modeling. That is, members of the support environment may model appropriate coping skills and health behaviors (Pearlin & Aneshensel, 1986). Thus, if a network member makes these changes at the same time, the outcome may be enhanced through mutual encouragement, mutual modeling, and a reduction in the perceived difficulty of making the changes. Another mechanism accounting for the benefits of social support is stress buffering; that is, adaptation may be made easier by having network members absorb some of the stress.

Some studies have confirmed the positive functional effects of a social support network. An intervention study with hypertensive patients (Caplan, Robinson, French, Caldwell, & Shinn, 1976) found that lectures alone did little to help patients control their blood pressure. But lectures in conjunction with social support and encouragement were significantly more effective. Social support was also found to aid in the maintenance of desirable health behaviors, such as weight loss, in postcoronary patients (Finnegan & Suler, 1984). In addition, dropout rates from CHD rehabilitation and intervention programs were also shown to be correlated with the amount of perceived social support in female hypertensive patients (Williams et al., 1985). Thus, perceived social support may either encourage or reduce attrition in such programs.

Miller and colleagues (1985) examined specific prescriptive factors (diet, medication, exercise, smoking cessation, and other life-style changes) leading to optimal health functioning in post-MI patients. They found that adherence to medical regimens after recovery from an initial MI is generally low but varies according to the prescription component. Patients readily adopted those behaviors...
requiring minimal life-style changes, such as taking medication. Conversely, they were less apt to make more complicated changes, such as altering their dietary patterns or participating in a regular exercise program. Of particular interest was the finding that the attitudes and perceived beliefs of significant others toward the prescribed changes correlated strongly with the patients' actual adherence to the regimen. These findings parallel those found in the diabetes compliance literature.

There is also some evidence for the buffering model, suggesting a link between social isolation and mortality in the CHD patient. Ruberman and colleagues (1984) reported that mortality from myocardial infarction was associated with social isolation and high levels of stress. In fact these two factors increased the risk of mortality more than four times in post-MI males.

In summary, social support was indicated to be an important variable in adapting to cardiovascular disease (Davidson & Schumacher, 1987). Several mechanisms seem to account for the effects of social support networks on health outcomes, of which the Stress-buffering Model and the Positive Functional Effects Model have received considerable attention in the research literature. However, to date, few empirical studies have addressed the contribution of overconcerned spouses and family members in reinforcing maladaptive or inappropriate behaviors that lead to worse health outcomes.

Back Pain

Nearly 80% of all Americans have disabling back pain at some point in their life. Back pain affects all social classes, men and women, and is common in both industrialized and developing nations. Disability associated with back pain affects nearly every family in the country (Nachenson, 1976; National Center for Health Statistics, 1977), and back disorders are the most common cause of disability for people under the age of 45 (National Center for Health Statistics, 1977). Furthermore, the impact of low back pain on the economy is remarkable. Nearly $14 billion are spent annually on the treatment of back pain, and $9 billion are spent on compensation to the afflicted (Akeson & Murphy, 1977). In some industries, the incidence of low back pain is about 50 per 1,000 workers per year, and heavy industries lose about 1,400 workdays per 1,000 workers each year. Although most episodes of back pain heal spontaneously within about two weeks, those afflicted may then have a greater incidence of chronic back pain. Chronic pain is defined as pain that lasts for six months or more.

Clinical approaches to the management of back pain emphasize different patterns of interaction between patients and their support network. Physical therapy approaches often emphasize reassurance from spouse and family. In contrast, behavioral approaches often require modification of the social environment.

Negative Functional Effects

According to operant approaches to pain management, individuals experiencing pain engage in pain behaviors. Pain behaviors can include changes in physical activity, reduction or avoidance of work, frequent use of pain medications, and
communication of pain through facial expression. The operant model suggests that these natural behaviors, which are responses to acute pain, may be strengthened through reinforcement. Over time, therefore, they may have reinforcing consequences, including attention from a spouse or friend, avoidance of undesirable tasks, and use of narcotic drugs.

Various intervention programs based on operant principles have been described in the literature. Of particular interest is the role of social support network members in managing chronic pain. There are three basic "family" treatment approaches being used in multimodal treatment centers. The transactional approach promotes awareness of the ways in which patients use pain for psychological gain. In this approach, the goal of the therapy is to get the patient to discontinue his or her manipulative behavior. A systems theory approach assumes that certain types of social support network systems are organized in such a way that the patient's sick role behavior maintains the homeostatic balance. Therapy focuses on changing the structure of network organizations so that the patient no longer needs to play the sick role. Lastly, in the behavioral approach, supportive network members are trained to praise and encourage well behaviors such as walking and exercise, while minimizing their attention to pain behaviors. Although many pain programs use methods from several different "family" treatment approaches, most programs emphasize these behavioral approaches.

Several reports show that these programs are efficacious (Roberts & Reinhart, 1980). In one study, pain patients were led to believe they were being observed by either their spouse or a ward clerk. Those with a solicitous spouse rated their pain significantly higher when they believed that their spouse was observing. The treatment was designed to extinguish these responses. Cooperation between spouses and family members is required to make this treatment work. Inpatient treatment is used when families do not cooperate, but generalization outside the hospital may be difficult when the spouse is not an agent in the treatment (Keefe & Gill, 1986). Several follow-up studies of pain treatment programs indicate that social support involvement in treatment is essential to its long-term success. In one study (Hudgens, 1979), 24 families who completed a behaviorally oriented program were assessed six months to two years later. The results showed that five of the six patients who had not maintained their treatment gains did not have adequate social supports at the time of follow-up.

Most studies indicate that family or supportive network members can contribute to the maintenance and treatment of pain behaviors. It appears that when family members are appropriately supportive and have learned not to reinforce pain behaviors, pain patients have a higher likelihood of long-term success. In summary, these studies demonstrate that it is possible to affect the social support network system in a way that promotes the reduction of pain behavior.

The pain literature clearly supports the Negative Functional Effects Model. In a majority of cases, it appears that the concerned, caring supportive members often reinforce pain behaviors, by doing tasks for the patients when they grimace and moan, or by allowing the patients to remain largely sedentary. As a result,
the patients are reinforced for not getting well. Thus, chronic pain patients often remain disabled and unable to cope with the pain.

**Positive Functional Effects**

It is interesting that coping with pain has been described as analogous to coping with stress. Some investigators believe that cognitive factors similar to those that help individuals cope with stress may also help patients cope with pain (Turk & Rudy, 1986). In other words, pain is conceptualized as stress. According to these models, supportive interactions, availability of a confidant, and general warmth and acceptance may help rather than inhibit pain tolerance. To date, few systematic studies have compared the efficacy of interventions contrasting supportive and operant approaches to the management of pain. The few controlled studies evaluating the operant approach suggest that these interventions are associated with better outcomes than are waiting list controls or supportive relaxation interventions (Linton & Gotestam, 1985). As with other chronic illnesses, there is some conflict between advocates of supportive care and advocates of approaches that modify interpersonal relationships within the support network.

**CONCLUSIONS**

The effects of social support on various health outcomes may be complex. Table 16.1 summarizes the results of the studies we have reviewed. Only three of the studies found consistently positive benefits of social support for patients with a chronic illness. Seven studies found that overconcern or other aspects of social relationships can have a damaging effect on health outcomes. Six studies found inconsistent results, or either benefits or detriments for particular subgroups.

Among those studies showing benefits for social support, two of three were intervention studies. In one case, family therapy produced positive outcomes in four of six measures for children with asthma (Gustafsson et al., 1986). In addition, lectures including a social support component helped achieve better blood pressure control among patients with hypertension (Caplan et al., 1976).

The most common type of study suggesting a negative effect from social relationships includes some functional measure of outcome. These studies range from evaluations of asthma (Peshkin, 1930) to returning to work after a heart attack (Garry, 1973) to functioning for patients with back pain (Roberts & Reinhart, 1980). Evidence from these studies showed that concerned family members may reinforce sick role behaviors and that strengthening sick role behaviors may be incompatible with optimal health status. Studies with mixed results tended to use biochemical measures or scales of adherence and treatment dropout.

How can we synthesize the results of these studies? First, we must evaluate the role of caring and concern. According to the Stress-buffering Model, genuine family concern may help chronically ill patients cope with difficult illnesses. On the other hand, evidence supporting the Negative Functional Effects Model suggests that caring and concern might reinforce behaviors that are not compatible
<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Population Group</th>
<th>SS Measure</th>
<th>Dependent Measure</th>
<th>Finding</th>
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<tr>
<td><strong>Negative Functional Effects—Childhood Asthma</strong></td>
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<tr>
<td>Peshkin (1930)</td>
<td>41</td>
<td>25 asthmatic children separated from parents;</td>
<td>Living with parents or away from parents in a residential center</td>
<td>23 of 25 children separated from their parents improved, whereas 16 children who remained with their parents did not improve.</td>
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<td>16 asthmatic children remaining with parents</td>
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<td>Purcell et al. (1969)</td>
<td>25</td>
<td>13 asthmatic children with emotional precipitants; 12</td>
<td>Living with family or with substitute parental figure in the child’s home</td>
<td>Children with emotional precipitants improved on all 4 measures when separated from their families. Children with no emotional precipitants showed little change.</td>
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<td>asthmatic children with no emotional precipitants</td>
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<td>Gustafsson et al. (1986)</td>
<td>20</td>
<td>Severely asthmatic children</td>
<td>Family functioning</td>
<td>Family therapy consisting of psychological and educational methods improved the function of asthmatic children in 4 of the 6 dependent measures.</td>
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<td><strong>Positive Functional Effects—Childhood Asthma</strong></td>
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<td>Kaplan et al. (1985)</td>
<td>21</td>
<td>Type I diabetics</td>
<td>Social Support Questionnaire (Sarason SSQ)</td>
<td>Social support satisfaction was positively correlated with HbA1. The higher the HbA1, the poorer the metabolic control.</td>
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<td>Hemoglobin A1 (HbA1)</td>
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<tr>
<td>Study</td>
<td>Participants</td>
<td>Measure</td>
<td>Outcome</td>
<td>Social competence and diabetes control were significantly correlated. Higher social competence was associated with better metabolic control.</td>
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<td>Means-Ends Problem-solving (MEPS) Test</td>
<td>Hemoglobin A1 (HbA1)</td>
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<td>1987</td>
<td>Type 1 Diabetics: 54 adults, 18 adolescents</td>
<td>Diabetes Family Behavior Checklist (DFBC)</td>
<td>Summary of self-care: activities questionnaire (e.g., diet, glucose testing, insulin)</td>
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<td>Positive Functional Effects—Insulin-dependent Diabetes Mellitus</td>
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<td></td>
<td>Social competence was not significantly correlated with control of diabetes. In addition, parental support was significantly correlated with self-reported adherence to the diabetic regimen.</td>
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<tr>
<td>1987</td>
<td>Type 1 Diabetics</td>
<td>Social competence</td>
<td>Biochemical measures, including HbA1</td>
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<td>Self-report of diet, insulin, glucose testing, hypoglycemia</td>
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<td>Negative Functional Effects—Non-Insulin-dependent Diabetes Mellitus</td>
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<td></td>
<td>Hemoglobin A1</td>
<td>Males with satisfactory social supports had poorer metabolic control. Conversely, females with high social support satisfaction scores had better metabolic control.</td>
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<td>1984</td>
<td>Type II Diabetics</td>
<td>Social Support Questionnaire (Sarason SSQ)</td>
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<tr>
<th>Source</th>
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<th>Population Group</th>
<th>SS Measure</th>
<th>Dependent Measure</th>
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<tbody>
<tr>
<td><strong>Negative Functional Effects—Non-Insulin-dependent Diabetes Mellitus, continued</strong></td>
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<tr>
<td>Kaplan &amp; Hartwell (1987)</td>
<td>76</td>
<td>Type II diabetics</td>
<td>Social Support (Sarason SSQ)</td>
<td>Hemoglobin A1</td>
<td>Diabetic control was significantly correlated with social support satisfaction for females but was negatively correlated with social support satisfaction for males.</td>
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<tr>
<td><strong>Positive Functional Effects—Non-Insulin-dependent Diabetes Mellitus</strong></td>
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<tr>
<td>Edelstein &amp; Linn (1985)</td>
<td>97</td>
<td>Type II diabetics</td>
<td>Family Environment Scale</td>
<td>Hemoglobin A1, Fasting Blood Glucose, Fasting Triglyceride, Cholesterol</td>
<td>Diabetic males in good control had families that were oriented toward achievement, were not strictly organized, and had little conflict.</td>
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<tr>
<td><strong>Neutral Functional Effects—Non-insulin-dependent Diabetes Mellitus</strong></td>
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<tr>
<td>Glasgow &amp; Toober (1988)</td>
<td>127</td>
<td>Type II diabetics</td>
<td>Diabetes Family Behavior Checklist (DFBC)</td>
<td>Medication intake, Glucose testing, Exercise, Diet</td>
<td>Family behaviors, either supportive or nonsupportive, did not predict adherence to the diabetic regimen. Supportive behaviors in one aspect of the regimen do not correlate with supportive behaviors in other self-care activities.</td>
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<td><strong>Negative Functional Effects—Coronary Heart Disease</strong></td>
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<td>Lewis (1966)</td>
<td>91</td>
<td>Congestive heart failure patients</td>
<td>Patient’s perception of spouse/family attitudes (e.g., rejection, overprotection, no change)</td>
<td>Occupational work after hospitalization</td>
<td>Patients who were not working 3, 6, or 9 months following hospitalization were reported to have more overprotective families than did those patients who resumed working during the same period.</td>
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<tr>
<td>Study</td>
<td>Sample</td>
<td>Counts</td>
<td>Variables</td>
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<td>Garry (1973)</td>
<td>First-time MI patients</td>
<td>58</td>
<td>Patient's perception of the amount of family concern, Occupational work following MI</td>
<td>The more concerned the patient's family was, the fewer hours the patient worked at a job, independent of the heart attack's severity.</td>
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<tr>
<td>Caplan et al. (1976)</td>
<td>Hypertensive patients</td>
<td>388</td>
<td>Blood Pressure, Dimensions of emotional and instrumental support</td>
<td>Lectures and social support were effective in controlling blood pressure. Lectures alone, however, did little to help control blood pressure.</td>
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<tr>
<td>Williams et al. (1985)</td>
<td>Hypertensive patients</td>
<td>359</td>
<td>Dimensions of emotional and instrumental support</td>
<td>For females, but not for males, the amount of perceived support was negatively correlated with dropout from treatment and poor blood pressure control.</td>
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<tr>
<td>Miller et al. (1985)</td>
<td>Post-MI patients</td>
<td>141</td>
<td>Regimen adherence (e.g., medications, diet, exercise, smoking cessation)</td>
<td>Attitudes and perceived beliefs of significant others toward prescriptive components were strong correlates of actual regimen adherence.</td>
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<tr>
<td>Roberts &amp; Reinhardt (1980)</td>
<td>Back pain patients</td>
<td>26</td>
<td>Spouse/family interaction with the patient, MMPI of spouse, Pain behavior responses, Daily activity diary, Medication use</td>
<td>A program designed to reward &quot;wellness&quot; behavior and ignore &quot;pain&quot; behavior reduced the patient's pain complaints. Also, the spouse's personality characteristics were related to outcome. Elevated hypochondriasis and hysteria scales of the spouse's MMPI predicted poor prognosis.</td>
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with optimal functioning. The Positive Functional Effects Model emphasizes that caring family members may have a positive effect, but only if they reinforce appropriate health behaviors. To date, very few studies attempted to separate these functions.

The results of these studies should not be interpreted negatively with regard to intervention. Indeed, several studies revealed that social support interventions may actually enhance health outcomes. The Functional Effects Model suggests that successful interventions are those that turn negative social influences into positive ones. In cases in which family members reinforce sick role behaviors, behavioral interventions might result in supportive interactions that ultimately improve the patient’s functioning (Roberts & Reinhart, 1980).

In addition to clinical implications, the Functional Effects Model offers ideas for future research. First, it is clear that network size, as measured in epidemiological studies, is insufficient. Several examples have demonstrated that networks of equal size can have both positive and negative influences. Similarly, satisfaction may not be entirely sufficient as a measure. A social environment can have negative influences, even though it provides satisfaction.

How can we interpret some of the complex interactions between social support and health outcomes? To date, few studies have addressed the role of social support for the chronically ill, but several directions for future research should be considered. These include: (1) There is a major movement to create support groups for the physically ill, with such groups typically directed by lay leaders. The groups include those for patients with illnesses ranging from cancer to chronic lung disease to arthritis. The risk and potential benefits of these groups should be evaluated. (2) There is evidence from several studies that social support enhances mental health outcomes. On the other hand, family studies of chronic disease conditions have often found that family members must be retrained to avoid overconcern, reinforcement of sick role behaviors, and the like. Few studies have attempted to separate the benefits versus the risks of unconditional love and concern from family members. (3) Many current interventions imply that we do understand the impact of family interactions on health behaviors. At present, however, few systematic studies, such as those reported by Creer and associates in Asthma, have documented the relationship among interaction patterns, health behaviors, and health outcomes.

In summary, epidemiological studies clearly link the availability of a support network to positive health outcomes, but there are many conflicts in the literature about the benefits and consequences of supportive social relationships. The Functional Effects Model may help explain some of these inconsistencies.

REFERENCES


